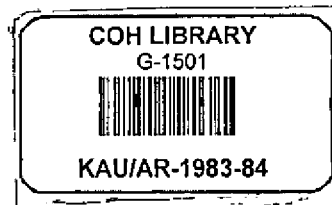


# ANNUAL REPORT

1983-'84



**KERALA AGRICULTURAL UNIVERSITY**

*English*

**ANNUAL REPORT, 1983-'84**

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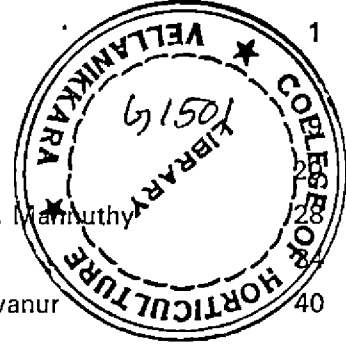
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# General Report

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The Executive Committee of the Kerala Agricultural University presents to the General Council, its 12th Annual Administration Report for the period from 1-4-1983 to 31-3-1984.

The report pertains to the General Administration, Education, Research, Extension Education, Works, Estate and Finance & Accounts. List of members of the statutory bodies of the University, Statute amendments, Scientific, administrative and supporting staff of the various institutions, list of new research projects and list of publications have been appended.

Sri T. Madhava Menon, I. A. S., continued as Vice-Chancellor of the University. Sri E. Damodara Marar, Additional Secretary to Government of Kerala continued as Registrar, till 4-8-83 when Sri Thomas C. George, I. A. S. took charge from him and continued during the rest of the period under report. Sri N. M. Abdul Kadir, continued as Comptroller and Sri K. R. Krishna Pillai as Director of Physical Plant during the period.

Dr N. Sadanandan, Dr M. Krishnan Nair and Dr M. J. Sebastian continued as Deans of the Faculties of Agriculture, Veterinary & Animal Sciences and Fisheries respectively. Dr P. C. Sivaraman Nair continued as the Director of Research. Dr V. S. S. Potti was the Director of Extension till his retirement on superannuation on 30-4-83. Dr G. R. Nair, Associate Director of Extension was in full additional charge of Director of Extension till Dr AGG Menon took charge as Director of Extension on 31-10-83. Dr P. K. Gopalakrishnan continued as the Associate Dean of the College of Horticulture, Vellanikkara and Sri K. Karunakaran as Director of the Institute of Agricultural Technology, Tavanur.

The General Council and the Executive Committee were reconstituted during the year.

The General Council reconstituted three sub-committees. The Council met thrice on 30-7-83, 30-11-83 and 29th and 30th March, 1984.

A special convocation of the University was held on 18-8-83 to confer the degree of Doctor of Science (*Honoris causa*) to Sri N. Kaleeswaran, I. A. S., former Vice-Chancellor of the University for his valuable service to the cause of Agriculture in the State and to the Kerala Agricultural University. His Excellency, the Governor of Kerala conferred the Degree.

The Executive Committee met thirteen times during the year. The Executive Committee also reconstituted seven sub-committees. In its meeting held on 14-7-83 the Executive Committee decided to upgrade two posts of Assistant Registrar and one post of Assistant Comptroller to that of the Depty Registrar and Deputy Comptroller respectively.

The Academic Council held its meetings thrice during the period. It decided to conduct a common entrance examination for the undergraduate programmes of the Kerala Agricultural University except for the B. Sc. (C & B) programme, along with the entrance examination for other professional courses, and to reserve seats for Bachelors' Degree programmes only to the ethnic natives of the Union Territories. The Academic Council also approved the Central Coffee Research Institute, Karnataka state as a centre for Post-graduate research programme. The other major decisions of the Academic Council are the establishment of a Centre for Excellence for animal diseases, and to start Ph. D. programme in the departments of Animal Breeding & Genetics and Dairy Science in the College of Veterinary & Animal Sciences.

#### Education:

The teaching institutions under the University are the College of Agriculture, Vellayani, Trivandrum, The College of Horticulture at Vellanikkara (Main Campus); College of Veterinary & Animal Sciences at Mannuthy; College of Fisheries at Panangad and the Institute of Agricultural Technology at Tavanur, in Malappuram District. Courses leading to Bachelor's degree in Agriculture, Horticulture, Veterinary and Animal Sciences, Fisheries and Co-operation & Banking were offered from the respective colleges. Masters' and Doctorate degrees in Agriculture, Horticulture and Veterinary & Animal Sciences were offered in the College of Agriculture, Vellayani, College of Horticulture, Vellanikkara and College of Veterinary & Animal Sciences, Mannuthy respectively. Masters degree in Agricultural Engineering and Agricultural Statistics were also offered from the College of Horticulture and College of Veterinary & Animal Sciences respectively. The total staff strength of

the four institutions was 411 at the end of the year. The details are given below:

Posts	Colleges				IAT	Total
	Agri.	Hort.	Vety.	Fisheries	Tavanur	
Dean	1	—	1	1	—	3
Assoc. Dean	—	1	—	—	—	1
Professor	12	11	24	4	1	52
Director	—	—	—	—	1	1
Assoc. Professor	30	14	40	9	1	94
Asst. Professor	43	34	42	18	5	142
JAP	33	31	30	12	12	118
<b>Total</b>	<b>119</b>	<b>91</b>	<b>137</b>	<b>44</b>	<b>20</b>	<b>411</b>

The following vacancies existed during the year

Designation	Colleges				IAT	Total
	Agri.	Hort.	Vety.	Fisheries	Tavanur	
Professors	1	2	1	1	1	6
Assoc. Professors	3	1	3	2	—	9
Asst. Professors	8	5	5	8	—	26
Jr. Asst. Professors	15	16	9	7	4	51
<b>Total</b>	<b>27</b>	<b>24</b>	<b>18</b>	<b>18</b>	<b>5</b>	<b>92</b>

#### Admissions:

During the year under report, 143 students were admitted for B. Sc (Ag), 69 for B. V. Sc., 29 for B. F. Sc. and 32 for B. Sc (C&B). 62 students were admitted for M. Sc (Ag.), 5 for M. Sc (Ag. Engg), 4 for M. Sc. (Stat), 10 for M. Sc. (Hort), 14 for M. V. Sc., 8 for Ph. D. (Ag.) and 4 for Ph. D. (Vety). Three students were admitted for P. G. diploma course in Food and Nutrition at the College of Agriculture, Vellayani.

At the Institute of Agricultural Technology, Tavanur, 17 students were admitted for diploma in Agricultural Sciences and 17 for diploma in Agricultural Engineering and Rural Sciences.

The number of students who were on the rolls as on 31-3-84 in the constituent teaching institutions are furnished below:

No. of students on the rolls	Colleges				IAT	Total
	Agri.	Hort.	V&AS	Fish.	Tavanur	
<b>U. G. Courses</b>						
B. Sc. (Ag)	270	246	—	—	—	516
B. Sc. (Hort).	—	33	—	—	—	33
B. Sc. (C&B)	—	109	—	—	—	109
B. F. Sc.	—	—	—	106	—	106
B. V. Sc. & AH	—	—	419	—	—	419
Pre-professional	—	—	12	—	—	12
				<b>Total</b>		<b>1195</b>

1	2	3	4	5	6	7
<b>P. G. Courses</b>						
M. Sc. (Ag.)	87	35	—	—	—	122
M. Sc. (Hort.)	—	20	—	—	—	20
M. V. Sc.	—	—	26	—	—	26
M. Sc. (Ag. Stat.)	—	—	16	—	—	16
M. Sc. (Ag. Engg.)	—	5	—	—	—	5
Ph. D. (Ag.)	16	6	—	—	—	22
Ph. D. (Hort.)	—	2	—	—	—	2
Ph. D. (V&AS)	—	—	8	—	—	8
					Total	221
<b>Other Courses</b>						
D A Sc.	—	—	—	—	161	161
DARE	—	—	—	—	63	63
PG Diploma (Vety & AS)	—	—	22	—	—	22
PG Diploma (Food & Nutrition)	3	—	—	—	—	3
					Total	249
					<b>GRAND TOTAL</b>	<b>1665</b>

No. of students who obtained Degree/Diploma during 1983-84

B. Sc (Ag)	110
B. Sc (Hort)	37
B. V. Sc. & AH	49
M. Sc (Ag)	32
M. Sc (Ag. Engg.)	2
M. Sc. (Hort)	5
M. V. Sc.	17
M. Sc (Ag. Stat)	5
Ph. D (Ag.)	4
Ph. D (V&AS)	1
DASc	43
DARE	24
PG Diploma in Natural Rubber Production	5
PG Diploma in Vety. Sciences	21

### Students' activities

Kerala Agricultural University participated in the South Zone Inter University tournaments for Foot ball at Calicut, Basket ball at Guntur and Volley ball for women at Madras. We reached the prequarter final in the foot ball tournament. The inter collegiate tournaments were held at the four teaching institutions of the University. These were Foot ball, Shuttle badminton (M&W) and Table Tennis at Mannuthy

Ball badminton (M&W), Basket Ball (M&W) at Tavanur and Hockey, Cricket and Volley ball (M&W) at Vellayani. The second Silver Jubilee memorial Inter-collegiate Foot Ball tournament was conducted at the College of Veterinary & Animal Sciences, Mannuthy.

Students' Union was inaugurated by Sri. Vaikkom Chandrasekharan Nair at the College of Agriculture, Vellayani on 22-10-84. The University youth festival was conducted at the Main Campus, Vellanikkara on 28th and 29th February and 1st March, 1984. It was inaugurated by His Excellency Sri. P. Ramachandran, Governor of Kerala, Chancellor of the University at the Main Campus, Vellanikkara on 28th February 1984. The closing ceremony was held on 1st March, 1984. Sri. Thakazhi Sivasankara Pillai was the Guest of Honour. Sri. G. Kumara Pillai distributed the prizes to the winners in the KAU Youth Festival.

### **Research**

The research programmes of the University have been drawn out with emphasis on solving location specific, field oriented problems faced by the farmers of the State. In addition to the State Funds, the University also secured assistance through ICAR under the National Agricultural Research Project and from World Bank under KADP and MSCRP. Assistance was also received from the Department of Science and Technology, Government of India, State Government and the Department of Environment, Government of Kerala. In addition to the existing Regional Agricultural Research Stations at Pilicode (Northern Region), Pattambi (Central Region), Kumarakom (Region of Problem areas) and Vellayani (Southern Region), the fifth Regional Research station of the State under NARP programme started functioning during the year at Ambalavayal for the High Range Region with a sub-centre at the Cardamom Research Station, Pampadumpara. With this, the establishment of Research stations under NARP for Kerala was completed. The technical and administrative control of these stations was vested with the respective Associate Directors and the overall control with the Director of Research. Scientists in the research stations were grouped into different divisions, namely, Crop improvement, Crop production, Crop protection and Social Sciences, according to their fields of specialisation.

Seventeen project co-ordination groups in the Faculty of Agriculture and seven in the Faculty of Veterinary and Animal Sciences continued to function during the year. The Faculty Research Committees of Agriculture and Veterinary Sciences, each met twice and approved 159 research projects in Agriculture and 15 research projects in Veterinary & Animal Sciences respectively for implementation. The Faculty Research Committee of each faculty monitored and evaluated all the research programmes regularly which was finally got approved by the General Council.



Dr. P. C. Sivaraman Nair continued as the Director of Research during the year. He was assisted by four Associate Directors at the headquarters.

The Director of Research inspected all the Research Stations and submitted detailed inspection reports to the Vice-Chancellor.

Kerala Agricultural University hosted several workshops and National and State Level Seminars during 1983-84 at its headquarters as well as at the different institutions and research stations.

In the Faculty of Agriculture, 18 research stations and 6 units namely, Cashew Research Centre at Madakkathara, Sugarcane Research Centre & KADP at Vellanikkara, AICRP Centre at Karumady and the Pineapple & Pepper Research Centres at Vellanikkara continued with their research activities. During the year, the Model Agronomic Research Station at Karamana was reorganised as "Cropping Systems Research Centre" by merging the existing station with the AICARP unit which was functioning at the Headquarters. In the Faculty of Veterinary & Animal Sciences, three Research Stations, one at Vellanikkara campus comprising of Livestock, Poultry and Piggery Farm, one at Thiruvazhamkundu and another at Thumburmuzhi were functioning. There are 27 Co-ordinated research projects (23 in Agriculture, 3 in Veterinary and one in Fisheries) and 9 ad-hoc projects (4 Agri and 5 Vety) and two operational Research Projects functioning at present.

The Staff strength in the Research Stations/Schemes/Projects was as follows as on 31-3-84:

Stations	Assoc. Director	Pro-fessor	Assoc. Prof.	Asst. Prof.	Jr. Asst. Prof.	Total
<b>FACULTY OF AGRICULTURE</b>						
<b>Regional Agrl. Res. Station</b>						
<b>Pilicode</b>						
NARP	1	2	17	4	—	24
Nonplan	—	—	2	4	—	6
AICC & AIP	—	—	—	1	2	3
						33
<b>PRS, Panniyur</b>						
Non plan	—	—	1	2	1	4
AICP	—	—	1	3	—	4
						8
<b>RARS, Ambalavayal</b>						
NARP	1	—	1	4	—	6
Nonplan	—	—	—	3	—	3
Citrus Scheme (ICAR)	—	—	1	1	2	4
						13

	1	2	3	4	5	6	7
CRS, Anakkayam	—	—	1	—	—	1	2
RARS, Pattambi	1	2	14	27	9	53	
B.R.S. Kannara	—	—	1	5	5	11	
CARC, Vellanikkara	—	1	—	—	13	14	
KADP, "	—	5	2	5	—	12	
Ginger Scheme, "	—	—	1	2	—	3	
Pepper Scheme, "	—	—	—	—	1	1	
CRWDP, "	—	3	3	7	8	21	
AICRP on Biological Control of Crop Pests etc., Vellanikkara	—	—	1	—	2	3	
AIC Vegetable Improvement Programme, Vellanikkara	—	—	—	1	1	2	
AICRP on Tuber Crops, "	—	—	1	—	1	2	
Vegetable Seed Production, "	—	—	—	1	1	2	
AICFIP Vellanikkara	—	—	1	—	2	3	
Prototype feasibility Research Centre, Mannuthy	—	—	—	—	1	1	
Cashew Res. Station, Madakkathara, (AICS & CIP)	—	—	1	1	1	3	
MSCRIP Madakkathara	—	1	1	1	—	3	
ARS, Mannuthy	—	1	1	1	5	8	15
AICRP Double Cropping Sub-Centre, Mannuthy	—	—	—	1	—	1	
NARP, ICAR-Oilseed Scheme, "	—	—	2	2	1	5	
ARS, Chalakkudy	—	1	3	4	—	8	
R.R.S, Vyttila	—	—	3	2	4	9	
CRS, Pampadumpara	—	—	1	1	—	2	10
ICAR Scheme, "	—	—	3	1	2	6	
NARP, "	—	—	—	2	—	2	
AMPRS Odakkali	—	—	1	1	2	4	
RARS, Kumarakom	—	—	—	1	1	2	27
CRWDP, Kumarakom	—	1	2	4	2	9	
NARP, Integrated Res. Project, "	—	—	3	11	—	14	
RRS, Moncompu	—	1*	5	12	10	28*	Working arrangement from PRS, Panniyur.

1	2	3	4	5	6	7	
SRS, Thiruvalla							
ICAR Scheme	—	—	1	—	1	2	8
KAU	—	—	1	—	3	4	
Survey appraisal & Control of diseases of Sugarcane, Thiruvalla	—	—	1	—	1*	2	
					*Res Fellow		
AICRP on Agrl. Drainage, Karumady	—	—	1	2	—	3	
RRS, Kayamkulam (KAU)	—	—	2	3	2	7	
NARP	—	—	—	1	1	2	13
CRWDP	—	—	—	1	—	1	
ICAR Oilseed scheme	—	—	1	—	2	3	
CSRC, Karamana	—	1	—	4	4	9	11
ECF Quilon	—	—	1	—	—	1	
ECF Palghat	—	—	1	—	—	1	
NARP, Vellayani	1	—	3	6	—	10	17
„ Kottarakkara	—	—	2	5	—	7	
AICRP on Forage Crop	—	—	1	1	1	3	
CRS, Balaramapuram	—	—	1	1	—	2	
Total	4	19	90	141	94	348	

#### FACULTY OF VETY. & ANIMAL SCIENCES

AICRP on Poultry for eggs, Mannuthy	—	1	—	5	3	9	
AICRP on Agrl. bye Products, Mannuthy	—	—	1	2	2	5	
AICRP on Goats, Mannuthy	—	—	2	4	3	9	
Pig Breeding Farm, Mannuthy	—	—	—	1	2	3	
Poultry & Duck Farm, Mannuthy	—	—	—	—	1	1	
University Livestock Farm Mannuthy	—	—	1	—	1	2	
Fodder Research Scheme, Mannuthy	—	—	—	1	1	2	
University Veterinary Hospital, Kokkalai & Mannuthy	—	—	2	3	—	5	
Agro-Forestry, Thiruvazhamkunnu	—	—	—	3	4	7	
LRS Thiruvazhamkunnu	—	—	2	1	3	6	
CBF Thumburmuzhi	—	—	1	—	—	1	
Total	—	1	9	20	20	50	

1	2	3	4	5	6	7
<b>FACULTY OF FISHERIES</b>						
Fisheries Station, Puduveyppu	—	—	1	1	1	3
Fisheries Station, Moncompu	—	—	—	—	1	1
Prawn Culture, Pokkali	—	—	—	1	1	2
AICRP on brackish water Fish Farming, Vyttila	—	—	1	—	2	3
<b>Total</b>	—	—	2	2	5	9
<b>GRAND TOTAL</b>	4	20	101	163	119	407

The following were the vacancies in the various Research Stations during the year

Statons	Assoc. Director	Prof.	Assoc. Prof.	Asst. Prof.	Jr. Asst.	Total Prof.
<b>FACULTY OF AGRICULTURE</b>						
RARS Pilicode	1	—	6	2	—	9
RARS Ambalavayal	—	—	1	5	—	6
PRS Panniyur	—	—	—	3	1	4
RARS Pattambi	—	—	3	6	7	16
BRS Kannara	—	—	—	1	3	4
CARC Vellanikkara	—	—	—	—	9	9
ARS Chalakudy	—	—	1	1	—	2
RRS Vyttila	—	—	—	—	1	1
CRS Pampadumpara	—	—	—	3	1	4
AMPRS Odakkali	—	—	—	1	1	2
RARS Kumarakom	1	—	—	3	3	7
RRS Moncompu	—	—	—	5	7	12
AICRP on Agrl. Drainage, Karumady	—	—	1	1	—	2
SRS Thiruvalla	—	—	—	—	2	2
SRS Menonpara	—	—	—	—	1	1
CSRC Karamana	—	—	—	1	3	4
Sugarcane Scheme, Vellanikkara	—	—	—	1	2	3
KADP	—	—	—	2	—	2
CRWDP	—	—	—	2	5	7
<b>Total</b>	2	—	12	37	46	97

	1	2	3	4	5	6	7
<b>FACULTY OF VETERINARY SCIENCE</b>							
Pig Breeding Farm, Mannuthy	—	—	—	—	1	—	1
Poultry & Duck Farm,	—	—	—	—	—	1	1
AICRP (Poultry for eggs)	—	—	—	—	—	3	3
AICRP on Agrl. byproducts	—	—	—	—	1	—	1
AICRP (Goats)	—	—	—	—	—	1	1
Fodder Research Scheme	—	—	—	—	—	1	1
University Livestock Farm	—	—	—	—	—	1	1
LRS, Thiruvazhamkunnu	—	—	—	1	1	2	4
Agro forestry	—	—	—	—	2	4	6
<b>Total</b>	—	—	—	1	5	13	19
<b>FACULTY OF FISHERIES</b>							
Fisheries Station, Puduveyppu	—	—	—	—	—	1	1
<b>GRAND TOTAL</b>	2	—	—	13	42	60	117

The following additional teaching posts were created during the year in various institutions and research stations

Name of Institutions/ Research Station	Dean/ Assoc. Dean/ Assoc. Director/ Spl. Officer	Prof/ Spl.	Assoc. Prof.	Asst. Prof.	Jr. Asst. Prof.	Total
1	2	3	4	5	6	7
1. College of Agriculture, Vellayani	—	1**	1	5	5	12
2. College of Horticulture	—	—	—	1	4	5
3. B. Sc. (C & B) programme	—	1	1	6	—	8
4. College of Vety. & Animal Sciences, Mannuthy	—	1	1	—	—	2
5. College of Fisheries	—	1	—	6	3	10
6. AICRIP on Agro-forestry Thiruvzhamkunnu	—	—	1	3	4	8

1	2	3	4	5	6	7	
7.	ICAR Scheme for National Seed Project, Pattambi	—	—	—	1	—	1
8.	NARP water management, Central Region	—	—	—	4	—	4
9.	NARP High Range Region, Ambalavayal	1	—	1	4	—	6
10.	NARP High Range Region, Pampadumpara	—	—	—	2	—	2
Total		1	4	5	32	16	58

\*\* Special Officer—Environmental pollution

### EXTENSION EDUCATION

The Directorate of Extension provides technical expertise to the field extension personnel of various development departments in the state, disseminate scientific and technical information to the farmers through different media and offers technical assistance to voluntary service organisations and other educational institutions. These programmes are being implemented through the Training Service Scheme, Farm Advisory Service, Communication Centre, Krishi Vigyan Kendras, National Demonstration Scheme, Lab to Land programme, Village Adoption Programme, Tribal Area Research Centre etc. The extension education programmes are being implemented by the staff attached to the Colleges & Research Stations. In addition, specific schemes are also functioning, the staff position of which are as given below:

Station	Assoc. Director	Prof.	Assoc. Prof.	Asst. prof.	Jr. Asst. Prof.	Total
1	2	3	4	5	6	7
Directorate of Extension	1	1 (Editor)	—	—	—	2
Farm Advisory Service	—	2	4	2	—	8
Communication Centre	—	—	2	7	3	12
Training Service Scheme	—	—	—	1	—	1
Vellayani IAT, Tavanur	—	—	—	1	2	5
Mannuthy	—	—	—	1	—	
Krishi Vigyan Kendra	—	—	—	—	—	—
Pattambi	—	1	4	5	—	10
Ambalavayal	—	—	1	—	3	4

1	2	3	4	5	6	7
Extension Education Centre, Kayamkulam	—	—	1	—	2	3
Tribal Area Research Centre, Amboori		1	1	5	5	12
Eco-development Project, Amboori	—	—	—	—	1	1
AICRP On Sch. Castes and OBC KAU Project Centre, Nilambur	—	—	1	—	3	4
National Demonstration Scheme	—	—	1	3	—	4
<b>Total</b>	<b>1</b>	<b>5</b>	<b>15</b>	<b>25</b>	<b>19</b>	<b>65</b>

### Training programmes

Altogether twenty nine training programmes were conducted during the year for the various departments and other agencies as follows:

- 1) Officers of Agrl. Department — 9
- 2) Officers of the Department of Animal Husbandry — 8
- 3) Officers of the Department of Dairy Development — 3
- 4) Development Department — 2
- 5) Other agencies — 7

The Communication Centre provides information support to the Extension personnel of the State Development Departments, Voluntary organisations, Farmers etc. Feature articles, questions and answers, technical publications, Radio programmes, Exhibitions, Correspondence Courses etc. constitute the information support programmes of the Centre.

Under the Publication Unit, a number of regular periodicals were published which included Agricultural Research Journal (half yearly), Kerala Journal of Veterinary and Animal Sciences, (half yearly), Kalpadhenu (quarterly) and KAU News letter (monthly). A new publication, namely Nutrition News Letter (quarterly) was started during 83-84 from the Department of Home Science, College of Agriculture, Vellayani. In addition, a number of other publications were also brought out during the year. These included, Tapioca (അച്ചിനി), Poultry rearing (കോഴിവളർത്തൽ—ഒരവലോകനം), Agriculture among the hill tribes, Water Resources Development in KAU, Package of Practices Recommendations 1982 (Agri), Diseases of Crop plants of Kerala, Vegetable Cultivation, Contagious diseases of Cattle and their Control (കന്നുകാലി

കളെ ബാധിക്കാനിടയുള്ള പകർച്ചവ്യാധികളും നിവാരണ മാർഗ്ഗങ്ങളും), Pokkali Cultivation in Kerala, Plant Breeding manual Lab-to-Land at KAU, Soil forming factors, Locust Control (വെട്ടുകുളിയെ നിയന്ത്രിക്കുക), Studies on the intensification of research in Pulses and Oil seeds and Soyabean cultivation and processing (സോയാബീൻ കൃഷിയും സംസ്കരണവും).

The exhibition and graphic Service Units conducted a total of eleven exhibitions in the various parts of the State. The University participated in the Trichur Pooram Exhibition 1983 and bagged the "best stall award" as in previous years.

The colour laboratory was fully equipped during the year and supplied colour slides to various organisations such as department of Agriculture, Central Plant Protection Directorate, Krishi Vigyan Kendras, Mitra Niketan, Madras Fertilizers, Indian Potash etc. on no-loss-no-profit basis.

The Farm Advisory Service provides opportunities for the farmers to discuss various technical problems confronting them and to expose the scientists to the various needs of the farmers of the State. The Farm Advisory Service Unit organised 36 District and Village Level Seminars during 83-84. The total number of participants was 2429.

The KAU Press caters to the printing requirements of the University. A total of 37 non-periodical publications including technical bulletins, books, booklets, leaflets and periodicals like Research Journals, Agres News, Anivet abstracts and Kalpadhenu were printed in the press.

The Krishi Vigyan Kendras, one at Pattambi and another at Ambalavayal, Village Adoption Programme, N.S.S. Programmes, Lab-to-Land Programme and All India Co-ordinated programme on SC & ST and tribals at Nilambur and Amboori are functioning under the Directorate of Extension.

## ENGINEERING WING

Sri K. R. Krishna Pillai continued as the Director of Physical Plant during the reporting period. The major items of civil works completed included various types of staff quarters, hostels, laboratory buildings, dormitory buildings and school buildings in the different campuses of the University. The other items of work carried out during the year included surfacing and construction of culverts, roads, providing irrigation facilities, street lights, construction of biogas plants, purchase and maintenance of vehicles.



The actual expenditure incurred during the year was Rs. 257 lakhs which included Rs. 169 lakhs under "works" (Plan) Rs. 19 lakhs under works (non-plan) and Rs. 65 lakhs under NARP.

## ESTATE

Sri T. M. Ibrahimkutty continued as Estate Officer till 15-7-1983 and was succeeded by Sri V. S. Appukuttan Nair till 15-9-83 when Sri K. T. Narayanan Nambiar took charge and continued during the rest of the period. The stock position of rubber during the year was 53,770.21 kgs. Rs. 8,00,878.49 was obtained from the sale of 41,400 kgs of rubber and Rs. 23,885.10 by the sale of 596 old trees as fuel. The total expenditure for the year was Rs. 12,02,763.54 against a receipt of Rs. 8,24,763.59. There was a stock balance of 12,370.27 kgs of rubber on 31-3-1984. There was a net profit of 1,32,681.55 from the slaughter tapping of old Rubber Trees.

## FINANCE

Sri N. M. Abdul Kadir continued as the Comptroller of the University. The principal source of income during the year continued to be State Government Grants and I. C. A. R. assistance. The budget for the year was for an expenditure of Rs. 1130.84 lakhs anticipating a receipt of Rs. 1141.17 lakhs with a closing balance of Rs. 10.33 lakhs. But the actual expenditure for the year was Rs. 998.68 lakhs against a receipt of Rs. 1177.80 lakhs with a closing balance of Rs. 179.12 lakhs (Rs. 139.34 lakhs under ICAR and 39.78 lakhs relates to non-plan)

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## CHAPTER I

# General Administration

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The Kerala Agricultural University came into existence from 24th February, 1971 under the Kerala Agricultural University Act 1971 (Act 33 of 1971).

The main campus of the University at Vellanikkara is 10 km east of Trichur town on the Trichur-Palghat Highway (NH 47). The College of Horticulture is located in the main campus. The University has four other teaching campuses, namely, the College of Veterinary & Animal Sciences at Mannuthy, the College of Fisheries at Panangad, Cochin, the College of Agriculture at Vellayani, Trivandrum and the Institute of Agricultural Technology at Tavanur in Malappuram District. In addition, the University has 21 research stations distributed throughout the state. Some of these stations are also recognised as centres for post-graduate research of the University. When the National Agricultural Research Project (NARP) was implemented in the University, five of these stations were reorganised as Regional Agricultural Research Stations (RARS). The RARS at Pilicode was the first to be established under the programme in 1980-81 to co-ordinate and lead the research work in the Northern Region. During 1981-82, Regional Agricultural Research Stations were established at Pattambi for the Central Region, at Kumarakom for the Region of Problem areas and at Vellayani for the Southern Region. During 1983-84, the fifth station was established and started functioning at Ambalavayal with effect from 1-11-83.

The University receives financial assistance mainly from the ICAR and State Government. Financial assistance was also received from outside agencies under the Kerala Agricultural Development Project, National Agricultural Research Project, Kerala Agricultural Extension Project (T & V) and the multi-state Cashew Research Project.

### **Officers of the University and the Administrative set up**

The officers of the University are the Chancellor of the University, His Excellency the Governor of Kerala, the Pro-Chancellor, the Hon'ble Minister for Agriculture and the Vice-Chancellor, who is the chief executive and academic officer of the University. The Vice-Chancellor is also the Ex-officio Chairman of the General Council, Executive

Committee and Academic Council. The Vice-Chancellor is a full time officer of the University and has the immediate overall control of the University.

The general administrative control is vested with the Registrar while the Comptroller is responsible for budgeting, finance, statements of accounts and audit. The co-ordination, direction and administration of research activities in the University is vested with the Director of Research. The Director of Extension is responsible for Extension Education and Public Relations. The Deans of the various Faculties are in charge of resident teaching and instruction of the respective colleges. The Director of Physical Plant is in overall charge of the construction and maintenance of buildings and roads etc., and the procurement of vehicles and machinery.

### **Authorities of the University**

The statutory authorities of the University are the General Council, Executive Committee, Academic Council, the Faculties and the Boards of studies of the Faculties. The list of members of these bodies is given in Appendix-I.

### **General Council**

The supreme authority of the University is the General Council. It comprises of 57 members of whom 18 are Ex-officio, 18 elected members, 17 nominated members, one representative from each of the 3 Universities of the State and ICAR nominee. The Council is reconstituted every three years; the present Council was reconstituted with effect from 31-1-83. Ordinarily, the Council meets once in four months. It held 3 ordinary sittings on 30-7-83, 30-11-83 and 9th and 30th March, '84.

The following sub committees of the General Council were reconstituted at its XXIX meeting held on 30-7-83.

#### *Sub Committee*

Accounts Committee  
Assurance Committee  
Statute Sub Committee

#### *Chairman*

Prof. K. J. Kurian  
Sri. O. Lukose, Ex MLA  
Prof. Alexander Zacharias

The revised Research Policy of the KAU was approved at the XXIX meeting of the General Council held on 30-7-1983. The Council also approved the proposal to create a new department of Home Science in the College of Agriculture, Vellayani. Ten teaching posts were also created in the Faculty of Fisheries. The XXXI meeting of the General Council held on 29th and 30th March, 1984, decided to appoint a Review Commission in the University to make a thorough review and study of the facilities available in the University for providing Research, Training and Extension Education and to recommend steps to

be taken to meet the challenges of the future. The annual budget estimates of the University for the year 1984-'85 and the Annual Administration Report for the year 1982-83 were also approved at the XXXI meeting.

The reconstituted Assurance Committee met on 27th October, '83, 9th November, '83, 24th December, '83 and 20th January, 84.

### *The Executive Committee*

The Executive Committee is the Chief Executive authority of the University. The Committee consists of eleven members, with the Vice-Chancellor as the Chairman. The other members include three Ex-officio members, six elected members of the General Council and the ICAR representative of the General Council. During the year, thirteen meetings of the Executive Committee were held.

The following sub committees of the Executive Committee were reconstituted with effect from 5-9-83.

<i>Sub Committees</i>	<i>Chairman</i>
Finance Committee	Vice-Chancellor
Planning and Development Committee	Vice-Chancellor
Research Review Committee	Vice-Chancellor
Sports Board	Vice-Chancellor
Establishment Committee	Prof. Alexander Zacharias
Students welfare Committee	The Chairman has not yet been elected

The Executive Committee in its meeting held on 14-7-83 decided to upgrade two posts of Assistant Registrars and one post of Assistant Comptroller, as Deputy Registrar and Deputy Comptroller. Mr. P. M. Krishnankutty Nair and C. K. Ramakrishnan were posted as Deputy Registrars and Sri. Ibrahimkutty as Deputy Comptroller.

The Executive Committee also decided that the following subjects be allocated among the following members of the Executive Committee for answering questions, resolutions, etc., in the General Council.

Establishment and Service matters—Chairman,	Establishment Committee
Finance and Planning—Sri. Therampil Ramakrishnan, MLA	
Academic, Research and Students Welfare—Sri. Raghavan	Pozhakadavil, MLA

Extension and Sports—Sri. A. V. Hamza.

A grievance cell was constituted in the University.

The Council decided to post Sri. V. R. Krishnan Nair, IFS (Rtd.) as Special Officer in the All India Coordinated Project on Agroforestry, Sri. S. M. A. Aslam, IFS (Rtd.) as Special Officer for the establishment of a Faculty of Forestry in the University and Prof. N. S. Ramaswamy

of IIM, Bangalore as consultant for managerial development of Kerala Agricultural University.

*Academic Council* is responsible for the maintenance of standards of instruction in the different Faculties of the University.

During the period under report, the Academic Council met thrice on 30-4-83, 8-9-83 and 21-1-84. The Council decided to conduct the common entrance examination as in the previous year for admission to its various undergraduate courses, except B. Sc. (C & B) along with the examination for other professional courses in the State.

The Council decided to approve the Central Coffee Research Institute, Balehonnur, Karanataka State as a Centre for postgraduate research programme. It also approved proposal to start Ph. D. programme in the departments of Animal Breeding & Genetics and Dairy Sciences in the Faculty of Veterinary & Animal Sciences. The proposal to establish a centre for Excellence for Pathology in the College of Veterinary & Animal Sciences was also approved. The Council also decided to reserve seats for undergraduate programme only to ethnic natives of the Union Territories.

#### *Board of studies*

The Board of Studies of each Faculty has an advisory role to look into the maintenance of academic standards. The Board of studies in the Faculty of Veterinary and Animal Sciences met once on 25th June, 1983 at the College of Veterinary and Animal Sciences, Mannuthy, in the Faculty of Agriculture on 18th July, 1983 at the College of Agriculture, Vellayani and in the Faculty of Fisheries on 12th December, 1983 at the College of Fisheries, Panangad.

As the term of the Board of Studies in the three faculties expired on 15-12-83, steps were taken to reconstitute the same.

#### *Post-graduate Committee*

The Post-graduate Committee met twice during the year, on 29th July, 1983 and 2nd February, 1984 and approved the post graduate research programmes.

Some of the important engagements of the Vice-Chancellor during the year were as follows:

The Vice chancellor addressed the participants of the medicinal Plants Committee and spoke at the Summer School on Environment Management held at the College of Engineering, Trichur. He presided over the Seminar on Animal Husbandry held at the College of Veterinary & Animal Sciences, and inaugurated the 3rd Annual meeting of the ICAR Co-ordinated Project on Chemistry of Submerged soils under Rice in High Rainfall areas. He participated in the Convention of Agricultural Universities held at Palampur, Himachal Pradesh; took part in the

discussion held in Chief Secretary's Office on the drought situation in the State; presided over the Seminar on Economics of Animal Production in Kerala held at the College of Veterinary and Animal Sciences and spoke on development of Backward Classes in Kerala at the Institute of Management, Trivandrum. The Vice Chancellor released the books on agricultural subjects brought out by the KANFED. He participated in the seminar organised by the Planning Board at Vellayani in July, 1983. The Vice Chancellor also spoke on "Forestry in a changing society" at the symposium organised by the Kerala Forest Research Institute; participated in the valedictory function of the 20th Anniversary of the Indo-Swiss Project and inaugurated the Orientation Course on feed industry organised by the Livestock Feed Manufacturers' Association. He spoke at the Annual Convention of the Indian Society of Agricultural Chemists. He was the Chief Guest at the valedictory function of the training programme on fish stock assessment held at the CMFRI, Cochin. The Vice Chancellor inaugurated the annual symposium of the Indian Society for Veterinary Surgery; presided over the National Seminar on Socio-economic aspects of eucalyptus, at the Kerala Forest Research Institute and spoke on the impact of eucalyptus plantation on tribal livelihood in Kerala. He presided over the Plant Protection Seminar organised by the All India Radio, Trichur, at Thodupuzha and participated in the discussion held by the Minister for Forests regarding involvement of tribal people in management of forests. The Vice Chancellor served on the High Level Committee on Land and Water Resources, the High Level Committee on Industry, Trade and Power, the Sub Committee on Harijan and Tribal Welfare, all constituted by the State Planning Board. He was appointed Chairman of the High Level Committee on Forest Policy constituted by the Government of Kerala.

#### **Officers' meetings**

The University officers, viz., Vice Chancellor, Deans, Directors, Associate Dean, Registrar and Comptroller meet regularly under the Chairmanship of the Vice Chancellor. During the period under report seven meetings were held. The important decisions taken in the meetings were (a) to follow the 10% reservation of SC and ST for all categories of staff in KAU, except in the case of salaried officers and (b) to conduct a workshop on "KAU in 2000 AD" for laying down guidelines for planning in the areas of teaching, research and extension by 2000 AD.

#### **University Organisation**

The KAU Act envisages the establishment of Faculties of Agriculture, Veterinary and Animal Sciences, Fisheries, Basic Sciences and Humanities, Co-operation, Home Science, Agri. Engineering and Forestry. However, only three Faculties, namely, Agriculture, Veterinary and Animal Sciences and Fisheries have been established.

## **Research Council**

In order to advise and formulate the research programmes of the University, the Research Council, the Research Advisory Committee, the Faculty Research Committee and the Project Co-ordination Committees are functioning.

The Research Council also has representatives from the Scientists of other Agricultural Universities in South India and the sister Universities of Kerala, in addition to the Scientists from KAU.

The Extension Advisory Committee renders advice in extension education activities which are organised through the Directorate of Extension.

## **Faculty Improvement**

The staff members were provided with opportunities to acquire higher qualifications by granting deputation, study leave or leave for study purposes. Staff members were also sent for short term training courses, summer institutes, etc., in different specialisations and for participating in seminars, symposia, workshops, etc., organised by different Scientific Agencies/ICAR Institutes or other Universities.

## **Student Admissions**

Admissions to undergraduate courses in Agriculture, Veterinary and Fisheries were made on the basis of a common entrance examination conducted by the Government of Kerala. Admission for B.Sc. (C & B) programme was given to students purely on merit, based on the marks obtained for the qualifying examinations. However, the principle of communal reservation was followed while giving admissions to the various courses as decided by the Government of Kerala. Admissions to the various post-graduate courses were given on the basis of marks obtained in the qualifying examinations, experience, number of research papers published and the performance at the interview. A few seats were reserved for ICAR nominees and SC/ST candidates.

## **Labour**

Two categories of workers—casual and permanent labourers exist in the farms and research stations under the Kerala Agricultural University. In respect of service conditions and wages, generally, the University follows Government orders applicable to the labourers of the Department of Agriculture and Animal Husbandry.

The permanent labourers are under specified pay scales, i. e., Rs. 185-3-209-4-245-5-285 for men and Rs. 175-3-199-4-235-5-275 for men. They are eligible for pension and gratuity. In addition to the pay, fixed DA, HRA and variable DA @ Rs. 1.10 for every 5 points of Cost of Living Index beyond 1000 points at Ernakulam are admissible to the permanent labourers.

The casual labourers are on daily rated wages. The basic wage is Rs. 6.75 for men and Rs. 5.25 for women labourers. In addition to this, they are eligible for variable DA @ 10 paise for every 10 points beyond 900 points in Travancore-Cochin areas. The same rates are applicable for the workers in Malabar area with the exception that the variable DA is calculated for points beyond 1000 only. During the year under report, the University sanctioned an interim relief of Rs. 30/- per head to the permanent labourers as was given to their counterparts in the Departmental Farms.

The total permanent labour strength in the farms under the University was 1177. In addition to the permanent labourers, there were about 2800 casual labourers and they were given work as and when work was available. In the recruitment of casual labourers a minimum of 10% reservation was allowed to scheduled castes/tribes. In the Regional Agricultural Research Station, Ambalavayal (research station situated in tribal area) 20% of the vacancies of permanent labourers were reserved for scheduled Tribes (Adivasies). The University has the largest number of permanent labourers in the Instructional Farm, Vellyani followed by Regional Agri. Research Station, Ambalavayal and Regional Agri. Research Station, Pattambi.

Permanent labourers are eligible for pension. A Provident Fund Scheme is also in force and the rate of subscription of worker is 6 $\frac{1}{4}$ % of the monthly wages. For casual labourers, who are not eligible for pension the University introduced a contributory Provident Fund Scheme, the contribution being 6 $\frac{1}{4}$ % of the monthly wages by the worker and an equal contribution by the University. Both permanent and casual labourers are eligible for gratuity also.

Both permanent and casual labourers are also eligible for leave with wages @ 1 day for every 20 days' work, National Festival Holidays, sick leave, maternity leave for female labourers etc.

In hard case, labourers are sanctioned with ex-gratia payments for meeting medical expenses. During the year under report, 17 labourers who met with accident while on duty were given ex-gratia payments.

In the Vellanikkara Rubber Estate, the University has tappers, factory workers, field workers as well as staff and supervisors; the strength of the Estate staff and workers, being around 100. For the Estate staff and workers, the University is giving all benefits contemplated in the Plantation Labour Act. The University is also following recommendations of Plantation Labour Committee in respect of payment of wages and fringe benefits. Instead of bonus, the University pays ex-gratia payments not less than the minimum rate of bonus, to the estate staff and workers.



In addition to the categories of labourers mentioned above, 10 casual labourers are being engaged in the KAU Press and about 40 workers are engaged on daily wages in the Engineering wing of the University.

There were no major strikes by the labourers during the report period except general strikes organised by the Trade Unions and the one on the question of engaging labourers to NBPGR Scheme (ICAR) from the central list of the Vellanikkara campus. The dispute was settled at the conciliation conference held on 22-6-83 in the presence of DLO Trichur. □

## CHAPTER II

# Education

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### **The College of Agriculture, Vellayani**

The College of Agriculture established in 1955 is located at Vellayani, about 11 km away from Trivandrum city and surrounded by the Vellayani lake on three sides. The campus has an area of 243 hectares.

The college was started with the objective of imparting scientific knowledge in Agriculture at the undergraduate level and research in agricultural subjects. In 1962, post-graduate teaching was taken up in a few disciplines as part of the academic programme. With the establishment of the Kerala Agricultural University in 1972, the College became one of the constituent institutions under the University and the traditional system of teaching was replaced by the trimester system.

During the year under report, Dr N. Sadanandan continued as Dean, Faculty of Agriculture and Head of the Institution and Dr M. M. Koshy, continued as Professor, Research Co-ordination in Agriculture Faculty. Dr A.G.G. Menon, Associate Director, NARP, Southern Region was relieved on 26-10-1983 on his appointment as Director of Extension. Dr N. Mohanakumaran took charge as Associate Director, NARP on 26-10-'83.

Fourteen departments namely, Agronomy, Agrl. Botony, Plant Breeding, Soil Science and Agrl. Entomology, Plant Pathology, Agrl. Extension, Agrl. Statistics, Horticulture, Agrl. Engineering, Agrl. Economics, Animal Husbandry, Home Science, Physical Education and a section of Plant Physiology were functioning in the college. The list of Scientific and supporting staff working in the various departments is furnished in Appendix IV.

#### *New Departments and Projects sanctioned*

A department of Home Science was started in the College of Agriculture, Vellayani. The main objectives of this department are to develop suitable instruction programmes leading to Diploma in Food Science and Nutrition, M. Sc. in Food and Nutrition and also to identify research gaps and conduct research in the field of Home Science oriented towards rural situations and rural problems.

An All India Co-ordinated Project for strengthening Agriculture and research programmes for the Socio-economic upliftment of tribals at Amboori area was started functioning from July 1983. This scheme is aimed at implementation of multi-disciplinary research and development programmes for the uplift of Kanikkar tribals dispersed in the various settlements on the eastern bank of Neyyar Dam reservoir in the Amboori Panchayat.

A new project on Environmental pollution, T & V pre-service Training programme for Agrl. Demonstrators and Co-ordinated Research Projects "Ecological studies and utilization of grass land flora available in the western ghats", "the development of viable models of Agro-Eco systems to compromise with fresh eco-systems of Tribal Hamlets in the Western Ghat region" were also started functioning during the year under report.

#### **Academic posts sanctioned**

One post of Special officer, Environmental Pollution was created in the college in October 1983 and Dr. Thomas Varghese was appointed to this position.

One post of Professor, One Senior Research Fellow and 2 posts of Junior Assistant Professors were created in the department of Home Science.

One Associate Professor, two Assistant Professors and two Junior Assistant Professors were created for AICRP on Forage Crops during the VI Plan period.

One post of Professor and five Assistant Professors were sanctioned for the All India Co-ordinated Project for strengthening Agriculture & Research programmes for the Socio-economic upliftment of tribals. One post of Junior Assistant Professor for the Co-ordinated Research Project in the Western Ghat Development Programme was also sanctioned.

#### **Posts shifted/abolished**

One post of Associate Professor, Agrl. Engineering, College of Horticulture and one post of Assistant Professor, Agrl. Engineering in the College of Agriculture was mutually shifted during July 1983. One post of Professor of Agrl. Engineering was shifted to the College Agriculture from the College of Horticulture during December 1983.

One post of Associate Professor of Nematology was shifted back to the College of Agriculture from the College of Horticulture in September 1983.

#### **Changes in personnel on superannuation/new appointment/transfers etc.**

Sri P. Sethumadhavan, Professor of Horticulture who was continuing in service beyond his date of superannuation was deemed to have

been superannuated on 31-3-1983 and was relieved with effect from 12-2-1983. Mr M. K. Mammen, Associate Professor (NARP) (SR) was placed in charge of the Department.

Dr. A. Muraleedharan Thampi, Associate Professor was appointed as Professor of Agril. Extension and he assumed charge on 19-1-1983 and Shri G. Balakrishna Pillai took charge as Associate Professor of Extension. Dr K.C. George, Professor of Agril. Statistics was posted on working arrangement to the College of Veterinary and Animal Science, Mannuthy with effect from 12-8-1983.

Dr. S. Seshadrinath, Associate Professor, Plant Physiology took charge in this college on 9-5-1984. Smt P. Saraswathy, Associate Professor of Statistics was transferred to NARP (SR) with effect from 1-6-1983. Smt T. Sreekumari Amma, Assistant Professor transferred from Pattambi joined duty in the AICRP on Forage Crops on 12-5-1983 Sri P. A. Korah, Assistant Professor was relieved with effect from the 30th June, 1983 to take up a foreign assignment. Sri C. K. Prabhakaran Thampi, Assistant Professor took charge in the AICRP on Forage Crops on 8-6-1983. Dr K. V. Mammen, Associate Professor (Entomology) and Smt Suma Kuruvilla, Assistant Professor (Ent.) took charge in August 1983.

Sri P. Yageen Thomas was transferred and posted to this Institution as Assistant Professor of Statistics on 6-8-1983. Dr James Mathew, Associate Professor was transferred and posted to NARP Northern region, Pilicode during September 1983. Dr. Sasikumaran Nair, Associate Professor (Microbiology) reported for duty in the place of Dr James Mathew transferred. Sri Jippu Jacob, Assistant Professor (Engineering) on transfer to the College of Horticulture was relieved on 1-9-1983. Sri M. Subramonia Iyer rejoined duty on 9-9-1983 as Assistant Professor (Soil Sciences). Dr John Kurien, Associate Professor (Nematology) was provisionally appointed as Professor (Plant Protection) in the Farm Advisory Service in the Communication Centre, Mannuthy for the period from 1-9-1983 to 30-11-1983. Sri C. Sreekantan Nair, Associate Professor (Hort.) rejoined after leave on 1-10-1983. Sri P. D. Vijayagopal Associate Professor was posted to the Department of Agril. Botany with effect from 1-10-1983. Sri P. Yageen Thomas, Assistant Professor (Stat.) and Sri M. Subramonia Iyer, Assistant Professor (Soil Science) were transferred and posted to Cropping System Research Centre, Karamana with effect from 10-10-1983.

Dr A. Pushkala appointed as Associate Professor, Soil Science in the College assumed charge on 21-11-1983.

Sri K. Babukutty, Assistant Professor was relieved on his appointment as Associate Professor, RARS Pilicode on 24-11-1983.

Sri K. K. Raveendran Nair, Assistant Professor was appointed as Associate Professor (Nematology) with effect from 21-11-1983.

Dr K. Sasidharan Pillai was relieved on his appointment as Associate Professor at Cardamom Research Station, Pampadumpara on 21-11-1983.

Dr Susamma Mathai, Assistant Professor appointed as Associate Professor at MSCRP, Madakkathara Centre was relieved from the College on 23-11-1983. Sri P. Reghunath, Assistant Professor, ND scheme, Kottarakkara joined duty on 26-11-1983 in her vacancy. Sri K. Jayaraman, Assistant Professor (Stat.) was transferred and posted to this college. He joined duty on 29-11-1983. Sri Mohammed Hussain, Assistant Professor (Agrl. Extension) was relieved with effect from 21-11-1983 on his appointment as Associate Professor at KVK Ambalavayal and Sri V. B. Padmanabhan, Assistant Professor joined duty in his vacancy on 21-11-1983.

Dr B. Babu, Assistant Professor (Agrl. Extension) was relieved on his appointment as Associate Professor at RARS Kumarakom on 24-11-1983. Smt G. Sobhana, appointed as Assistant Professor (Extn.) joined duty on 26-11-1983 in the vacancy of Dr B. Babu transferred to RARS, Kumarakom.

Sri C.K. Prabhakaran Thampi, Assistant Professor on appointment as Associate Professor, KVK Pattambi was relieved on 28-11-1983. Smt M. Meerabai joined duty as Assistant Professor in the Forage Scheme in the place of Sri Thampi. Smt Lekha Sreekantan joined duty as Assistant Professor of Agronomy in the existing vacancy on 28-11-1983. Smt Sabina George on appointment as Assistant Professor (Hort.) RARS Kumarakom was relieved on 26-11-1983. Sri Sabu Kuruvilla on appointment as Assistant Professor (Animal Husbandry) in the Farm Advisory Service was relieved on 11-11-1983. Smt P. Prabhakumari on appointment as Assistant Professor (Soil Science & Agrl. Chemistry), RRS, Vyttila was relieved on 24-11-1983.

Smt Shylaraj, K. S. on appointment as Junior Assistant Professor (Plant Breeding) joined duty on 1-12-1983. Smt S. Lakshmi appointed as Junior Assistant Professor (Agronomy) joined duty on 3-12-1983 under the AICRP on Forage Crops. Smt V. K. Girija appointed as Junior Assistant Professor (PP) joined duty on 29-11-1983 in the vacancy existed. Smt D. Geetha on appointment as Junior Assistant Professor (PP) joined duty on 26-11-1983. Smt Kamala Nayar appointed as Junior Assistant Professor (PP) joined duty on 14-12-1983. Sri D. Wilson, Junior Assistant Professor (Botany) joined duty on 13-12-1983. Smt K.S. Pramila appointed as Junior Assistant Professor (Entomology), joined duty on 1-12-1983. Smt Usha Kumari appointed as Junior Assistant Professor (Entomology) joined duty on 30-11-1983 under AICRP on Nematode Pests and their Control. Kum. Rageena, S and Smt Elsamma Job appointed as Junior Assistant Professors (Agrl. Economics) joined duty on 30-11-1983 and 1-12-1983 respectively.

## **Faculty improvement programme**

Dr Sasikumaran Nair, Associate Professor (Microbiology) rejoined duty on 22-9-1983 after completion of postdoctoral training in France. Sri G. Sreekantan Nair, Associate Professor (Hort.) on leave for study purpose rejoined duty on 1-10-1983. Sri M. Subramonia Iyer, Assistant Professor (Soil Science and Agrl. Chemistry) rejoined duty on expiry of study leave. Dr S. T. Mercy, Associate Professor (Agrl. Botany) continued to be on leave for undergoing post-doctoral studies at IIRI, Manila. Dr D. Dale, Associate Professor (Entomology) continued on deputation for post-doctoral training at IIRI, Manila.

### *Details of Seminars/Symposia/Extension lectures/Training programmes/Correspondence course etc. conducted by the Institute*

A state level seminar on 'Stagnation of rice production in Kerala, was conducted under the auspices of Kerala Agricultural University, Department of Agriculture and State Planning Board and formulated future programmes in the field of research on various aspects of rice production.

The 16th annual convention of the Indian Society of Agricultural Chemists was held at the College of Agriculture and a symposium 'Fertilizer management in acid soils' was also organised along with the convention.

A National symposium on 'Fungal Resources and their Utilization' was conducted under the auspices of the Mycological Society of India in its XIth Annual meeting held at the College of Agriculture, Vellayani.

The Third Oriental Entomology Symposium jointly organised by the Association for Advancement of Entomology and Entomology Department of this Institution was conducted in February 1984.

Nine monthly T & V Workshops for Trivandrum District was conducted and impact points were discussed and finalised. Resource personnel from various departments in this Institution and Officers of the Department of Agriculture participated in the monthly Workshops.

### *Extension Lectures*

Prof. C. V. Subramonian, Director, Centre for Advanced studies in Botany, Madras, gave a lecture on the topic "Moulds, Mushrooms and Man".

Dr N. P. Jayasankar, Joint Director, CPCRI, Kayamkulam spoke on 'Recent Developments in Coconut Diseases and their Control.

Dr P. N. Radhakrishna Pillai, Joint Director (Research), Rubber Research Institute of India, Kottayam delivered a lecture on 'Diseases of Rubber and their management'.

Dr R. R. Nair, Scientist, CPCRI, Sub-Station, Palode spoke on 'Recent trends in Control of Arecanut diseases.'

Dr P. N. Narasimham, Emeritus Professor, Agricultural College, Bapatla (APAU) gave a talk on the 'Chemistry of submerged soils'.

- Dr K. Krishna Murthy, Director of Research, University of Agricultural Sciences, Bangalore gave a talk on 'Cropping systems in China'.

Dr Robert Anderson & Dr Richard Comes, Experts in Weedicide Research of the USDA delivered lectures on Herbicidal Evaluation and Aquatic Weed Control.

#### *Training Programmes*

A training in Plant Protection was conducted to the Agricultural Officers of the Department of Agriculture, Kerala.

A training on Fodder production and preservation was conducted for Junior Agricultural Officers of the Department of Agriculture in two batches.

A short training programme was conducted to three Nepalee Officers under the FAO programme.

A subject matter in-service training in Rural Home Science for Extension Officers (Women's welfare) of the Development Department (Kerala) with UNICEF aid was conducted in two batches.

A continuous training programme for the field level change agents of small and medium Town Development Project in selected Municipalities of Alleppey District (Kayamkulam and Sherthalai Municipalities) was conducted with the help of Nutrition News Letter.

A four days training in Agricultural Extension was conducted for the Foresters under Social Forestry programme in two batches.

A six months pre-service training was given to the Agricultural Demonstrators from the Department of Agriculture from 1-9-1983 to 28-2-1984.

#### *Correspondence Course*

A correspondence course on 'Better Infant Feeding Practices' was in progress. Lessons were prepared regularly in Malayalam and sent to the participants.

#### *Deputation of Academic staff for participation in Summer Institute/ Symposia/ Workshops*

Dr V. K. Sasidhar, Professor of Agronomy and Sri K.P. Madhavan Nair, Associate Professor of Agronomy attended the national symposium on 'Fungal resources and their utilisation' at the College of Agriculture, Vellayani. Sri P. Chandrasekharan, Dr V. Muraleedharan Nair, Associate Professors of Agronomy and Sri N. Purushothaman Nair, Assistant Professor of Agronomy attended the symposium on 'Fertiliser Management of acid soils' organised by the Indian Society of Agrl. Chemists at the College of Agriculture, Vellayani.

Dr R. S. Aiyer, Professor of Soil Science and Agrl. Chemistry attended the workshop on scheduled caste area research held at PKV Akola during January-February 1984 and the TARC workshop at Udaipur in February 1984.

Dr V. G. Nair, Professor of Plant Breeding attended the State Level Seminar on pulses and oilseeds at Malampuzha on 16-4-1983 and National Seminar on 'Breeding for resistance to pests and diseases' at the School of Genetics, TNAU, Coimbatore from 25-27 May, 1983, State level seminar on 'Stagnation of rice production in Kerala' organised by the KAU and State Planning Board at Vellayani from 1-7-1983 to 3-7-1983, and Orientation workshop on the conduct of T & V monthly workshops organised by the World Bank at Mannuthy from 25-29, July 1983.

Dr. R. Gopimony, Associate Professor (PB) attended the National Seminar on 'Breeding for resistance to pests and diseases' at TNAU, Coimbatore from 25 to 27, May 1983 and the International Genetic Congress at New Delhi from 12-12-1983 to 17-12-1983. Dr A. N. Rema Devi, Professor of Agrl. Engineering participated in the National Seminar on Drip Irrigation held at TANU, Coimbatore during April 1983 and presented a paper on 'Soil moisture distribution pattern resulting from Drip irrigation using saline water'. Dr L. Prema, Associate Professor of Home Science attended the workshop on 'Weaning foods', held at the College of Home Science, APAU, Hyderabad during July 1983 and the workshop of All India Coordinated Project on Scheduled Castes Area Research held at Akola during January-February 1984. Smt Mary Ukkuru, Junior Assistant Professor, Home Science attended the annual certificate course of 2 months duration in Human Nutrition, held at the National Institute of Nutrition, Hyderabad. Smt N. K. Vimalakumari, Assistant Professor attended the seminar on 'Nutrition and Development—Focus on Women' from 4th-7th October, 1983 and presented a paper in the symposia on Nutrition, organised by the Nutrition society of India held at New Delhi during October, 1983.

Dr M. C. Nair Professor of Plant Pathology and Dr S. Bhavani Devi, Assistant Professor (PP) attended the symposia in connection with the Silver Jubilee Celebration of Regional Research Laboratory, CSIR, Jammu.

Dr N. Mohan Das, Professor of Entomology and Dr K. John Kurien, Associate Professor (Nematology) attended the Seminar on 'Stagnation in Agrl. Production in Kerala with special reference to paddy held from 1-7-83 to 3-7-83 in College of Agriculture, Vellayani. Dr A. Visalakshi, Associate Professor of Entomology, Dr George Koshy, Associate Professor of Entomology, Dr K. Sasidharan Pillai, Sri K.K. Raveendran Nair and Sri C. Nandakumar, Assistant Professor (Entomology) attended a



seminar on 'Pesticides and Environment' held at TNAU, Coimbatore from 3-8-83 to 6-8-83.

Sri O. Abdul Rehman Kunju, Associate Professor (Extension) and Dr B. Babu, Assistant Professor (Extension) attended the Summer Institute on 'Extension Research Methodology and Agril. Development' at the UAS Bangalore from 26-6-83 to 22-7-83 and Dr P. B. Gopinathan, Assistant Professor of Entomology attended the Summer Institute from 28-5-83 at TNAU, Coimbatore.

### Publications

Publications by the staff are listed in Appendix-V.

### Academic Programmes

Strength of students under each course is given below:

#### i) U. G. Course [B. Sc. (Ag)]

Year	Men	Women	Total
I Year	25	23	48
II Year	39	20	59
III Year	33	52	85
IV Year	35	43	78
Total	132	138	270
No of students from Tripura	10	nil	10
other states/country Andhra-	2	—	2
with details of state/ pradesh	3	—	3
Country/Programme etc. Bhutan	15	Nil	15
Total			

No. of students who obtained their degrees during the year 74

#### ii) PG course—Strength of students

Programme	Men	Women	Total
I M. Sc. (Ag)	25	22	47
II M. Sc. (Ag)	21	19	40
I Year Ph. D.	3	3	6
II Year Ph. D.	3	2	5
Final Year Ph. D.	3	2	5
Total	55	48	103

No. of students from other state/country with details of state/country/programme	Nepal	M	F	Total
No. of students who obtained degree during the year		2	—	2
1. M. Sc. (Ag)	19			
2. Ph. D. in (Ag)	4			
3. Diploma in Food & Nutrition	3			

*iii) Practical training programmes like 'Earn while you learn' Kayal cultivation, work experience etc.*

The work experience programme included cultivation of tapioca, banana, pulses, vegetables, fodder maize and homestead farming. The B. Sc. (Ag) students also undertook maintenance of perennial crops like coconut throughout the B. Sc. (Ag) programme. The final B. Sc. (Ag) students cultivated paddy during pancha season in Kayal lands.

Under the Farm training Programme, the final B. Sc. (Ag) students were provided opportunity for 'getting practical training under field situations in Agricultural Development projects. This programme, which was arranged and monitored by the Department of Agricultural Extension was planned and conducted in collaboration with the State Department of Agriculture.

Under the Farm training programme, the final B. Sc. (Ag) students were also assigned to various research stations of Kerala Agricultural University in the Southern Region to acquaint themselves with the activities of the Stations during the final trimester under the direct supervision of the officers in charge of the stations.

*iv) Study tours*

The final B. Sc. (Ag) students were taken on an All Kerala study tour to various Research stations of the Kerala Agricultural University and Central Institutions.

The third B. Sc. (Ag) students were taken on an All India study tour to different places and Institutions of Agricultural Importance in the country.

*v) Extra curricular/Co-curricular activities*

The students union of the College functioned under the Presidentship of Sri. Jose Joseph of the I M. Sc (Ag). Sri Biju Kumar of the III B. Sc. (Ag) was the General Secretary.

The activities of the students' Union was inaugurated on 8-3-1984 by Padmasree (Dr) Balakrishnan Nair, Professor of Marine Biology, Kerala University and the Arts Club was inaugurated by Padmasree Adoor Gopalakrishnan, the famous Film Director.

vi) *Scholarships, awards and aids to students*

The following scholarships, aids and concessions have been given to the students.

Name of the Scholarship	No. awarded
1 National Merit scholarship	28 nos.
2 National Loan scholarship	3
3 Educational concession under KPCR	30
4 ICAR Merit-cum-means scholarship	16
5 ICAR Junior Fellowship	12
6 ICAR Senior Fellowship	4
7 KAU Merit scholarship	10
8 KAU Fellowship	20
9 Educational concessions to Backward classes—Welfare Department of Andhra Pradesh	1 no.
10 USAID (New Delhi) for Nepal students	2 nos
11 Merit scholarships to the children of school teachers	4
12 Scheduled Caste students scholarship	33
13 Scheduled Tribe students scholarship	5
14 Educational concession to Tripura students	10
15 Educational concession to Lakshadweep students	4
16 Gandhi Centenary Merit Scholarship to the Children of Employees of Bhilai steel plant	1 no
Total	183

**NSS Activities**

Dr Skariah Oommen, Associate Professor (AH) and Sri P. A. Rajan Asari, Assistant Professor (Ent) continued as the programme officers. The College had a student volunteer strength of 250 inclusive of 134 female volunteers. The Student volunteers actively participated in the various activities.

The community centres of the NSS unit of the College at Kakka-moola and Muttakkad continued to function, providing facilities for reading news papers, magazines, pamphlets, leaflets etc. Facilities were also provided for indoor games.

An NSS Volunteers' camp was organised at the tribal area of Pura-vimala in Amboori village. Twenty five volunteers attended the camp. The camp was organised in connection with the Lab to Land programme of the Kerala Agricultural University. The volunteers helped in the arrangement for the inauguration of Lab to Land programme. The volunteers planted the planting materials supplied to the Kanikkars, and gave

training to the tribals in planting of coconut seedling, mango grafts, jack grafts and other planting materials. Under the Lab to Land programme planting materials were distributed.

A blood grouping campaign was conducted with the help of Sree Chitra Medical Centre, Trivandrum and a list of blood donors is being maintained.

NSS Volunteers helped in raising 15 vegetable gardens in Kalliyoor and 800 samplings were distributed to the farmers of the adopted villages.

The women volunteers rendered advice on sanitation, child care, health and nutrition to the house wives of the adopted villages.

### **Tribal area Research Centre and other projects for Amboori tribal settlement**

The various works undertaken under the project Tribal Area Research Centre, Amboori included developments in Agriculture, Animal Husbandry, Health, Home Science, Small scale industries and Soil survey and Soil conservation in the tribal settlements. Details of these projects are included under the activities of the Directorate of Extension.

### **Lab-to Land programme**

A training programme in 'Bee keeping' was organised for the benefit of farmers of Muttakkad and Kalliyoor villages. These trainings were given by the experts from Khadi and Village Industries.

### **Village adoption programme**

A rodent control campaign in collaboration with the 'Save Grain Campaign' was done in Kalliyoor Adopted Village by the final year B. Sc. (Ag) students.

### **Tournaments and championships**

Interclass competitions were held in all disciplines of sports and games.

The College team participated in the Inter-collegiate tournaments in Basket Ball (M & W), Ball Badminton (M & W), Volley Ball (M & W) and Cricket (M). The College teams won in hockey (M) final and were runners up in Ball Badminton (W) and Volley Ball (W).

### **vii) Hostels**

Dr N. Sadanandan continued as warden of the three hostels. Accommodation was provided for 126 men students and 109 women students in the 3 hostels attached to the College. Sri P. D. Vijayagopal, Associate Professor was the Assistant Warden of the PG Hostel upto 31-8-83 and Sri P. Chandrasekharan took charge on 1-10-1983. Sri S. P. Pillai, Junior Assistant Professor, Physical Education was the Assistant Warden

of the UG Men's hostel and Smt K. Saradamma, Associate Professor, Entomology continued as the Assistant Warden of Women's hostel.

### **College Library**

During the year, 424 books were purchased and 84 were subscribed for 84 journals. Under the Book Bank Scheme, 33 books were distributed.

### **Instructional Farm, Vellayani**

The Instructional Farm attached to the College covered an area of 75 ha of garden land and 165 ha of Kayal lands.

The main crops cultivated in the garden lands are Coconut (20 ha), Rubber (2 ha), Banana (10ha), Paddy (5 ha), Mango (10 ha), Nutmeg (1.5 ha) Guava (1ha) and Sapota, Bread fruit, Jack and Cloves 0.5 ha each.

The main activities of the Farm were (1) production and distribution of quality coconut seedlings, grafts, layers, vegetable seeds and ornamental plants, maintenance of varietal collection of bananas and participation in farm fairs and exhibitions.

A total of 2,01,785 coconuts and 1,48,805 kg of paddy were produced during the year. 1717 kgs of rubber sheets and 204.5 kgs of rubber waste were obtained during the year. 14735 coconut seedlings, 7988 jack grafts, 8819 mango grafts, 704 sapota grafts and 3205 of other seedlings and 118 pepper cuttings and a large number of ornamental plants were distributed during the year.

### **Livestock farm (Dairy and Poultry unit)**

Fodder produced during the year was 130.64 tonnes. The herd strength of the Livestock unit was 60, including cows, bulls, heifers, bull calves and she buffaloes. The quantity of milk produced was 44165 litres with an average yield of 121 litres/day. The lactation average of the herd was 1523 litres. The poultry unit contained 196 birds, no. of eggs obtained was 29694 with an average production of 81 nos/day.

### **Visitors**

Several reputed persons visited the institution during the period under report. They included Miss Linda Muller, Management Specialist, World Bank, Dr. Robert Anderson and Dr. Richard Comes, Weed Science Experts USDA.

Besides the above, School Children, College students from different colleges of this state and other states, farmers and tribal youths visited this Institution during the period under report.

### **COLLEGE OF HORTICULTURE, VELLANIKKARA**

The College of Horticulture was established on the 28th October, 1972 and was temporarily located at Mannuthy, and later shifted to the main campus of the Kerala Agricultural University at Vellanikkara, 10 km from Trichur town on Trichur-Palghat road.

The area of the College campus is 129 ha comprising of two Instructional Farms, one at Mannuthy (33.7 ha) and the other at Vellanikkara (95.3 ha)

Dr. P. K. Gopalakrishnan continued as Associate Dean of the College of Horticulture. Fifteen departments viz., Pomology & Floriculture; Olericulture; Plantation Crops and spices; Processing Technology; Agronomy; Soil Science & Agricultural Chemistry; Agricultural Botany, Agricultural Entomology; Plant Pathology, Agricultural Engineering; Agricultural Extension; Agricultural Economics; Agricultural Statistics; Agrometeorology and Physical Education were continued to function in the College during the year. The College of Co-operation and Banking at Mannuthy also functioned as part of the academic programme of the Institution.

Besides these academic programmes seven research schemes/projects viz., Kerala Agricultural Development Project; All India Co-ordinated Project for Improvement of Tuber crops (other than Potato); Scheme for intensification of Research on Sugarcane in Kerala; All India Co-ordinated Research Project on Biological control of crop pests; Pepper Research Scheme; All India Co-ordinated Agronomic Research Project and control of Coconut Root (Wilt) Disease project were also functioning in the College.

#### **Academic posts sanctioned/created**

During the year the following posts were created in the College of Co-operation and Banking:

Professor (Co-operation)	1
Associate Professor (Management)	1
Assistant Professor (Banking)	1
"    (Co-operation)	2
"    (Economics)	3
Assistant Gr.II	2
Duplicator Operator	1

The following posts were created in the department of Agricultural Extension:

Associate Professor	1
Assistant Professor	1
Jr. Assistant Professor	1

#### **Posts shifted/abolished during the year.**

One post of Associate Professor (Nematology) was shifted to College of Agriculture, Vellayani. One post of Professor of Agricultural Engineering was shifted from the College of Horticulture to the College of Agriculture, Vellayani and the post of Professor of Agricultural Engineering from the Institute of Agricultural Technology, Tavanur was shifted to the College of Horticulture.

### **Changes in personnel by new appointment/transfer etc.**

Dr. K. I. Wilson took over as Professor and Head, Department of Plant Pathology with effect from 7-7-1983.

Dr. K. V. Peter, Professor, Olericulture rejoined after deputation to USA on 4-6-1983. Sri. V. K. Damodaran, Professor & Head of the Department of Processing Technology retired on superannuation on 30-11-1983.

### **Faculty improvement programme**

During the year leave for study purpose was granted to Dr J. Thomas, Assistant Professor from 22-9-83 to 21-9-84 for the post-Doctoral Research at United Kingdom, to Smt P. Santhakumari, Assistant Professor for 2 years with effect from 13-10-1983 for Ph. D. programme, to Sri E. V. Nybe, Assistant Professor for 2 years from 16-11-1983 to Smt K. A. Mariam, Assistant Professor for 2 years with effect from 12-9-1983, to Smt T. Radha, Assistant Professor from 19-10-83 for 2 years, and to Smt M. K. Sheila, Assistant Professor for 2 years from 10-1-1983.

### **Details of Seminars/Symposia/Extension Lectures/Training Programmes conducted by the institute**

An inservice training on fruit crops for the subject matter specialists of the department of Agriculture was conducted from 13-12-1983 to 17-12-1983 by the Department of Pomology.

A training programme in processing of fruits and vegetables was conducted by the department for the housewives of faculty members. The monthly T & V workshop for the SMS of Trichur District was conducted regularly. A short course on handling of Agrometeorological instruments and recording observations was conducted for Farm Assistants working in Research Stations, by the Department of Agrometeorology.

### **Deputation of Academic staffs for participation in Summer institute/symposia/Seminars/workshops etc**

Dr M. Aravindakshan, Professor attended the National Symposium on advances of Tree Science held at the Forest College & Research Institute, Dehradun during April, 1983. Dr T. S. Venkitesan, Professor (Agrl. Entomology) attended the V All India Nematology Workshop & Nematology symposium held at Himachal Pradesh Agricultural University, Solan. Sri T. P. George, Professor (Agrl Engineering) attended the National Seminar on Irrigation at Tamil Nadu Agricultural University, Coimbatore. Sri T. R. Gopalakrishnan, Assistant Professor attended the VII workshop on vegetables under AICVIP at Haryana Agricultural University, Hissar. Dr P. Balakrishna Pillai attended the first Indian Agrometeorological Congress held at Waltair and the Regional Workshop

on Scientific Methods and collection and Documentation of Hydrometeorological data held at CWRDM, Calicut. Sri A. V. R. Kesava Rao, attended the International Conference on Bio-meteorology held at New Delhi during December, 1983. Dr Abi Cheeran attended the I International Standing Committee meeting on Yellow Leaf Disease on Arecanut held at Bangalore. Dr Sosamma Jacob, Assistant Professor (Entomology) attended the National Seminar on Pesticides and Environment held at Tamil Nadu Agricultural University, Coimbatore during August, 1983. Dr C. A. Jose, Special Officer (C & B) attended the third seminar on Role of Financial Institutions in Rural Entrepreneurship and Development held at Patna and Sri M. Mohandas, Associate Professor (C & B programme) attended the seminar on Technical Education and Rural Development at SR Polytechnic, Valappad during December, 1983.

Dr V. Radhakrishnan, Professor, Dr K. Mukundan, Associate Professor and Sri Selvin, Assistant Professor of Agricultural Economics attended the workshop on Animal Production Economics held at Mannuthy.

Dr K. M. Rajan, Dr V. Radhakrishnan and Sri E. R. Narayanan Nair attended the seminar on "Stagnation in rice production" at the College of Agriculture, Vellayani.

### Academic programmes

Strength of students under each course are given below:

#### i) UG Course

##### B. Sc. (Ag) Degree Programme

Year of Admission	Men	Women	Total
I Year			
(1983 admission)	39	32	71
II Year			
(1982 admission)	32	24	56
III Year			
(1981 admission)	52	28	80
IV Year			
(1980 admission)	21	18	39
Total	144	102	246

##### B. Sc. (Hort) Degree Programme\*

IV Year (1980)	8	25	33
Total	8	25	33

\* B. Sc (Hort.) degree Programme was discontinued after 1980-81 admissions



Year of admission	Men	women	Total
<b>B. Sc. (C &amp; B)</b>			
I Year (1983 admission)	19	13	32
II Year (1982 admission)	12	14	26
III Year (1981 admission)	31	20	51
<b>Total</b>	<b>62</b>	<b>47</b>	<b>109</b>

Total strength of Undergraduate programme

214.                      174                      388

No. of students who got degree during the year.

B. Sc. (Hort)    37  
B. Sc. (Ag.)    36

*ii) PG Courses*

**M. Sc. (Hort) Degree Programme**

I Year (1983 admission)	—	8	8
II Year (1982 admission)	7	5	12
<b>Total</b>	<b>7</b>	<b>13</b>	<b>20</b>

**M. Sc. (Ag) Degree programme**

Ist Year (1983 admission)	10	11	21
IIInd Year (1982 admission)	5	9	14
<b>Total</b>	<b>15</b>	<b>20</b>	<b>35</b>

**Ph. D. (Hort) Degree Programme**

I Year (1983 admission)	—	—	—
II Year (1982 admission)	—	—	—
III Year (1981 admission)	1	1	2
<b>Total</b>	<b>1</b>	<b>1</b>	<b>2</b>

**Ph. D. (Ag) Degree Programme**

I Year (1983 admission)	2	—	2
II Year (1982 admission)	2	1	3
III Year (1981 admission)	1	—	1
<b>Total</b>	<b>5</b>	<b>1</b>	<b>6</b>

No. of students who obtained degree during the year

M. Sc. (Ag.)                      13  
M. Sc. (Hort.)                      5  
M. Sc. (Ag. Engg.)                      2

*iii) Practical training programme*

Besides regular practical classes in the laboratories and in the field, the under-graduate students were given training in the cultivation of various annual crops, maintenance of perennial crops and processing of Agricultural and Horticultural produces through various work experience courses. The B. Sc. (C & B) students were given training in the Management of Consumer Co-operatives in KAU Co-operative Society Ltd., from 28th November, 1983 to 6th January, 1984.

*iv) Study tours*

The second and third year students of the B. Sc. (Ag) and B. Sc. (C&B) programme visited places of Agricultural Importance all over the state and all over the country respectively.

*v) Scholarships, awards and aids to students*

Name of scholarship/award/aid	No. of recipients
National merit scholarships	26
National loan scholarship	4
KAU Merit scholarship	21
ICAR Merit cum-means scholarship	15
ICAR Junior Fellowship	23
ICAR Senior Fellowship	6
KAU Fellowship	36
Stipend to Nominees of Tripura/Pondicherry/Manipur/ Nepal/Meghalaya/Andhra Pradesh/Lakshadweep/Kenya	23
Fellowship to Nominees of Himachal Pradesh	1
Scholarship to students of Andaman and Nicobar Islands	4
Scholarship to students of P&T Department	2
Fellowship by Potash Research Institute of India	1
Fellowship by Rajasthan Mineral Development Corporation	1
District-wise merit scholarship	3
Post metric scholarship	3
Educational concession SC/ST	36
Educational concession under KPCR	38
Christian converts	6
Total	249

*vi) Extra curricular/Co-curricular activities*

Students of the College participated in activities connected with sports and games, arts club, quiz club, social service league and planning forum.

In addition they participated in the National Service Scheme, Village adoption programmes and other extension programmes organized by the University.

### *vii) Hostel*

Dr S. Ramachandran Nair and Smt. K. C. Marykutty continued as Assistant Wardens in the Men's and Women's hostel respectively.

The N. S. S. Sub-unit of the College of Co-operation and Banking was inaugurated by the Vice-Chancellor on 6-8-1983. A "Vanamahotsava" programme was also organised. NSS volunteers conducted a Co-operative Message Dissemination programme during November, 1983 at the Kurichikkara Village as a part of the Co-operative week celebrations. A one day work camp was also held at Kurichikkara village on 26-3-1984. Blood donations were also done during the year.

The proposal for a self improvement programme of C&B students was approved by the University. Dr. Sreekumar Sreedhar, Associate Professor was put in charge of the programme. Teaching aids were purchased for the implementation of this programme.

The B. Sc. (C&B) students celebrated the "Co-operative week" from 14th to 20th November, 1983 inaugurated by Sri. Thomas C. George, IAS., Registrar. Quiz programme on Co-operation and a seminar on "Co-operative movements" and a debate on "The State Interference in Co-operative organizations" were conducted as a part of this programme. Sri. T. Madhava Menon, IAS., Vice Chancellor presided over the seminar which was inaugurated by Sri. C. Achutha Menon, Ex-Chief Minister of Kerala.

### **Library**

A total of 2126 books were added to the library during the year. Subscriptions were given for 136 Indian Journals, 74 foreign journals and 626 back volumes.

### **Agricultural Research Station, Mannuthy**

Total area of the station	: 38.34 ha
Area occupied by buildings, roads etc.	: 3.59 ha
Total cropped area	: 34.75 ha

#### *Crop coverage*

Coconut (Intercrops—Banana, Cocoa & Coffee)	: 11.26 ha
Mango	: 12.13 ha
Rice	: 4.47 ha
Cashew and others	: 3.62 ha
Nursery	: 2.75 ha
Vacant lands	: Nil

### **Instructional Farm, Vellanikkara**

Total area	: 95.35 ha
Coconut (intercrop—banana)	: 30 ha
Mango	: 4 ha
Nutmeg	: 2.2 ha

Cocoa	:	2.15 ha
Cinnamon	:	1.4 ha
Clove	:	1.25 ha
Guava	:	1.1 ha
Pineapple	:	1.8 ha
Sapota	:	0.75 ha
Vacant	:	4 ha

*Seed and planting materials distributed to farmers and Amount realised*

a) Seed

Items	Quantity (kg)	Value	
		Rs.	Ps
Paddy seeds	9610.00	28,905.00	
Cowpea	90.00	540.00	
Snake gourd	15.67	1,567.00	
Ash gourd	5.75	575.00	
Pumpkin	6.30	630.00	
Cucumber	2.450	367.50	
Bittergourd	22.250	2,225.00	
Bhindi	12.1	907.50	
Amaranthus	4.590	688.50	
Dolichos	6.250	312.50	
Groundnut	105.00	545.00	
	Total	37,263.00	

b) Seedlings, Grafts, layers etc.

Item	Quantity	Value	
		Rs.	Ps
Coconut seedlings	5422 nos	27,110.00	
Fruits and Spices	5594 nos	16,151.00	
Ornamental plants	5588 nos	18,084.00	
	Total	61,345.00	

**Visitors**

Dr. R. S. Mallik, Project Coordinator (Floriculture), Dr. Saraji, Senior Scientist, Australia, Dr. R. S. Bhute, Advisor, SRS Thumba, Dr. A. R. Seshadri, Dean, IARI, Dr. Shanmughavelu, Professor of Horticulture, Tamil Nadu Agricultural University and Sri. M. S. Ram, Vice-Chairman, State Planning Board, Trivandrum visited the College during the year.

## **COLLEGE OF VETERINARY AND ANIMAL SCIENCES**

The Veterinary College was established in 1955 at Mannuthy about 6 km from Trichur on NH 47 towards Palghat. The College became a constituent unit of the Kerala Agricultural University in February, 1972. The College and the residential campus cover an area of 195 hectares.

### **Departments**

Dr. M. Krishnan Nair continued as the Dean of the Faculty of Veterinary & Animal Sciences. Dr. K. Radhakrishnan continued as the Professor (Research Coordination) and Dr. T. R. Sankunny as Assistant Registrar (Technical). The following 19 departments viz., (1) Anatomy (2) Animal Management (3) Animal reproduction (4) Animal Breeding & Genetics (5) Clinical Medicine (6) Dairy Science (7) Extension (8) Microbiology (9) Nutrition (10) Parasitology (11) Pathology (12) Pharmacology & Toxicology (13) Physiology & Biochemistry (14) Poultry Science (15) Preventive Medicine (16) Surgery (7) Veterinary Public Health (18) Statistics and (19) Animal Production Economics continued to function during the year.

Two Veterinary Hospitals - one at Mannuthy and the other at Kokkalai, Trichur, along with the Livestock Farm, Poultry Farm, Pig Breeding Farm and the A. I. Centre served as institutional units of the College. The details of the staff are furnished in Appendix IV.

### **Changes in personnel**

Dr. K. Prabhakaran Nair assumed charge as Professor and Head of the Department of Animal Reproduction. Dr. P. S. Pushkaran assumed charge as Professor and head, Department of Extension. Dr. Jacob V. Cheeran was appointed as Professor (Senior Scientist) in the Department of Pharmacology. Dr. C. Abraham Varkey, Dr. E. Nanu, Dr. K. Baby and Dr. M. V. Sukumaran were appointed as Associate Professors in the Departments of Surgery, Veterinary Public Health, Preventive Medicine and the Department of Dairy Science respectively.

### **Faculty Improvement Programme**

The following members of staff were on deputation or on leave for higher studies:

- 1 Dr. K. R. Harshan, Department of Anatomy
- 2 Dr. K. V. Reghunandan, Department of Animal Breeding and Genetics.
- 3 Dr. B. Nandakumaran, Department of Animal Breeding & Genetics
- 4 Dr. C. P. Neelakanta Iyer, Department of Animal Reproduction
- 5 Dr. U. T. Francis, Department of Dairy Science
- 6 Dr. P. C. James, Department of Microbiology
- 7 Dr. V. Jayaprakasan, Department of Microbiology

- 8 Dr. K. Madhusoodanan Pillai, Department of Microbiology
- 9 Dr. K. V. Valsala, Department of Pathology
- 10 Dr. K. Venugopal, Department of Preventive Medicine
- 11 Dr. R. Padmanabha Iyer, Department of Veterinary Public Health
- 12 Dr. P. Prabhakaran, Department of Veterinary Public Health.

### **Seminars, Symposia, Workshops attended by Scientists**

Dr. M. Krishnan Nair, Dean, chaired the National Animal Health Research Workers' Conference at I.V.R.I. Dr. P. A. Oommer attended the National Seminar on the Role of anatomy in production and reproduction of farm animals at HAU Hissar. Dr. K. Prabhakaran Nair attended the All India Symposium on Animal Reproduction at the GB Pant University, Pantnagar. Dr. V. Vijayakumaran, attended the summer Institute on 'Instrumentation and Analytical technique in veterinary clinical biochemistry' at the College of Veterinary and Animal Husbandary Sciences, Mathura (UP). Dr. K. N. Aravinda Ghosh, attended the ICAR Summer Institute on 'Repeat breeding in cattle' at the Department of Gynaecology, Faculty of Veterinary Sciences, Punjabrao Krishi Vidyapeeth, Akola. Dr. M. Subramanyam attended the XX Dairy Industry Conference at Calcutta. Dr. E. Sivaraman attended the National Seminar on Fine wool production at Shandynella and XI workshop of AICRP on Agricultural by-products at Anand. Dr. A. Rajan attended the National Animal Health Research workers seminar at Mukteswar. Dr. N. Gopakumar attended School on Toxicology of pesticides at RAL Hyderabad. Dr. Jacob V. Cheeran attended International Seminar on Conservation in developing countries—problems and perspectives" at Bombay. Dr. A. Ramakrishnan, Dr. A. K. Kochugovindan Unni and Dr. R. Sabarinathan Nair attended the X Annual Poultry Symposium at Madras. Dr. A. Ramakrishnan and Dr. A. K. Kochugovindan Unni attended the annual workshop on AICRP Poultry at Jabalpur. Dr. R. Padmanabha Iyer attended the II Indian Convention of Food Scientists and Technologists at CFTRI Mysore. Dr. G. Mukundan attended the International Congress of Genetics held at New Delhi. Dr. T. R. Sankunny, attended the National Seminar of Key level functionaries in Adult Education at Delhi, the 36th Annual Adult Education Conference in Mysore; 37th Annual meeting of the Sahitya Akademi, New Delhi and the Regional Conference on Adult Education for Southern Region at Madras.

### **Seminars/workshops conducted**

An all India Symosium on Veterinary Surgery and the 7th Annual Convention of the Indian Society for Veterinary Surgery was conducted at the College. A total of 144 delegates representing almost all the States in India participated in the deliberations. A total of 111 Scientific/Technical papers presented.

## Academic Programme

The student strength is given below:

### 1. U. G. Courses

	Men	Women	Total
I B. V. Sc. & A. H.	54	13	67
II -do-	56	19	75
III -do-	52	30	82
IV -do-	57	15	72
V -do-	99	24	123
Pre-professional Make up	11	1	12
Total	329	102	431

### No. of students from other State/Countries with details

	Men	Women	Total
Nigeria	1	—	1
Jammu & Kashmir	41	—	41
Goa	5	1	6
Lakshadweep	21	—	21
Pondicherry	3	—	3
Meghalaya	3	2	5
Bhutan	6	—	6
UAE	—	1	1
Delhi	2	—	2
Zimbabwe	1	1	2
Sudan	1	—	1
Malaysia	—	1	1
Andhra Pradesh	1	—	1
Total	85	6	91

### No. of students obtained their degree during the year

39      10      49

### 2. P. G. Courses (M. Sc. Ag. Stat)/M. V. Sc./Ph. D.

	Men	Women	Total
I Year	19	3	22
II Year	19	9	28
P. G. Diploma	22	—	22
Total	60	12	72

### No. of students from outside the state with details

	Men	Women	Total
Nepal	2	—	2
Assam	5	—	5
Nagaland	2	—	2
Nigeria	1	—	1
Orissa	1	—	1
Manipur	1	—	1
Rangoon	1	1	2
Karnataka	1	—	1
Total	14	1	15

No. of students who obtained degrees

M. V. Sc.	17
M. Sc. (Ag. Stat)	5
Ph. D (Vety)	1
Total	<u>23</u>

### Study Tours

Students of III and IV year B. V. Sc. & A. H. undertook South India and All India study tours respectively during the year.

### Scholarships, awards and aids

The following scholarships/Educational concessions/Loans/ Stipends were awarded to the students during the year under report.

ICAR Senior Fellowship	2
ICAR Junior Fellowship	4
KAU Senior Fellowship	8
KAU Junior Fellowship	17
ICAR Merit-cum-means scholarship	15
National merit scholarship awarded through Director of Collegiate Education	18
National Foundation for Teachers Welfare Scholarship	4
Government of India National loan scholarship	4
Scholarships for Service Personnel	1
Labour Welfare Fund Board Scholarship	2
Educational Concession to SC/ST	4
Educational Concession to OBC	4
Educational Concession to KPCR	48
Commonwealth Fund for Technical Co-operation Scholarship	2
Backward class welfare Department Scholarship	1
Govt. of Andhra Pradesh	
Educational Concession to Students of J & K	5
Loan by Jammu & Kashmir Bank	42
Educational concession to Lakshadweep students	19
Educational concession to Bhutanese students	2
Educational concession to Meghalaya students	5
Fund Board scholarship to students of Pondichery	1
Stipend to students from Goa	4
Total	<u>212</u>

### Extra Curricular activities

The activities of the students union 1983-84 of the College of Veterinary & Animal Sciences was inaugurated by Sri. Thakazhi Sivasankara Pillai on 6th March, 1983. The Arts club of the students union was inaugurated by Dr M. Leelavathy on the same day.

Guru Nityachaitanya Yathi and Sri K. K. Vamanan gave guest lectures on two days, on Vedantha and Bharatha Darsanam. The arts



club conducted interclass dramatics competition on 31st May and 1st June, 1983. It also arranged various programmes for the College day and Union inauguration and also participated in the KAU Youth Festival.

The literary and debating club was inaugurated by Sri Vylloppilli Sreedhara Menon on 9th May, 1983. Noted novelist Sri Kovilan spoke on the occasion. Literary competitions were conducted under the association.

The planning forum conducted 3 interclass quiz competitions and the All Kerala quiz competition for Dr P. J. Philip Memorial Trophy.

Three seminars and two symposia were also conducted under the planning forum on subjects of Scientific and Social interest.

Hobby Centre, Film Club and the national integration wing also were very active with various activities in their field.

### **NSS activities**

Vanamahotsavam, a lecture on Gandhism in modern India, animal health camp at Vilvattom Panchayat, Adult Education, A blood typing camp were some of the NSS activities done during the year.

### **Hostels**

Dr M. Krishnan Nair continued as the warden of the three hostels. Accommodation was provided for 266 men students and 95 women students in these hostels. Dr P. A. Oommer, Dr M. K. Rajagopalan and Dr K. Baby continued as Assistant Wardens of the P. G. hostel, U. G. hostel and Ladies' hostel respectively.

### **College Library**

During the year 1625 numbers of titles including bound volumes of journals were purchased. The total number of books in the library as on 31-3-84 was 17830. 172 journals were procured and 380 books were purchased under the Book Bank scheme.

## **INSTRUCTIONAL FARMS / HOSPITALS**

### *University Livestock Farm, Mannuthy*

This is one of the oldest livestock farms in the State established in 1921. It was transferred to the KAU during 1972. The farm functioned as a teaching, research and extension unit. Farm training courses in Animal Management, Genetics, Dairy Science, Animal Nutrition and Artificial Insemination; practical training programme for Dairy Farm instructors, farmers, pre-release defence personnel, etc., were offered utilising the facilities of the farm. The farm had a total stock of 242 animals as on 31-3-1984; 114 milch cows, 62 dry cows, 4 bullocks, 4 buffaloes and other 58 stocks.

The farm maintained cross-bred dairy cattle of Jersey, Brown Swiss and Holstein. The total milk production for the year was

19, 76, 675 kg. The farm provided facilities for research work carried out by departments of the College of Veterinary & Animal Sciences.

#### *University Poultry Farm*

The University Poultry Farm functioned originally under the Department of Animal Husbandry and it was transferred to KAU on 1-2-1972. The main objectives of the farm are to provide hatching eggs, chicks & breeders for farmers and development departments, provide instructional facilities for teaching and research and undertake independent research in various aspects of poultry production.

During the year under report, a cross breed for backyard system was evolved and released and the production of Turkey and Quills were initiated. A total number of 2498 birds were supplied under the lab to land programme and 2.3 lakhs of eggs were produced. A total number of 4504 birds were sold as breeders to the farmers.

A total number of 6682 birds were available as on 31-3-1984. The average number of eggs produced per day was 636.

#### *Veterinary Hospital, Kokkalai*

The hospital was established 58 years back and is situated on the South Western side of Trichur Town. The area of the hospital is about 0.5 hectare.

The main objective of this hospital is to give veterinary aid to the animals in and around Trichur and to give them protective vaccination against infectious diseases. The most modern trends in the fields of diagnosis and treatment are practised here. Specialists from different clinical and para clinical departments of the Veterinary college were attending this hospital regularly for this purpose.

A clinical laboratory and Artificial Insemination Centre were also functioning in the hospital premises. Dr. K. Ramadas, Associate Professor continued as Head of the Institution during the period under report.

Students of B. V. Sc. & A. H. classes were given practical training in various aspects of clinical diagnosis and treatment of Animal diseases. Besides, P. G. students had their advanced training at this hospital. They availed the facility here to collect materials for their research work. A total number of 24842 out patients were treated, 168 operations and 27 castrations were performed. A number of 9892 birds were treated and vaccinated. The average daily attendance was 68.

#### *Veterinary Hospital, Mannuthy*

Veterinary Hospital, Mannuthy was started during the year 1958-59. A total of 11566 cases (7503 bovines and 4063 others) were treated during the period. A total of 61 castrations 76 major surgical operations and 586 minor surgery cases were attended to. A total of 6174 RD vaccinations and 15 AR vaccinations were conducted.

## COLLEGE OF FISHERIES

The College of Fisheries was started during the academic year 1979-80 at Mannuthy. On 25-5-1981 it was shifted to Panangad in Cochin. The College office which was functioning at Palarivattom, Cochin was shifted to Panangad campus on 12-10-1983. The College presently offers a four year degree programme leading to the degree of Bachelor of Fishery Science (B. F. Sc) following the trimester system of teaching. The intake capacity is 30 students per year, of which 9 seats are reserved for the children of fishermen.

Construction works, started earlier in the campus have made further progress during the year. Four more brackishwater ponds have been completed. Construction of 15 nos of staff quarters is nearing completion. Work is in progress as regards the construction of the 4th semi-permanent academic block. Architectural drawings for the construction of the main academic block has been completed.

### Departments

Dr. M.J. Sebastian continued as the Dean (Fisheries). There were 7 departments, viz. Department of Aquaculture, Fishery Biology, Fish Processing Technology, Fishery Hydrography, Fishing Technology, Fishery Engineering and Management studies. The college has its instructional farms at Panangad and Puduveypu. The list of academic and supporting staff are furnished in Appendix-IV

### *New posts sanctioned during the year*

The following new posts were created during the year

1 Professor (Fishery Biology)	1
2 Assistant Professor (Fishery Biology)	1
3 Assistant Professor (Fishery Engineering)	1
4 Assistant Professor (Fish Processing)	2
5 Assistant Professor (Fishing Technology)	1
6 Assistant Professor (Fish Pathology)	1
7 Junior Assistant Professor (Statistics)	1
8 Junior Assistant Professor (Chemistry)	1

### *Posts shifted during the year*

The post of Associate Professor (Aquaculture) was shifted from Panangad to Puduveypu, while the post of Associate Professor (Botany) was shifted from Puduveypu to Panangad. The posts of Assistant Professor and Junior Assistant Professor (Aquaculture) were shifted from Rice Research Station, Vytila to Fisheries station, Puduveypu during the report period.

### *Changes in personnel*

The following appointments/transfers were made during the year.

Sri Cyriac Mathen, Professor (Fish Processing) deputation from

Central Institute of Fisheries Technology returned to his parent institution on 26-8-1983 on completion of the deputation period of 2 years.

Dr P.M. Mathew joined the College as Professor of Fisheries Research on 5-11-1983. Sri K.S. Purushan who joined on 5-11-1983 as Associate Professor (Aquaculture) at Panangad was relieved on 1-12-1983 on transfer to Regional Agricultural Research Station, Kumarakom. Dr (Mrs) Jayashree Vadhyar joined as Associate Professor (Aquaculture) at Panangad on 1-12-1983. The post with the incumbent was transferred to Fisheries Station, Puduveyyu with effect from 2-12-1983. Sri K.M. George, Associate Professor (Botany) on transfer from Fisheries Station, Puduveyyu joined the College on 8-12-1983. Sri M. S. Syed Ismail Koya joined as Assistant Professor (Fish Breeding) on 7-11-1983. Sri M.M. Jose, joined as Assistant Professor (Aquaculture) at Fisheries station Puduveyyu on 22-11-83. Dr B. Madhusudana Kurup joined as Junior Assistant Professor (Ichthyology) on 7-11-1983. Dr M.V. Mohan, joined as Junior Assistant Professor (Aquaculture) on 22-11-1983. Smt. Sosamma Cherian, Junior Assistant Professor (Biochemistry) was relieved from the College on 23-11-1983 to join the post of Assistant Professor (Biochemistry) at Regional Agricultural Research Station, Kumarakom. Sri Philip Sabu, Junior Assistant Professor (Commerce) was relieved from the College on 29-11-1983 to join as Assistant Professor (Commerce) at the College of Horticulture, Vellanikkara.

#### **Faculty Improvement Programme**

Smt Elizabeth Joseph, Junior Assistant Professor and Sri Sajan George, Junior Assistant Professor (Aquaculture) continued to be on study leave for undergoing Ph.D. course.

Sri P. M. Sherief, Assistant Professor (Biochemistry) who was deputed to carry out research work on the 'Chemistry of Fish Gonadotropic hormones' at Danish Institute of Protein Chemistry, Horsholm, Denmark, under the Danish Government Scholarship, rejoined the College on 1-7-1983.

Sri D. D. Namboodiri, Associate Professor (Fish Processing) has rejoined after the completion of deputation for 2 months training in USSR under the Indo-Soviet Cultural Programme.

Dr (Mrs) K. Jayashree Vadhyar, Assistant Professor, (Brackishwater Fish Farming) attended a one month Summer Institute on 'Hatchery Production of Prawn seed and culture of Marine prawns' conducted by Central Marine Fisheries Research Institute, at Cochin from 18-4-1983 onwards. Dr (Mrs) R. Shylajakumari, Assistant Professor participated in the workshop on 'Invertebrate Endocrinology' organised by Marathwada University and Centre for Advanced Studies in Mariculture at Central Marine Fisheries Research Institute, Cochin from 18-10-'83 to 24-10-'83.

Sri T. M. Sankaran, Associate Professor, underwent the National Training course on Fish Stock Assessment at Central Marine Fisheries Research Institute, Cochin, conducted jointly by FAO, Danish International Development Agency and ICAR. Dr (Mrs) Thresiamma James, Assistant Professor and Dr MV Mohan, Junior Assistant Professor attended the workshop on 'Culture of live feed organisms with special reference to *Artemia* culture' on 24th and 25th January, 1984 at Central Marine Fisheries Research Institute, Cochin, organised by the Centre of Advanced Studies in Mariculture.

#### Details of Seminars/extension lectures conducted

A seminar on scientific fish culture, livestock farming and agriculture was conducted at Fisheries Station, Puduveypu on 17-3-1984 as part of the Lab-to-Land programme. Dr Jim Chacko, Assistant Professor of Research, University of Idaho, USA gave a talk at the college on 'Diseases of fresh water fishes of United States of America' on 19-12-1983.

#### Academic programmes

<i>UG Course</i>	<i>Strength of students</i>		
	<i>Men</i>	<i>Women</i>	<i>Total</i>
I Year	23	4	27
II Year	17	10	27
III Year	16	9	25
IV Year	19	8	27
Total	75	31	106

#### *No. of students from outside the State*

1. Sri Lanka	1	—	1
2. Lakshadweep	1	—	1
3. ICAR nominees from other states	4	—	4
Total	6	—	6

No. of students who obtained their degrees during the year: Nil

#### *Practical training programmes*

The third year B.F. Sc. students were taken to Malampuzha during the period 29-6-'83 to 2-7-1983 for field training in induced breeding of fishes. The Final year B. F. Sc. students were taken on board the CIFNET training vessel on 7-11-1983 and 23-11-1983 and the Central Institute of Fisheries Technology fishing vessel 'Sindhukumari' from 24-3-1984 to 27-4-1984 as part of the 'Work experience' programme.

### *Study tour*

The second year B. F. Sc. students were taken on a specimen collection-cum-study tour to places like Kovalam, Vizhinjam, Cape Comerin, Fisheries College, Tuticorin, Research centres of Central Marine Fisheries Research Institute at Tuticorin, Mandapam and Rameswaram during the period from 15-5-1983 to 22-5-1983.

### *Scholarships and aids to students*

The following scholarships and aids were awarded to the students during the year.

Name of scholarship/aid	No. of recipients
1. Education concession to SC students	8
2. Education concession under KPCR	24
3. Fisheries Scholarship	13
4. National Merit Scholarship	7
5. KAU Merit Scholarship	12
6. Educational Concession from UT of Lakshadweep	1
7. Educational Concession from Manipur Government	1
Total	66

### *Extra-curricular activities*

The College of Fisheries Annual 'Matsya-82' was released by the eminent artist Sri C. N. Karunakaran on 15-11-1983 at a function held in the College. Sri C. P. Narayanan, Journalist and former member of the University Executive Committee, addressed the gathering on that occasion.

Fisheries College Students' Union 1982-83 was inaugurated by Sri S. N. Rao, Chairman, Marine Products Export Development Authority on 15-12-1983. The Arts Club of the College was inaugurated by the eminent writer Sri K. L. Mohana Varma in the same function. In connection with this an arts festival was organised by the students Union in which interclass competitions on various cultural items were conducted. The college hockey team participated in the inter-collegiate hockey tournaments held at Vellayani in December, 1983. Sri Dilip Sathyanath of I year B. F. Sc. represented the University in the inter University football tournament held at Calicut in October, 1983. Miss Daisy C. Kappen, II B. F. Sc., represented the University in the Inter University women volley ball tournament held at Madras in November, 1983.

Mr. S. Anilkumar of III B. F. Sc. won the 3rd place in the All Kerala Quiz Competition on Wild Life organised by Kerala State Forest Department on 6-10-1983 in connection with the Wild Life Week celebrations at Thekkady. The NSS Unit of the College finalised a programme for conducting a health and morbidity survey at Panangad village with

the collaboration of the Department of Health Services, Govt. of Kerala. The programme which is the first of its kind in the country was formally inaugurated by the Honourable Minister for Health of Kerala, Sri. K. G. R. Kartha on 16-5-1983. Captain K. C. K. Raja, NSS Youth Officer, Govt. of India, visited the College on 27th July, 1983 and addressed the students. The 95th birthday of late Sri C. V. Raman was celebrated in the College on 7-11-1983. Dr. C. P. Menon, Professor of Physics, University of Cochin spoke on the occasion. The 35th anniversary of the Declaration of Human Rights was celebrated in the College on 13-12-1983. Advocate S. Easwara Iyer spoke on the occasion.

Sri. K. G. Balakrishna Pillai, Administrative Officer of the College attended the Third World Hindi Conference held at New Delhi, from 28-10-1983 to 30-10-1983. He also participated as a resource person in the National Workshop for Young Hindi Writers of Non-Hindi Areas, organised by Kerala Hindi Prachar Sabha at Trivandrum during the period 27-2-1984 to 1-3-1984.

The possibilities of starting KANFED activities in Panangad was discussed in a meeting held at the College on 22-2-1984. The meeting was attended by the staff of the College and the local farmers. Sri. P. N. Panicker, Secretary, KANFED spoke on the occasion. It was decided in the meeting to implement the KANFED programme in association with the NSS and the Lab to Land programme and an adhoc committee was formed for this purpose.

#### *Hostel*

As the construction of the College hostel was not completed the boys were accommodated in different rented buildings in the city. The Dean functioned as the Warden and Dr. M. C. George, Assistant Professor and Sri. N. N. Raman, Junior Asst. Professor served as the Assistant Warden and Resident Tutor, respectively. The girl students were accommodated in approved hostels like the YWCA and the Athurasramam Working Women's Hostel. Thus accommodation was provided for 70 boys and 22 girls.

#### **College Library**

During the year 415 books were purchased bringing the total number of books to 5580. Subscription for 57 Journals was made.

#### **INSTRUCTIONAL FARM / FISH FARM**

In addition to the fish ponds available at Panangad; the College has its instructional farm at Puduveypu with a total area of 101 ha. Construction of six experimental ponds has been completed at the station during the period under report.

The main activity of the farm during the year was collection of fish seed from the pond and supply to fish farmers. A total of 51,885

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seed consisting of mullets and chanos were supplied from the farm during the year. The total revenue from the farm during the report period was Rs. 13,035.16.

The expenditure on contingencies at Instructional Farm, Panangad was Rs. 1,25,936.27 and the revenue from the farm was Rs. 70,561.19.

### **Other Activities**

Under the lab-to-land programme implemented through the College and Instructional Farm, Puduveypu, technical and material assistance were given to the 50 selected farm families in adopting the new technologies of fish culture, livestock farming and agriculture.

During the year under report, in the absence of suitable hands in the faculty, services of a number of experts were availed of for offering courses like Statistics, Demersal Fisheries, Crustacean Fisheries, Fish Pathology, Fishing Methods, Gear Technology, Genetics and Evolution, Heat and Electricity, Mensuration and Fluid Mechanics, Chemical Oceanography, Water pollution, Equipment Engineering and Plant Maintenance, Marine Engines, Seamanship and Navigation, Fisheries Economics, Marine Products Export Trade, Fisheries Extension Methods, Business Organisation and Management, Book keeping and Accountancy, Commercial Correspondence and Secretarial Practice and Physical Education.

The Dean served as a member of the Expert Committee which reviewed the prospects of rubber cultivation in Kuttanad. He was nominated to the Senate of the University of Cochin for a further period of 4 years.

### **Visitors**

Sri. G.N. Mitra (Chairman) and Dr Y.R. Tripathi (Member) of the ICAR Mid-term Appraisal Committee for the All India Coordinated Research Projects on Fisheries visited the College along with Sri Apurba Ghosh, Project Coordinator, All India Co-ordinated Research Project on Brackishwater Fish Farming on 7-7-1983 and held discussions with the Dean, Director of Research and Scientists of the Aquaculture department regarding the progress of work and future programme of the Vyttila centre of All India Co-ordinated Research Project on Brackishwater Fish Farming.

Dr P.S.B.R. James, Assistant Director General (Fisheries) ICAR visited the College on 23-9-1983 and held discussions with the Dean and teaching staff of the College.

Captain K. C. K. Raja, Youth Officer, Govt. of India, visited the College on 27-7-1983 and addressed the students.

Dr Maharaja Singh, Deputy Director General (Education) ICAR visited the College on 20-10-1983 and held discussions with the Director of Research, Kerala Agricultural University, Dean (Fisheries) and Head of the Departments on the syllabus of the B. F. Sc. programme and starting of M. F. Sc. programme and also on the infrastructural facilities available in the campus for fisheries research. During the occasion, the Dean presented a project proposal for the establishment of fisheries research-cum-educational complex at Cochin with UNDP assistance.

Mr Xavier Arakkal, M. P. visited the college on 26-10-1983 and held discussions with the Dean about the progress in land acquisition at Panangad. The members of the General Council of Kerala Agricultural University visited the College on 3rd January 1984 and held discussions with the staff and students. Sri V. G. Dhanakumar, ICAR Lab-to-Land programme officer, Bangalore, visited the College on 8-3-1984 to assess the progress of the programme.

### **INSTITUTE OF AGRICULTURAL TECHNOLOGY, TAVANUR**

Institute of Agricultural Technology is located in Tavanur village of Malappuram district about 7 kms from Kuttippuram Railway station and 12 kms from Ponnani. The Institute was established in 1963 as Rural Institute and offered various diploma and certificate courses. The Kerala Agricultural University took over this Institute on 12-12-1975 and renamed it as Institute of Agricultural Technology in 1977. This Institute is under the direct control of Director of Extension.

IAT offered two diploma courses viz. Diploma in Agricultural Sciences (DASc) and Diploma in Agriculture and Rural Engineering (DARE). In addition to this, training programmes for students and demonstrators and livestock assistants of the Development departments of the Government of Kerala were also conducted.

The campus has an area of 40 ha of which the Instructional Farm covered 26 ha. A Dairy Unit and an AI Centre are also attached to the Instructional Farm. The villages of Tavanur and Trikanapuram have been adopted under the Village Adoption Scheme. The Institute is a sub-centre of the Northern Zone under NARP. The Head of the Institute is designated as Director and is in the cadre of Associate Professor. Sri K. Karunakaran, Associate Professor (Entomology) continued as the Director of the Institute during the year. The list of other staff members in the Institute is appended in Appendix-IV.

### **Changes in personnel by new appointments / transfers etc.**

The post of Professor of Agricultural Engineering has been shifted to the College of Horticulture, Vellanikkara during December, 1983.

Sri P. Ahmed, Assistant Professor (Agrl. Extn.) joined duty on 25-4-1983. Sri S. M. Shahul Hameed, Assistant Professor (Agro)

transferred to ND Schemes, Kottarakkara in August 1983. Sri V. K. Raju, Junior Assistant Professor (Hort.) has been relieved of his duties in the Institute on 29-7-1983 consequent on his appointment as Assistant Professor (Hort) in the College of Horticulture, Vellanikkara. Sri K. J. Joseph, Junior Assistant Professor transferred to Regional Agricultural Research Station, Pattambi was relieved on 18-10-1983. Messrs P. Rajendran and P. V. Habeebur Rehiman joined duty as Junior Assistant Professors at this Institute on 25-11-1983 and 9-12-1983 respectively. Sri V. Krishnakumar, Junior Assistant Professor (Agronomy) and Sri E. Soman, Junior Assistant Professor (Phy. Edn.) on transfer were relieved during the period.

### **Details of Seminars / Symposia / Extension Lectures / Training Programmes conducted by the Institute**

Under the Lab-to-Land phase II Programme, 50 farm families were identified and programmes such as goat rearing, poultry keeping, agriculture production and homestead improvement etc. were carried out to improve the economic conditions of these selected families. Each family was provided with extra input assistance including vegetable seeds, paddy seeds, coconut seedlings, fertilizers, plant protection chemicals, she goats, veterinary aids, astrowhite chicks, poultry feed and agricultural implements limited to a maximum of Rs. 465/-

Two on-farm training programmes were organised for the benefit of adopted families in Pothanur village of Tavanur Panchayat. The subjects of training were (1) Vegetable cultivation (2) Goat rearing and (3) Poultry keeping.

A Kisan Mela was also conducted at Pothanur village on 28-3-84 and about 110 farmers attended the function. An Agricultural Seminar and a goat show were conducted during the Mela. Experts from Farm Advisory Service took classes on care and management of goats and chicks.

The farm clinic established at Pothannur village under the village adoption programmes gave technical advice to solve the problems faced by the farmers, visiting the fields and homesteads regularly to get a first hand information of the field problems.

The phase II Lab-to-Land Programme which was in operation in Pothanur village for the last two years completed its period on 31st March 1984. The impact achieved in about 2 years in the area is impressive. In Pothanur village the use of HYV of rice were meagre and the farmers were following poor crop husbandry practices. The Lab-to-Land Programme could bring about a substantial change in farming practices at least among the adopted farmers in the area. Poultry farming and goat rearing could not only create additional

employment but also increased the income of the farmers. The exact impact of the Lab-to-Land Programme is yet to be assessed.

### Training Programmes

The six months inservice training for Agricultural Demonstrators of the Department of Agriculture was offered by this Institute and fifty six persons were trained during the period under report.

Kerala Institute for Research, Training and Development Studies (KIRTADS) in Co-operation with Kerala Agricultural University organised a training programme for 45 days for 33 Tribal Youths at this Institute. Sri C. M. Sundaram, Hon'ble Minister for Local Administration inaugurated the training programme on 25-10-83. Sri T. Madhava Menon, IAS, Vice-Chancellor, Kerala Agricultural University presided over the function in connection with the inauguration of programme. The valedictory address was made by Sri K. Karunakaran, Hon'ble Chief Minister of Kerala on 3-12-1983 in the function presided over by Sri T. Madhava Menon, IAS, Vice-Chancellor and attended by Sri C. Haridas, M. P., Dr Krishnan Nair, Dean, College of Veterinary & Animal Sciences, Dr P. R. G. Mathur, Director of KIRTADS and Sri O. P. R. Menon, District Collector. The training was completed on 8th December, 1983 and the trained Tribal Youths were issued identification cards which would enable them receive technical and other free assistance from the Research stations of Kerala Agricultural University.

### Academic programmes

The strength of students under each course was as shown below:

	Men	Women	Total
D. A. Sc. VI Batch 2nd year	46	1	47
D. A. Sc. VII Batch 2nd year	46	—	46
D. A. Sc. VIII Batch 1st year	50	—	50
D. A. Sc. IX Batch 1st year	18	—	18
	<hr/> 160	<hr/> 1	<hr/> 161
D. A. R. E. II Batch 2nd year	24	—	24
D. A. R. E. II Batch 1st year	23	—	23
D. A. R. E. IV Batch 1st year	16	—	16
	<hr/> 63	<hr/> —	<hr/> 63

Two students of the IX batch D. A. Sc. course were deputed from the Union Territory of Lakshadweep.

Forty three students of the VI batch D. A. Sc. course obtained the Diploma during the year.

Study tours for the students were conducted to the places of Agricultural importance such as Regional Agricultural Research Station, Pattambi; Regional Agrl. Research Station, Ambalavayal; Ripon Tea Factory; Cadbury factory India Limited, Kalpetta; CPCRI, Kasaragod, Pepper Research Station, Panniyoor, Regional Agricultural Research Station, Pilicode; Indo-Swiss Project, Mattupatty; College of Agriculture, Vellayani; CPCRI, Kayamkulam etc.

#### **Scholarships/awards/aids to students**

Name of scholarship/award/aid	No. of recipients
KAU Merit scholarship	21
Educational concessions under KPCR	110
"          "          to SC/ST/DEC	25
Total	156

#### **Extra-curricular and co-curricular activities**

IAT Students' Union was inaugurated on 6-8-83. The Arts Club of the Union and Literary Association were inaugurated on 7-8-83 and Inter-class Arts competitions were conducted. The IAT students' Union organised Arts festival on 10-11-1983 and conducted literary competition for students on 11-11-1983.

The IAT teams participated in the KAU Inter Collegiate tournaments in football, Shuttle badminton, table tennis, cricket, volley ball, basket ball and ball badminton held during May 1982 and March, 1984 at various centres of Kerala Agricultural University. Two foot ball players of this Institute were selected for the KAU foot ball team which represented the KAU in the South Zone Inter-University Foot ball tournament held at Mannuthy during September, 1983. The annual Athletic meet of the Institute was held on 27th and 28th January, 1984. With the help of the District Sports Council, Malappuram, a coaching camp in Volley ball was conducted at this Institute.

#### **Institute Hostel**

Two hostels in the Institute—One for boys and the other for girls—provided accommodation for 120 boy students and 10 girl students. Sri A. P. Gopalakrishnan, Research Assistant was the Assistant Warden of the IAT Hostel.

#### **Institute Library**

The Institute library had 14469 titles as on 1-4-1983. 154 new books were procured during the year under report and there were 14623 books in the library at the close of the year. Subscription to 29 journals continued during the year.

### Instructional Farm

The Instructional Farm comprises of an area of 26 ha are under cultivation of different crops. The farm provided facilities for the practical class of the Diploma students and Development Department trainees.

The following seeds and planting materials were produced and sold during the year.

	<i>Quantity produced</i>	<i>Quantity sold</i>
Paddy seeds	22332 kg	22252 kg
Paddy bulk	21800 kg	13700 kg
Coconut	49327 nos.	44219 nos.
Gingelly	185 kg	163 kg
Banana (all varieties)	2411 kg	2411 kg
Vegetable	3118.850 kg	3118.850 kg
Black gram	90 kg	90 kg
Plantain	396 kg	396 kg
Poovan	140.750 kg	140.750 kg
Tapioca	2701 kg	2701 kg
Mango	472.750 kg	472.750 kg
Sapota	124.500 kg	124.500 kg
Bread fruits	23.750 kg	23.750 kg
Jack fruit	683.000 kg	683.000 kg
Gooseberry	328 kg	328 kg
Vegetable seeds	41.775 kg	41.775 kg
Coconut seedlings 420 +187	607 nos	940 nos.*
Nendran sucker	914 nos	914 nos

\* last years balance also

A small dairy unit attached to the Instructional Farm functioned with the following animals.

Milking cow	9
Dry	1
Pregnant	3
Calves	9
Other animals	5
	<hr/>
	27

A total of 14210 litres of milk was produced with a lactation herd average of 4.7 litres.

### Veterinary hospital

A total No. of 2905 cases were treated in the hospital. □

## CHAPTER III

# Research

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The research programmes of the University have been drawn out mainly with emphasis on solving location specific field oriented problems felt by the farmers of Kerala. For the implementation of these felt needs, the University resources were supplemented by financial assistance from ICAR, World Bank and other agencies. Regional Agricultural Research Stations were established at Pilicode for Northern Region, at Pattambi for Central Region, at Kumarakom for the Region of Problem Areas and at Vellayani for Southern Region. During the year, the fifth region for the High Ranges was started at Ambalavayal with sub station at Pampadumpara. The technical and administrative control of stations under each region was given to the respective Associate Director of Research of that region with the overall supervision and control of the Director of Research. The different fields of research carried out in these Research Stations were grouped in to four disciplines, viz. Crop Improvement, Crop production, Crop protection & Social Sciences.

Seventeen Project Co-ordination Groups in the Faculty of Agriculture and seven in the Faculty of Veterinary & Animal Sciences functioned during the year.

Dr. P. C. Sivaraman Nair continued as the Director of Research. He was nominated by the Government of Kerala as the convener of the Expert Committee to study and report the various aspects of rubber cultivation in Kuttanad Area and the final report of the committee was submitted on 29th July 1983. Dr. Nair is also serving in the Inter Disciplinary Scientific panel for Fruits, Plantation Crops, Spices & Medicinal Plants and Editorial Board of Indian Horticulture of ICAR. He was also a member of the High level Committee on Land and Water Resources and Crop Production Committee of the State Planning Board. He is also a member of the committee for review of research in Horticulture at TNAU Coimbatore and UAS, Bangalore. Among the important meetings attended by the Director of Research are the following:- IDSP at New Delhi (2-5-1983), High level committee on Land and Water Resources at Trivandrum (May 1983), ORP Consortium at Alleppey (4-7-83), Inter-disciplinary Scientific Panel on Fruits & Plantation Crops at New Delhi

(25-26 August 1983), Expert Committee on fertilizer use in Cardamom at Cochin (30-8-83). Tree Physiology Seminar at Kottayam (30-9-83) and the All India Co-ordinated Spices & Cashewnut Improvement Project at Calicut (10-11 November 1983).

Dr. R. Kalyanasundaram continued as the Associate Director of Research (V&AS), Dr. C. C. Abraham as Associate Director of Research (M&E) and Prof. P. N. Pisharody as Associate Director of Research (AR&T) during the year. Dr. N. Mohanakumaran continued as Associate Director of Research (Plg) till 7-5-83 and was transferred to Regional Agricultural Research Station, Pilicode as Associate Director of Research. Prof. K. Kannan took charge as Associate Director of Research (Plg) on 12-5-83 and entered on leave from 13-5-83 to 31-7-83. Dr. Mohanakumaran was reposted as Associate Director of Research (Plg) in his leave vacancy Prof. Kannan again entered on leave from 5-9-83 to 30-10-83 and joined duty as Associate Director of Research in the Regional Agricultural Research Station for High Range Region, Ambalavayal on 1-11-83. Dr. (Mrs) Mary K. George, Professor of Agricultural Botany on return from leave was posted against the post of Associate Director of Research (Plg) and she joined on 22-9-83.

Dr. C. C. Abraham served as a member of the Kerala State Board for Prevention & Control of Environmental Pollution and continued in the Board of Studies of the University.

#### **Workshops & Seminars conducted**

State Level Seminar on Pulses and Oilseeds was held on 16th April 1983 at Malampuzha.

Annual workshop of the ICAR, Co-ordinated Project for Research on Chemistry of Submerged Soil and Rice Cultivation in High Rain Fall Areas was held on 20th and 21st May 1983 at Vellanikkara. The workshop of the All India Co-ordinated Agronomic Research Project and the Long term Fertilizer Experiment was held from 26th to 28th May 1983 at Vellanikkara.

A seminar in collaboration with State Planning Board on "Stagnation in Agricultural Production" with special reference to paddy was held from 1st to 3rd July 1983 at the College of Agriculture, Vellayani.

The Faculty Research Committee of the Faculty of Agriculture met twice during the year on 10th and 11th May 1983 and 29th December 1983 and a total of 157 Research Projects were approved for implementation. Faculty Research Committee decided to conduct adaptive trials with stealite as soil amendment—observational trial with sulphure, gypsum and pyrites as ameliorants for Poonthal Padams, large scale trials with *Azolla* at Pattambi and trials with hybrid cultures of sweet potato.



Faculty Research Committee of the Veterinary & Animal Sciences held its meetings twice at the College of Veterinary & Animal Sciences and approved fifteen research projects for implementation. These projects were initially approved by the respective Project Co-ordination Groups after thorough discussion by the scientists in the various disciplines.

#### **NATIONAL AGRICULTURAL RESEARCH PROJECT (NARP)**

The NARP sub-project for the high range region at Ambalavayal as the lead station and Pampadumpara as sub-centre was sanctioned by the ICAR for implementation on 1-9-83. This sub-project involves a financial commitment of Rs. 33.37 lakhs for 5 years from 1-9-83. Prof. K. Kannan took charge as the Associate Director of this project on 11-1-83. With the start of this sub-project at Ambalavayal, all the NARP programmes planned for the University are in progress. The details of the sub-projects with the jurisdictions, headquarters, financial commitments are furnished in page 48.

#### **NARP Southern region (College of Agriculture, Vellayani)**

Prof. A. G. G. Menon continued as the Associate Director of Research till 26-10-83. Dr N. Mohanakumaran took over as Associate Director on 26-10-83 and continued in that post. The University has initiated action for acquisition of an extent of 9.55 ha. of land from the Avadootha Ashram-Sadanandapuram for the special centre at Kottarakkara.

#### **NARP Central region (RARS Pattambi)**

Sri N. Rajappan Nair, Associate Director continued to be in charge of the project and Sri T. F. Kuriakose, Project Co-ordinator (Rice) continued to be in charge of the Agricultural Research Station, Mannuthy. In the Central Region, a sub-project for strengthening research on water management was sanctioned by the Council on 4-3-1983 and by the University on 30-7-83. This project involves an estimated cost of Rs. 30.06 lakhs. Work on this project is to be taken up mainly at the Eruthiampathy and Alathur areas of Palghat District and at Chalakudy.

#### **NARP Special Region of Problem areas**

The Headquarters of this region is at the Regional Agricultural Research Station, Kumarakom with the lead function of research on coconut, the verification and testing functions being on rice, oil seeds and pulses. Under this centre, the Rice Research Station at Moncompu with the lead function of Research on rice for the Kuttanad and Kole areas, the Rice Research Station at Kayamkulam for the Onattukara Region, Agricultural Research Station at Mannuthy as centre for verification of research on Kole areas and the Rice Research Station at

## Details of NARP Sub-projects in the Kerala Agricultural University

Sub-projects with date of ICAR sanction (dates in parentheses)	Date of commencement	Head-quarters	Operational area	Financial outlay (Rs in lakhs)		
				ICAR	University / State share	Total
Northern Region (8-5-1980)	31-7-80	RARS Pilicode	Cannanore, Kozhikode, Malappuram Districts	86.98	23.45	110.43
Central Region (27-8-1981)	20-10-81	RARS Pattambi	Palghat, Trichur, Ernakulam Districts	84.46	1.75	86.21
Water Management sub-project in the Central Region (4-3-1983)	30-7-83	RARS Pattambi	Chalaky, Eruthiampathi	21.72	8.34	30.06
Southern Region (31-8-1981)	20-10-81	College of Agriculture, Vellayani	Trivandrum, Quilon, Kottayam, Alleppey, Pathanamthitta Districts excluding the Problem Areas	81.77	13.94	95.71
Special Region of Problem Areas (31-8-1981)	20-10-81	RARS Kumarakom	Onattukara, Kuttanad, Kole, Pokkali areas	113.91	4.50	118.41
High Range Region (24-8-1983)	11-10-83	RARS Ambalavayal	Wynad and Idukki Districts	33.37	3.99	37.36
Strengthening Directorate of Research (31-7-1980)	31-7-1980	Directorate of Research	KAU Headquarters	10.83	—	10.83
			Total	433.04	55.97	489.01

Vyttila for the pokkali areas, continued the research activities as envisaged in the programme.

Sri U. Mohammed Kunju, Professor of Agronomy was in charge of the project and the station at Kumarakom and Prof. T. F. Kuriakose at Mannuthy, Sri P. J. Tomy and Sri K. Balakrishna Pillai, Associate Professors continued to be in charge of the station at Vyttila and Kayamkulam respectively.

#### **NARP Northern Region (RARS Pilicode)**

This region covered Cannanore, Calicut and Malappuram Districts. Sri K. Kannan continued as Associate Director till 8-5-83 and Dr N. Mohanakumaran assumed charge as Associate Director of Research on 9-5-83 and continued till 30-6-83. Dr R. Ravindran Nair, Professor of Agronomy was in full additional charge from 30-6-1983.

#### **NARP High Range Region (RARS Ambalavayal)**

ICAR gave administrative sanction on 24-8-83 and the University accorded sanction on 30-10-83 for the implementation of this project with Headquarters at Ambalavayal and sub-station at the Cardamom Research Station, Pampadumpara.

Sri. K. Kannan, took charge as Associate Director on 1-11-1983.

#### **KERALA AGRICULTURAL DEVELOPMENT PROJECT (KADP)**

This sub-project for research and training was started in the University on 18-4-1977. Dr. K. Kumaran, Dr. R. Vikraman Nair, Sri. K. K. Vidyadharan and Dr. Abi Cheeran continued as Professors for Coconut, Cocoa, Cashew and Pepper respectively. Dr. P. A. Wahid continued as Professor of Chemistry (Radio-tracer). There were altogether 47 research projects on various aspects of cocoa, cashew, coconut and pepper.

#### **COCONUT ROOT WILT DISEASE PROJECT (CRWDP)**

Under this scheme multi-disciplinary research projects continued to be in operation at the College of Horticulture, Vellanikkara, Regional Research Station, Vyttila and at the Rice Research Station, Kayamkulam. The study included etiology and possible control of the Root Wilt Disease of coconut.

A project on the Mycoplasma Like Organism as a possible causal agent of coconut root wilt disease was approved for implementation. The project includes studies on chemotherapy with antibiotics, isolation and characterisation of MLOs and studies on the collateral hosts of the causal organism. Experiments on chemotherapy were started. The technique for the injection of antibiotics into the stem by Gravitational Flow-cum-Transpirational Pull method was standardised. A cheap wet type nozzle was successfully fabricated. Oxytetracycline and Penicillin were applied to palms of medium disease intensity at Kumarakom @ 4, 6, 8 g/tree both as spray and injection.

## WESTERN GHATS RESEARCH PROJECT

Sanction was accorded by the Department of Environment, Government of India, during April, 1983, for implementation of the following research projects in the University.

1. Ecological studies and utilisation of the grassland flora available in in the Western Ghats.
2. Development of viable models of agro-eco systems to compromise with various eco-systems of tribal hamlets along with the Western Ghats.
3. Impact of development projects in the Western Ghats Region on forest dependent population—A case study of Wynad and Idukki districts.
4. Restoration of degraded environment in the Champakkad tribal colony.

All these projects were sanctioned for a period of three years. The Vice-Chancellor formally inaugurated this project on 25-4-1983.

The following project proposals were formulated and forwarded to the ICAR for approval.

1. ORP on Pepper at Idukki (Rs. 5,80,295/-).
2. Studies on mushroom flora of Kerala with special reference to cultivation of tropical species (Rs. 54,400/-).
3. Breeding for resistance to bacterial wilt in tomato, chilli and brinjal (Rs. 5,80,000/-).
4. Soil test Crop Response Co-ordination Project (Rs. 1,89,500/-)
5. Estimation of damage due to pests, disease and drought in black Pepper in Calicut District (Rs. 662,854/-).
6. Poverty and rural transformation in Kerala (Re. 4,70,000/-)
7. Evaluation of the germplasm of jack fruit and standardisation of cultural and manurial practices (Rs. 3,22,802/-).
8. Standardisation of micropropagation techniques in coconut (Rs. 3,50,450/-).
9. Investigation on the etiology of yellow leaf disease of arecanut (Rs. 3,95,000/-).
10. Nutritional studies on pulses (Rs. 81,700/-).
11. Establishment of blood group for cattle and buffaloes (Rs. 2,50,000/-).
12. Design and development of wind turbines and its feasibility studies in Kerala (Rs. 4,81,195/-).

The following ad hoc projects were sanctioned by the ICAR for implementation.

1. Mechanical control and utilisation of floating type aquatic weeds (Rs. 2,56,920/-) College of Horticulture, Vellanikkara.

2. Marketing of coconut and cocoa in Kerala (Rs. 99,600/-) College of Horticulture, Vellanikkara.
3. Breeding rabbit for meat production (Rs. 3,21,225/-) College of Veterinary & Animal Sciences, Mannuthy.

Formal orders from the Council sanctioning the following ad hoc project proposals are awaited.

1. Studies on the strains of rhizobia of pulses, the effect of nutrients on them and standardisation of mass culturing technique (Rs. 37,800/-) College of Agriculture, Vellayani.
2. Research on *Cymbopogon flexosus* and other species of *Cymbopogon* (Rs. 1,69,200/-) Aromatic and Medicinal Plants Research Station, Odakkali.
3. Scheme on toxic effects of industrial effluents on animals (Rs. 3,73,600/-) College of Veterinary & Animal Sciences, Mannuthy.

During the period, the ICAR sanctioned the ORP on resource development on water shed basis for implementation in the University for a period of 3 years with an approximate cost of Rs. 6,04,572/-. A committee was appointed to suggest suitable locations in Palghat District for ORP.

The ORP on Integrated Pest Management in the Kuttanad area also continued its activities during the year.

The academic staff of the University were deputed to attend various national/international workshops and seminars during the year.

The Research Report for the year 1981-82 and the publication "Kerala Agricultural University at a Glance" were brought out during the period. The "Agricultural Research Journal of Kerala" published vol. 20 (1) and the "Kerala Veterinary Research Journal" published Vol. No. 14.

Perspective master plans for development of the research stations in the University for the period till 2000 AD were prepared. These master plans were prepared with the objective of developing the major stations into fullfledged stations with well equipped laboratories for conducting post graduate research. The VII Plan proposals were discussed during November, 1983 at the College of Agriculture, Vellayani and College of Horticulture, Vellanikkara.

A meeting of the Heads of Research Stations was held on 12-5-83 at Vellanikkara to discuss various measures that are to be taken for the efficiency in the management of farms and discussed the ways and means

of increasing farm receipts, through improvement in manpower input-output ratios, rationalisation in pricing, precise advance programming of farm operations, etc.

The Variety Release Committee of the University met on 13-12-1983 and approved the rice cultures 1537-2, 4-4, 1907, 25100, for cultivation in the state and to recommend to the State Variety Release Committee.

#### REGIONAL AGRICULTURAL RESEARCH STATION, PILICODE

Research work on coconut commenced in Kerala with the establishment of 4 research stations in the Kasargode taluk of the S. Kanara district in 1916. This was based on the decision of the then Government of Madras that detailed studies on all aspects of coconut palm should be necessary to improve the income of the farmers in the west coast of the State. Accordingly 4 stations were established viz., Pilicode (Nileswar-1), Nileswar (Nileswar-2), Nileswar-3 and Kasargod, representing different soil types. Regular experimental work started in these stations from 1980. The station at Kasargod was handed over to the Indian Coconut Committee in 1946. The other 3 stations were transferred to the Govt. of Kerala with the re-organisation of the states in the year 1956.

In the year 1972, when the Kerala Agricultural University was formed, the stations at Pilicode and Nileswar 2 were brought under the University. Pilicode station was re-organised in 1981 under the National Agricultural Research Project to solve location specific farming problems in the northern zone of Kerala comprising of Malappuram, Kozhikode, Cannanore and Kasargod districts. The station is located in Hosdurg Taluk of Kasargod at 13° N latitude and 70° E longitude at 15 m above MSL.

Altogether (Pilicode and Nileswar), the station has a land area of 56.90 ha which comprises of 4.0 ha of wetland and 52.90 ha of garden land. The soil at Pilicode is lateritic and at Nileswar it is red sandy loam. The important crops grown here are coconut (43.10 ha), rice (6.28 ha in two seasons), vegetables (1.5 ha), banana (1.5 ha), cashew (1.05 ha), pulses (6 ha) and pepper (0.60 ha). The entire area is being utilised for crop production.

Dr. R. R. Nair continued to officiate as Associate Director of Research in the Station.

Dr. G. S. L. H. V. Prasad Rao, Associate Professor attended the 1st Indian Agro-meteorological Congress at Waltair during June, 1983 and presented a paper. Sri. P. C. Balakrishnan, Junior Asst. Professor attended the Summer Institute on Advances in Breeding Methodology in Crop Improvement at Haryana Agricultural University, Hissar during June, 1983. Sri. I. P. Sreedharan Nambiar, Associate Professor attended

the Water Management Training Programme at IARI New Delhi and Haryana Agricultural University, Hissar during January, 1984.

A total of 64 research projects were undertaken by the scientists of the station during the year. These were funded by ICAR (7), NARP (44) and KAU (10). Three KAU-CWRDM-CTCRI collaborative schemes were also carried out at the station. The research activities were on rice (10), coconut (24) and cropping pattern and farming system (30).

On the basis of the research findings, eleven scientific articles and ten popular articles were published by the staff of the Station.

### **Visitors**

Dr. Vasco M. Mondlane, Director General, Directorate of Cashew, Mozambique visited the station. Dr. E. V. Ramakrishnan, Leader, IDA Mission, Dr. A. Appa Rao, Member, IDA Mission, Sri. Balasubramanyam, Senior Scientist, ICAR and Sri. T. S. Sankaran, Director of Works, ICAR, New Delhi, visited the station and reviewed the various activities under the NARP Project.

### **REGIONAL AGRICULTURAL RESEARCH STATION, AMBALAVAYAL**

The Agricultural Research Station, Ambalavayal was established in 1946 as a part of Wynad Colonisation Scheme to carry out research on various aspects of improvement of agriculture in Wynad in general and the colony area in particular, to make available quality seeds and planting materials for distribution and also to render scientific advice to the farmers on improved technology in Agriculture. In 1966, the station was upgraded as Central Horticultural Research Station, to undertake intensive research on major horticultural crops especially fruits, spices and essential oils etc., and in 1972, it was taken over by the KAU. The station was brought under the National Agricultural Research Project in November, 1983 and was upgraded to the status of a Regional Agricultural Research Station for High Ranges with lead function for research on citrus, mango and other fruits and paddy based farming system and verification function for pepper, essential oils and medicinal plants. The Cardamom Research Station, Pampadumpara, is a sub-station with lead function for research on cardamom and verification function for pepper and hill rice.

The Krishi Vignan Kendra which was started in 1982 as a small scheme with the objective of imparting training on scientific technology in Agriculture and Animal Husbandry to the farmers of Wynad, especially, to the tribal communities was strengthened with the sanctioning of a full fledged Krishi Vignan Kendra in 1983 with full financial assistance from ICAR. A small poultry unit with 50 birds was attached to the station during the year.

The station is situated in Sultan Battery Taluk of Wynad district at an elevation of 914 m above MSL and has an area of 87.3 ha. The geographic location is at 11° 37'N latitude and 76° 12'E longitude. The soil is loam rich in humus. The area covered under each crop and others.

Fruits	16.50 ha
Coffee	28.50 ..
Pepper	7.00 ..
Cinnamon	1.50 ..
Clove & Nutmeg	2.00 ..
<i>Eucalyptus citriodora</i>	12.50 ..
Coconut	0.85 ..
Rice	7.20 ..
Other seasonal crops	4.80 ..
Nursery	1.00 ..
Buildings, roads and uncultivated area	8.15 ..

Sri. P. P. Balasubramaniam, Assistant Professor was in charge of the station till 18-5-1983 and Sri. C. M. George, Assistant Professor from 19-5-1983 to 31-10-1983. Professor K. Kannan took charge as Associate Director on 1-11-1983. Sri. C. S. Jayachandran Nair, Assistant Professor (Hort.) continued to be on study leave for undergoing Ph. D. course.

There were 19 research projects conducted at the station during the year which included ICAR 14 on fruit crops, KAU 4 and CWRDM 1. Two projects were concluded. An exhibition was arranged at the Assumption High School, Sultan Battery in October, 83 in connection with the science Fair.

The Krishi Vignan Kendra conducted 12 one day and 10 two days training programmes on various aspects of crop and animal husbandry for tribal farmers. A six day residential training programme on the management of milch animals was also conducted for 20 tribal farmers at Pookot Dairy Development Project under Krishi Vignan Kendra.

Inservice Training was given to 56 Agricultural Demonstrators undergoing training at the Institute of Agricultural Technology, Tavanur in four batches for a total duration of 7 weeks.

Final Year B.Sc. (Hort.) students of the College of Horticulture and Final year Diploma students of the Institute of Agricultural Technology, Tavanur, were given field training for 6 weeks. Monthly T&V workshops were conducted regularly since June, 1983 for the SMS's of the Department of Agriculture.



Sri. V. S. Devadas, Junior Assistant Professor attended the Sixteenth Annual Convention of the Indian Society of Agricultural Chemists held at the College of Agriculture, Vellayani, on 27th and 28th November, 1983 and presented a paper on "Effect of physical properties of soil on bolting and yield of vegetable *Amaranthus*". A workshop on the "Preparation of Programmed Learning materials for the Neoliterates" at Mannuthy arranged by KANFED at Kerala Agricultural University from 23-2-1984 to 25-2-84 and an orientation course for correspondents of Kerala Agricultural University stations held at Mannuthy on 15-12-1983 were also attended by Sri. V. S. Devadas. Farm Youth Leadership Training conducted at the Communication Centre, Mannuthy on 14th and 15th September, 1983 was attended by Sri. V. B. Padmanabhan, Assistant Professor. The Scientists also participated in the District Fertilizer Seminar at Chunda and the Fruit & Flower Show at Calicut.

The scientific staff of the station have attended 20 seminars/training programmes organised by various agencies like Agricultural Department, Animal Husbandry and Dairy Departments, Banks, etc. and took classes on various aspects of crop and animal husbandry.

Sri. S. Gopalan, IAS, Agricultural Production Commissioner, Dr. R. C. Taliwal, Commonwealth Consultant visited the Station.

A team of 18 farmers from Karnataka State led by Sri. M. P. Gogul Raj, Assistant Horticultural Officer, visited the Station under the Farmers' Exchange Programme organised by the Department of Extension, Govt. of India.

#### CASHEW RESEARCH STATION, ANAKKAYAM

This station was started in 1963 in Anakkayam village in Ernad Taluk in Malappuram district. The location of the station is on the western side of the Malappuram-Manjeri Road, at a distance of about 9 km from Malappuram.

The station covers an area of 9.92 ha out of which 8 ha are under cashew and 0.5 ha under cocount interplanted with cocoa. The station is located at an elevation of 106.8 M above MSL. The land is slopy and of uneven terrain. The soil is red laterite and is deep in some places and rocky in many places.

The main objective of the station is the improvement of cashew for higher yield and quality by genetical and agronomical means. Supply of seeds and grafts of improved types is also being undertaken.

A close planted progeny nursery consisting of 184 plants belonging to 16 superior cashew types was established in 1980-81. This is utilised for production and distribution of air-layers, bud woods etc.

Dr. M. N. C Nair, Associate Professor continued to be the head of the station during the period. The list of other scientific and supporting staff are being furnished in Appendix-IV.

Five research projects on cashew were carried out during the year. A one day farmer's training programme under the lab to land scheme was conducted during December, 1983. Seven high yielding types/hybrids were identified on the basis of intensive selection.

#### PEPPER RESEARCH STATION, PANNIYUR

The station was started in 1952-53 in Panniyur village of Taliparamba Taluk in Cannanore district and with the acquisition of additional area in 1981, the total extent of the farm has become 26.13 hectares. Terracing, levelling and planting in the new area is being continued. The station is located in Panniyur village of Taliparamba Taluk about 10 km NE of Taliparamba enroute to Alakode. It is at 12°5' N latitude and 74°55' longitude and at an altitude of 95 m above MSL. The soil type is well drained undulating-lateritic with depth varying from few inches to few feet. But the major area is having a depth of 30 to 90 cm.

The main crop is pepper, which at present occupies an area of about 12.00 hectare. Pepper planting in the new area is taken up as a phased programme and all suitable areas will be brought under Pepper within the next three years subject to availability of resources.

The other subsidiary crops are rubber, coconut, arecanut, mango and other fruit plants. Annual crops such as banana, tapioca, vegetables etc. are also raised on a small scale.

Sri. V. Sukumara Pillai, Associate Professor continued to be in charge of the station.

Seminars and Kisan melas, workshops etc. organised by various extension agencies were attended by the scientists of the station. Field days and Kisan melas were conducted at the station as part of the Lab to Land programme. A field day and Training programme for farmers were conducted at the station on 26th Dec. 1983.

A total number of 19 research projects were carried out by the scientists. These were funded by ICAR (9) NARP (3) and KAU (7). Of these 18 projects were on spices and 1 on pomology. One research project was concluded during the year.

#### REGIONAL AGRICULTURAL RESEARCH STATION, PATTAMBI

Rice Research Station, Pattambi was established as Paddy Breeding Station in 1927, to evolve high yielding rice varieties suited to the different agroclimatic conditions of the state. In 1930 the name was changed to Agricultural Research Station and in 1962 it became the

- Central Rice Research Station with regional centres at Mannuthy, Kayamkulam and Vyttila under the Government of Kerala. With the establishment of the Kerala Agricultural University, this station was brought under its control as one of the major stations for research on rice and for post-graduate work. With the implementation of NARP, the station was reorganised as Regional Agricultural Research Station, Central Zone. It undertakes intensive research on the production and protection technology on rice. The station has been allotted the lead function for research on Rice, Pulses and Oilseeds and Rice based farming systems. The station also functions as an advanced centre for studies on laterite soil management.

The station is located at 10°N latitude and 76°E longitude at an elevation of 25 m MSL. The total area is 63.64 ha. The soil is lateritic sandy loam and overlies unweathered soil. Ridges and slopes of low hills forms the bulk of the modan lands. Palliyals are high level terrace lands with extremely porous soil. The soil in double cropped wet land is moderately fertile and deep.

Sri N. Rajappan Nair, Associate Director continued to be in charge of the station. A seed technology laboratory is attached to the station for analysis of seed samples for the benefit of the Department of Agriculture. A Dairy unit with about 20 milch cows and a poultry unit with about 100 birds are also attached to the station.

The Research projects in operation are AICRIP Double Cropping sub-centre, AICRP on Chemistry of submerged soil, NARP rice based mixed farming system, AICRP on pulses and Krishi Vigyan Kendra.

The third and fourth regional workshops of NARP Central Region were held at the station on 24-6-83 and 18-1-84 respectively. A minikit training programme on crop production technology (Rice), Rice production technology training, Training on pulses production, Inservice training for Agrl. Demonstrators and field training for final year DASC students were conducted.

Smt S. Chandini, Assistant Professor (Agron) continued on study leave during the year. Sri K. Anilkumar, Sri P. S. John and Smt P. Sreedevi, Assistant Professors were granted study leave for 2 years for undergoing Ph. D. programme.

Associate Professors Sri M. R. C. Pillai (Agronomy), Dr K. O. Karunakaran (Botany), Dr L. Nadarajan (Entomology) and Sri V. P. Sukumara Dev (Plant Pathology) attended the annual workshop of the AICRIP held at Hyderabad during April 1983. Sri N. Rajappan Nair, Associate Director, Dr K. P. Rajaram, Professor (Soil Science), and Sri K. Anilkumar, Assistant Professor (Chemistry) attended the annual workshop of the ICAR Co-ordinated project on Chemistry of submerged soils held at Vellanikkara on 20th and 21st May 1983.

Sri N. Rajappan Nair, Associate Director, Dr K. P. Rajaram, Professor (Soil Science) and Sri M. R. C. Pillai, Associate Professor (Agronomy) attended the 11th annual workshop of the AICARP held at Vellanikkara on 26th, 27th and 28th May 1983. Dr K. Karunakaran, Associate Professor (Botany) and Dr L. Nadarajan, Associate Professor (Entomology) attended the National Seminar on breeding for pest and disease resistance held at Tamil Nadu Agril. University, Coimbatore from 25th to 27th May 1983. Associate Professors, Sri M. R. C. Pillai (Agron), Dr K. Karunakaran (Botany), Sri V. P. Sukumara Dev (Plant Pathology) attended the Seminar on stagnation in Agricultural Production in Kerala with special reference to paddy held at Vellayani from 1st to 3rd July 1983.

Dr K. Karunakaran, Associate Professor attended the symposium on genetics and improvement of Heterotic systems held at Tamil Nadu Agril. University, Coimbatore from 7th to 9th October 1983 and Dr K. P. Rajaram, Professor of Soil Science participated in the symposium on Fertilizer Management in Acid Soils held in connection with the XVI Annual convention of the Indian Society of Agricultural Chemists held at the College of Agriculture, Vellayani during November 1983. Sri D. Alexander, Associate Professor (Agron) was deputed to attend the training course on Farm Management at the Institute of Management in Trivandrum from 26th September 1983 to 9th October 1983 and training on water management held at IARI, New Delhi, CSRI Karnal and Hissar from 1-1-1984 to 19-1-1984.

Sri Anilkumar, Assistant Professor (Chemistry) attended the 9th Annual meeting of the ICAR Co-ordinated scheme on the chemistry of submerged soils under rice cultivation in high rain fall area held at Rajendra Agril. University, Bihar on 25th and 26th January 1984.

Smt C. A. Mary, Junior Assistant Professor (Plant Pathology) attended the symposium on fungal resources and their utilization held at the College of Agriculture, Vellayani during February 1984.

The scientists of the station carried out a total of 73 research projects on crops like rice (53), pulses and oilseeds (13), soils and Agronomy (3) and Social Science and Extension (4). Twenty research projects were concluded during the year while twelve new projects were sanctioned.

The scientists published eight research papers and three popular articles during the year.

Mr. M. M. Tosmisin of IRRI, Manila, visited during July, '83 in connection with the establishment of the meteorological instruments in the newly constructed meteorological field unit.

Sri P. K. Patnaik, JDA, Orissa, visited the Station on 12th Oct., 83 and held discussions about the rice varieties and cultures evolved

which are found suitable for Orissa and Sri G. V. S. R. Rao, Chairman, Committee on Land and Water Resources, Kerala, visited on 9th November, 1983 and discussed the problems facing rice production in Kerala.

#### BANANA RESEARCH STATION, KANNARA

Banana Research Station at Kannara was established in 1963, to improve the varieties of banana and pineapple by introduction, selection and hybridisation and to standardise management practises for these crops. The venue of the pineapple research centre was shifted to an area of 7.0 ha in the main campus at Vellanikkara during 1974. The Banana Research Station at Kannara comprises an area of 17.53 ha in which 5.6 ha is occupied by perennial crops and 5 ha under annual crops.

The station is located 3 km west of Kannara at Marakkal. The geographical location is at 10°05'N latitude and 76°17'E longitude at an elevation of 55.60 m above MSL. The soil is lateritic loam and alluvial in some pockets.

The station was brought under the control of the Kerala Agricultural University in 1972. At present its main activities of research are the projects under the All India Coordinated Fruit Improvement Project of ICAR.

Sri P. A. Varkey, Associate Professor continued as the Head of the station. Smt Baby Lissy Markose, JAP joined duty. Sri T. M. Kurien Asst. Professor (Agron.) was transferred to ARS Mannuthy on 8-7-1983 and Smt S. Prasannakumari Amma, Asst. Professor (Hort) joined in that vacancy. Smt Alice Kurien, Asst. Professor (Hort.) joined duty on 30-11-83 when Smt Valsamma Mathew, Asst Professor (Hort.) was transferred to College of Horticulture, Vellanikkara. Smt P. Santhakumari, Asst. Professor (Pl. Pathology) was relieved on 31-7-83 on transfer to College of Horticulture.

Sri Job Sathyakumar, Asst Professor, participated in the Summer Institute on "Problems of Progress in Economic Phytonematology" held at HAU, Hissar from 14-6-83 to 8-7-1983.

Training on banana and pineapple cultivation was given to Agricultural Demonstrators under the T & V Programme.

Thirty three research projects were implemented during the year, of which 30 were on fruits and floriculture and three on cropping pattern. Four projects were concluded during the year, while 2 new projects were sanctioned. One scientific article was published during the year.

Sri Raghavan Pozhakadavil, MLA, Member of the Executive Committee, visited the station on 12-10-83 and the Accounts Committee of the University on 21-11-83.

## COMMAND AREA RESEARCH CENTRE, VELLANIKKARA

The scheme under Command Area Research Centre was started in 1979. The aims of this scheme were to take up adaptive trials and demonstration plots to demonstrate the possibilities of producing pulses and oilseeds in the three main command areas of the state, viz., Chalakudy, Peechi and Malampuzha during the summer and also to develop technology for raising pulses and oilseed crops in the uplands during the kharif.

During kharif 83-84 screening of the pulses varieties such as cowpea, greengram and blackgram and companion cropping trials with tapioca were taken up. In Rabi season, adaptive trials on pulses and oilseeds were taken at 120 centres. An agricultural exhibition on pulses and oilseeds was also conducted at Trichur.

Agricultural Seminar on Pulses was conducted at pattambi on 24-6-83, and at Vandazhi on 23-8-83. Agricultural Seminar on drought prone area crops was conducted at Eruthiampathy on 5-8-83. Farmers' days were held at all the large scale adaptive trial centres.

Sri A. I. Thomas, Professor of Agronomy, continued to be the officer in charge of the scheme. A technical bulletin on the "Studies on the intensification of Research and Training on Pulses and Oilseeds" was published during March, 1984.

Sri A. I. Thomas, Professor, attended the National workshop on Pulses and oilseeds held at ICAR, New Delhi, on 23rd and 24th September, 1983.

A total of 7 ICAR projects were carried out during the year under cropping pattern and farming system.

## ALL INDIA COORDINATED SPICES AND CASHEWNUT IMPROVEMENT PROJECT, MADAKKATHARA

The project was started in 1972 with Headquarters at the Cashew Research Station, Anakkayam in Malappuram district. Later the project was shifted to the present site at Madakkathara attached to the Main Campus of KAU, for want of sufficient area to layout all the experiments envisaged in the scheme. The total area of the station is 15 ha. The main objectives of this scheme are to conduct comparative yield trial of the different cashew types collected from various places and identify/evolve high yielding varieties suitable for Kerala, to standardise the criterion for seedling selection, suitable cultural practices and techniques for vegetative propagation and to evolve effective control measures against major pests and diseases of cashew.

Sri P. G. Veeraraghavan, Associate Professor was in charge of the centre. Nine ICAR projects were undertaken at this centre during the year. Two projects were concluded.

### **Multi state Cashew Research Project, Madakkathara**

From 1982, this project started functioning at the Cashew Research station, Madakkathara. This is a world Bank aided scheme funded through the ICAR for a period of five years from 1980-81 to 1984-85.

The major objectives of this scheme are standardisation of large scale vegetative propagation techniques in cashew, establishment of trial-cum-demonstration-cum-multiplication plots of recommended types of cashew in the institutions and farmers' fields, demonstration of package of practices and training of field staff in cashew propagation and cultivation.

Four projects on cashew were implemented as part of the scheme.

Sri. S. Balakrishnan continued to be in charge of the scheme and head of the station, during the year.

Sri. Vasco. M. Mondlane, Director General, Directorate of Cashew, Mozambique and Dr. L. Krishnaswamy, Joint Agricultural Marketing Advisor, Govt. of India, visited the station on 26-4-83 and 15-11-83 respectively to acquaint themselves with the research activities of this centre.

### **AGRICULTURAL RESEARCH STATION, MANNUTHY**

This station was originally established as Rice Research Station during 1957 to study the various problems in rice culture in the central tract of the middle lateritic region of Trichur and Ernakulam districts. In 1963, this became one of the Regional Rice Research Stations under the Central Rice Research Station, Pattambi under the Govt. of Kerala. With the establishment of the KAU in 1972 this station was brought under the University. In 1976, the station was converted into "Research Station and Instructional Farm" attached to the College of Horticulture with another Instructional Farm at Vellanikkara under the administrative control of the Head of the Station. In 1976, these two units were amalgamated as Research Station & Instructional Farm, Mannuthy. The Agricultural Research Station at Mannuthy forms a sub-centre of the Central Region of the NARP and special zone for problem areas covering the kole lands of Trichur.

Prof. T. F. Kuriakose, Project Coordinator for Rice was in charge of the station. The station is located at Mannuthy by the side of the National Highway at a distance of 6 km east of Trichur, at 10°22' N latitude and 76°16'E longitude and at an altitude of 1.5m above MSL.

The soil is sandy loam in the wet land and lateritic loam in the garden land.

The total area of farm at Mannuthy is 38.34 ha of which the cropped area is 34.75 ha. The crop coverage is coconut (11.26 ha),

mango (12.13 ha), rice (4.47 ha), cashew and others (3.62 ha) and nursery (2.75 ha).

The total area of the Instructional Farm at Vellanikkara is 95.35 ha. The following seeds and planting materials were sold to farmers. Paddy seeds (9610 kg), cowpea (90 kg), vegetable seeds (75.36 kg) and groundnut (105 kg), coconut seedlings (5422 nos.), fruits and spices (5594 nos.) and ornamental plants (5588 nos.).

Fifty four research projects were undertaken during the period. Two projects were concluded and 3 new projects were sanctioned during the year.

Sri. P. A. Joseph, Jr. Asst. Professor, attended the training on Farm Management course at IMG Trivandrum and the writer's workshop organised by KANFED. Sri. G. Janardhanan Pillai, Assoc. Professor, attended the Basic Training programme on Dry land Agriculture at Hyderabad, a short course on management of slopy land in hilly areas at the Central Soil and Water Conservation Research and Training Institute, Dehradun. Sri. Sunny. K. Oommen, JAP attended a two week training on crop improvement in groundnut at ICRISAT, Hyderabad.

#### AGRONOMIC RESEARCH STATION, CHALAKUDY

The research station was originally established in 2 ha of leased land at Pariyaram in 1962 near Chalakudy to carry out studies on water requirement and cropping patterns to be adopted for the irrigated areas and continued till 1970. Later in 1972 the station was re-established at the present site in an area of 8.95 ha for conducting agronomic research under irrigated conditions. The station along with the staff was taken over by the Kerala Agricultural University in 1973 for implementing the ICAR sponsored Coordinated Project for Research on Water Management and started functioning from July, 1974 onwards. The office and laboratories of the station were established in 1980. In addition to ICAR sponsored projects, agronomic studies which have relevance to irrigated areas were also implemented as University projects.

From 1983-84 NARP sub-project for water management studies in the central region of Kerala has also started functioning at this centre.

The research station is situated in the northern side of the Chalakudy-Sholayar road about 400 metre away from the Chalakudy town and located at 10°20' N latitude and 76°20' E longitude with an altitude of 3.25m above MSL.

The total area of the farm is 8.95 ha comprising of 7.05 ha of wet land and 1.90 ha of upland. The area runs to a fine gradient to south west and wet lands are terraced into blocks and plots. The major soil group is sandy loam.



The major objectives of the centre are:

To develop cropping patterns suitable for the command area in Chalakudy area under Peechi; test new crops and varieties for their adaptability and performance under different moisture conditions; estimate the water requirement of rice, pulses, oilseeds, vegetables, banana, tapioca and other important crops of Kerala; evolve suitable measures to increase water use efficiency of crops; work out the economics and optimum schedules of irrigation of important crops cultivated in the regions study the ground water fluctuation, quality of ground water and recycling of drainage water for irrigation; find out cheap and efficient methods of irrigation for important crops and to conduct Operational Research Project in Water Management in the command area.

The NARP sub project for water management studies in the central region of Kerala started functioning during the year with an estimated outlay of Rs. 30.06 lakhs. Under this project, it is proposed to take up water management studies at three locations, viz., Alathur, Thumburmuzhi and Eruthiampathy.

The special scheme launched during 1982-83 exclusively for the uplift of the tribal farmers under the lab to land programme was continued. The beneficiaries belonged to Kadan and Malayan communities residing in the tribal colonies at Tavalakuzhipara, Kollathirumedu, Randukai and Vazhachal located in the hilly and forest tracts of Chalakudy. With the implementation of the scheme for two years, definite improvements could be observed in their attitude towards scientific agriculture and have started following at least some improved practices.

A massive training programme on water management, primarily meant for field staff of the Departments of Agriculture and Irrigation and Command Area Development Authority was initiated during the year. During the year under report, six trainings, each of 7 days duration were conducted and attended by 79 officers including Agricultural Demonstrators, Overseers, Work Superintendents and Draftsmen from the Departments of Agriculture, Irrigation and CADA. This training programme was inaugurated by Dr P.C. S. Nair, Director of Research, Kerala Agricultural University on 2-1-84.

Under the lab to land programme a study tour-cum-training programme was arranged for the tribal farmers of the Randukai Girijan Colony on 3-12-83 in which about fifty tribal farmers including tribal women participated. The group visited the Veterinary and Horticultural Colleges and Banana Research Station, Kannara and observed the various activities of these institutions. A 'One day Kisan mela and farmers camp' was also conducted under this programme at the Vazhachal tribal colony on 3-1-84. Apart from classes and discussions on scientific crop management practices, on-farm visits were also made by the

Scientists to demonstrate the techniques under actual field condition. The Zonal Advisory Committee of the lab to land programme headed by Director of Extension, also visited the colony on the same day. Another Farm Seminar was organised at Elinjipara on 19-1-84 in which about 150 farmers participated.

Two more training camps were conducted at Randukai and Kollathirumedu tribal colonies on 28th and 30th March, 1984 respectively. About 170 farmers belonging to Kadan and Malayan tribes participated in each of the above two training programmes.

Fifteen research projects were undertaken at the station during the year. These included ten ICAR projects, three KAU and two P. G. projects. Their group-wise distributions were Rice (6), Coconut (1), Fruits and Floriculture (1), Vegetables & Tubers (4), Soils & Agronomy (1) and Cropping patterns and Farming systems (2). Three projects were concluded during the reporting year. Based on the research findings four research papers and one popular article were published by the staff.

Dr. G. Raveendranathan Pillai, Professor (Agronomy) continued to be in charge of the station. Sri. Jose Mathew, Assistant Professor (Agronomy) attended the two weeks training on water management held at Water Technology Centre, Tamil Nadu Agricultural University, Coimbatore, during November, 1983.

A planting campaign was organised in the adopted tribal colonies under the lab to land programme in collaboration with the NSS Unit of the College of Horticulture, Vellanikkara. The programme was inaugurated by the Chief Conservator of Forests at a function presided over by Sri. T. Madhava Menon, IAS, Vice Chancellor at Tavalakuzhipara on 22-5-1983. The programme was conducted in the tribal colonies of Randukai, Vazhachal, Tavalakuzhipara and Kollathurumedu.

Dr. G. B. Singh, Assistant Director General (SAE), ICAR, New Delhi and Dr. G. N. Kulkarni, Zonal Coordinator, Coordinated Project for Research on Water Management, Dharwar, visited the station during the year. The General Council members also visited the station.

#### RICE RESEARCH STATION, VYTTILA

Rice Research Station, Vyttila, was started in the year 1958 in leased land in Kunnara area near power house, Vyttila. The station started functioning in the present site in 1963 by acquiring 11.375 acres of land. Subsequently in 1973 in additional area of 10.15 acres and during 81-82, 0.77 acres were also acquired thus making the total area to 22.30 acres (8.91 ha). The station is located in the Pokkali area, about 7 km east of Ernakulam Railway station and at 1.7m above MSL. The soil is acid saline, stiff, impervious, and rich in organic matter.

All India Coordinated Research Project on Brackishwater Fish Farming is also functioning at the station since 1976.

The main objectives of the station are to evolve high yielding saline resistant rice varieties suited for the low lying coastal areas and to find out suitable agronomic practices for the cultivation in such type of lands in the state and to evolve a suitable cropping system for rice/prawn/fish culture and to standardise the technique for the same.

This station is included under National Agricultural Research Project for Special Region. Different projects under various disciplines such as Agronomy, Botany and Fisheries were in progress.

Sri P. J. Tomy, Associate Professor was in charge of the Station. Dr P. M. Mathew, Associate Professor, attended the V workshop of All India Coordinated Research Project on Brackishwater Fish Farming at Barrackpore. Dr Susheela Jose, Associate Professor attended the Summer Institute on Prawn feed production at Central Marine Fisheries Research Institute conducted at Cochin by ICAR.

Twenty two projects were handled by the staff— 11 on rice, 2 on coconut and 9 on Fisheries. Two projects on fisheries were concluded during the year.

One research paper and one technical bulletin were published from the Station.

A Kisan Mela was conducted in connection with the Silver Jubilee of the Station. The meeting was inaugurated by the Hon. Minister for Agriculture, Sri A.L. Jacob and presided over by Sri T. Madhava Menon IAS, Vice-Chancellor of the KAU. The Agricultural Seminar was inaugurated by the Mayor, Corporation of Cochin. The foundation stone of a new laboratory building was also laid by the Hon. Minister for Agriculture.

A team of foreign Scientists led by the Deputy Director, MPEDA visited the station during May, '83. The midterm appraisal committee of ICAR under the chairmanship of Dr. Mitra visited the Station on 25th July, '83. The other distinguished visitors were Dr P.S. James, Assistant Director General, ICAR, Dr K. G. Pillai, Project Co-ordinator, AICARP, Bangalore and Sri Dhanakumar, Programme Officer, AICARP, Bangalore.

#### CARDAMOM RESEARCH STATION, PAMPADUMPARA

The Cardamom Research Station, Pampadumpara, was started in the year 1956 with a view to undertake research programmes on various agronomic, botanical, entomological and phytopathological problems of cardamom cultivation and was taken over by the KAU in 1972. The Station is situated in the high ranges of Kerala in Pampadumpara village, Udumbanchola taluk of Idukki district, 35 km from Kumily in the Kumily-Munnar road at 9°45' N latitude and 77°10' E longitude at an elevation of 100 m above MSL. The All India Coordinated Spices and Cashewnut Improvement Project of ICAR was initiated at the Station during 1977.

The total area of the farm is 46.44 ha. The crop coverage is cardamom 37ha; pepper 2 ha and coffee 5 ha. The soil is typical forest loam.

Sri K. Karunakaran, Associate Professor of Plant Pathology continued to be the head of the station during the year. Sri G. K. Balachandran Nair, Associate Professor (Agronomy) and Sri K. Vasanthakumar, Assistant Professor (Hort) were granted half pay leave for study purpose. Sri K. Vasantha Kumar attended the Summer Institute at UAS, Bangalore on Physiology of crop production.

During January, '84 an Agricultural Seminar and Agricultural Exhibition were conducted under the Lab to Land programme. The scientists participated in the monthly workshops under T & V programme in Idukki district regularly.

A total of seventeen research projects were undertaken in the station during the reporting period. Two projects, namely, (1) studies on insecticide residue on cardamom pods and their effect on microflora and fauna of the cardamom soils and (2) control of cardamom thrips were concluded. Two new projects were sanctioned during the year and the revised technical programme for four research projects were approved. The ongoing projects were on Agronomy (2), Botany (5), Horticulture (2) and Pathology (6).

#### AROMATIC & MEDICINAL PLANTS RESEARCH STATION, ODAKKALI

The station started functioning in 1951 under the Industries Department and later in 1954 it was handed over to the Department of Agriculture. With the formation of the Kerala Agricultural University, the station was brought under the University in 1972. This is the only centre in India where intensive studies of *Cymbopogon flexuosus* are being carried out. The station is located 27 km east of Alwaye by the side of the Alwaye-Idukki road at an elevation of 66 m above MSL. The total area of the station is 12.4 ha.

The object of the station is to conduct investigations on the agronomical, botanical, and post harvest technological aspects of aromatic and medicinal plants. During the year, the scientists of the station undertook 11 research projects. Of these, 6 projects were concluded and 5 projects were sanctioned during the year.

Sri O. P. Singh, Asst. Plant Breeder, NDVAT, Kumarganj, Faziabad and the Managing Director, KSDP, Alleppey, visited the station during the year.

#### REGIONAL AGRICULTURAL RESEARCH STATION, KUMARAKOM

The Coconut Research Station, established in 1947 by the Indian Central Coconut Committee was taken over by the State Government in 1958. From 1972 onwards, the station is functioning under the Kerala Agricultural University.

During 1980-81, a scheme for investigation on the root (wilt) disease of coconut was implemented at this Station. The Station was reorganised under the NARP and upgraded as the Regional Agricultural Research Station for the region of problem areas in 1982 with rice Research Station, Moncompu; Rice Research Station, Kayamkulam; Rice Research Station, Vyttila and Kole region research unit at Mannuthy as sub-stations. The station is situated 17 km east of Kottayam on the Kottayam-Kumarakom-Vechoor road at 76°30'E longitude and 9°33'N latitude and 0.6 m above MSL.

The area of this farm was originally 23.23 ha. An additional area of 21.68 ha of wet land was taken over by the University from the Department of Agriculture in July, 1980 making the total area of the Station to 44.49 ha, out of which about 18 ha are channels and waterways. The uplands are occupied by coconut, banana and cocoa. The low lands are under paddy. Water canals are utilised for fish farming.

The main objective of the station is to conduct research on coconut and coconut based farming systems with special reference to integrated farming of coconut, livestock and fish culture underlying the principle of organic recycling. Consequent on the implementation of NARP, the broad objective of the station is to conduct problem oriented location specific research on all crops in the problem region of Kerala.

Sri U. Mohammed Kunju, Professor of Agronomy, continued to be in charge of the station. The Root (wilt) Scheme and NARP are also attached to the station during the period under report.

Forty six research projects were conducted during the year which included 26 NARP projects and 20 KAU projects. 31 were on coconut, 2 on pulses, 4 on cropping patterns and 9 on fisheries. Six projects were concluded during the period under report.

Mrs. Lyla Mathew, Asst. Professor (Horticulture) was granted study leave for undergoing Ph.D. Sri N. Saifudeen, Asst. Professor (Ag. Chem.) continued to be on study leave. Sri G. Indrasenan, Associate Professor of Plant Pathology attended the seminar organised by the Indian Society of Mycology at the College of Agriculture, Vellayani.

One Regional workshop to identify field problems were held on 6-9-83. Farmers training programmes in Agriculture, Animal Husbandry and Fisheries were conducted. The monthly workshops on T & V for the Kottayam District were regularly conducted.

Eight scientific papers were published by the scientists of the station during the year.

Dr. Benjamin Mouthner and Dr Mathur, World Bank Consultants on T & V programme and Dr. Rama Rao, World Bank Consultant of NARP visited the station to review the progress of work. Dr. K. M. G. Menon of Saw Grain Company, Govt. of India visited the station in

October, 1983. Members of the General Council visited the Station in February, 1984.

#### RICE RESEARCH STATION, MONCOMPU

With a view to breed rice varieties suitable to Kuttanad tract, a Paddy Breeding Station was started at Moncompu during the year 1940. Later in 1963 this station was upgraded to the status of a Regional Rice Research Station to handle problems of Agronomy and Plant Protection in addition to varietal improvement. During 1972, the station was taken over by the Kerala Agricultural University.

Rice Research Station, Moncompu, is located in Champakulam village of Kuttanad Taluk, Alleppey district. The station is equidistant from Alleppey and Changanacherry being 12 km both ways and is located on the northern side of the road from Changanacherry to Alleppey. Total area of the farm is 8.7 ha of which 2 ha comprises garden land and the remaining area constitutes double crop paddy lands. The soil is alluvial clay.

Dr. M. J. Thomas, Associate Professor, continued as the officer in charge of the station till 21-11-83 when Dr. C. A. Joseph, Professor took charge from him.

Sri Babu George, JAP, was granted study leave from 22-12-83 for undergoing Ph. D. and Smt N. Remani, Asst. Professor rejoined after the expiry of study leave on 30-9-83. Dr. M. J. Thomas, Associate Professor attended the Annual Rice Research Workshop held at Rajendranagar, Hyderabad in April, 1983. He also attended the Operational Research Project Annual Workshop held at Udaipur during September, 1983.

Dr. M. J. Thomas and Dr. C. A. Joseph attended the seminar on "The stagnation in Rice Production in the State" held at the College of Agriculture, Vellayani in July '83.

Operational Research Project Consortium held at Alleppey was attended by Dr. M. J. Thomas, Sri. B. Thomas and Dr. L. Rema Devi Associate Professors and Smt. P. R. Krishnakumari Amma, Junior Statistician in July, '83.

Sri. C. Bhaskaran, Asst. Professor (Extn.) attended the Farm Youth Leadership Training Programme held at Vellanikkara during September, '83 and Dr. L. Rema Devi, Associate Professor (Pl. Path.) attended the KAEP District Technical Committee meeting at Alleppey during November 1983.

Two Agricultural Seminars, a State Level training on Rice Production Technology, Field Training for the B. Sc. (Ag.) and B. Sc. (Hort.) students and six training classes on T & V Programme were conducted at the station. Training programmes for farmers on goat, poultry and crop management, Farm Youth Leadership and BPH campaign training were also conducted.

Fifty two research projects were carried out. Five projects were concluded and 7 new projects were sanctioned for implementation during the period. There were 48 projects in rice, 1 in coconut and 3 in farming system. These were projects under ICAR (17), NARP (21) and KAU (14). The main schemes in operation were NARP, ORP on Integrated Pest Management and AICRIP sub-centre on "Disease and Pest Research"

#### SUGARCANE RESEARCH STATION, THIRUVALLA

Sugarcane Research Station, Thiruvalla came into existence on the 20th December, 1975, when 23.49 acres of Government land was transferred to Kerala Agricultural University by the Pampa River Factory. Actual research work was started in 1977 under a small unit of the All India Sugarcane Improvement Project financed by ICAR. In order to strengthen the research activities on systematic lines and to tackle the many problems faced by cane cultivators of the state, a scheme for intensification on sugarcane research was sanctioned for a period of five years from 1978-79 with Vellanikkara as main centre and sub-centre at Thiruvalla.

The farm is located at Kallungal on the bank of Manimala river 6 km. south of Thiruvalla town. The gross area of the farm is 23.49 acres and the net area available for cultivation is 21.57 acres. The geographical location of farm is 9°6'N latitude and 76.5° E longitude and is 21.5m above MSL. The soil is rich alluvial with a mean pH of 5.5 and gets inundated during floods. The entire area is cultivated with sugarcane and monocropping is practised. No development work was taken up in the station during the year.

Sri.S. Sukumaran Nair, Associate Professor and Dr. N. Neelakantan Potty, Associate Professor (Agron.) attended the All India Co-ordinated Workshop on Sugarcane held at Shajahanpur (UP) in September, 1983 and a short term training programme at IISR, Lucknow.

Twenty research projects were carried out by the Scientists of the station, ten financed by ICAR and ten by KAU. Ten new projects were sanctioned during the year.

Dr. Kempenna, ADG, ICAR, Dr. R. P. Singh, Director of Extension Education, U. P., Dr. K. C. Alexander, Senior Pathologist, S. B. I. Coimbatore, Dr. S. C. Srivastava, Project Co-ordinator, IISR, Lucknow and Dr. Kishan Singh, Director, IISR, Lucknow, visited the station during the year and held discussion with the scientists on the various research projects in sugarcane.

#### ALL INDIA COORDINATED RESEARCH PROJECT ON AGRICULTURAL DRAINAGE, KARUMADI

The centre forms one of the five agricultural drainage research centres sanctioned by ICAR during the VI plan and started functioning

from 1-12-1981. The experiments are undertaken under actual farming situations in farmers' fields. The project area of the scheme is 'Kavil Thekkumpuram Padasekharam' a typical representative of Kari land with a watershed area of 88.919 ha and a paddy field of 75.238 ha. This project area is 4 km east to Ambalapuzha junction on NH 47, on the southern side of Ambalapuzha-Thakazhi road. The office, laboratory and store are housed in rented buildings at Karumadi.

The major objectives of this scheme are to comprehend the effect of a surface and sub-surface drainage system on the movement of soil liquids, to study the pattern of hydrological cycle occurring in the watershed area and its importance and influence on the drainage, to develop feasible technology for the laying of sub-surface drainage suitable to peat and muck soils, to develop criteria for design parameters of surface drainage, to develop the drainage pattern required for different crops to optimise yield and income, to evaluate the feasibility of the return flow for irrigation in relation to water quality ratings and to evaluate the socio-economic benefits acquired from the drainage projects. During the year, five ICAR projects were implemented. Equipments required for the implementation of the scheme were purchased during the year.

Sri. U. Jaikumaran, Asst. Professor (Agronomy) continued to be in charge of the scheme with Prof. T. P. George, Head of the Department of Agrl. Engineering having the technical control. Sri. U. Jaikumaran, attended the 2nd Annual Workshop of the scheme at the Water Technology Centre, IARI, New Delhi during September/October, 1983.

The following works on basic and pre-project data collection and monitoring of performance of sub-surface drainage were undertaken during the year. The monitoring of performance of sub-surface drains, both tile and PVC was continued and different parameters of hydraulics of tile drains were worked out. Monitoring of surface and sub-surface water level variation was continued and water movement assessed. Variations in the quality of both surface and sub-surface water were recorded at weekly intervals and variability map was prepared. Chemical properties of the soil of the project area were estimated. As an observational trial, performance of paddy crop under sub-surface drainage was assessed.

#### RICE RESEARCH STATION, KAYAMKULAM

Rice Research Station, Kayamkulam is located at Kayamkulam in Alleppey district 1 km. east of Kayamkulam town on the northern side of Kayamkulam-Punalur road, at 9°10'N latitude and 76°3'E longitude at 3.05 m above MSL. The station was established in 1937 under the Kerala University and later transferred to the State Department of Agriculture in May, 1958. It was transferred to the Kerala Agricultural University with effect from 1st February, 1972. An area of 9.45 ha. of wet land and 2.20 ha of garden land was acquired during 1973.



Short duration varieties of rice are generally grown during 'Virippu' season and 'medium' to 'long' duration varieties of rice during Mundakan season. During January-April, summer crops of sesamum, pulses or groundnut are raised as catch crops. The soil is sandy loam.

The aim of the station is to evolve high yielding varieties of rice and sesamum resistant to pests and diseases, suitable to the Onattukara tract and to standardise agro technique for Onattukara region. The overall improvement of major crops in Onattukara region is the objective of all research projects. This region comprises an area of 68340 ha in the Districts of Alleppey and Quilon.

Sri. K. Balakrishna Pillai, Associate Professor (Ento) continued to be in charge of the station during the period.

A total of 25 research projects were carried out in the station under NARP special region of problem areas for Onattukara, Coconut Root wilt Disease Project and KAU research projects. These included 14 in rice, 7 in sesamum and 4 in coconut. Two projects, namely, (1) Studies on the utility of *Azolla* as a partial substitution to inorganic nitrogen fertilizer for wet land rice culture and (2) storage trial in sesamum were concluded.

A farmers' day and training programme in connection with the lab to land work was conducted during March, '84 attended by 150 farmers. A total number of 25 farmers were the direct beneficiaries of the programme.

#### CROPPING SYSTEMS RESEARCH CENTRE, KARAMANA

This station was established at Karamana in 1955 as Model Agronomic Research Station under the Department of Agriculture, Kerala, with the main objective of conducting simple fertilizer trials under fertilizer use and soil fertility project. New schemes and experiments were started in 1968 under All India Co-ordinated Agronomic Research Project aimed at conducting manurial, cultural, rotational and multiple cropping experiments in paddy.

In 1972, the station was taken over by the Kerala Agricultural University and in 1983 it was recognised as Cropping Systems Research Centre, mainly to conduct the research programmes envisaged under the All India Co-ordinated Agronomic Research Project. The Headquarters of AICARP was shifted to the station on 1-10-1983 and the two ECF Units, at Vyttila and Nileswar were brought under the control of the Professor of Agronomy who is the Head of the station. The station is situated at Nedumangad, Karamana about 3 km south east of Trivandrum Central Railway Station at an altitude of 29 m above MSL.

The area of the station is 7.65 ha of which double cropped wet land occupies 7.25 ha and garden land 0.40 ha. The soil is sandy loam.

Sri. K. Sivasankara Pillai was head of the station till 8-12-83 when Dr. E. Tajuddin, Professor of Agronomy, took over the charge of the station.

Eight research projects were operated in the station, 5 being AICARP funded projects, 2 KAU and 1 NARP project.

Messrs M. Subramonia Iyer, J. John Kutty and P. Yageen Thomas, Assistant Professors and Sri. K. P. Jagan Mohan, Junior Assistant Professor attended the Regional Seminar on Epidemiology and control of rice diseases on 17th and 19th the November, 1983 at Trivandrum. Sri. Jagan Mohan presented a paper on the occasion. Smt. P. B. Usha, Jr. Assistant Professor attended the 16th Annual Workshop of Indian Society of Agricultural Chemistry and presented papers at Vellayani. A one day Agricultural Seminar and Kisan Mela under Lab to Land Phase II Programmewas conducted at Venganoor on 27-3-84. During the period, Dr. K. Gopalakrishna Pillai, Project Co-ordinator (Agronomy) UAS-Bangalore visited the station.

#### COCONUT RESEARCH STATION, BALARAMAPURAM

The station was started in 1963 under the Department of Agriculture, Government of Kerala with a view to conduct research on coconut in the typical red loam soil at Kattachalkuzhi, 3.2 km south of Balaramapuram, on the Balaramapuram-Vizhinjam road. The area of the station is 14.13 ha in 2 blocks, viz., 'A' block in Kottukal village in Neyyatinkara taluk and 'B' block in Thiruvallom village of Trivandrum taluk. The farm is located at an altitude of 90 m above MSL. The soil is deep red loam type belonging to the Vellayani series. Sri. E. P. Koshy, Associate Professor of Agronomy continued to be Officer in charge of the station till 8-12-83 and Sri. K. Sivasankara Pillai, Associate Professor (Agronomy) took over the charge on 9-12-83. One day Agricultural Seminar and Farmers' Training Programme was organised by the station in connection with the lab to land programme on 31-3-84 at SNUP School, Kattachalkuzhi.

Five projects on coconut were implemented during the year.

#### NARP—SOUTHERN REGION, VELLAYANI

Under the NARP, a sub-Project for the Southern Region of Kerala with main centre at Vellayani and sub-centre at Kottarakkara started functioning from 8-2-1982 at the College of Agriculture, Vellayani. The southern region covers the districts of Trivandrum, Quilon, Pathanamthitta, Alleppey and Kottayam excluding the High ranges and problem areas for which separate sub-projects under NARP have been sanctioned.

The major objectives of this project are multidisciplinary research on various farming systems for the integrated development aimed at maximum productivity and net income to the farmers of this region.

During the year under report, the third and the fourth zonal workshops were conducted at the College of Agriculture, Vellayani, on 19th July, '83 and 6th and 7th March, '84 respectively. During these workshops the progress of research work by individual scientists were reviewed and research programmes for the coming seasons were finalised. On the basis of the 1st and 2nd zonal workshops and monthly T&V workshops, sixty multidisciplinary research projects were formulated and got approved under the following farming systems practised by the farmers of the region, viz., homestead farming system, (26); tapioca based farming system (5); coconut based farming system (11) and rice based farming system (18). Four projects in the utilization of soil survey information and one project for the Data Bank in Agricultural sector for southern region, eight adaptive trials and two observational trials were formulated and got approved. Six additional research programmes were formulated on the basis of analysis of feed back of location specific problems identified in the Regional workshops conducted during the year under report.

A detailed schedule was finalised for the basic survey of 2000 homesteads. Remodelling of the laboratories in the departments of Agronomy and Soil Science & Agricultural Chemistry were carried out. The Central Instrumentation Laboratory was remodelled to keep the costly research equipments, an information centre for highlighting the activities and achievements of NARP (SR) continued to function. Action was taken for the acquisition of 9.95 ha of land at Sadanandapuram in Kottarakkara for the starting of the special station of the NARP (Southern Region).

Dr. A. G. Gopinatha Menon, Associate Director was selected and posted as Director of Extension in the University headquarters. Dr. N. Mohanakumaran took charge as Associate Director of NARP (SR) on 26-10-83 from him.

Sri. Abdul Hameed was selected and posted as Associate Professor (Soil Science) at the Kottarakkara centre relieving Dr. S. Pushkala, Asst. Professor (Soil Science). Sri. Ranjan S. Karippai, Asst. Professor, Extension, was transferred to the Communication Centre, Mannuthy. Sri. P. R. Ramasubramanian, Assoc. Professor was granted half pay leave for study purpose. Smt. Nazeema Beevi entered on study leave w.e.f. 7-6-1983 and Dr. K. Usha entered on leave on loss of pay w.e.f. 1-3-84. Sri. S. M. Akbar, Asst. Professor of Horticulture resigned the post and was relieved on 13-5-83.

Dr. A. G. G. Menon, Associate Director, attended a seminar on "Stagnation in rice production in Kerala" organised by KAU and State Planning Board during July, 83 and presented a paper on "Socio-economic constraints in increasing rice production in Kerala". Dr. N. Mohanakumaran, Assoc. Director, Sri. P. R. Ramasubramanian and Sri. Abdul

Hameed, Associate Professors participated in the XVI Annual Convention of the Indian Society of Agricultural Chemists held at Vellayani in November, 1983.

Sri. R. Balakrishnan Asan, Asst. Professor (Stat.) attended the seminar on "Economics of Animal Production in Kerala" held at the College of Veterinary & Animal Sciences, Mannuthy in June, '83 and presented a paper on "Performance of Jersey and Brown Swiss Crossbred cows". Sri. C. Nandakumar, Asst. Professor, Entomology, attended the National Seminar on "Pesticides & Environment" held at TNAU, Coimbatore in August, '83 and presented a paper on "Residues of systemic insecticides in cowpea pods when applied as granules in soil under different methods of placements". Dr. P. Saraswathy, Associate Professor of Statistics attended a seminar on "Economic Planning" organised by Kerala University in February, '84. Dr. N. Mohanakumaran, Associate Director, Dr. P. Saraswathy, Associate Professor and Smt. K. K. Sulochana Asst. Professor attended the symposium 'on fungal resources and their utilisation' held at Vellayani in February, '84.

Dr. Robert Anderson and Dr. Richard Comes, USDA experts on Weed Science delivered lectures on "Herbicide Evaluation" and "Aquatic Weed Control" respectively on 27-3-84.

The IDA Supervision Mission team visited the station on 18-2-1984 and held discussion with the officials and scientists. Sri. A. Balasubramanian, Senior Scientist (NARP) visited the station during Nov., 1983 and January, '84 and held discussions with the scientists to review the progress of research activities.

Dr. Robert Anderson and Dr. Richard Comes weed scientists from USA visited the College in connection with the appraisal of the proposed project on "Weed Research" for consideration under NARP funds.

There were 59 research projects undertaken by the scientists. Out of these, three projects were concluded.

In addition to the research activities, the scientists working under NARP had actively participated in the academic activities in the College of Agriculture, Vellayani.

#### ALL INDIA COORDINATED RESEARCH PROJECT ON BIOLOGICAL CONTROL OF CROP PESTS AND WEEDS

This project was started functioning in the College of Horticulture Vellanikkara and was attached to the Department of Entomology since 1-4-1977. The objective of the project is the biological control of aquatic weeds like *Salvinia molesta* and *Eichhornia crassipes* and *Chromolaena odorata*.

During the year, three promising natural enemies, viz., *Cyrtobagous singularis* on *Salvinia*, *Neochetina eichhornia* and *N. bruchi* on water hyacinth were received through the National Centre for Biological

Control, Bangalore. *Cyrtobagous singularis* an aquatic weevil was able to control *Salvinia* under the laboratory condition. Attempts to colonise *Neochetina eichhorniae* on water hyacinth were successful under field conditions.

Survey work undertaken as a part of the biological control of *Chromolaena odorata* was concluded. Two exotic weevils, viz., *Neochetina eichhorniae* and *N. bruchi* were tried for the control of water hyacinth. For the control of rice stem borer, a braconid parasite, namely, *Allorhogas* sp. is being investigated under laboratory conditions.

#### ALL INDIA COORDINATED PROJECT FOR THE IMPROVEMENT OF TUBER CROPS (OTHER THAN POTATO), SUB-CENTRE-VELLANIKKARA

This sub centre started functioning in the University since 1976. The scheme was operating at the Coconut Research Station, Pilicode and in 1979 March it was shifted to the Main Campus at Vellanikkara and attached to the Department of Agronomy, College of Horticulture. The objective of the centre is to collect and isolate promising varieties of tuber crops like cassava, sweet potato, colocasia, yams, etc., and to formulate suitable cultural and manurial practices for the different varieties of these crops.

Dr. C. T. Abraham, Assistant Professor took charge of this project on 1-10-83. Four ICAR projects were implemented.

#### PEPPER RESEARCH SCHEME, VELLANIKKARA

The scheme was started in 1975 in the Main Campus, Vellanikkara. The main objectives of the scheme are research on pepper with special reference to cultural, manurial and varietal trials. Germplasm collection with a view to select desirable type is also being undertaken. Existing types, hybrids and cultivars are being screened against phytophthora. Dr. Abi Cheeran, Professor (Pepper) was in charge of the scheme. A central nursery for multiplication and distribution of Panniyur-1 variety of pepper is also functioning under the scheme.

### VETERINARY & ANIMAL SCIENCES

#### RESEARCH STATIONS/SCHEMES

##### Livestock Research Station, Thiruvazhamkunnu

The farm was originally established in 1949 by the Govt. of Madras and later on it was transferred to Kerala State during the reorganisation of the states.

The farm is located in the Mannarghat Taluk of Palghat district in an area of 163.3 ha of which the area under fodder occupies 78.37 ha grazing land 42.93 ha, Agro-forestry experiments 5.00 ha, and Coconut and other field experiments on crops 5.4 ha. About 32 ha is forest area. The main activities of the station were conducting research on

the scientific breeding of livestock and its management. A centre for the All India Coordinated Project on Agro-forestry was started in 1983. A poultry unit consisting of 100 layers was maintained here as a part of expansion programme and a total of 6684 eggs were obtained. In the Agricultural section 18,54,300 tons green fodder, 4,00,500 tons silage and 1,12,665 tons dry fodder were procured. An additional area of 4.5 ha of land was planted with Hybrid Napier.

Dr P. P. Balakrishnan, Associate Professor was in charge of the station from 17-11-1983 onwards.

#### **Cattle Breeding Farm, Thumburmuzhi**

This farm, situated at about 15 km from Chalakudy in the Sholayar route, was started in 1957 as an ancillary station for rearing calves to a stage of seven months pregnancy and for distributing the animals to other farms. The station was taken over by KAU in 1972. This station also conducts basic and applied research on cross-bred calves. Dr. V. Prasad was in charge of the farm.

The total area of the farm is 25.2 ha out of which 18ha is under Fodder cultivation.

#### **Pig Breeding Farm, Mannuthy**

This farm was started in 1965 in an area of 4.2 ha. The Major objectives were to conduct research on various aspects of swine production, to serve as a centre to produce high quality piglets to be distributed among farmers and also to serve as demonstration / instructional unit for farmers and students. Dr Kurien Thomas, Associate Professor, Animal Management was in charge of the farm.

During the year, 949 piglets were produced out of which 901 numbers were distributed.

#### **University Poultry and Duck Farm, Mannuthy**

The major objectives of the farm are to provide hatching eggs, chicks and brooders for farmers and development departments, to provide instructional facilities for teaching and research and to take up independent research in various aspects of Poultry production.

Dr G. Reghunathan Nair, was in charge of the farm till 31-5-1983 and Dr R. Sabarinath took charge on 1-6-1983 and continued to be in the post for the rest of the reporting period.

The major activities during the year under report were

- (1) An ideal cross bred for the backyard system was tested and released.
- (2) Turkey production initiated.
- (3) Quail production initiated.
- (4) 2498 birds were supplied under the lab to land programme
- (5) 2,31,910 eggs were produced
- (6) 4504 birds were sold for breeding purposes to farmers
- (7) Vaccines amounting to Rs. 8994/- has been supplied to farmers.

### **AICRP (Poultry) for Eggs**

The Mannuthy Centre of the All India Co-ordinated Research Project on Poultry for Eggs was started in 1977 with the objectives of evaluating available germplasm of chicken, improving their productive potentials by adapting appropriate breeding techniques and to develop a commercial strain / strain cross. The centre started with two strains namely IWN and IWP and subsequently IWO and F were added. But because of the poor performance of IWO and inadequacy for testing facility for pure strain and strain crosses, the strains IWO and F were dropped as per decision of Annual Workshop. Thus, the strains IWP and IWN continued to be bred in the Project and during the period under report the S4 generation were tested and S5 generation was produced. In addition reciprocal crosses of these two strains were also produced and are being tested in home farm, at RSLT Unit, Hessarghatta and also at AICRP Testing Centre, Anand. Dr. A. K. K. Unni, Professor was in charge of the scheme. During the period under report testing of the two pure strains, IWN & IWP was completed and S5 generation was produced. The hen housed egg production of IWN and IWP in S4 generation was 84.5 and 82.6 respectively which were improvements over S3 generation. However, in both the strains there was a marginal drop in eggs weight possibly because of the increase in egg number.

A diallel cross experiment was also taken up using IWN and IWP and F strain as part of the technical programme.

The data revealed that F strain was superior to IWN & IWP pure strains and among the crosses F x P was a better strain cross. Between the reciprocals of IWN x IWP was found to be better as strain cross. Thus IWN x IWP cross offers promise as the strain cross suitable for commercial release.

Dr S. C. Mohapatra, Project Coordinator (Poultry) visited the Project during December 1983. Dr R. M. Acharya visited the project during March 1984. Smt Leela Rani Chungath, Managing Director, Tamil Nadu Poultry Development Corporation visited during December 1983.

### **Co-ordinated Research Project on Goats, Mannuthy**

The All India Co-ordinated Research Project on Goats for milk production was commissioned in the Kerala Agricultural University during September 1972, with the object of evolving a new milch breed of goats suited to the agro-climatic conditions of Kerala and capable of yielding higher quantities of milk in a lactation. It was envisaged to evolve such a breed by cross-breeding local Malabari with exotic breeds, Saanen and Alpine.

Dr B. R. Krishnan Nair continued to be in charge of the Project.

Dr B. Nandakumaran, Assistant Professor (Farm Management) was granted study leave for two years for undergoing Ph. D. programme.

Dr B. R. K. Nair participated in the workshop on Extension methodology on Livestock improvement with small holders held at Kodaicanal during 3rd and 4th of June 1983 and presented a paper "A case study on Goats". He also attended the VII workshop of AICRP on Goats from 31st January to 2nd February held at Rahuri and the writers workshop in collaboration with 'KANFED' conducted from 23rd to 25th February 1984 at the Directorate of Extension arranged by the Kerala Agricultural University. Dr V. Vijayakumar, Assistant Professor (Animal Reproduction) attended the Summer Institute on "Instrumentation and Veterinary clinical Biochemistry" held at Veterinary College, Mathura, U. P. from 8th June to 30th June 1983.

Dr B. R. K. Nair presented paper "Whither Economics on Goat Production" in the Workshop of Animal Production Economics in Kerala held on 6th June 1983 at the Veterinary College Auditorium. He also attended several seminars arranged under the Lab-to-land and KVK programme of Kerala Agricultural University.

There were 591 goats at the end of the year of which 99 were milking does. The average per day milk production was 45 kg. 73 Bucks were distributed for breeding purpose. Artificial insemination was conducted for 1218 does.

Dr K. L. Sahni, Project Co-ordinator, AICRP on Goats visited the unit on 16th and 17th September and evaluated the working of the unit.

On 21-11-83, members of the General Council visited the farm and Dr R. M. Acharya, Deputy Director General, ICAR visited the farm on 23-1-1984.

### **AICRP on Utilization of Agricultural by-products and Industrial waste**

The major objectives of this project are to study the utilization of agricultural by-products and Agriculture based industrial waste materials as an economical cattle feed: to carry out trials on the palatability of by-products through feeding trials, digestibility studies and metabolism trials; to formulate balanced ration and enrichment of the feeds developed for improving their palatability, digestibility and incorporating additives and to study the economics of feed mixtures. The study so far resulted in the following findings:

- 1) Tapioca Leaf Meal can replace part of oil cake in a concentrate ration in cattle and can be added upto 30% level.
- 2) Tapioca Starch waste can be included in cattle ration at 25% level as an energy source.
- 3) Rubber Seed Cake can be used as a protein source at 20% level in cattle feed.



4) Coffee Husk and Tea Waste can be incorporated at 20 and 25% level to reduce feed cost.

5) Frog Meal, Fish Slage and Prawn Waste can be included in poultry ration.

The study for improving the nutritive quality of straw by addition of urea is being tried.

Dr P. Ramachandran, Scientist and Dr George Mathew, Associate Professor attended the XIth Workshop on AICRP on Agricultural By-products at Anand, Gujarat.

Three ICAR projects were implemented during the year. One project was concluded and three new projects were sanctioned by the ICAR during the year.

## **FISHERIES UNIT**

### **1) Rice Research Station, Vyttila**

This unit attached to the Rice Research Station, Vyttila has been functioning since 1976. Initially this unit was established to take up the "All India Coordinated Research Project on Brakish water Fish Farming". The activities of this unit is evolving suitable cultural practises of various types of fishes and prawns and to identify fish varieties suitable for the Pokkali fields.

Dr P. M. Mathew, Associate Professor was in charge of this Unit. A total of 9 Projects were implemented during the year.

### **2) Coconut Research Station, Kumarakom**

The Fisheries Unit at Regional Agricultural Research Station, Kumarakom was started as part of a project on integrating crop, livestock, and fish farming. During the year, 9 projects on fisheries were implemented.

### **3) Rice Research Station, Moncompu**

This unit is mainly for standardising the fish/prawn culture in punja fields of Kuttanad and breeding of Indian major Carps.

## **Research highlights**

### **RICE**

#### **RARS, PATTAMBI**

Culture 25100 (Ptb. 44) evolved was accepted by the Variety Evaluation Committee of the State for release in the State. It is a mutant from 'Oorpandy', photosensitive suitable for Mundakan. It is salt resistant, tall and suitable for areas, (second crop) where Ptb4 and CO25 are grown. Duration is 150 days.

Culture 1907 (Ptb. 46). It is a progeny of a cross between Bhavani and Triveni, photoinensitive, suitable for all the 3 seasons

100-105 days duration, resistant to blast, moderately drought resistant colour of the rice is white; average yield 3.5 t/ha.

Culture-23332-2 was found to be significantly superior to the national checks Rasi and IR-36

Cold tolerant cultures viz. Culture755 and Culture796 were found promising and included in the Minikit trials in the Wynad district. RRS, MONCOMPU

Culture1537-2 (MO 7) (Triveni x IR 1537) with a duration of 115-120 days and average yield of 5000-6000 kg/ha has been recommended to the Variety Release Committee for releasing in the State.

The following cultures have been sent for Minikit trial based on their performance in District trials:-

Culture	Duration	Average yield
a) Cul-93 (Jaya x Ptb 33)	100-105 days	6000-6900 kg/ha
b) Cul-126(Jaya x Ptb 33)	100-120 days	6000 kg/ha
c) Cul-169(ARC 650 x Jaya)	110-120 days	6500-6700 kg/ha
d) Cul-170(ARC 650 x Jaya)	100-110 days	5600-6600 kg/ha

Culture Nos. 153-1, 200 and 204 (IR 1561 x Ptb-33) with 115-120 days duration with an average yield of 4500-4800 kg/ha were sent for District trials.

#### VYTTILA

Cul. 4-4 (Vyttila 3) (Pokkali x T (N) 1) gave higher yield than the other improved varieties. It has the same duration (115 days from seed to seed), same plant type, grain size and cooking quality as Vyttila I, but has higher yield and protein content. This is being recommended for release as Vyttila-3 suitable for the Pokkali areas of Ernakulam and Alleppey Districts.

#### KAYAMKULAM

The rice culture 26-1-1 (Kayamkulam-2) (Tadukan x Jaya) short duration type (100 days) with medium stature is found to be quite promising for the first crop-dry sown conditions in the Onattukara region. This culture is tolerant to sheath blight and major pests and possesses tolerance to drought in the early growth phase. Average yield 4 t/ha.

Culture 52-3-6, (Kayamkulam-3) another short duration variety (95 days) with medium tall stature is also found suitable for the dibbled first crop in the Onattukara region. This shows early drought resistance, tolerance to sheath blight and major pests and diseases. Average yield 4 t/ha.

#### VELLAYANI

Genetic analysis of 9 dwarf induced mutants and Jyothi (representing DGWG dwarfing gene) indicated that the genetic basis of dwarfing in

some of the mutants is different from that of DGWG dwarf. It is inferred that 3 new dwarfing genes ( $d_2$ ,  $d_3$  and  $d_4$ ) are involved in the mutants which are different from DGWG gene ( $d_1$ ).

### Crop Management

#### PATTAMBI

A fertilizer dose of 50:25:25 was found sufficient for Mahsuri, both under dry sown condition in the Virippu season and transplanted conditions in Virippu and Mundakan seasons.

Application of organic manure coupled with inorganic fertilizers is desirable in rice culture for steady yield and maintenance of soil productivity and fertility.

Under transplanted condition, economic weed management can be established by adopting proper tillage and water management practices.

During Mundakan season, irrigating the crop with 5 cm water once in 6 days will not decrease the yield compared to 5 cm submergence throughout the crop period. Moreover, it will save a quantity of 39.77 ha cm of irrigation water which is sufficient to irrigate an additional area of 0.57 ha. During summer also, irrigating the crop to 5 cm submergence 3 days after the disappearance of ponded water saves 30.01 ha cm without decreasing the yield and at the same time sufficient to irrigate an additional area of 0.61 ha.

#### MONCOMPU

Kalinga-1, Retna, IR 8 and Culture 25315 are tolerant to 0.5% salt concentration. Kolappala, Ptb-26, Cul 88-2-49, Cul 25331, Cul 23372, Supriya, Deo-Geo-Woogen, Kalinga-1, Krishna, Rohini, Jaya, Suma and IR 22 are tolerant to 400 ppm iron concentration.

Bhadra, Bharathy, Jaganath, Rajeswari, Cul 4, Aswathy and Pavizham gave more than 90% germination in 0.05% NaCl.

725 kg lime either basal or in split application gave better yield under Moncompu soils.

Presoaking seeds in a solution of 1% Zinc Sulphate and 0.25% Copper sulphate before sowing gives maximum grain yield.

#### KAYAMKULAM

Permanent manurial trial indicated that in Onattukara tract, application of N in the form of cattle manure either entire dose or 25% is essential for higher yield. Application of  $P_2O_5$  and  $K_2O$  in sandy tracts is also essential for higher yields.

#### MONCOMPU

Arizone at 0.4 kg ai/ha, 2,4 D-EE both at 0.8 kg and 1 kg ai/ha and benthocarb at 1.5 kg ai/ha effectively controlled weeds in rice and the grain yield was as high as in weed-free check.

## CHALAKUDY

A study on low cost technology in sandy loam soils revealed the possibility of substituting part of the chemical fertilizers with organic manures such as azolla, blue green algae, neemcake, coir dust, daincha, straw and other rice based compost without any significant reduction in the grain yield of rice.

The study on the time of application of N under different water management practices in sandy loam soils, which contain a high concentration of soluble iron revealed that 3 and 4 split applications of nitrogen under continuous flow submergence recorded highest yield in paddy.

Under moderate rainfall, shallow ground water table condition, and low evaporative demand, irrigation need be scheduled only five days after the disappearance of ponded water for second crop transplanted rice.

Application of Goal @ 0.24 kg ai/ha was found to be very effective for the control of weeds in dry sown rice during 1st crop season and transplanted rice during 2nd crop season.

Fertilizer management trial on upland rice varieties (cul-1907 & local variety) grown in coconut gardens in Quilon district has shown that the local practice of fertilizer application viz. mixing 7 parts FYM, 3 parts wood ash and 1 part seed+20 kg/ha each of N, P & K resulted in significantly higher yield.

## VELLAYANI

Dual culturing of azolla with an inoculation rate of 0.5 kg/m<sup>2</sup> recorded maximum values with regard to the yield components, ultimately resulting in higher grain production in rice. However, an inoculation rate of 0.3 kg/m<sup>2</sup> was found to be sufficient for producing optimum grain yield. A significantly lower dry matter production of weeds was noticed at the azolla inoculation level of 0.5 kg/m<sup>2</sup>.

Fertilizer dose of 80:40:40 kg of NPK/ha and a spacing of 10x10 cm gave a maximum net profit of Rs. 3656/ha in rice variety Mahsuri.

Benthiocarb @ 2.0 kg ai/ha, nitrogen @ 1.875 kg ai/ha and bentazone @ 2.0 kg ai/ha can be recommended for semi-dry Virippu crop in Onattukara region for weed control and higher net profit per ha.

## Crop Protection

### PATTAMBI

IET Nos 8288, 8414 and 8748 showed multiple resistance to blast, sheath blight and bacterial leaf blight.

Spraying of MBC (1g/l) twice at 15 days interval was found very effective against sheath blight.

Spraying of Vitavax followed by Hinosan is the best fungicidal combination for sheath blight control.

Spraying cowdung extract (20g/l) twice at 15 days interval was found to check bacterial leaf blight disease.

Thiride, Captan and Foltaf were found to be good seed dressing fungicides.

San-155 90 SP at 0.25 kg ai/ha and Hostathion and Monocil at the rate of 0.5 and 0.35 kg ai/ha are found to control leaf folder.

Thimet at 1.0 kg ai/ha in standing water at 10 days after sowing and Thimet application followed by seedling root dip in 0.02% chlorpyrifos 20 EC for 12 hours before planting was found effective for the control of gall midge.

#### MONCOMPU

In direct seeded crop, pre-soaking of seeds in 0.2% chlorpyrifos solution helps in preventing gall midge incidence.

#### VELLAYANI

Sheath blight or sheath rot could be minimised by Furadan treatments and higher potash application. The efficiency of Furadan and higher potash treatment in controlling the diseases increased when the fungicide Vitavax (foliar application) was also included in the treatments, whereby economic increase in yield was recorded. Incidence of pests like stem borer and leaf roller were found to be favouring factors for sheath rot and sheath blight respectively.

Phytotonic effect could not be seen on rice for carbofuran, Thimet, and monocrotophos in different doses at different growth stages of the rice crop.

Isolates of *Rhizoctonia solani*, the causal organism of sheath blight of rice obtained from different sources could be grouped into different morphological groups viz. MG1, MG2, MG3 and MG4. Inoculation studies showed that none of the latter three groups could infect rice.

Rice root nematode *Hirschmanniella oryzae* was the dominant nematode parasite associated with rice in Calicut District. Nematode infection caused reduction in grain yield (11%) and straw yield (10%).

#### COCONUT

##### RARS, PILICODE

Among the Tall x different Dwarf hybrids, the 2 hybrids namely WCT x Chowghat Dwarf Green and WCT x Malayan Dwarf Green were found to be relatively more promising in terms of cumulative leaf and nut production.

An exotic cultivar named Vincent with initial vigour has been identified.

Application of common salt is beneficial for coconut.

Calixin @ 1ml/litre of water has been observed to check the spread of stem bleeding in coconut.

## COLLEGE OF HORTICULTURE, VELLANIKKARA

A method of prediction of coconut yield on the basis of the number of leaves on the crown and NPK contents of the 10th leaf with an accuracy level of 85.3% was developed.

## COLLEGE OF AGRICULTURE, VELLAYANI

Surveys conducted at Vellayani and surrounding areas showed the incidence of cytoplasmic polyhedrosis virus disease in the grubs of the red palm weevil.

Field trials showed that NPV spray at  $22.4 \times 10^7$  pathogens/ml was as good as 0.05% endosulfan in controlling the pest. The NPV was found to be harmless to chicks, white rats, white mice and rabbits.

## RARS, KUMARAKOM

Investigations on the integrated control of root (wilt) disease from seedling stage revealed that treatments with a nematicide, bactericide and fungicide were not effective in checking the incidence of root (wilt) disease in coconut. This gives an indication that root (wilt) disease might be incited by an organism or entity other than nematode, bacterium or fungus. It is also indicated that deficiency of Ca, Mg or Zn plays a vital role in predisposing the palm to the root (wilt) disease.

*Pestalotia palmarum*, the grey blight pathogen of coconut was also found to cause button shedding in coconut.

## CASHEW

### COLLEGE OF HORTICULTURE, VELLANIKKARA.

Endosulfan (0.05%), carbaryl (0.15%) and phosphamidon (0.03%) showed consistently better efficiency against the tea mosquito bug *Helopeltis antonii*. Joint formulations of HCH-carbaryl and carbaryl-phosphamidon were as effective as these insecticides.

August/September was found to be most congenial for stone grafting in cashew under Kerala condition.

Conservation of moisture in summer months is an important operation in cashew gardens. The studies on the effect of different cultural operations on retention of moisture showed that the moisture of the soil was more in plots, where the plant basins were covered with polythene sheets, for 2 m radius. The maximum yield was seen in plots where cover cropping was done followed by treatments with light digging and mulching.

## MADAKKATHARA

Epicotyl grafting was found to be a successful method of vegetative propagation in cashew under Kerala condition.

Yield data from the demonstration plots in the districts of Cannanore, Calicut, Malappuram and Palghat showed that "spraying +

manuring" was superior followed by manuring alone. These treatments gave satisfactory cost-benefit ratio over the control.

## FRUIT CROPS AND FLORICULTURE

### BANANA

#### KANNARA

The varietal studies in banana conducted in BRS Kannara showed that the three culinary varieties, viz. Bhurharia, Booditha bonthabatheesa and Walha are good for general cultivation in the State. The cooking qualities of these three varieties are also good.

Population density trial on Palayankodan revealed that population density around 2500/ha is superior in bunch yield.

The finger size in a bunch can be increased by trimming of one or two terminal hands of the bunch.

A fertilizer dose of N @ 150g/plant and P @ 200g/plant were optimum for higher bunch weight in Palayankodan variety. Screening trial against anthracnose disease showed that the biochemical constitution of the fruit has a high influence on infection and spread of disease. Reducing and non-reducing sugars have a positive correlation with the disease intensity while tannin and crude protein have a negative correlation with disease intensity.

A cyst nematode *Heterodera oryziicola* parasitising banana has been identified for the first time.

Soil application of carbofuran @ 1g ai/plant at planting and again at 5 months after planting helped in controlling the burrowing nematode.

Soil application of phorate, thiodemeton and carbofuran at the rate of 20g/pit at the time of planting and 25g/plant 2 months after first application reduced the rhizome damage significantly.

Under rainfed condition, application of soil insecticides for the control of bunchy top disease was found essential only 30 days after planting, since there is no absorption till then.

#### VELLANIKKARA

2,4-D at 200 ppm and Novras Banana special 0.5% were equally effective in promoting vegetative growth and increasing yield.

Varieties Palayankodan and Njalipoovan were most tolerant to drought.

Seed setting was observed in eight Cross Combinations of Banana. Agriswar x Pisanglinin, Palyankodan x Pisanglinin; Harichal x Pisanglinin; Lachan x Pisanglinin; Mannan x Pisanglinin; Nendra Vannan x Pisanglinin; Palayankodan x Sikuzani and Nendran x Sikuzani. Hundred cultivars of banana were identified as 64 distinct cultivars and can be grouped in genomic groups.

Edible cultivars of triploid and tetraploid groups were found to be successful pollen parents in the hybridisation programme in banana, instead of wild or diploid pollen parents.

Cucumber has been found to be the best intercrop in banana, based on cost-benefit ratio studies. Colocasia, Amaranthus and Chillies are also found to be beneficial.

#### **PINEAPPLE**

A plant population density of 43000-48500 and an optimum N level of 400-500 kg/ha was found to produce better sized fruits.

A study conducted on the standardisation of the most economic cropping system in pineapple revealed the superiority of high density planting in pineapple over low density and taking annual crops in the interspace of wide spaced trenches.

Pineapple is to be irrigated with 5 cm water at 0.3 IW/CPE and has to be mulched with dried leaves for maximum fruit production and better water use efficiency.

A new disease called "Marbled fruit" of unknown etiology has been noted in pineapple.

#### **MANGO**

August/September was found to be the best time for stone-grafting.

#### **HIBISCUS**

Intra specific compatibility was noticed in all types.

### **VEGETABLES AND TUBER CROPS**

#### **TOMATO**

The inheritance studies in tomato indicated that separate gene systems are responsible for resistance to disease in *L. pimpinellifolium* and in carolina lines. Complete susceptibility of  $F_1$ s to the wilt disease proved the recessive nature of gene action involved in the inheritance of resistance. In tomato, bacterial wilt resistance was observed in LE 79, Saturn and F 2 of Pusa Ruby x LE 79 and Saturn x LE 79. The improved lines of LE 79 showed resistance to 3 isolates of *Pseudomonas solanacearum*. It has recorded a field survival of 88.92% in bacterial wilt infested areas.

#### **BRINJAL**

Brinjal being a cross pollinated crop, mass selection and single plant selection are superior to pure line selection and single seed descent methods to improve horticultural characteristics.

Eight induced recombinant types (SM types) of Brinjal were evaluated for yield and resistance to bacterial wilt. All the types were completely free from wilt disease under field conditions. SMI-1 and SMI-10 were better yielders.



Eleven varieties of brinjal were evaluated for yield and bacterial wilt resistance. SMI types and SM-6 were found to be highly resistant while Pusa Purple Cluster was moderately resistant.

Brinjal varieties PBr 129.5 and PPC were found to be resistant to fruit and shoot borer.

Aru 2C, KTU and Annamalai varieties have proved to be bacterial resistant varieties.

### **BHINDI**

Wild species of *Abelmoschus manihot* and its hybrids although exhibited high resistance to yellow vein mosaic disease, were inferior in fruit yield. Four inter varietal hybrids of Bhindi were superior in fruit yield than Pusa Sawani and Kilichundan indicating the scope for development of hybrid varieties.

### **CHILLIES**

In Chillies, Cul No.57 and Cul 51 recorded an increased yield of 30.3% and 21.6% respectively in green fruit yield over the standard var. Vellayanochi. Cul 33 had attractive plant type and fruit characters. These cultures have been proposed for adaptive trial.

NP46 A, CA 960 and Jwala are found to be high yielding varieties of chillies. A wide variation for sensitivity was reported among the different genotype of chillies to Co 60 gamma rays and Ethyl methane sulphonate treatments.

### **AMARANTHUS**

A non bolting type of *Amaranthus* A-33 locally known as Kannara Local is found suitable for cultivation throughout the year.

### **DRUMSTICK**

The peak period of anthesis in Moringa was found to be between 7.00 am and 8.00 am.

### **CUCUMBERS**

The five varieties of *Cucumis melo* namely *indorus*, *conomon*, *flexosus*, *momordica* and *utilissimus* were found to be compatible among each other.

Ten elite lines in bittergourd, 3 in snake gourd and 2 in cucumber have been identified.

Sugar Baby and Arka Jyothi varieties of water melon were found to perform well under Kerala conditions. Hybrid No.1 and CM-14 are high yielding pumpkin varieties.

### **Crop Management**

Pitcher irrigation can be successfully adopted for growing vegetable crops like water melon during summer season. Scheduling irrigation (3 cm depth) to bittergourd var. Priya grown in summer rice

fallows at IW/CPE ratio of 1:2 was found to be the most economic water management practice under the prevailing agro-climatic conditions. This involved irrigation at an approximate interval of 4-5 days after the establishment of the crop.

A fertilizer dose of 18 kg N, 48 kg P and 36 kg K/ha was found to be the optimum dose, for getting maximum green tender pods in winged beans whereas the economic dose was 16:42:29kg N, P & K/ha. It has been proved that Yellow vein mosaic virus is not transmitted through seeds.

### **Crop Protection**

Temik, Furadan and Thimet were found to be effective in controlling root knot nematode in bhindi.

In Brinjal, aldicarb 0.3 g ai/m<sup>2</sup> is effective for the control of nematode infestation.

Fenitrothion 0.05% was found to be effective in controlling sweet potato weevils.

### **YAMS**

For amorphophallus, irrigating at 0.9 IW/CPE ratio ratio i. e. 12 irrigation at an interval of 12 days and mulching with dried leaves, paddy waste or coir dust are found to boost the corm yield. For amorphophallus, corms of 750 gms when planted at 50×50 cm spacing gave the maximum yield.

### **COLEUS**

For economical production of Coleus, a fertilizer dose of 60 kg N, 30 kg P and 120 kg K per hectare may be applied in two split doses.

### **CASSAVA**

For soils having high N & K content 60 kg/ha each of the N & K will be sufficient.

Cassava can be harvested at 8 months after planting for industrial purposes and for culinary purposes the varieties can be harvested from 6th to 10th month after planting, the yield being maximum at the 10th month.

In areas where rainfall is heavy and the soil is of course textured nature, the intercropping of cowpea with cassava is better than groundnut.

For better water economy and higher tuber production, irrigation for tapioca on any one of the following two schedules can be recommended:

- a) All furrow irrigation with 25 mm water at 100 mm CPE
- b) Alternate furrow irrigation alternatively with 50 mm water at 75 mm CPE

H 2304 is found to be highest yielder among cassava varieties under uniform regional trial. Var. H 312 even though high yielding, was found to have a higher HCN content.

### SWEET POTATO

The variety Kalmegh was found to be suitable for harvesting at 90 days after planting (DAP) while OP-57, C. 71 and V. 35 at 105 DAP and H. 620 at 120 DAP.

In soils rich in N & K these nutrients @ 30 kg/ha is enough for good yield.

For paired row planting, growing of shallow and deep rooted varieties is better than either of these planted in pair.

Sweet potato var. S. 378 was found to be self compatible.

### DIOSCOREA

Uniform regional trial indicated that the *Dioscorea alata* var. Da-48, gave the maximum yield followed by Da-60.

In *D. esculenta*, var. De. 23 recorded maximum yield followed by De. 17.

### PULSES & OIL SEEDS

Cowpea var, HG 22 and groundnut var JL-24 were found to be highly suited to the command areas of Trichur and Palghat Districts.

In groundnut var. TG-3 and TG-14 in summer rice fallows, and TG-14, TG-3 and Spanish Improved in Kharif uplands were superior to the standard varieties TMV-2, TMV-7 and JL-24. These were recommended by the variety evaluation committee of the University, and is awaiting approval by the Variety Release Committee. Var. EC. 116526 was found to be tolerant to tikka leaf disease.

Out of the 83 lines of cowpea evaluated for field resistance to aphids, all the lines except 10 TVU lines were infested by the aphids. TVU 1889 was found to be most promising as a donor parent for aphid resistance breeding programme.

In the preliminary observations on the screening of 12 varieties of cowpea for shade tolerance and high yield potential, V-26 and HG-22 were found to be promising for cultivation in coconut gardens.

An investigation has indicated that blackgram requires combined application of nitrogen and phosphorus partly through soil and partly through foliage at vegetative and flowering phases for better growth and yield.

It has been observed that application of 15 kg N, 25 kg  $P_2O_5$  and 20 kg  $K_2O$ /ha is the best fertilizer dose for horse gram var. Pattambi local which resulted in the highest net return in the red loam soils of Vellayani.

## SESAME

The cultures No. 38-1 and 42 -1 were superior to the standard varieties in upland; Cul. 38-1 was significantly superior to the other culture and the standard varieties in summer rice fallows. Both the cultures were on par with the standard varieties in respect of duration and oil content. Hence the 2 cultures are proposed for release as improved varieties.

## SUGARCANE

Five sugarcane varieties identified as high yielding, with high sugar content suited to the different agro-climatic conditions of the State were put under multilocational trial in cultivators' fields.

Two clones from among the hybrid progenies possessing superior yield and high sugar content over Co. 62175 and Co. 997 have been located. These clones are resistant to red rot disease. From the seedlings, 10 desirable fodder types have been isolated for further studies.

Basal application of  $\frac{1}{2}$  N and  $\frac{1}{2}$  K along with full P at the time of planting and the remaining  $\frac{1}{2}$  N and  $\frac{1}{2}$  K during April/May with the onset of south west monsoon gave a significantly increased yield of 10.35 tons of sugarcane/ha over the present recommended practice.

Ratoon crops require heavier dose of fertilizers than the plant crop and the corresponding 25 per cent increase in fertilizer dose resulted in an yield increase of about 15 tons/ha.

Ratoon crop also requires preponement of the fertilizer schedule already recommended. Manuring on 25th and 75th day instead of 45th and 90th day increased the yield by 4 tons/ha even in the 3rd ratoon.

Liming of plant crops at 50% of the lime requirement helped in stabilising the yield of the ratoon crop at the level of plant crop.

It has been observed that in acid soil with pH below 5.5, liming is essential for sugarcane cultivation.

A survey of the disease of sugarcane showed that the damage due to red rot and grassy shoot diseases ranged from 25 to 100% and 11.5-31.0% respectively. Inoculation studies conducted on 262 genotypes showed 66 resistant, and 75 moderately resistant to red rot disease while Co. 6917, Co. 7704, Co. 740 and Co. 7717 were resistant to red rot.

Studies on increasing efficiency of applied nitrogen indicated that at low levels of nitrogen application, nitrification inhibitors were effective, 50 kg N in conjunction with marotti cake gave an yield equivalent to 100 kg N treatment.

In ratoon management, gap filling is essential. Gap filling gave an increased yield of 15 tons/ha in the first ratoon in the variety Co. 740.

It has been proved that pre-monsoon irrigation eight times at 20 days intervals is essential for better yield. There was an yield increase of 30-35% in the irrigated field. The maximum yield was obtained when irrigation was done at 10 days interval.

Red rot disease in sugarcane was observed for the first time in the State. The symptomatology and etiology indicated that the pathogen is a different strain of *Colletotrichum falcatum*. Variety Co. 6907 and Co. 7704 are recommended for the disease prone areas.

## MEDICINAL & AROMATIC PLANTS

Two year crop of *Dioscorea floribunda* is more profitable than one year crop.

*Costus speciosus*, a native plant of Kerala is found to be a good substitute of the exotic species of *Dioscorea floribunda*. Crop management studies on *Kaemferia galanga* showed that maximum yield could be obtained by early planting (third week of May using mother rhizomes) and early harvest at six months maturity.

The quality characters were not influenced by harvesting time. The early planted mother rhizome gave the highest oil and oleoresin yield per hectare.

In *Costus speciosus*, the diosgenin content of rhizome was highest in plants treated with 2, 4-D 10 ppm (1.83%) followed by etheral 200 ppm (1.64%) and maleic hydrazide 100 ppm (1.64%). The yield of diosgenin per ha was significantly higher in 200 ppm etheral treatment.

ODP-1 and ODP-2 of Palmarosa did not differ much in grass yield, but the oil yield was significantly higher in ODP-1.

Evaluation of the mutant clones of lemongrass showed that the clones 4, 14 and 37 were promising in respect of grass yield.

## SPICES

### PEPPER

A survey on the incidence of pollu beetle *Longitarsus nigripennis* in Ranny taluk showed that the extent of infestation ranged from 1-6%.

### NUTMEG

Growth regulators namely Celemone (NAA) at the rate of 200 ppm as spray 4 times ie. at the time of flowering and 2, 3 & 4 months after flowering minimised the fruit drop in nutmeg.

## GINGER

Floral biology studies indicated that flowering was restricted in var. Rio-de-Janeiro and Maran under Vellanikkara condition. 40-48 days is necessary from the initiation of inflorescence to completion of flowering. Anthesis time varied from 14-16 hrs, anther dehiscence 10-25 minutes after flower opening, stigma remained receptive 1-5 hrs after the opening of the flower. There was no seed set. These characters were not influenced by growth regulators and urea treatment.

Tissue culture in Jack (multiple shoot production and rooting), Mussaenda (multiple shoot, rooting callus and somatic embryoid) was successful.

## CARDAMOM

PV-1, a promising selection from Malabar type recorded the maximum yield/plant (269 g) followed by Mudigere-1 (252 g) and PV-7 (240 g) during second year grown vegetatively.

Anthesis in cardamom was found to occur at 3.00 am and extended upto 8.00 am. The mean pollen fertility in variety Vazhuka was 88.36%, Mysore 89.79% and in Malabar 91.82%. Pollen germinability ranged from 25.06—60.25% in Malabar, 16.39—42.36% in Mysore and 19.50—42.33% in Vazhuka. The stigmatic receptivity was highest at 7.00 am to 8.00 am in Malabar, at 10.00 am in Mysore and at 8.00am in Vazhuka.

Germination of cardamom seeds decreased in the case of irradiation. The LD 50 value was found to be between 8—13 KR. The irradiated plants were late in flowering and suckering was also less than the control. It has been observed that the incidence of Katte disease could be reduced by prompt eradication of affected plants. Azhukal disease could be effectively controlled by spraying Bordeaux mixture @ 1-2 litre/plant with adhesive on the aerial parts and soil drenching with 1% Boreaux mixture @ 2-3 litre/plant during the months of June and August adopting trashing and removal of trash from the basal region of the plant. Ekalux, Labaycid, Phendal, Metacid, Nuvacron, Rogor, Sevin dust, Folidol dust and Ekalux dust have been found to be effective in controlling cardamom thrips.

It has been found that by maintaining bee colonies @ 4 per ha in plantations, the yield of cardamom can be increased.

## COCOA

Based on the yield of pods, 20 plants were identified as high yielders and 13 of these were found to be self incompatible.

Investigations on the etiology and control of the fruit drop disease in cocoa showed that, generally phytosanitation was found to reduce pod damage due to the pathogens. Spraying of Bordeaux mixture along with phytosanitation reduced the disease incidence to the minimum.

For the control of pink disease, the studies indicated that application of Bordeaux paste before the onset of monsoon or use of Thiride along with removal of the dried twigs and branches before the onset of monsoon and application of wound dresser delayed the occurrence of pink disease.

## FODDER CROPS

Among the fourteen varieties of cowpea evaluated, UPC 9805 recorded the highest green fodder yield (35.6 t/ha) and UPC 6342 gave the highest dry fodder yield (6.60 t/ha).

In the evaluation of 12 varieties of Dinanath grass, the var. PP. 56-1 gave maximum green fodder yield (41.4 t/ha) while the maximum dry fodder yield (14.81 t/ha) was obtained in the var. JP-1.

The guinea grass varieties FR-60, PGG-4 and Humil were better in green forage yield under upland conditions of Vellayani. The multi-local trials of the mutant clones of guinea grass viz. MC-2 and MC-12 showed that these were better forage yielders than FR-600 or *Mackuenji*. These clones have the added advantage of sparsely flowering nature. Maize variety 'African tall' recorded the maximum green fodder yield among the 14 varieties evaluated. Among the five types of *Stylosanthes* evaluated, *S. scabra* gave maximum green fodder yield.

## SOILS AND AGRONOMY

The exchangeable magnesium of soils as well as exchangeable magnesium and potassium of plants were found to be significantly lower in the cardamom plants showing Chenthal disease infection. This suggests nutrient deficiency as a pre-disposing condition for the onset of the disease.

In the evaluation of the structural indices of some soils of Kerala, black soils were found to be well aggregated as compared to other soil groups. These were superior to other groups in respect of CEC and available moisture status.

Cowpea var. S. 488 and black gram var. Vellore were found to be tolerant to high concentrations of aluminium and manganese in the soils.

## PLANT PROTECTION

Waiting period required for malathion 0.1%, fenitrothion 0.05% and quinalphos 0.05% was 3 days on bhindi and brinjal.

Phosalone, quinalphos, fenthion and carbaryl did not leave residues above tolerance limits on cardamom when applied even upto 7 days prior to harvest.

The attack of coreid bug on coconut was found to reduce the volume and weight of nut and husk as well as the oil content.

Bioassay of insecticide stored under varying conditions for a period of one year showed that the toxicity did not deteriorate significantly.

Biology of coconut cockchafer, *Leucopholis coneophora* on different host plants was studied in detail and distinguishing features for identifying first, second and third instar grubs and the males and females of adults were found out. Emergence holes in soil were located as a possible index of pest population in the ensuing season.

Cassava was found to be a favourable host for the pest and hence conducive to its population build up. One application of heptachlor at 1.4 g ai / ha in June or two applications of HCH at 5 kg ai / ha in June and September gave complete kill of the grubs.

The downward movement of HCH and heptachlor in soil was very in significant and this necessitated the incorporation of the pesticide deeper in soil.

*Verticillium lecanii* was identified as a potent fungal pathogen against brown plant hopper of rice.

An NPV detected on snake gourd used at  $12 \times 10^5$  / ml of spray preparation was found to be superior to Sevin for the control of the pest.

An NPV disease detected on red palm weevil grubs was found to be less endemic in areas like Kumarakom than in places like Trivandrum where the pest incidence is low.

A nuclear polyhedrosis virus detected on *Nephantis* was found effective in controlling the pest at a dose of  $22.14 \times 10^7$  PIB / ml.

Quinalphos at LC 10 level and permethrin at LC 30 and LC 40 levels had significant synergetic effect on the nuclear polyhedrosis of *Spodoptera litura*.

*Poecilomyces farinosus* was safe to rats with reference to the dermal, oral and eye sensitivity.

Among the different available granular pesticides, Temik was found to be the best for controlling the root knot nematodes of bhindi.

Root knot nematode infestation significantly reduced the leaf yield in betel vine.

Pathogenicity studies revealed that Panniyoor-1 was highly susceptible to the root knot nematode attack. Narayakodi was relatively resistant.

Triflumuron was found to be effective in suppressing the population build up of *Epilachna* beetles.

No phytotoxic effect could be seen on rice for carbofuran, Thimet and monocrotophos applied in different doses at different growth stages of the crop.



## POST HARVEST TECHNOLOGY & NUTRITION

The minimum spoilage of tubers was found to be where these are packed in cassava leaves. Storing of cassava tubers below a soil column of 1½-2" appeared to be most acceptable for preservation of raw tubers.

Pre-treatment of malta lemon with hot solution of sodium bicarbonate before pickling reduces the bitterness of the fruit.

Organoleptic evaluation for taste, flavour and texture of banana flour porridge showed that the Nendran banana is better than the other varieties.

Rotting was found to be less for oriental pickling melon fruits harvested from plants receiving organic manure alone.

In winged beans, the protein content was maximum in the seeds followed by leaves, pods, flowers and tubers.

Based on tuber quality, the sweet potato variety Nadinjal chuvala ranked first followed by Kanjhangad local.

### Cropping pattern and Farming systems

Trial cultivation of Tapioca as an intercrop in coconut gardens revealed that the maximum yield was obtained with var. Sri Visakh. Cowpea varieties V-26 and New Era were found to be more promising as companion crops of tapioca. Palayankodan, Padathy and Monthan were on par and were superior to Nendran as an intercrop in coconut gardens.

Raising cowpea during the third crop season was found to increase the grain yield of rice significantly during the 1st crop season and during the 2nd crop season to a lesser extent, in addition to the economic yield obtained from the cowpea crop.

Cowpea varieties V-26 and HG-22 were found to be promising as an intercrop in coconut plantations. Horsegram varieties HPK-2 and IC-11448 were found suitable for growing in partially shaded conditions of coconut gardens.

## FARM ECONOMICS, EXTENSION AND STATISTICS

Procedure for forecasting yield of sugarcane based on biometric parameters such as height, girth, width of 3rd leaf, total area of 3rd leaf and number of leaves per plant was standardised. An easy method of estimating leaf area in sugarcane using linear measurements was also evolved.

Studies on the production and marketing of groundnut in Palghat district indicated that the average yield per hectare was 1087 kg of groundnut pods. Gross Income, Farm Business Income, Family Labour Income, Net Income and Farm Investment Income per hectare were Rs. 3739.43, Rs. 1388.50, Rs. 536.30, Rs. 499.43 and Rs. 1361.63 respectively. The cost-benefit ratio was 1.17.

Investigations on the economics of Banana cultivation in Trichur District revealed that, on a per plant basis, the average cost of production of bunch was Rs.14.31 and the average return was Rs.26 / per plant. The average Farm Business Income was Rs.29108.17/ha. The net income from banana cultivation was Rs. 23197.77 per hectare with cost - benefit ratio of 1.55.

Analysis of data collected for partial-step-in technology experiment to work out the economics of fertilizer management for HYV of rice raised during Rabi revealed that the return above variable cost for the recommended practices were higher than that for local practices.

Studies conducted at Trithala Village revealed that the farmers in general adopt a wider spacing for HYV which adversely affects the grain production by about 25-40%.

## SOIL CONSERVATION AND FARM MECHANISATION

An axial flow pump which is suitable for dewatering the agricultural fields of Kuttanad and Kole areas was designed and fabricated. This can replace the locally made "petti and para" which is presently used.

A paddy winnower-cum-cleaner was fabricated and successfully tested. The output of this machine was 500 kg/hr of paddy meant for seed purpose and 750 kg/hr of paddy for grain purpose.

In studies on the utilisation of *Salvinia molesta* for bio-gas production, it was found that pressure exerted had a definite influence on the gas production characteristics, the relationship being of negative nature between pressure and gas yield. For domestic use, a plant of 6m<sup>3</sup> capacity capable of loading 40 kg dry salvinia/day is sufficient.

Exploitation of other possible avenues of water sources such as deep ground water for providing enough quality water for irrigation and surface washing is warranted for successful cropping in the Kari soils.

Drying of the field below saturation point should be avoided to prevent the production of free acidity.

A system of tile drains is better suited for subsurface drainage in the Karumady project area than PVC drains. This may help in the improvement of productivity of soil by preventing contamination of root zone by sub soil salinity and acidity. This will also facilitate downward movement of the water, surface washing and aeration of root zone.

## B. FACULTY OF VETERINARY & ANIMAL SCIENCES CATTLE & BUFFALOE

Part lactation milk records were found to be useful in predicting complete lactation milk production. First 100 day's and second 100 day's lactation yield could be used independently or jointly for predicting the 305 days' lactation yield.

In a field study involving 1295 Brown Swiss half-breds, 96 Jersey half breds, 361 unclassified Brown swiss crosses and 320 unclassified Jersey crossbred cows, it was observed that the milk production for 305 days was similar for both Jersey and Brown swiss cross breds.

With an average growth rate of 390 g per day, Surti crossbred buffaloes appeared to have good meat potentiality. Physico chemical methods to identify buffaloes appeared from beef were standardized. Palm kernel cake, spent turmeric, spent ginger and spent coffee bean were the new agricultural byproducts identified for evaluation as cattle feed.

### **GOAT**

The most critical period in the life of kids is up to 15 days of age. There is negative correlation between birth weight and mortality rate. Kidding in rainy season is unfavourable for kid survivability.

In Saanen x Malabari cross breds, the incidence of multiple births got reduced to 50.8% in F2 generation from 58.0% in F1 generation.

### **POULTRY**

A commercial hybrid layer chicken, IWPxIWF, suitable for consideration for release was identified. The genetic improvement and strain cross studies at AICRP (Poultry) have also indicated IWPxIWN as another possible strain cross for release as commercial hybrid chicken in Kerala.

### **ANIMAL REPRODUCTION & ARTIFICIAL INSEMINATION**

Increase in the frequency of collection of semen of bucks from one to two daily has the advantage of more spermatozoa being available for artificial insemination without affecting the semen quality or libido of bucks.

Clomiphene citrate (Fertivet. Fut 300) and Secrodyl containing a combination of oestrogen and progesteron were found to be useful for inducing ovulatory oestrus in true anoestrous cows with satisfactory fertility although the clomiphene citrate appeared to be superior.

Tris diluent was superior to skim milk diluent for freezing buck spermatozoa.

### **ANIMAL DISEASES**

Fenvalerate, a synthetic pyrethroid insecticide at a concentration of 1:10,000 was found to be effective in controlling *Stomoxys* and *Liperosia* species of flies affecting cattle.

Mansonil at 60 mg/kg body weight at divided doses was proved to be effective against Cestodiasis in elephants.

Chloral hydrate anaesthesia with siquil as preanaesthetic was found to be satisfactory anaesthesia for thoracotomy and lobectomy operations in goats.

Some of the spontaneous reproductive disorders in goats were demonstrated to be associated with hypothyroidism. Changes in the reproductive organs in subclinical hypothyroidism in goats and ducks were shown to be reversible in nature and they could be corrected.

A treatment schedule for carbofuran toxicity in ducks was prescribed.

Mycotoxin contaminated feed was identified to be responsible for most cases of non specific anorexia, unthriftiness and lowered productivity.

Arsenical preparation, sodium thiosulphate and essential fatty acid supplement were found to be effective in curing the condition involving necrosis of extremities in cattle and buffaloes.

The role of freeflying birds in the dissemination of Newcastle disease virus which is highly pathogenic to chicken was established. A mesogenic strain of the virus isolated from a mynah was found to be highly immunogenic, producing sufficient antibody titres to protect the birds against virulent virus.

The vaccine developed from this strain (M) is being standardised under field conditions. The strain M has significantly higher immunogenic effect than strain K. The efficacy of Newcastle disease vaccine prepared from M strain was studied in backyard poultry in Nilambur area. Out of 2119 chicken belonging to 209 households vaccinated, no serious post-vaccinal reactions were noticed. In the vaccinated birds antibody titres were found to persist for more than 24 weeks.

Ascariidiasis and coccidiostats were shown to have profound immuno suppressing effect on the development of immunity after Ranikhet disease vaccination.

The synergistic effects of ochratoxin and aflatoxin in goats were studied, their biological effects were delineated and significance was clarified. Aflatoxin was demonstrated in blood samples and rumen contents of animals ailing from non specific anorexia. Toxic levels of aflatoxin were detected in 20% feed samples examined. Direct exposure to sunlight was found to be one of the methods to reduce aflatoxin content in the feed. It was demonstrated that subclinical hypothyroidism would lead to significant reduction in growth rate and destructive lesions in the reproductive organ in chicken. The latter was suggested to cause poor fertility of chicken eggs.

By experimental studies in calves the symptomatology of toxicity of leaf of *Ficus tiseia* Robb. was chartered sequentially and the gross lesions were described.

An outbreak of Foot and Mouth disease in goats was recorded and the mortality was caused by myocarditis. A case of tuberculosis was reported in a Tapir.

The mechanism of anticarcinogenic effect of Anacarcin was clarified and its therapeutic effect was assessed.

Patho anatomical features of necrotic enteritis and their significance in pigs were described.

### C. FACULTY OF FISHERIES

In studies on the polyculture of the brackishwater fishes involving *Chanos chanos* (Poomeen), *Mugil cephalus* (Thirutha) and *Liza parsia* (Kanamb) at 1.5:1.5:1.0 ratio and at 4000/ha, net production of 1715 kg/ha/year was obtained. Among the three species, *Chanos chanos* contributed the maximum to total production.

A net production of 488 hg/ha/3 months was obtained when the prawn *Penaeus indicus* (Naran chemeen) was cultured at 20,000/ha along *Chanos chanos* at 500/ha. the production of prawn alone being 242 kg. It was found that stocking *Chanos* along with prawn helped in increasing the survival rate of prawn.

From the culture of *Penaeus monodon* (Kara cemmeen), a net production of 768.2 kg/ha/3 months was obtained. This is the highest yield from *P. monodon* anywhere in the country as per available records. The prawn of initial weight of 2g when stocked at 20000/ha, grew to an average size of 38.5g in 3 months with a retrieval rate of 80.5%. ●

## CHAPTER IV

# Extension Education

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All extension education programmes of the Kerala Agricultural University are co-ordinated by the Directorate of Extension at the University level. The extension programmes of the University are approved by the Extension Advisory Committee constituted by the University with the Vice-Chancellor as the Chairman.

Subsequent to the retirement on superannuation of Dr V. S. S. Potti as Director of Extension on 30-4-1983, Dr G. R. Nair, Associate Director of Extension held full additional charge as Director of Extension from 1-5-1983 to 30-10-1983. Dr A. G. G. Menon took over as Director of Extension from 31-10-83.

The details of staff working under the Directorate of Extension are furnished in Appendix-III.

The Directorate of Extension provides technical expertise to the field extension personnel of various development departments in the state, disseminates scientific and technological information to the farmers through a variety of media and offers technical assistance to voluntary service organisations and other institutions. These programmes are being implemented through the Training Service Scheme, Farm Advisory Service, Communication Centre, Krishi Vigyan Kendras, National Demonstration Scheme, Lab to Land Programme and Village Adoption Programme through various Institutions/Research stations under the Kerala Agricultural University, Tribal Area Research Centre, All India Co-ordinated Research Project on Scheduled Castes and Other Backward Communities, etc.

### **TRAINING PROGRAMMES:**

#### **For the Department of Agriculture**

*Training in Plantation crops for subject matter specialists and Junior Agricultural Officers*

The training was conducted in two batches for the subject matter specialists and Junior Agricultural Officers of the Department of Agriculture from 13-2-1984 to 18-2-1984 and 20-2-84 to 25-2-84 respectively at the College of Horticulture, Vellanikkara. In all 64 trainees participated in this programme.

*Training in Rice Production Technology for Junior Agricultural Officers*

Training was imparted for 6 batches with 127 participants at RARS, Pattambi and five batches with 105 participants at RRS Moncompu.

*Training in Fruit Crops for subject matter specialists*

This training was held at the College of Horticulture, Vellanikkara from 12-12-1983 to 17-12-1983. 34 subject matter specialists participated in this training.

*Training in Pulses production for Junior Agricultural Officers*

The training was conducted at the Regional Agricultural Research Station, Pattambi in 5 batches, in which 132 trainees participated.

*Training in Plant Protection and maintenance of Plant Protection equipments for Junior Agricultural Officers and subject matter specialists*

This training was conducted at the College of Agriculture, Vellayani in 5 batches for 141 participants.

*Training in Fodder Development for Junior Agricultural Officers and Subject Matter Specialists*

This training was conducted at the College of Agriculture, Vellayani in two batches for 51 officers.

*State Level training in Rice Production Technology for Junior Agricultural Officers and Subject Matter Specialists*

This training was conducted at Regional Agricultural Research Station, Pattambi and Rice Research Stations at Moncompu and Kayamkulam. The duration of the Training was 4 days in each centre and altogether 77 participants were trained.

*Inservice training for Agricultural Demonstrators*

This training was conducted at the Institute of Agricultural Technology, Tavanur for six months from 18-7-1983. 54 Agricultural Demonstrators participated in this training.

*T & V Pre-Service Training to Agricultural Demonstrators*

This training was conducted at the College of Agriculture, Vellayani where 117 demonstrators were trained and at the Horticultural College, Vellanikkara where 53 were imparted training. The duration was six months.

**For the Department of Animal Husbandry**

*Training in Veterinary Microbiological Techniques including mastitis diagnosis for Veterinary Surgeons :*

This training was conducted for 5 Veterinary Surgeons at the College of Veterinary & Animal Sciences, Mannuthy. The duration of the training was 3 months.

*Training in Meat Inspection and Veterinary Public Health for Veterinary Surgeons :*

This training was conducted for 3 months at the College of Veterinary & Animal Sciences, Mannuthy, 5 Veterinary Surgeons participated.

*Training in Avian Disease for Veterinary Surgeons :*

This was conducted for 5 Veterinary Surgeons at the College of Veterinary & Animal Sciences, Mannuthy for 3 months.

*Livestock Assistants' Training for Inseminators of Kerala Livestock Development and Milk Marketing Board and new recruits of the Department of Animal Husbandry :*

This training programme was conducted for a period of 11 months at the College of Agriculture, Vellayani; 44 trainees participated.

*Training in laboratory techniques for the Livestock Assistants of Kerala Agricultural University and Department of Animal Husbandry :*

This training programme was conducted at the College of Veterinary & Animal Sciences, Mannuthy for six months; 14 trainees participated in this training in two batches.

*Training in clinical pathology and Autopsy techniques for Veterinary Surgeons :*

This training was imparted to 5 Veterinary Surgeons of the Department of Animal Husbandry for 3 months at the College of Veterinary & Animal Sciences, Mannuthy.

*Training in Poultry Breeding and Genetics for Veterinary Surgeons :*

The training was conducted at the College of Veterinary & Animal Sciences, Mannuthy for seven Veterinary Surgeons of the Department of Animal Husbandry for 3 months.

*Training in Parasitology with special reference to blood parasites for Veterinary Surgeons :*

This training was imparted to 8 Senior Veterinary Surgeons of the Department of Animal Husbandry for 3 months at the College of Veterinary & Animal Sciences, Mannuthy.

**For the Department of Dairy Development**

*Training in Artificial Insemination and pregnancy diagnosis for Dairy Extension Officers :*

This training was conducted at the College of Veterinary & Animal Sciences, Mannuthy for 7 Dairy Extension Officers for 2 weeks.

*Training in Clean Milk Production and Quality control of Milk for Dairy Farm Instructors :*

12 Dairy farm Instructors were trained for 2 weeks at the College of Veterinary & Animal Sciences, Mannuthy.



*Training in Artificial Insemination and Pregnancy Diagnosis for Cattle Improvement Assistants :*

Eighteen Cattle Improvement Assistants were trained for 2 weeks at the College of Veterinary & Animal Sciences, Mannuthy.

**For the Department of Forestry**

*Training in Extension Methods with reference to Social Forestry for Foresters*

Forty Foresters were trained at the College of Agriculture, Vellayani for 4 days.

**For the Development Department**

*Subject Matter Training in Rural Home Science for Extension Women Welfare Officers of the Development Department*

Thirty two Extension Women Welfare Officers were trained for six months at the College of Agriculture, Vellayani in two batches.

*Training in Rabbit Rearing for the Assistant Directors of District Rural Development Agency*

Three Assistant Directors of the District Rural Development Agency were trained at the Small Animal Breeding Station, Mannuthy for one week.

**Other training programmes**

*Training in Horticulture and Tree Planting for the staff of Southern Railways*

The personnel of the Southern Railways were trained in tree planting at the College of Horticulture, Vellanikkara, for one week.

*Training in Dairying for Pre-release Defence Personnel*

Fifteen pre-release Defence Personnel were trained at the College of Veterinary & Animal Sciences, Mannuthy.

*Training in Poultry Management for Pre-release Defence personnel*

Fifteen pre-release Defence personnel were trained in Poultry Management for one month at the College of Veterinary & Animal Sciences, Mannuthy.

*Training in Agriculture for the Field Officers of Union Bank of India*

Twenty five Field Officers were trained in recent techniques in Agriculture, Animal Husbandry and Fisheries at the Directorate of Extension, Mannuthy for two weeks.

*Refresher training in Agriculture for the Agricultural Officers of Indian Overseas Bank:*

Twenty five Agricultural Officers were trained in Agriculture, Animal Husbandry and Fisheries at the Directorate of Extension, Mannuthy, for 2 weeks.

*Training in Agriculture and Allied Subjects for the Tribal Youth of Wynad District (sponsored by KIRTADS, Calicut)*

Thirty three Tribal Youth Leaders were trained for 45 days at various research stations and farms of the Kerala Agricultural University.

### **COMMUNICATION CENTRE**

The major objectives of the Communication Centre are to provide information support to the extension personnel of the State Development Departments, Voluntary Agencies, Farms, etc. on Agricultural technologies through a variety of media. Feature articles, questions and answers, technical publications, radio programmes, exhibitions, correspondence courses, etc. constitute the information support programmes of the Centre. Collecting research results from other Research Stations in India and communicating to concerned departments of the University is also one of the duties of the Communication Centre. A resume of work in Communication Centre during 1983-84 is furnished below:

#### **Information Unit**

##### *Farm News Service*

#### **All India Radio Programmes**

##### **Instructions to farmers and Extension Workers**

Information and timely tips relevant to agricultural production were broadcast through the All India Radio Stations in the State for 5 minutes on every Friday. In all 31 such broadcasts were given during the period under report.

##### **Agricultural Science News Programme**

Twenty seven numbers of broadcasts relating to the scientific achievements of Kerala Agricultural University were given under this programme.

##### **Farm School on AIR Programme**

A Farm School on AIR programme on "Crop protection" in collaboration with All India Radio, Trichur was completed with 815 farmers as registered listeners.

##### **Radio talks**

Radio talks by Kerala Agricultural University experts were regularly broadcast from All India Radio Stations in Kerala.

##### **News Paper Programmes**

Under this programme popular articles on agricultural topics were published in seven leading Malayalam and English dailies. During the period under report, 35 technical items were published.

##### *Correspondence courses*

To augment the level of knowledge of the farmers, correspondence courses are conducted by the Kerala Agricultural University. A correspon-

dence course on 'Dairying' with 285 registered participants and another on 'infant feeding practices' with 500 registered participants were conducted during 1983-84. Contact classes were arranged to supplement the mailed lessons. These correspondence courses were conducted on a self-sustaining basis.

#### Farm News Programme

Under this programme, information on emergent problems is sent to the Junior Agricultural Officers of the Kerala State Department of Agriculture. During 1983-84, five such information items were sent.

#### Publication Unit

##### *Publication of Periodicals*

##### 'Kalpadhenu'

Kalpadhenu is a quarterly publication in Malayalam. Its publication was made up-to-date, and four issues of Kalpadhenu were brought out during the period under report.

##### KAU News letter

This is the house magazine of the Kerala Agricultural University which highlights the important activities of the University. Six issues of this publication were brought out during 1983-84 and was updated.

##### Nutrition News letter

This is a new publication started during 1983-84 from the Department of Home Science, College of Agriculture, Vellayani. Four issues of the News letter were published during the period under report.

##### Research Journals

The half yearly issues of *Agri. Res. Journal of Kerala* and *Kerala Journal of Vety. Science* were published regularly.

##### *Publication of Non-periodicals*

The following books/booklets/bulletins were published during 1983-84.

S.No.	Title	Nature of Publication	Language
1	2	3	4
1	മരച്ചീനി	Booklet	Malayalam
2	കോഴി വളർത്തൽ—ഒരു സമ്പാലോകനം	"	"
3	Water Resources Development in KAU	"	English
4	Soil Forming factors	Tech.Bulletin	"
5	Package of Practices Recommendations 1982 (Agri.)	Book	"
6	Diseases of Crop Plants of Kerala	"	"
7	Vegetable cultivation (4)	Leaflets	2 in Eng. 2 in Mal.

1	2	3	4
8	ക.നുകാലികളെ ബാധിക്കാനിടയുള്ള പകർച്ചവ്യാധികളും, നിവാരണ മാർഗ്ഗങ്ങളും	Leaflet	Malayalam
9	Lab-to-Land at KAU	"	English
10	വെളുകിളിയെ നിയന്ത്രിക്കുക	"	Malayalam
11	Pokkali cultivation in Kerala	Booklet	English
12	Plant Breeding Manual	Book	"
13	Agriculture among the Hill Tribes	Booklet	"
14	Studies on the Intensification of Research on Pulses & Oilseeds	Tech. Bulletin	"
15	സോയാബീൻ കൃഷിയും സാസകരണവും	Booklet	Malayalam

A sales counter is also functioning in the Communication Centre, Mannuthy, for selling the University Publications.

### Exhibitions and Graphic Service Unit

#### Exhibitions

The Exhibition and Graphic Service Unit organises both major and mini exhibitions. In addition to the Trichur Pooram Exhibition the unit organised 10 exhibitions in different parts of the state.

#### Colour Laboratory

Most of the items of equipment and materials required for colour processing have been acquired for the Colour Lab. With the installation of the "Slide-Copier" in the Colour Lab, the potentiality of rapid duplication of colour slides has been achieved. During 1983-84, 11,300 colour slides were prepared and supplied to the State Department of Agriculture for use in the T & V system. Colour slides were also supplied to other agencies such as Central Plant Protection Directorate, Madras Fertilizers, Indian Potash (Ltd.), Krishi Vigyan Kendra, Mitraniketan, etc., on no-loss-no-profit basis.

Diagrams and photographs are made in black and white and in colour and are used in the University's publications.

#### Audio-Visual Laboratory

The Public Address System is used in all University level functions. Slide shows and film shows were regularly organised in connection with lab-to-land programme, Village Adoption Programmes and for the students of the University.

#### Farm Advisory Service

The Farm Advisory Service (FAS) provides an opportunity for the farmers to discuss the various technical problems confronting them for raising agricultural production on their farms, to have recorded information from the farmers regarding the intensity and magnitude of their field problems, and to expose the specialists to the various needs of the

farmers of the State. As part of this, the FAS Unit organised 36 district and village level seminars during 1983-84. The total number of participants who attended these seminars was 2429.

### *Campaign*

A campaign was organised in Alleppey district against the Brown Plant Hopper pest of rice during January-March, 1984.

### *Office Calls*

Technical advice was given to the farmers on various aspects of Agriculture & Animal Husbandry regularly. Ten farmers were advised to start Poultry Units.

### *Farm Advisory Service Counter, Vilangannoor*

The Farm Advisory Service experts attended to the FAS Counter at Vilangannoor on all Thursdays and rendered technical advice and Veterinary treatments. During the period under report, 167 clinical cases were treated and 26 Artificial Inseminations were done in the FAS Counter, Vilangannoor.

## **KAU PRESS**

The Kerala Agricultural University Press caters to all printing requirements of the University such as stationery, Journals, books, booklets, etc.

## **KRISHI VIGYAN KENDRAS (K. V. Ks)**

Krishi Vigyan Kendras were functioning at the Regional Agricultural Research Station, Pattambi and another for Tribals at the Regional Agricultural Research Station, Ambalavayal to impart skill oriented training to the practising farmers.

Training courses with practical and vocational education background were regularly conducted by the Krishi Vigyan Kendras. The training programmes scheduled in Krishi Vigyan Kendras are based on the principle of "Learning by Doing".

### **Krishi Vigyan Kendra, Pattambi**

Krishi Vigyan Kendra, Pattambi, with full financial assistance of ICAR started functioning from November, 1982 and the area of operation was extended to the whole of Palghat District. Twenty eight trainings were conducted by the Krishi Vigyan Kendra, Pattambi, during 1983-84, and 1301 farmers were trained.

Besides these, socio-economic and bench mark surveys of the farm families in the area were also undertaken by the staff in the Krishi Vigyan Kendra, Pattambi. Farm Science Clubs were also organised during the period.

### **Krishi Vigyan Kendra for Tribals, Ambalavayal**

The Krishi Vigyan Kendra for Tribals at Ambalavayal was run with full financial assistance from the University. The ICAR has sanctioned financial support to this Krishi Vigyan Kendra in March, 1984. The Krishi Vigyan Kendra, Ambalavayal has conducted 14 training programmes for the benefit of tribal people during 1983-84 and 295 Tribal people were trained on different Agricultural and Animal Management Programmes.

### **EXTENSION EDUCATION CENTRE, KAYAMKULAM**

The ICAR Scheme for Intensification of Research and Training on Pulses and Oilseeds is implemented by this Centre. The main objective of the centre is to train the officers of the Department of Agriculture and farmers in various aspects of scientific cultivation of pulses and oilseeds. Large scale group or cluster demonstrations on pulses and oilseeds are also laid out under this project.

#### **Training Programmes & Demonstrations**

Nine one-day training courses on Intensification of cultivation of Pulses and Oilseeds were conducted for the benefit of 390 Agricultural Demonstrators during 1983-84. Besides these, 26 one-day off-campus trainings were organised. 1400 farmers participated in these off-campus training programmes. Twenty demonstration plots on sesamum cultivation were laid out during this period.

### **NATIONAL DEMONSTRATION SCHEME, SADANANDAPURAM**

During 1983-84, the National Demonstration Scheme was shifted from Trichur to Sadanandapuram in Quilon District. In the second crop season, eight rice-based demonstration projects, one problem soil demonstration, ten entire farming demonstrations and six pulse-tapioca demonstrations were laid out in this area. As an educational follow up, 14 field days and 12 seminars / training programmes were organised during the period under report. The State Advisory Committee meeting for National Demonstration Scheme was convened on 18-2-1984.

### **KAU PROJECT CENTRE, NILAMBUR**

The All India Co-ordinated Research Project for the rapid uplift of Scheduled Castes and Other Backward Communities (ICAR) is implemented by this Centre. This project was started during 1982 with the objective of improving the socio-economic conditions of the Scheduled Castes and Other Backward Communities through the identification of technical, social and economic constraints which impede the progress in the adoption of new technology and to work out economically viable and practically feasible technological modules and implementing them through "Operational Research Project" approach.

During 1983-84, the bench mark survey of the selected settlements was completed. The centre is concentrating on the uplift of 300

selected scheduled castes, other backward communities and tribal families in Nilambur area. Fodder development programme, Homestead Nutrition Garden, Social Forestry and Providing improved potter's wheels & improved agricultural implements are some of the development oriented research programmes successfully completed by the Centre. The project centre arranged training in Clean Milk Production, Adult Education, Animal Management and allied aspects. An improved method of Bee-Culture has been adapted and developed by the Centre. The centre has also helped in improving cottage/small scale industries such as mat weaving, basket making, chair making, etc. Improved methods of poultry keeping, dairying and goat management have been introduced in the project area with appreciable progress. Programmes like training in tailoring and in spraying have helped in the refinement of skills of some of the members of the families which, in turn, has generated and supplemented their income.

Harijan women were taught basic aspects of agriculture and animal management during the one-week 'Mahila Rural Camp' organised at Pulliyil during the third week of January, 1984.

Another notable achievement of the centre is that it has helped in the establishment of a Producers' Society of the Potters in Boodan Colony in Chungathara.

The Centre has also implemented the scheme on collection, selection and potting of orchids for the benefit of the Pathinaicken Tribal people. Veterinary Camps were organised in the Jawahar Harijan Colony, Nilambur. The staff also assisted in the development activities organised by other development agencies.

Inclusion of Pathinaicken tribal colony into the project has helped to bring the colonists of the remote 'Appankappu' area into the main stream of developmental activities in the Nilambur Community Development Block. The periodic visits to the colony made by the scientists have ushered in a qualitative change in tribal people's ways of thinking and living.

#### NATIONAL SERVICE SCHEME (NSS)

The National Service Units under the University are functioning in the College of Agriculture, Vellayani; College of Horticulture, Vellanikkara; College of Veterinary & Animal Sciences, Mannuthy, and in the College of Fisheries, Panangad. The distribution of NSS volunteers in the Colleges is listed as follows.

Sl. No.	Name of College	No. of volunteers
01	College of Agriculture, Vellayani	250
02	College of Vety & Animal Sciences, Mannuthy	256
03	College of Horticulture, Vellanikkara	225
04	College of Fisheries, Panangad	75
	Total	806

## LAB TO LAND PROGRAMME

The Lab to Land Programme was launched by the ICAR in June 1979 as part of its Golden Jubilee Celebrations. The programme aims at selecting and adopting marginal farmers, small farmers and landless agricultural labourers belonging to the weaker sections of the society. Bench mark surveys of their farm and resources are also envisaged under the programme to help in making realistic development programmes for them. Scientists of all Research and Educational Institutions of the University are to involve in the programme.

Under the II Phase of the Lab to Land programme, the Kerala Agricultural University has adopted 1100 farm families on a 'cluster' basis through the 31 transfer of technology centres. Based on Malady-remedy analysis production plans were prepared. Interdisciplinary teams consisting of 53 University Scientists were directly involved in the transfer of technology. A Lab to Land manual has been prepared for the guidance of the implementing officers.

Extra inputs such as seeds, seedlings, fertilizers, supplementary feed for cattle, poultry, goats, fish, bee-hives etc. were supplied to the farmers depending upon the individual production programme.

Utilisation of the limited land resources by planting suitable horticultural plants and intercrops like coconut, cocoa, pepper etc. were adopted. The adopted farmers were provided with information literature on the viable technologies. Some of the important technologies transferred included the Homestead Nutrition Garden, Backyard Poultry system, scientific cattle management and other self-employment and additional income generating enterprises.

Trainings, agricultural seminars, exhibitions, kisan melas, Veterinary camps etc. were organised at all the 31 Transfer of Technology Centres as educational activities for proper follow-up of the programme.

As a result of the transfer of viable and appropriate technologies substantial increase in crop and animal production has been achieved. Due to timely application of fertilizers the yield of paddy has been increased by over 30%. In the case of coconut, the yield increase due to timely irrigation and fertilizer application has been to the tune of 350%. The banana yield has been increased by 50% due to intercropping of groundnut and application of green manuring. Groundnut-Tapioca combination has found wider acceptance among the beneficiary families. The tribal farmers in Vazhachal have started growing vegetables and horticultural plants to augment their income. In Puduveypu, Panangad and Vyttila centres, composite fish culture has been successfully introduced. The honey-bee colonies established at Pampadumpara, Kalliyur, Muttackad and Panniyur could generate additional employment and income to the beneficiary families. A new dairy project has been started at Nadathara centre with the help of finance from Nationalised banks.



- Two farmers have come forward to set up Gobar Gas Plants in their homesteads. Improvement of local stock of goat by introduction of Sannen x Malabari crosses and Alpine x Malabari crosses of goats have also been achieved. Local duck rearing at Vyttila centre has proved to be highly profitable to the farmers.

Four quarterly trainings for the implementing officers of Lab to Land programme were organised during the period under report. The Zonal Advisory Committee meeting of the Lab of Land programme for 1983-84 was hosted by Kerala Agricultural University.

#### VILLAGE ADOPTION PROGRAMME

The Village Adoption programme has been conceived as a means to transfer new technology to the farmers, to establish close contact between the research personnel and the farmers providing feedback of field problems for carrying out further research, to conduct trials and frontline demonstrations to evaluate and convince the suitability of new technology under farmers' field conditions. The adopted villages function as the 'field laboratories' of the University.

During the year 1983-84, one more village, ie. Vilvattom was adopted under this programme thus increasing the total number of villages adopted by the University to 22 as listed below:

Sl. No.	Name of village adopted	Name of implementing research stations/educational institutions
1	Muttacaud	College of Agriculture, Vellayani
2	Kalliyoor	College of Agriculture, Vellayani
3	Panancherry	College of Vety. & Animal Sciences, Mannuthy
4	Ollukkara	College of Vety. & Animal Sciences, Mannuthy
5	Madakkathara	College of Horticulture, Vellanikkara
6	Kozhukully	College of Horticulture, Vellanikkara
7	Trithala	Regional Agrl. Res. Station, Pattambi
8	Keezhayur	Regional Agrl. Res. Station, Pattambi
9	Tavanur	Institute of Agrl. Technology, Tavanur
10	Asamannur	Aromatic & Medicinal Plants Research Station, Odakkali
11	Ambalavayal	Regional Agrl. Res. Station, Ambalavayal
12	Nedumudi	Rice Research Station, Moncompu
13	Nileswar	Regional Agrl. Res. Station, Pilicode
14	Pilicode	Regional Agrl. Res. Station, Pilicode
15	Kottapadam	Livestock Res. Station, Thiruvazhamkunnu
16	Kodassery	Agronomic Res. Station, Chalakudy
17	Poonithura	Rice Research Station, Vyttila
18	Kumarakom	Regional Agrl. Res. Station, Kumarakom
19	Pampadumpara	Cardamom Res. Station, Pampadumpara
20	Pathiyur	Rice Research Station, Kayamkulam
21	Eramalikkara	Sugarcane Research Station, Thiruvalla
22	Vilvattom	Communication centre, Mannuthy

The following is the list of salient activities undertaken under the Village Adoption Programme during 1983-84.

In the adopted villages, planting materials, poultry, goats, fertilizers and other inputs were distributed to the farmers on 'no-loss-no-profit' basis. Demonstrations on Scientific Agriculture, Animal Husbandry and Fisheries practices were laid out in the adopted villages. Seedlings of Soft wood trees were distributed and tree planting functions with participation of public were organised.

Seminars, group discussions and training programmes were conducted for the benefit of the farmers in the adopted villages. Apart from this, cooperative societies and voluntary agencies were also involved in the extension programmes in the adopted villages. Farm clinics, youth clubs, etc., have also been established in the adopted villages.

### **PUBLIC RELATIONS UNIT, MANNUTHY**

The Public Relations Unit attached to the Directorate of Extension helps in establishing good rapport between the University and the farming public through a variety of mass media. The Editor (Publications) heads the Public Relations Unit. Press releases, development news through Radio, etc., are some of the items of work undertaken by this Unit. The 'KAU Newsletter', a monthly publication highlighting the salient activities of the University, is brought out by this Unit.

### **EXTENSION LECTURE SERIES**

Under this, eminent scientists and scholars are invited to deliver lectures on topics of importance. During 1983-84 ten Extension lectures were conducted. The speakers included:

<i>Date &amp; Venue</i> (1)	<i>Name of Speaker</i> (2)	<i>Topic</i> (3)
College of Horticulture, Vellanikkara (27-5-83 & 28-5-83)	Dr P. Basak, Head, Ground water Division, CWRDM, Calicut.	1. Status of Ground-water utilisation 2. Salt water intrusion in coastal Kerala.
College of Vety. & Animal Sciences, Mannuthy (20-8-83)	Dr N. S. Ramaswamy, Director, I. I. M., Bangalore.	Management of Agricultural Research.
College of Vety. & Animal Sciences, Mannuthy (9-9-83)	Dr M. Aram, Vice-Chancellor, Gandhigram Rural Institute, Madurai.	Gandhian perspective in Higher Education
College of Horticulture, Vellanikkara (5-11-83)	Dr K. Raghavan Nambiar, Professor, Govt. Engineering College, Trichur.	Management of Water Pollution due to land use practices.

(1)	(2)	(3)
College of Agriculture, Vellayani (20-12-83)	Dr P. N. Narasimhan, Emeritus Professor, College of Agriculture, Bapatla.	Chemistry of Sub-merged soils.
College of Vety. & Animal Sciences, Mannuthy (UGC Sponsored) (21-3-84 to 23-3-84)	Dr Sachidananda, Professor of Sociology, A. N. Sinha Institute of Social Studies, Patna.	1. Anthropological perspectives in Development. 2. Development of Scheduled Tribes— some critical issues. 3. Development of Scheduled Castes—some critical issues.
College of Vety. & Animal Sciences, Mannuthy (27-3-84)	Dr C. Pythal, Dept. of Parasitology, College of Vety. & AS Mannuthy.	The past, present and future of Elephants.

### EXTENSION STUDIES

Under this programme exploratory development oriented research studies are conducted. These studies help in evaluating the extension programmes and other development activities in the State. During 1983-'84 the following extension studies were conducted/in progress.

1. Supply and utilisation of short-term Co-operative Agricultural Finance in Palghat District—Study in progress.
2. Action Research on Training—Study in progress.

During the year under report, a proposal for a new extension study entitled "Socio-cultural exploratory pilot survey on customs/traditions with positive as well as negative influence on sustainable use of natural/living resources or eco-system in Kerala" has been sent to the Department of Environment, Government of India, for approval.

### OTHER ACTIVITIES

#### *Seminars/Workshops conducted/attended*

The mid-term assessment meeting of the AICRP on Scheduled Castes and other Backward Communities was conducted at the Directorate of Extension, Mannuthy during September, 1983.

A writers' workshop on the 'Preparation of programmed learning materials for neo-literates' was conducted from 23-2-1984 to 25-2-1984 at the Directorate of Extension, Mannuthy in collaboration with KANFED.

A writers' workshop on 'Farm School on AIR Programme' was conducted at the Directorate of Extension, Mannuthy on 24-3-1984.

Sri. Ranjan S. Karippai, Assistant Professor, Communication Centre, Mannuthy, attended the workshops on 'Magazine Editing' at the Indian Institute of Mass Communication, New Delhi during December, 1983 and on "Farm Feature Service in daily newspapers" at the Institute of Management in Government, Trivandrum from 7-2-1984 to 9-2-1984. Sri. F. M. H. Khaleel, Assistant Professor (Training) attended the Training on "Development Administration" at the institute of Management in Government, Trivandrum from 12th to 15th January, 1984. Dr C. Bhaskaran, Assistant Professor, Communication Centre, Mannuthy attended the workshop on "Changing perspectives in Extension" at NIRD, Hyderabad from 12-3-1984 to 15-3-1984 and presented a paper on 'Management Systems in Agriculture'. The Co-ordinator, T. A. R. Centre, Amboori and Scientists of the KAU Project Centre, Nilambur attended the first Annual Workshop on AICRP on Scheduled Castes and Other Backward Communities at Punjabrao Krishi Vidyapeeth, Akola from 29-1-1984 to 3-2-1984. The staff of the T. A. R. Centre, Amboori attended the IV Workshop of the All India Co-ordinated project on Tribal area Research conducted during February, 1984 at Udaipur. Sri. R. T. Ravi Varma Thampuran, Editor (Publications) attended the workshop on 'Agricultural Journalism' from 27th to 29th March, 1984 at G. B. Pant University of Agriculture & Technology, Pantnagar.

#### *Adult Education Programme*

The Adult Literacy Centre functioning at the College of Horticulture, Vellanikkara is co-ordinated by the Directorate of Extension. Sixteen farm labourers are participating in the programme. Classes on elementary knowledge, literacy and Agricultural Technology are regularly conducted in this centre.

### **NEW EXTENSION PROGRAMMES**

#### **Tribal Area Research Centre, Amboori**

The Kerala Agricultural University, as part of its contribution to the National priority of developing Scheduled tribes, has taken up concentrated and multifaceted projects to conduct researches into the problems faced by the Tribals to simultaneously devise an operational programme of development of agricultural production in tribal fields, to develop patterns of land use so that the ecological balance of their habitation and surrounding forests is not disturbed and to support the whole activity on continuous and progressive training, including education in Home Science, Nutrition and Hygiene. Accordingly, the Tribal Area Research Centre (ICAR) and the Environment programme (Department of Environment, Government of India) were started and these projects have commenced their work in the

Amboori area near the Agastyamudi peak, Trivandrum district from July/August, 1983.

The progress of work during 1983-84 in respect of these projects are listed below:

#### *Field office of the Centre*

To establish the presence of the officers and other staff in the project area, a Field Office-cum dormitory has been constructed in one of the tribal settlements-Karikuzhy in a similar design as a 'Kanikkar' tribal house with the materials supplied under seigniorage charge by the forest department and partly by the volunteer and paid labour of the tribal men of the project area.

#### *Benchmark Survey*

The benchmark survey of a total of 219 families for the operation of the programme was commenced during November, 1983 with the appointment of the technical staff and the same is in progress.

#### *Sample survey*

A pilot sample survey of 90 families in the tribal settlements of the project area was conducted with the help of the NSS volunteers and some of the staff members of the College of Agriculture, Vellayani with a view to obtaining the background information.

The selected tribal settlements (hamlets) viz., Puravimala, Sankinkonam, Kunnathumala, Thenmala, Karikuzhi, Kaipam, Plamoodu, Chakkapara and Ayyavilakam come under Amboori Panchayat (Vellarada Village, Neyyattinkara Taluk, Trivandrum district) on the Western slopes of the Agasthyamudi peak in the Western Ghats (1869 M above MSL) and on the eastern banks of the Neyyar Dam reservoir. The selected eight settlements are distributed over an area of about 25 sq. KM and the hamlets are separated among themselves by the reserve forest of the Neyyar wild life sanctuary.

The tribal people of the project area are called 'Kanikkars' the only one ethnic minority group inhabiting the area. The main occupation of the tribals is at present centred around farming and related activities as cultivators or farm labourers. Each of the 8 settlements consists on an average 25 scattered households with an area assigned by the Government mainly for cultivation around each household.

All the selected families of the project area come under the 'Kanikkar' scheduled tribe, the concentration being maximum in this region of the western ghats. Among the sample population of 450, the male-female ratio is found to be 50:50. The average size of family is 5, though the number of family members varied from 2-9. The percentage of literacy is less than twenty. 10% of the families possess pucca houses under the Tribal Welfare Department's Housing Scheme and the remaining families dwell in Kuccha houses (Huts) built of mud walls and thatched with

locally available grass collected from forests. The households have only the bare minimum living facilities.

#### *Detailed soil survey*

Detailed soil survey of 4 tribal settlements (out of the 8 selected in the project) has been completed. By discussion with the project staff, ideal and alternative choices for the cropping pattern of the area have been finalised. The main thrust of the experiments and research programmes will be based on the soil survey data and cropping pattern maps, so that research results can be immediately taken over for planting operation as per suggested cropping pattern by the development agencies.

#### *Soil Conservation*

With the help of the soil conservation unit of the Department of Agriculture, soil conservation has been carried out in the Puravimala settlement. Necessary steps have been taken to conduct soil conservation measures in the remaining settlements also.

#### *Major achievements during the year*

##### *Agricultural programmes*

As part of the programme of de-emphasising cereals, a technological module to test different varieties of sweet potato was laid out. The crop is at present in the field.

Another technological module that has been laid out is intercropping cassava with groundnut. Two varieties TMV-2 and TMV-12 of groundnut have been inter-cropped with traditional tapioca varieties.

Seeds of 6 hybrids of perennial maize viz. *Zea diploperennis* obtained from the Agricultural Research Service Wing of USDA, Ohio has been put for multiplication with the purpose of selection and introduction in the tribal area. The crop is now in the field. The varieties have set seed. It is proposed to give the seed material in June 1984 to tribal families in the area for trials in the location.

Three varieties of maize (Ganga 5, Pioneer and CoH<sub>1</sub>), one variety of Sorghum (IR 3541) and two varieties of Bajra (KM<sub>2</sub> and X<sub>5</sub>) as improved varieties of dryland crops have been introduced in the area. These millets were cultivated formerly but have been given up by the tribals in view of the poor yield of traditional varieties.

##### *Animal Husbandry Programme*

Three heifers aged 6 months, 7 months and 8 months respectively were supplied to three tribal families in the influence area of the project on 25-6-1983. The growth rate of the animals are being monitored by the project staff. Artificial insemination will be carried out at the proper stage. It is expected that after parturition, the animals will be continued to be maintained and the families inducted into the milk co-operative society.

As a follow up to the work presented by Dr. G. V. Rao of the Central Avian Research Institute regarding hybrids of Kadakkanath and white leghorn as ideally suited poultry for tribal areas in view of high laying capacity and Camouflaged plumage, 200 one day old chicks have been distributed to 17 families in the isolated Kunnathumala settlement in the project area. The programme is to withdraw desi cockerels already available in the settlement so that the breed improvement due to the introduction will be brought about. For comparison, hybrid poultry released by the KAU (Australop x White leghorn) is being arranged for introduction in another pocket viz., Thenmala from where desi cockerels will be removed. In a shadow settlement for comparison purpose desi birds will be supplied.

Under IRDP, 100 goats have been supplied to 100 beneficiary families in the tribal settlements of the area. The goats distributed to them are being studied by the project staff for their production, number of kids delivered and income as a result of the sale of the kids.

Eighteen milch animals have been supplied to 18 selected families through the Girijan Co-operative Society at 50% subsidy by the Tribal Harijan Welfare Department. The families have been organised under the guidance of the project staff as a milk co-operative.

#### *Health*

The Agasthyamudi peak on the slopes, of which the influence area of the project is located is a natural habitat of several important medicinal plants. Medicinal plants collected from tribal hamlets and the adjoining reserve forest area are being identified with the help of the Pharmacognosy centre of the Government Ayurveda College, Trivandrum. During the coming season, the most desirable species of medicinal plants suitable for cultivation in the open and shade conditions will be selected and cultivated for study of management requirements and sustained yields as a module for increasing the income of the tribal families.

#### **Lab to Land Programme**

Under the Lab to Land Programme for the areas, the selected 100 beneficiary families were identified from among 7 settlements and planting materials were supplied to them.

#### **KRISHI VIGNANA MANJARI**

This is a new information support programme started during the year. Under this programme, news features highlighting the research activities and accomplishments of the research stations under the Kerala Agricultural University are published in leading Malayalam and English Newspapers. During 1983-84, eighteen such news items were published.

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## CHAPTER V

# Engineering Wing

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The Engineering wing of the Kerala Agricultural University consists of the Directorate of Physical Plant, Vellanikkara with two divisions, one at Pilicode and the other at Panangad. There are five sub divisions, three at Vellanikkara, one at Mannuthy and one at Vellayani. The control of the construction and maintenance of buildings, roads, procurement of equipments, vehicles, machinery etc. are the responsibilities of the Director of Physical Plant. Sri K. R. Krishna Pillai continued as the Director of Physical Plant during the year. The list of staff of the wing is appended in Appendix III.

As against the revised budget provision of Rs. 1,63,21,200/- under 'works' (Plan) the actual expenditure for 1983-84 was Rs. 1,69,68,000/-. For maintenance, the actual expenditure (Non-plan) was Rs. 19,36,000/- as against the revised budget provision of Rs. 25 lakhs. The expenditure under miscellaneous heads of account like NARP etc. was Rs. 68 lakhs during 1983-84.

The total expenditure for works during the year 1983-84 thus exceeded to Rs. 257 lakhs. The important items of work completed during the year were construction of staff quarters, viz. Type IV (4 nos), Type V (6 nos) and Type VI (6 nos), at Main campus, Vellanikkara and Type IV (duplex 1 No.) at Thiruvazhamkunnu and construction of Demonstrator's hostel at Panniyur. At Tavanur construction of poultry shed and concrete Basket Ball court was completed.

Three blocks of semipermanent shed and Basket Ball court in Panangad, Ladies' Hostel and Radio Isotope Laboratory at Vellanikkara remodelling and furnishing of the existing laboratory of the Department of Agronomy and construction of the Soil processing-cum-digestion room at Vellayani and providing irrigation facilities for the Instructional Farm at Vellanikkara, at CRS Pampadumpara and at Karamana are the other works completed.

The various stages of the work in progress are construction of Bachelors' Hostel, and Trainees Hostel at Vellanikkara, Laboratory building at Madakkathara, Glass House, Net House and Type II quarters at Vellanikkara, and construction of a school building and Ladies' Hostels at Vellanikkara. The work of providing street lights, Canteen, Type I quarters in the Main campus are also in progress.



At Mannuthy, the balance work of Dairy Technology building was in progress. Arrangements were made for erecting machineries in Meat Technology building. Erection of machineries for Dairy Technology building is in progress. The civil works of Rearing House, Layer House and Breeder house were completed. The works of Additional lecture Hall and additional Ladies Hostel are in good progress. Type V quarters under NARP and two cage houses under AICRP were in progress. Works for 'Metabolism centre' and Small Animal Breeding station have been tendered.

In Fisheries College, Panangad, the fourth block of semi permanent shed were in progress. The Dormitory building is nearing completion. Construction of type V and IV quarters at Panangad was in progress. The Master Plan for Fisheries College is being prepared.

At Vellayani, construction of a Deep litter Poultry was in progress and the works for improvement of protected water supply to Vellayani campus have been arranged.

At Kumarakom and Moncompu Type IV, V and II quarters and farm structures under NARP scheme were in progress. Works of lab at Kayamkulam, Lab at Moncompu and Trainees Hostel at Kumarakom under NARP have been tendered.

At Pilicode, construction of Type IV, V and II quarters, Trainees Hostel, and administrative block are in progress. The fencing work was started. At Panniyur, construction of type IV and II quarters are in progress.

At Thiruvazhamkunnu, construction of 'Cow Barns' for 100 cows and Milk Chilling Plant are in progress. Construction of Lab. building has been arranged.

At Pattambi, construction of Type V (2 nos), IV (1 no) and II (Duplex) quarters under NARP was in progress. Works of Lab and Farm structures at Pattambi have been tendered. Work of office-cum-farmers hostel under KVK was started. At Tavanur, construction of Type V (1 no) and IV (duplex) quarters is in progress.

At Pampadumpara, construction of Type II & IV quarters and construction of a waiting shed for labourers are in progress.

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## CHAPTER VI

### Estate

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For the establishment of Kerala Agricultural University an area of 379.5615 hectares was acquired by the Government of Kerala and handed over to the University on 1-5-1973. An area of 11.8753 hectares have been acquired additionally during 1977 and 1981 making the total area to 391.4368 hectares.

Sri T. M. Ibrahimkutty continued as Estate Officer till 15-7-1983. He was succeeded by Sri. V. S. Appukkuttan Nair, who continued in that post till 15-9-1983. Sri K. T. Narayanan Nambiar was appointed as Estate Officer on 15-9-1983 and continued in that post during the year.

The Schemes under the Cashew, Pineapple, Floriculture and Instructional Farm for Horticultural College have already been started functioning in the campus. A total area of 149.3 hectares have been earmarked for the above schemes and farm. An area of 12 hectares have been allotted to the National Bureau of Plant Genetics Resources of the Indian Council of Agricultural Research, 14 hectares for Kerala Agricultural Development Project (KADP) and 60 hectares for the Botanical Garden. About 20 hectares have been utilised for buildings and roads. About 135 hectares are covered with tapping trees which include the area earmarked for IF & RRS and Botanical Garden. An area of 1.5056 hectares of land acquired during December, 1979 was allotted to the College of Horticulture for the establishment of Germplasm of Plantation crops, Spices & Crop museum and handed over to the Professor of Plantation crops of the Horticulture college on 29-7-1983.

An area of 7.98 hectares have been replanted with rubber in the Priyadarshini sub division in 1978 and 1979 with the following varieties.

	<i>No. of plants</i>
1) RRIM 628	494
2) RRIM 623	305
3) RRIM 600	862
4) RRII 105	1149
Total	<u>2810</u>

### Research Project on Growth & Yield of Rubber under different density of planting

The Research Project is being undertaken in the Panchavadi division of Suhasini Block of the Estate, covering an area of 6 hectare in collaboration with the Rubber Research Institute of India. The planting was done in July-August, 1983. Timely cultural and manurial operations are being carried out as per the advice of the scientists from the Rubber Research Institute. There are about 3300 plants in this project area.

### Bamboo cultivation scheme

The two research projects ie. (i) Scheme for the establishment of Bamboo Plantations (Germplasm collection in Bamboo) and (ii) Scheme for Sylvia Agronomic Studies on raising energy fuel yielding tree plantations (Arboratum of economic tree plants) are also being implemented in the Estate.

### Slaughter Tapping of Old Rubber Trees

As an experimental measure, slaughter tapping of old rubber trees was carried out in Cocoa planted area in Chithrakoodam sub division, Panchavadi division and Tagore and Gokhale blocks by engaging contract labourers from December, 1983 to February, 1984 and a net profit of Rs. 1,32,681.55 was obtained from this.

A	i)	Quantity of PLC produced	8 ton 273.56 kgs
	ii)	EBC	1 ton 040.48 kgs
<i>Receipt</i>		Value realised (A)	Rs. 1,71,512.87
B		<i>Details of expenditure incurred</i>	
		Contract labour wages	Rs. 28,643.32
		Curing charges	Rs. 1,725.00
		Cost of chemicals (Formic Acid & Sodium Bi sulphate etc)	Rs. 1,338.00
		Factory charges—(Including fair wear & tear of machines)	Rs. 7,125.00
		Total (B)	<u>Rs. 38,831.32</u>

Net Profit A—B=Rs.132,681.55

A quantity of 41,014.340 kgs of rubber was produced during 1983-84. There was a stock balance of 12,755.870 kgs of rubber on 1-4-1983 bringing the total to 53,770.210 kgs of rubber. Rs. 8,00,878.49 was realized from the sale of 41,400.00 kgs of rubber during the year. 596 old trees were sold as fuel and fetched Rs. 23,885.10. The total expenditure for the period was Rs. 12,02,763.54 and total receipts, Rs. 8,24,769.59. There was a stock balance of 12,370.270 kgs of rubber as on 31-3-1984.

## CHAPTER VII

# Finance & Accounts

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Sri N. M. Abdul Kadir continued as Comptroller during 1983-84. One post of Assistant Comptroller was upgraded to that of Deputy Comptroller and Sri T. M. Ibrahimkutty took charge as Deputy Comptroller on 15-7-1983 AN

The 5th Accounts Committee was constituted by the General Council at its meeting held on 30-7-1983 to review and make recommendations on the annual accounts and audit report of the University for the year 1977-78. The committee held 10 sittings during the year 1983-84 and examined a number of items in the audit report and the audit notes. The annual accounts and audit report for the year 1978-79 was presented in the General Council at its annual meeting held in March 1984 and the same was referred to the Accounts Committee for review. An inspection of this University by the inspection wing of the State Government led by Sri. K. A. Chelleppa IAS, Additional Secretary was held on 15-12-1983 and they have accorded appreciation along with suggestions for improvement.

The principal source of revenue continued to be State Government grants and the ICAR assistance. The budget for the year was for an expenditure of Rs. 1130.84 lakhs anticipating a receipt of 1141.17 lakhs with a closing balance of Rs. 10.33 lakhs. The expenditure for the year was Rs. 998 68 lakhs.

The details of receipt during the year were as follows:

Govt. grant—Non—plan	452.52 lakhs
Govt. grant—plan	200.00 lakhs
ICAR grant	239.17 lakhs
Internal resources	92.64 lakhs
Other sources such as Department of Environment, Science & Technology etc.	3.48 lakhs
Debt. & suspense	90.45 lakhs
Pension	17.64 lakhs
Add. Opening balance	81.90 lakhs
<b>GRAND TOTAL</b>	<b>1177.80 lakhs</b>

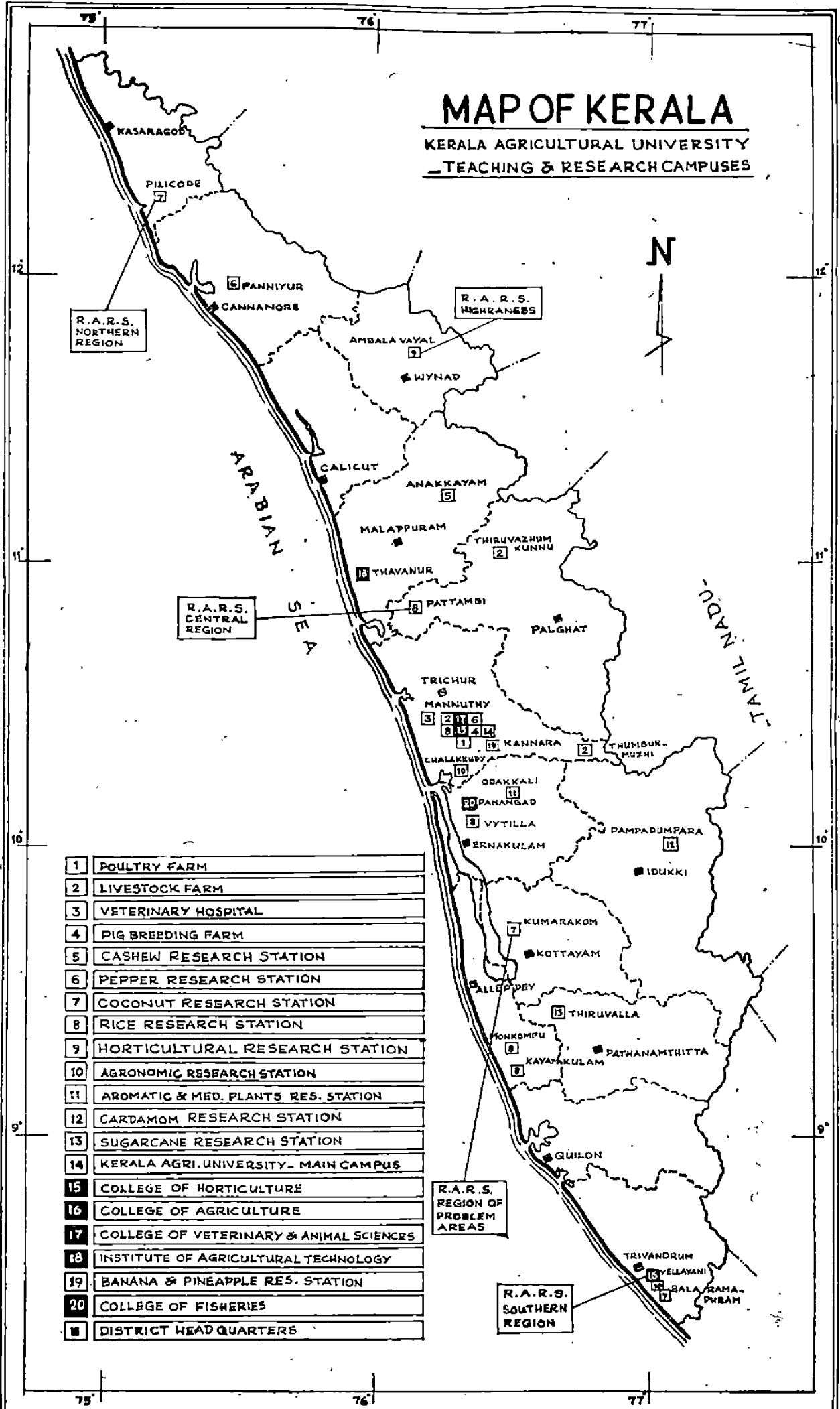
## GOVERNMENT AUDIT WING

Sri A. V. Thomas, Dy. Examiner was the Government Auditor upto 16-8-1983 and Sri K. R. Sukumaran Nair took charge from 17-8-1983 and continued during the period under report. The Government Audit Wing was strengthened by one Inspector, four Auditors Gr. II and one Typist Grade-II to clear the arrears in audit. Audit of accounts of the University for the year 1979-80 was completed.

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# MAP OF KERALA

KERALA AGRICULTURAL UNIVERSITY  
—TEACHING & RESEARCH CAMPUSES



- |    |   |
|----|---|
| 1  | POULTRY FARM                            |
| 2  | LIVESTOCK FARM                          |
| 3  | VETERINARY HOSPITAL                     |
| 4  | PIG BREEDING FARM                       |
| 5  | CASHEW RESEARCH STATION                 |
| 6  | PEPPER RESEARCH STATION                 |
| 7  | COCONUT RESEARCH STATION                |
| 8  | RICE RESEARCH STATION                   |
| 9  | HORTICULTURAL RESEARCH STATION          |
| 10 | AGRONOMIC RESEARCH STATION              |
| 11 | AROMATIC & MED. PLANTS RES. STATION     |
| 12 | CARDAMOM RESEARCH STATION               |
| 13 | SUGARCANE RESEARCH STATION              |
| 14 | KERALA AGRI. UNIVERSITY - MAIN CAMPUS   |
| 15 | COLLEGE OF HORTICULTURE                 |
| 16 | COLLEGE OF AGRICULTURE                  |
| 17 | COLLEGE OF VETERINARY & ANIMAL SCIENCES |
| 18 | INSTITUTE OF AGRICULTURAL TECHNOLOGY    |
| 19 | BANANA & PINEAPPLE RES. STATION         |
| 20 | COLLEGE OF FISHERIES                    |
| ■  | DISTRICT HEAD QUARTERS                  |

R.A.R.S.  
REGION OF  
PROBLEM  
AREAS

R.A.R.S.  
SOUTHERN  
REGION

# Appendix I

## MEMBERS OF THE STATUTORY AUTHORITIES

### THE GENERAL COUNCIL

#### EX-OFFICIO MEMBERS

His Excellency the Governor of Kerala, Raj Bhavan, Trivandrum  
Hon'ble Minister of Agriculture, Trivandrum  
Vice-Chancellor, Kerala Agricultural University, Vellanikkara, Trichur  
Special Secretary to Government (Agri) and Agricultural Production  
Commissioner, Secretariat, Trivandrum  
Secretary to Government, Development Department, Secretariat;  
Trivandrum  
Special Secretary (Finance), Secretariat, Trivandrum  
Director of Agriculture, Trivandrum  
Director of Animal Husbandry, Trivandrum  
Director of Dairy Development, Trivandrum  
Director of Fisheries, Trivandrum  
Chief Conservator of Forests, Trivandrum  
Registrar of Co-operative Societies, Trivandrum  
Dean, Faculty of Agriculture, College of Agriculture, Vellayani,  
Trivandrum  
Dean, Faculty of Fisheries, College of Fisheries, Panangad,  
Ernakulam  
Dean, Faculty of Vety. & Animal Sciences, College of Vety. &  
Animal Sciences, Mannuthy, Trichur  
Director of Extension, Extension Division, Kerala Agricultural  
University, Mannuthy, Trichur  
Director of Research, Kerala Agricultural University, Vellanikkara,  
Trichur

#### ELECTED MEMBERS

##### Members of the Legislative Assembly

Sri P. M. Abubacker, MLA., Shamshad, Panniyankara, Calicut-3  
Sri V. V. Joseph, MLA, Valiakandathil, Mutholapuram, Elanji;  
Ernakulam Dist  
Sri G. Karthikeyan, MLA, Umavihar, Kawdiar, Trivandrum  
Sri C. Vasudeva Menon, MLA, Pallamkalam, Kollengode P. O.,  
Palghat Dist.

**Representatives of post graduate students**

Sri Abdul Kareem (81-11-24), M. Sc. (Ag) Student, Department of Agrl. Extension, College of Agriculture, Vellayani, Trivandrum.

Sri P. Madhu (81-11-24), P. G. Student, Department of Plant Breeding, College of Horticulture, Vellanikkara

**Representatives of under graduate students**

Sri E. P. Vijayan (79-01-135), U. G. Student, College of Horticulture, Vellanikkara, Trichur

Sri P. B. Prasad (81-03-62), B. V. Sc. & A. H. Student, Veterinary College, Mannuthy, Trichur.

**Representative of Students of Diploma and Certificate courses**

Sri P. V. Appukunhi (81-D1-47), D. A. Sc. Student, Institute of Agrl. Technology, Tavanur, Malappuram Dist.

**Representatives of Teachers of Faculties**

Sri K. Sivasankara Pillai, Associate Professor, Coconut Research Station, Balaramapuram, Trivandrum Dist.

Sri C. G., Rajendran, Assistant Professor (Aqua), College of Fisheries, Panangad, Ernakulam Dist.

Dr. A. Ramakrishnan, Professor of Poultry Science, College of Vety & Animal Sciences, Mannuthy, Trichur

**Representative of Non-teaching staff**

Sri. K. K. Damodaran, Senior Grade Typist, Kerala Agricultural University, Vellanikkara, Trichur

**Representatives of Presidents of Panchayats**

Dr. George Thomas, Puthenpura, Champakulam, Alleppey Dist.

Sri. K. K. Surendran, Kottikkal House, Vellanikkara, P. O., Trichur.

Sri. B. M. Ramayya Shetty Manjeshwar Panchayat, Manjeshwar P. O., Cannanore Dist.

Sri. E. P. Sebastian, Edassery, Ayroor P. O., Ernakulam Dist.

**Representative of Mayors of Corporations and Chairman of Municipal Councils**

Sri. K. Thankappan, Chairman, Quilon Municipality, Quilon

**MEMBERS NOMINATED BY THE CHANCELLOR****Agricultural Scientists**

Dr. M. Aravindakshan, Head, Department of Pomology, College of Horticulture, Vellanikkara, Trichur

Dr. K. Ramdas, Associate Professor, University Veterinary Hospital, Kokkalai, Trichur



### **Farmers**

Sri. K.C. Sukumaran, Agriculturist, Navakkodekulam, Koduvayoor P.O., Chittur Taluk, Palghat Dist.

Sri. C. S. Ramachandran Master, Chulliparambil, P. O., Varantherapilly (Via), Alagappanagar, Trichur

Sri. Therampil Ramakrishnan MLA, Krishnakripa, Trichur-3

Sri. Raghavan Pozhakadavil MLA, Karalam, P. O. (via) Irinjalakuda, Trichur Dist

Prof. Alexander Zacharias, St. Joseph's College, Devagiri, Calicut

### **Co-operation**

Sri. O. Lukose Ex. MLA, Arukuzhippil, Kappumthala P. O., Kaduthuruthy, Kottayam Dist.

### **Fisheries**

Sri. K. A. Latheef, K.P.C.C. (I) Office, Nandavanam, Trivandrum

### **Animal Husbandry**

Sri. A. V. Hamza, Athakkaveedu House, Ponnani Nagaram, P. O., Pin 679 583, Malappuram Dist.

### **Plantation Industry**

Sri. V. Kunhabdulla Hajee, Vazhayil House, Kaniampetta, P. O., Wynad Dist.

### **Women Social Worker**

Smt. Vijaya D. Nair, Madathil House, Thalukulathur, P. O., Calicut

### **Engineer who has specialised in Agrl. Engineering or Irrigation**

Sri. O. A. Mathew, Consulting Engineer, John & Mathew Engineers, Kottayam-686 001

### **Educationalist**

Prof. K. J. Kurian, Nirmala College, Moovattupuzha, Ernakulam Dist.

### **Representatives of Agricultural Labour**

Sri. J. Mathew, President, Kaniampetta Panchayat, Varadoor, P. O. Karani (via) Kalpetta, Wynad Dist.

Sri. K. P. Chelly, D.K.T.F. District Vice-President, Mankada, P. O. Malappuram Dist.

### **Representative of Plantation Labour**

Sri. K. A. Kurien Master, Alakode, P. O., Cannanore Dist.

## **REPRESENTATIVES OF UNIVERSITIES**

### **Calicut University**

Sri. C. Krishnan Nair, President, Pilicode Panchayat, Pilicode, P. O. Cannanore Dist. 670 353

### **Cochin University**

Sri. P. K. Kamarudeen, Senior Grade Assistant, University of Cochin, Cochin University P. O., Cochin-682 022

## **Kerala University**

Sri S. Subramanian Potty, Higher Grade Assistant, LIC of India,  
TC 13/1198-1, Sanskrit College Road, Palayam, Trivandrum.

## **Representative of Indian Council of Agricultural Research**

Dr R. M. Acharya, Deputy Director General (AS), Indian Council of  
Agrl. Research, Krishi Bhavan, Dr Rajendra Prasad Road, New Delhi-1

## **THE EXECUTIVE COMMITTEE**

Vice Chancellor, Kerala Agricultural University	Chairman
Secretary to Government (Agrl) and Agricultural Pro- duction Commissioner, Trivandrum	Member
Secretary to Government (Finance), Trivandrum	"
Secretary to Government, Development Department, Trivandrum	"
Dr R. M. Acharya, Deputy Director General (AS), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi-100 001	"
Dr N. Sadanandan, Dean, College of Agriculture, Vellayani, Trivandrum	"
Sri K. Sivasankara Pillai, Associate Professor, Coconut Research Station, Balaramapuram, Trivandrum	"
Prof. Alexander Zacharias, St. Joseph's College, Devagiri, Calicut	"
Sri Therampil Ramakrishnan MLA, Krishna Kripa, Trichur-3.	"
Sri Raghavan Pozhakadavil MLA, Karalam P. O. (Via) Irinjalakuda, Trichur	"
Sri A. V. Hamza, Athakkaveedu House, Ponnani Nagaram, P. O., Pin 679 583, Malappuram Dist.	"

## **ACADEMIC COUNCIL**

### **Ex-officio members**

The Vice-Chancellor, Kerala Agricultural University, Vellanikkara  
The Dean, College of Agriculture, Vellayani, Trivandrum  
The Dean, College of Veterinary & Animal Sciences, Mannuthy  
The Dean, College of Fisheries, Panangad, Ernakulam  
The Director of Research, Kerala Agricultural University, Vellanikkara  
The Director of Extension, Kerala Agricultural University, Mannuthy  
The Director of Agriculture, Kerala, Trivandrum  
The Director of Animal Husbandry, Kerala, Trivandrum  
The Registrar, Kerala Agricultural University, Vellanikkara

### **Members nominated by the Chancellor from among the Heads of Departments**

Dr M. Aravindakshan, Professor of Pomology & Floriculture,  
College of Horticulture, Vellanikkara

Dr N. Mohandas, Professor of Entomology, College of Agriculture, Vellayani, Trivandrum

Dr M. Subramaniam, Professor, Department of Dairy Science, College of Veterinary & Animal Sciences, Mannuthy

Dr G. Mukundan, Professor, Dept. of Animal Breeding & Genetics, College of Veterinary & Animal Sciences, Mannuthy

Dr P. K. Abdulla, Professor, Department of Microbiology, College of Veterinary & Animal Sciences, Mannuthy

**Members nominated by the Chancellor from among the Staff of the Research Stations of the University**

Dr L. Remadevi, Associate Professor, Rice Research Station, Moncompu

Dr M. N. Chandrasekharan Nair, Associate Professor, Cashew Research Station, Anakkayam

Dr P. M. Mathew, Associate Professor (Aquaculture), Rice Research Station, Vyttila

**Scientists from Indian Council of Agricultural Research and / or its Institutions or from other Universities in India or from among well-known Scientists in India (not more than 5 members)**

Dr. V. K. Vamadevan, Scientist, Centre for Water Resources Development & Management, Kunnamangalam, Kozhikode

Dr. K. K. Krishnamoorthy, Director of Research, University of Agricultural Sciences, Hebbal, Bangalore

Dr. A. Sreerangaswami, Director, School of Genetics, Tamil Nadu Agricultural University, Coimbatore-3.

**Elected members from among post-graduate and research students**

Sri. Koshy Abraham (80-21-10), Ph. D. Student, College of Agriculture, Vellayani

**Members elected by the teachers (other than Dean) of each Faculty**

**Faculty of Agriculture**

Sri. V. Ramachandran Nair., Associate Professor, College of Agriculture, Vellayani.

**Faculty of Fisheries**

Sri. T. M. Sankaran., Associate Professor, College of Fisheries, Panangad, Ernakulam

**Faculty of Veterinary & Animal Sciences**

Sri. C. A. Rajagopala Raja, Associate Professor, College of Vety. and Animal Sciences, Mannuthy

### **Nominated members from among those connected with service in Agriculture**

Dr. P. M. Ganapathy, Director, Indian Plywood Industries, Research Institute, P. B. No. 2273, Tumkur Road, Bangalore-560 022

Dr. M. K. Rajagopalan, Professor & Head of the Department of Pharmacology, College of Vety. & Animal Sciences, Mannuthy

Dr. K. H. Alikunhi, Advisor (Aquaculture), Crescent Hatchery & Prawns Farm, Almanar Eriyad, Kodungallur

Sri. Joseph Alapat Thoppil, Green Gardens, Karanchira P. O. Trichur District.

Dr. S. N. Rao, Director of Research, Andhra Pradesh Agricultural University, Rajendranagar, Hyderabad 500 030

Dr. C. A. Jose, Associate Professor, Co-operation & Banking programme, College of Horticulture, Vellanikkara

Associate Dean, College of Horticulture, Vellanikkara

Dr. M. N. Menon, Animal Husbandry Commissioner (Retd.), Anuradha, Trivandrum-695 005

Dr. K. V. A. Bavappa, Director, CPCRI, Kasargode.

### **BOARD OF STUDIES**

#### **FACULTY OF AGRICULTURE**

Dean, Faculty of Agriculture

Chairman

Head of Departments under the Faculty

Members

(Agronomy, Agrl. Botany, Agrl. Entomology, Agrl. Economics, Agrl. Engineering, Agrl. Extension, Agrl. Statistics, Horticulture, Plant Pathology, Soil Science & Agrl. Chemistry, Plantation crops and Spices, Olericulture, Pomology and Floriculture, Processing Technology, Plant Breeding)

#### **Specialists**

Dr. K. K. Krishnamoorthy, Dean, Agrl. College & Research Institute, Madurai, Tamil Nadu

Dr. K. V. Raman, Dean (PG Studies), Andhra Pradesh Agricultural University, Rajendranagar, Hyderabad

#### **Other members**

Dr. C. C. Abraham, Associate Director of Research, Kerala Agricultural University, Vellanikkara

Dr. K. Karunakaran, Associate Professor, Regional Agrl. Research Station, Pattambi

### **Student Representatives**

Sri. A. Padmakumar, M. Sc. (Ag.) Student, College of Agriculture, Vellayani.

Sri. Koshy Abraham, Ph. D. Student, College of Agriculture, Vellayani

### **Special invitees**

Director of Agriculture, Trivandrum

Director of Research, Kerala Agricultural University

Director of Extension, Kerala Agricultural University

Associate Dean, College of Horticulture, Vellanikkara

Director, Institute of Agrl. Technology, Tavanur

### **FACULTY OF VETERINARY & ANIMAL SCIENCES**

Dean, Faculty of Vet. & Animal Sciences

Chairman

Heads of Departments under the Faculty

Members

(Anatomy, Animal Breeding & Genetics,

Preventive Medicine, Microbiology,

Animal Management, Animal Reproduction,

Dairy Science, Extension, Nutrition,

Parasitology, Pathology, Pharmacology,

Physiology & Biochemistry, Poultry

Science, Statistics, Clinical Medicine,

Surgery, Veterinary Public Health)

### **Specialists**

Dr. Kothandaraman, Professor of Poultry Science,  
Madras Veterinary College, Madras

Dr. S. Krishnaswamy, Professor of Microbiology,  
College of Veterinary Science, Thirupathy

### **Other members**

Dr. C. K. Thomas, Professor (Animal Management), College  
of Veterinary & Animal Sciences, Mannuthy

Dr. A. Venugopalan, Professor (Research Co-ordination),  
Faculty of Vety. & Animal Sciences, Mannuthy

### **Student Representative**

Sri. M. Abdul Aziz, M. V. Sc. Student, College of Veterinary &  
Animal Sciences, Mannuthy

### **Special invitees**

Director of Animal Husbandry, Trivandrum

Director of Dairy Development, Trivandrum

Assoc. Director of Research (V&AS), Kerala Agrl. University.

## FACULTY OF FISHERIES

Dean, Faculty of Fisheries

Chairman

Head of Departments under the Faculty

Members

- (Aquaculture, Fishery Biology, Fishery Hydrography, Processing Technology, Fishing Technology, Fisheries Engineering, Management studies)

### Specialists

Prof. H. P. C. Setty, Director of Instruction, College of Fisheries, Mangalore.

Dr. Panduranga Rao, Director *i/c.*, CIFT, Cochin

### Special invitees

Director of Fisheries, Trivandrum.

## Appendix II

### SUB COMMITTEES OF THE EXECUTIVE COMMITTEE

#### FINANCE COMMITTEE

Vice Chancellor, KAU	Chairman
Secretary, Finance	Member
Secretary to Government & Agricultural Production Commissioner	"
Sri. Therambil Ramakrishnan, MLA	"
The Comptroller, KAU	Convener

#### PLANNING & DEVELOPMENT COMMITTEE

Vice Chancellor	Chairman
Secretary to Government & Agricultural Production Commissioner	Member
Sri. Raghavan Pozhakadavil, MLA	"
Sri. Therambil Ramakrishnan, MLA	"
Prof. Alexander Zacharias	"
Sri. K. Sivasankara Pillai, Assoc. Professor	Member-Convener

#### RESEARCH REVIEW SUB COMMITTEE

Vice-Chancellor	Chairman
Sri. Raghavan Pozhakadavil, MLA	Member
Sri. Therambil Ramakrishnan, MLA	"
Prof. Alexander Zacharias	"
Sri. A. V. Hamza	"
The Director of Research	Member-Convener

#### SPORTS BOARD

Vice-Chancellor	Chairman
Chairman of the Students Welfare Committee	Member
Deans of Faculties & Associate Dean (Hort.)	"
Registrar	"
One Professor from each College to be nominated by the Vice-Chancellor	"
Sri. K. Sivasankara Pillai, Assoc. Professor	"

Note: The Director of Research and/or the Dean (s) may be invited whenever considered necessary.

Secretary, Athletic Association of the respective Colleges / Institute	Member
Student members in the General Council	"
Director, IAT, Tavanur	"
Junior Asst. Professor (Phy. Edn.) or officers i/c of sports	"
Deputy Director of students welfare (S & G)	Member-Convener

#### ESTABLISHMENT COMMITTEE

Prof. Alexander Zacharias	Chairman
Sri Raghavan Pozhakadavil, MLA	Member
Sri. Therambil Ramakrishnan, MLA	"
Sri. A. V. Hamza	"
Dr N. Sadanandan, Dean (Ag.)	"
Sri K. Sivasankara Pillai, Associate Professor The Registrar, KAU	Convener

#### STUDENTS WELFARE COMMITTEE\*

Sri Raghavan Pozhakadavil, MLA	Member
Sri Therambil Ramakrishnan, MLA	"
Professor Alexander Zacharias	"
Sri A. V. Hamaza	"
Sri K. Sivasankara Pillai, Associate Professor	Member-Convener

#### WORKS COMMITTEE

Vice-Chancellor	Chairman
Sri A. V. Hamza	Member
Sri Raghavan Pozhakadavil, MLA	"
The Dean, Faculty of Agriculture	"
Director of Physical Plant	Member-Convener

#### SUB COMMITTEE OF THE GENERAL COUNCIL

##### STATUTE COMMITTEE

Prof. Alexander Zacharias, St. Joseph's College, Devagiri, Calicut	Chairman
Dr A. Ramakrishnan, Professor of Poultry Science, College of Vety. & Animal Sciences, Mannuthy	Member
Sri K. K. Damodaran, Senior Grade Typist, Kerala Agrl. University, Vellanikkara	"
Sri K. Sivasankara Pillai, Associate Professor, Coconut Research Station, Balaramapuram, Trivandrum Dist.	"

\* Note:- The Chairman of the Committee shall be selected by the members in the first meeting of the committee



Sri Raghavan Pozhakadavil, MLA, Karalam P O, via. Irinjalakuda, Trichur Dist.	Member
Sri C. G. Rajendran, Asst. Professor (Aqua), College of Fisheries, Panangad, Ernakulam Dist.	"
Sri C. Krishnan Nair, President, Pilicode Panchayat, Pilicode P. O., Cannanore Dist. 670 353	"
Sri Therambil Ramakrishnan, MLA, Krishna Kripa, Trichur Dist.	"
Registrar, Kerala Agrl. University, Vellanikkara	Member-Convener

#### ASSURANCE COMMITTEE

Sri O. Lukose, Ex MLA, Arukuzhippil, Kappumthala P. O., Kaduthuruthy, Kottayam Dist.	Chairman
Smt Vijaya D. Nair, Madathil House, P O Thalakulathur, Calicut	Member
Sri K. P. Chelly, D.K.T.F. Dist. Vice-President, P O Mankada, Malappuram Dist	"
Sri K. K. Surendran, Kottikkal House, Vellanikkara P. O., Trichur Dist.	"
Sri K. A. Kurien Master, P. O. Alakode, Cannanore Dist.	"

#### ACCOUNTS COMMITTEE

Prof. K. J. Kurien, Nirmala College, Muvattupuzha, Ernakulam Dist.	Chairman
Sri. J. Mathew, President, Kaniampetta Panchayat, P.O. Varadoor, Karani-Via., Kalpetta, Wynad Dist.	Member
Sri. K. A. Latheef, Pathiyankara P.O. Thrikkunnapuzha, Alleppey Dist.	"
Dr. M. Aravindakshan, Prof. & Head, Department of Pomology, College of Horticulture, Vellanikkara	"
Sri. S. Subramanian Potty (Higher Grade Assistant, LIC of India), TC-10/1198-1, Sanskrit College Road, Palayam, Trivandrum	"

#### RESEARCH COUNCIL

Mr. T. Madhava Menon, IAS, Vice-Chancellor	Chairman
Dr. P. C. Sivaraman Nair, Director of Research	Secretary
Dr. N. Sadanandan, Dean, College of Agriculture, Vellayani-695 522, Trivandrum	Member
Dr. M. Krishnan Nair, Dean, College of Vety. & Animal Sciences, Mannuthy	"

Dr. M. Sebastian, Dean, College of Fisheries, Panangad	Member
Dr. P. K. Gopalakrishnan, Assoc. Dean, College of Horticulture, Vellanikkara	"
Dr. S. N. Rao, Director of Research, Andhra Pradesh Agrl. University, Hyderabad-500 030	"
Mr. O. Luckose, Ex. MLA, Arookuzhippil Kappumthala, Kuruppamthara, Kottayam Dist.	"
Mr. C. P. Narayanan, Editor, Chintha weekly, Trivandrum-1	"
Mr. K. C. Chacko, Professor & Head, Department of Physics, CMS College, Kottayam-1	"
Mr. C. Krishnan Nair, President, Pilicode Panchayat, Pilicode-670 353, Cannanore Dist.	"
Dr. D. M. Thampi, Professor, College of Fisheries, Panangad, Cochin-682 506	"
Mr. P. Suseelan, Director of Agriculture, Vikas Bhavan, Trivandrum-1	"
Dr. P. N. C. Pillai, Retd. Additional Director of Agriculture, Panchamy, TC 16/603, Cotton Hill P.O., Jagathi, Trivandrum-19	"
Dr. M. M. Koshy, Professor (RC), College of Agriculture, Vellayani-695 522, Trivandrum	"
Dr. A. I. Jose, Professor of Soil Science & Agrl. Chemistry and Managing Editor, Agri Res. J. Kerala, College of Horticulture	"
Dr. V. Radhakrishnan, Professor (RC) i/c., College of Vety. & Animal Sciences, Mannuthy	"
Dr. M. S. Sivasubramaniam, Addl. Director of Animal Husbandry (Retd), TC 16/1371, Kanakadhara, Jagathi, Trivandrum-14	"
Dr. G. R. Nair, Assoc. Director of Extension, Communication Centre, Mannuthy-680 651	"
Dr. R. Kalyanasundaram, Assoc. Director of Research (V & AS), Directorate of Research	"
Dr. G. Nirmalan, Professor of Physiology, College of Veterinary & Animal Sciences, Mannuthy-680 651	"
Dr. M. N. Menon, Retd. Animal Husbandry Commissioner, Govt. of India, Anuradha, Trivandrum-695 005	"
Dr. A. Rajan, Professor & Managing Editor, Kerala J. Vet. Science, College of Veterinary & Animal Sciences, Mannuthy	"

## FACULTY RESEARCH COMMITTEES

### AGRICULTURE

#### Chairman

Dr. P. C. Sivaraman Nair, Director of Research, KAU.

#### University officers & Heads of Institution (3)

Dr. V. S. S. Potti, Director of Extension Education,  
Kerala Agricultural University, Mannuthy (till 30-4-83)

Dr. N. Sadanandan, Dean, College of Agriculture, Vellayani

Dr. P. K. Gopalakrishnan, Associate Dean, College of  
Horticulture, Vellanikkara.

#### Associate Directors

Assoc. Director of Research (AR&T)

Directorate of Research, Vellanikkara Sri. P. N. Pisharody

Assoc. Director of Research (M&E)

Directorate of Resarch, Vellanikkara Dr. C. C. Abraham

Assoc. Director of Research (Plg.)

Directorate of Research, Vellanikkara Dr. N. Mohanakumaran

Assoc. Director, NARP (High Range  
Region) Regional Agrl. Research Station,  
Ambalavayal

Prof. K. Kannan

Assoc. Director, RARS, Pattambi

Prof. N. Rajappan Nair

Professor of Agronomy, RARS,  
Kumarakom

Prof. U. Mohammed Kunju

Assoc. Director, NARP (Southern Region),  
College of Agriculture, Vellayani

Prof. A. G. G. Menon

#### Project Co-ordinators (17)

Rice	Prof. T. F. Kuriakose, Professor of Agronomy, Agrl. Research Station, Mannuthy.
Spices	Dr. Abi Cheeran, Prof. of Horticulture (Pepper), College of Horticulture, Vellanikkara.
Cocoa & Beverage crops	Dr. R. Vikraman Nair, Prof. of Horticulture (Cocoa), College of Horticulture, Vellanikkara.
Cashew	Prof. K. K. Vidhyadharan, Prof. of Horticulture (Proc. Tech.), College of Horticulture, Vellanikkara.
Fruits & Floriculture	Dr. M. Aravindakshan, Special Officer & Head, Department of Pomology, College of Horticulture, Vellanikkara.

Pulses & Oilseeds	Dr. V. Gopinathan Nair, Prof. of Plant Breeding, College of Agriculture, Vellayani.
Essentials Oil & Medicinal Plants	Dr. S. Ramachandran Nair, Professor, Department of Plantation Crops, College of Horticulture, Vellanikkara.
Post Harvest Technology & Nutrition	Prof. K. K. Vidhyadharan, Professor of Horticulture (Cashew),KADP, College of Horticulture, Vellanikkara.
Sugarcane, Cotton & Miscellaneous Crops	Dr. K. M. N. Namboodiri, Prof. of Agrl. Botany, College of Horticulture, Vellanikkara.
Fodder Crops	Dr. C. Sreedharan, Prof. of Agronomy, College of Horticulture, Vellanikkara.
Plant Protection	Dr. N. Mohandas, Prof. of Entomology, College of Agriculture, Vellayani.
Soils & Agronomy	Dr. V. Padmaja, Professor (Project Co-ordinator), Soils & Agronomy, College of Horticulture, Vellanikkara.
Farm Economics & Extension	Dr. V. Radhakrishnan, Prof. of Agrl. Economics, College of Horticulture, Vellanikkara.
Cropping Patterns & Farming systems	Dr. V. K. Sasidhar, Professor, Department of Agronomy, College of Agriculture, Vellayani.
Vegetables & Tuber Crops	Dr. K. V. Peter, Professor, Department of Olericulture, College of Horticulture, Vellanikkara.
Coconut & Arecanut	Prof. K. Kannan, Assoc. Director, RARS, Ambalavayal.
Soil Conservation and Farm mechanization	Prof. T. P. George, Professor Department of Agrl. Engineering College of Horticulture, Vellanikkara.

**Heads of Department other than project co-ordinators**

Professor, Department of Soil Science & Dr. R. S. Aiyer  
Agrl. Chemistry, College of Agriculture,  
Vellayani

Professor, Department of Plant Pathology, Dr. M. C. Nair  
 College of Agriculture, Vellayani  
 Professor (Stat), College of Vety. & Animal Dr. K. C. George  
 Sciences, Mannuthy  
 Professor, Department of Agrl. Extension, Dr. A. M. Thampi  
 College of Agriculture, Vellayani  
 Professor, Department of Horticulture, Prof. P. Sethumadhavan  
 College of Agriculture, Vellayani

#### **Others**

Director, Institute of Agrl. Technology, Mr. K. Karunakaran  
 Tavanur, Malappuram Dist.

#### **Secretary**

Professor (Research Co-ordination), Dr. M. M. Koshy  
 College of Agriculture, Vellayani

#### **VETERINARY & ANIMAL SCIENCES**

Director of Research, Kerala Agrl. University	Chairman
Dean, Faculty of Veterinary & Animal Sciences	Member
Director of Extension, KAU	"
Assoc. Director of Research (V&AS)	"
Heads of Departments in the Faculty of Veterinary & Animal Sciences	"
Dr. S. Sulochana, Assoc. Professor, Department of Microbiology	"
Professor (Farms)	"
Dr. A. Venugopalan, Professor (Res. Co-ordination)	Secretary & Convener

#### **VARIETY EVALUATION COMMITTEE**

Director of Research, Kerala Agrl. University	Chairman
Director, C. T. C. R. I., Trivandrum or his nominee	Member
Director, C. P. C. R. I., Kasaragod or his nominee	"
Director of Agriculture, Trivandrum or his nominee	"
Director of Extension, Kerala Agrl. University	"
Professor of Agronomy, College of Agriculture, Vellayani	"
Professor of Plant Pathology, College of Agriculture, Vellayani	"
Professor of Agricultural Botany, College of Agriculture, Vellayani	"
Professor of Horticulture, College of Agriculture, Vellayani	"

Professor of Entomology, College of Agriculture,  
Vellayani

..

Assoc. Director, RARS, Pattambi

..

Assoc. Director, RARS, Pilicode

..

#### THE POST GRADUATE COMMITTEE

Vice Chancellor, Kerala Agrl.University

Chairman

Dean, Faculty of Agriculture, KAU

Member

Dean, Faculty of Vety. & Animal Sciences, KAU

..

Director of Extension, KAU

..

Director of Research, KAU

..

Assoc. Dean, College of Horticulture, KAU

..

Dr. A. Venugopalan, Professor (Research Co-  
ordination), Faculty of Veterinary & Animal  
Sciences, KAU

..

Dr. M. M. Koshy, Professor (Research Co-  
ordination), Faculty of Agriculture, KAU

..

Registrar, Kerala Agrl.University

Convener

## Appendix III

### LIST OF STAFF AT THE HEADQUARTERS

Vice-Chancellor	: Sri T. Madhava Menon, IAS
Registrar	: Sri E. Damodara Marar (till 4-8-83) ,, Thomas C. George, IAS (from 4-8-83)
Comptroller	: Sri N. M. Abdul Kadir
Deputy Registrar (Acad.)	: Sri C. K. Ramakrishnan
Deputy Registrar (Admn.)	: Sri P. M. Krishnankutty Nair
Assistant Registrar	: Sri P. V. Karunakaran Nair
Assistant Comptroller (LIA)	: Sri Shanker Naik
Assistant Comptroller (CC)	: Sri P. C. Raveendran Pillai
Financial Assistant	: Sri K. I. Alex
Labour Officer	: Sri C. N. Muraleedharan Nair
Secretary to Vice-Chancellor	: Sri K. U. Abdul Kadir.
PA to Registrar	: Sri A. K. Abdul Kadir
Section Officers	: Smt K. Padmavathy Amma ,, V. A. Saraswathy Bai Sri P. M. Chandran ,, Sheik Abdul Karim Smt V. Chandrika ,, K. Subhashini Sri V. R. Sankarankutty ,, V. C. Bharathan Pillai Smt D. A. Syamala Sri P. X. Francis ,, T. Aravindan ,, T. V. Rajasekharan Nair ,, K. Chandramohan ,, M. Nakulan ,, A. K. Sreenarayanan ,, T. N. Sankunny ,, R. Gangadharan ,, S. Bhaskara Pillai
Senior Grade Assistants	: Sri K. I. Chakkunny Smt P. V. Nalini ,, K. K. Beena

Smt A. D. Omana  
,, T. A. Zainaba Beevi  
Sri N. Vijayakumar  
Smt Susy Mathew  
,, Vivian Jose  
Sri K. K. Radhakrishnan  
Smt K. P. Narayanikutty  
Sri P. K. Manikutty  
Smt V. J. Rosely  
Sri N. K. Achuthan  
Smt K. P. Saramma  
,, K. Thankom  
,, P. A. Lakshmi  
Sri K. P. Sreedharan  
,, K. P. Ramachandran  
,, C. N. Radhakrishnan  
,, P. M. Balakrishnan

Assistants Grade I

: Smt Shirly Bai George  
,, R. Thankamony  
,, N. Usharani  
Sri P. V. Raveendran  
Smt C. Mercy John  
Sri C. Rajagopalan  
Smt G. Santhakumari  
Sri M. Radhakrishnan  
Smt M. A. Urmiladevi  
Sri A. Abdul Majeed  
Smt J. Remadevi Amma  
Sri K. A. Varied  
Smt P. Jameela  
Sri A. Adbul Karim  
Smt Sophiamma Joseph  
Sri K. R. Suresh

Assistants Grade II

: Smt M. Jaseentha  
,, C. Usha  
Sri M. S. Sanalkumar  
,, K. C. Joseph  
Smt C. R. Rethi  
,, C. M. Girija  
,, B. Bhanumathy  
,, N. Mary Joseph  
Sri V. P. Raveendran  
,, N. P. Valsan  
Smt P. A. Geetha



	Sri K. Dinesan
	Smt K. P. Premakumari
	Sri P. K. Mohanan
	.. P. L. Tony
	.. A. N. Mohanan
	Smt P. K. Pushpaja
	Sri T. Jagadeesan
	Smt Daisy Anto
	Sri M. E. Rajan
	Smt. Annamma Varghese
	Sri P. Krishnaprakash
	Smt M. A. Sujatha
	.. S. Vasanthakumari
	Sri N. V. Unnikrishnan Nair
	Smt B. Latha
Malayalam Translator	: Sri K. Prakash
Senior Office Superintendent/ Office Superintendents	: Sri P. P. Gangadharan .. P. Govindankutty Menon
Office Superintendents	: Sri K. G. Balakrishnan Smt P. O. Elsy .. V. B. Leelavathy Amma
Senior Grade Typists	: Smt S. Seemanthini .. T. Valsala .. P. R. Sarojini Sri P. Haridasan .. V. P. Asokan .. R. Sadan
Grade I Typists	: Sri. K. J. Lonan Smt K. B. Girija .. K. M. Mary .. V. C. Mariamma .. K. A. Valsala
Grade II Typists	: Smt Salomi Silas Sri T. R. Sugathan Smt P. K. Sreedevi Amma
Daffedar	: Sri T. S. Kerala Varman
Duplicator Operators	: Sri P. A. Francis .. A. V. Poullose
Clerical Attenders	: Sri T. N. Aravindakshan Smt M. M. Kamani



Drivers : Sri T. K. Govindan  
 „ M. Chandrasekharan Nair  
 „ V. R. Kochu  
 „ K. A. Mohammedkutty  
 „ K. Prabhakaran Nair (till 31-8-83)  
 „ C. P. Karunakaran Nair  
 „ K. A. Jebbar (on l. w. a.)  
 „ P. M. Yusaf  
 „ K. V. Kochappan  
 „ V. N. Sankarankutty  
 „ V. N. Dasan  
 „ C. N. Soman  
 „ John Stephen  
 „ T. G. Radhakrishnan

### DIRECTORATE OF RESEARCH

Director of Research : Dr P. C. Sivaraman Nair  
 Associate Directors : Dr R. Kalyanasundaram  
 „ C. C. Abraham  
 Prof. P. N. Pisharody  
 Dr N. Mohanakumaran (till 31-7-83)  
 Prof. K. Kannan (from 1-8-83 to  
 1-11-83)  
 Assoc. Director i/c. Dr Mary K. George (from 22-9-83)  
 (holding charge)  
 Section Officer : Smt C. Rajamma  
 Sr. Grade Assistant : Sri V. Viswambharan  
 Assistants Grade I : Sri P. Janardhanan  
 Smt P. E. Haleema Beevi  
 Sri K. Haridasan  
 „ K. Subramanian  
 „ P. Unnikrishnan  
 Senior Grade Typist : Sri K. K. Damodaran  
 Grade I Typists : Smt P. Subhashini  
 „ S. Akhileswari  
 Sri S. Sudhakaran Nair  
 Smt V. Valsala  
 „ K. Saraswathy Amma  
 Duplicator Operator : Sri I. K. Govindan  
 Drivers : Sri T. K. Govindan  
 „ K. V. Kochappan  
 Peons : Sri C. C. Velukutty  
 „ P. K. Bhaskaran  
 Smt V. C. Ammini

## DIRECTORATE OF EXTENSION

Director of Extension	:	Dr V. S. S. Potti (up to 30-4-83)
		„ G. R. Nair (Full additional charge from 1-5-83 to 30-10-83)
		„ A. G. G. Menon (From 31-10-83)
Associate Director of Extn.	:	Dr G. R. Nair
Editor (Publications)	:	Sri R. T. Ravi Varma Ravi Appan Thampuran
Section Officer	:	Smt B. Syamala Devi
Office Supdt. (Steno to DE)	:	Sri K. Sadasivan Nair
Office Supdt. (Steno to ADE)	:	Sri P. I. Ittoop
Senior Grade Assistants	:	Sri K. V. Sugunan Smt A. A. Kousallya
Assistants Grade II	:	Smt K. N. Chandralekha „ E. Hymavathy
Typist Grade I (On leave)	:	Smt S. Radhamma
Driver Grade II	:	Sri T. G. Mohanan
Peon	:	Sri C. R. Chandran

### **A. Farm Advisory Service and Communication Centre**

Professors (Agronomy)	:	Dr E. Tajuddin (up to 21-11-83) Sri E. P. Koshy (from 19-12-83) (Assoc. Professor posted against the vacancy)
Professors (Plant Protection)	:	Dr K. John Kurian (from 7-9-83 to (23-11-83) „ M. J. Thomas (from 24-11-83)
Assoc. Professors (Horticulture)	:	Sri M. K. Mammen (up to 17-11-19-83) „ N. Ramachandran Nair (from 18-11-83)
Assoc. Professors (Poultry Science)	:	Dr Renji P. George (up to 4-6-83) „ G. Reghunathan Nair (from 4-6-83)
Assoc. Professors (Animal Science)	:	Dr P. S. Pushkaran (up to 25-10-83) „ Renji P. George (from 9-12-83 to 16-12-83)
Asst. Professor (Plant Protection)	:	Sri P. Reghunath (up to 31-5-83)
Asst. Professor (Fisheries)	:	Dr V. Jayaprakash (from 24-11-83)

Section Officer	: Sri K. R. Mohanan
Sr. Office supdt.	: Sri N. Somarajan
Sr. Grade Assistant	: Smt K. Rajamma
Assistants Gr. I	: Smt K. P. Mary ,, N. Kunhilekshmi
Assistants Gr. II	: Smt N. V. Thankom ,, V. R. Chandrika
Chief Artist	: Sri G. Gopinathan Nair
Artist	: Sri V. Chandranandan
Darkroom Asst.	: Sri Sulaimankutty
Sr. Grade Farm Asst	: Smt K. P. Ambika
Technician Gr. I (Audio visual operator)	: Sri K. Sukumaran
Peons	: Smt V. S. Bhargavi ,, M. S. Ammini
Driver Grade III	: Sri M. R. Gopinathan

## **B. Communication Centre**

### *1. Information Unit*

Associate Professor (Inf.)	: Sri K. P. Ramachandran Nair (from 18-11-83 AN)
Asst. Professor (Inf.) (Agriculture)	: Dr C. Bhaskaran : Dr R. Muraleedhara Prasad (from 4-7-83) Sri Joy Mathew
(Animal Sciences)	: Dr Sabu Kuruvilla (from 14-11-83)
Junior Asst. Professor	: Smt P. S. Geethakutty (from 25-7-83)

### *2. Publication Unit*

i) Associate Professor (Publications)	: Sri K. C. Varghese
ii) Asst. Professor (Pub.) Agriculture	: Sri Ranjan. S. Karippai (from 22-6-83)
Animal Sciences	: Dr (Mrs.) Amritha Viswanath (from 23-11-83)

### *3. Exhibition and Graphic Services*

Assistant Professor (Exhibition & Graphic)	: Smt N. P. Kumari Sushama
---	----------------------------

### *4. Training Service Scheme*

Assistant Professor	: Sri F. M. H. Khaleel
---------------------	------------------------

## **C. Tribal Area Research Centre, Amboori (ICAR Scheme)**

Coordinator	: Dr R. S. Aiyer (from July, 83)
Assoc. Professor (Extn.)	: Sri P. Ramachandran Nair (from 24-11-83)

Asst. Professor (Agronomy) : Sri. V. Sreekumaran (from 5-12-83)  
 ,, (Home Science) : Smt. C. Nirmala (from 7-11-83)  
 ,, (Small Scale Ind.) : Sri G. Mohanan (from 5-11-83)  
 ,, (Health) : Sri U. N. Radhakrishnan  
 (from 14-11-83)

Junior Asst. Professor (Health) : Dr N. Madhuri Devi (from 5-11-83)

*b) Eco-development Project, Amboori (Dept. of Environment)*

Junior Assistant Professor : Sri S. Sivaramakrishnan  
 (from 4-8-83)

**D. AICRP on Sch. Castes & OBC, KAU Project Centre, Nilambur (ICAR Scheme)**

Assoc. Professor (Extn.) : Sri P. Rajendran  
 (Asst. Professor posted against  
 the vacancy)

Junior Asst. Professor (A. H.) : Dr Kutty Narayanan

Junior Asst. Professor : Sri Vijayakumar  
 (Home Economics)

**E. National Demonstration Scheme, Sadanandapuram (ICAR Scheme)**

Associate Professor : Sri K. Ravindran Nair  
 (Asst. Professor posted  
 against the vacancy)

Asst. Professor (Agronomy) : Sri I. Johnkutty

**F. KAU Press**

Press Manager : Sri K. Rajappan

Section Officer : Sri N. Balakrishnan

Senior Grade Assistants : Sri K. A. Mohammed

Smt K. M. Mary

Sri K. R. Dilipkumar

Office Superintendent (FC & D) : Sri O. U. Chandran

Peon : Sri I. Govindankutty

General Foreman : Sri G. Narayana Pillai

Senior Foreman : Sri P. I. Lonappan

Proof Readers : Smt Sherly Sam

Sri K. K. Sadasivan (from 17-6-83)

Computer : Smt K. Santhakumari

Printers : Sri T. P. Joseph

,, V. R. Kumaran

,, C. Viswanathan

,, P. R. Aravindakshan

(from 27-5-83)

,, N. J. Samuel

,, P. Prabhakaran

Compositors	: Sri V. Subramanian Smt K. M. Thankamma ,, P. A. Elsy Sri V. Rajendran Smt K. Leela
Binders	: Sri K. R. Vijayan Smt P. T. Annie ,, M. Kamalamma ,, S. Sarojini Amma
Helper	Smt P. Prasannakumari

#### DIRECTORATE OF PHYSICAL PLANT

Director of Physical Plant	: Sri K. R. Krishna Pillai
P. A. to D. P. P.	: Smt Elizabeth Thomas
Financial Assistant	: Sri K. I. Alex
Assistant Engineer (Hr. Grade)	: Smt. T. L. Elsy (from 8/83)
Head Draftsman	: Sri T. M. Reghunath
Section Officers	: Sri A. Basil Smt R. Kamala Bai
Senior Grade Assistants	: Sri P. J. John (from 8/83) Smt C. V. Santha ,, M. K. Shailaja ,, A. K. Lyla
Senior Office Superintendent (FC&D) (Upgraded post from Office Superintendent)	: Sri T. K. Prabhakaran
Office Superintendent (Steno to DPP) (Post upgraded from Senior Grade Typist)	: Sri V. T. Kurian
Typists Grade I	: Smt K. B. Girija (Transfer 26-3-84) ,, S. Sudha Devi (from 5/83)
Assistant Grade I	: Sri V. A. Achuthan
Grade II Assistants	: Smt Sherine. V. Thomas ,, G. Valsalakumari. ,, K. S. Vijayalakshmi. ,, K. Indirakumari.
Typists Grade II	: Sri M. K. Muraleedhara Karnavar Smt K. Pushpavalli ,, T. K. Sukumari (from 2/84)
Drivers Grade I	: Sri P. K. Sasi
Blue Printer-cum-Stereo Operator	: Sri T. T. Ousephunny

Peon : Sri M. K. Gangadharan (Hr.Grade)  
,, K. C. Krishnan  
,, V. A. Pareeth  
Smt V. Saraswathy

**Division and Sub Divisions of the Engineering wing**

Executive Engineers : Sri P. O. Thomas  
,, S. J. Mathew

Assistant Executive Engineers : Sri K. G. Achuthan  
,, T. K. Rajan  
,, V. Ramachandran Nair  
,, M. Thomas Mathew

Assistant Engineers (Higher Grade) : Sri T. Sreedhara Menon  
,, P. Karunakara Panicker  
,, Hariharasudhan Nair

Assistant Engineers : Sri C. Jose Mathew  
,, E. Gokulan  
,, R. Chithambaran Pillai  
,, P. M. James  
,, T. K. Sugathan  
,, A. J. Anto  
,, K. V. Ramanunni  
,, K. S. Alphonse  
Smt K. R. Sarojini  
Sri A. K. Unnikrishnan  
,, M. Parameswaran  
,, P. Raman  
,, Abdul Azeez  
,, P. R. Govindan

Transport Supervisor : Sri Abraham. P. Daniel

Technician Sr. Grade : Sri T. A. Rappai

Draftsman / Overseer Grade I : Sri V. S. Balan  
,, C. C. Devassy  
,, S. Murukesan Assary  
,, V. Sankunny  
,, A. Usifin  
,, Savy Joseph  
Smt M. Vijayakumari  
Sri P. Raveendran Nair  
,, M. D. Pradeep  
,, K. Suresh Babu  
,, M. V. Chackochan  
,, T. K. Abdul Khadhar  
,, P. M. Vasudevan  
,, P. M. Mohammed Ismail  
,, K. T. Vasudevan

	Sri T. Kumaran Nair
	.. C. L. Yacob
	.. A. P. Jose
Senior Grade Assistants	: Sri P. V. Sreekumar
	.. K. Narayanan Namboodiri
	.. N. Rajasekharan
	.. N. K. Unnikrishnan
Assistants Grade I	: Smt G. Rema Bai
	Sri Y. Rajas
	Smt E. K. Prabhavathy
	.. M. Rugmini
	.. A. T. Gracy
	.. L. Shyamala Devi
	Sri P. M. Mani
	: Smt P. V. Ramani
	.. T. K. Ambika
	.. E. N. Savithri
	.. C. Santhakumari
Senior Grade Typists	: Smt P. P. Rosy
	Sri K. K. Gopikuttan (O. S.)
	.. K. Muraleedharan (O. S.)
	Smt. S. Valsala Devi
	.. M. K. Jainuva
	.. K. Sathivathy Bai
Typist Grade I	: Smt S. Valsala Devi
Road Roller Driver	: Sri M. K. Bhaskaran
Technician Grade I	: Sri P. K. Vijayan
	.. T. S. Govindan
Drivers Grade !! (L. M. V.)	: Sri K. M. Subramonian
	.. M. A. Joseph (Gr. I)
	.. K. Vikraman Nair
Pump Operators Grade I	: Sri V. B. Esaf
	.. K. K. Francis
	.. M. V. Parameswaran
	.. A. Narayanan (on leave)
	.. V. R. Parameswaran
	.. C. C. Punnen
	.. K. M. Baby
	.. T. P. Jose Mathew
	.. C. L. Kochu



Peon (Higher Grade)	: Sri I. Nesan
Peons	: Sri K. A. Sankaran ,, V. L. Antony Smt K. Sarada Sri K. P. Kumaran ,, K. A. Abdul Rasheed
Cleaner-cum-Conductor	: Sri K. M. Haneefa (on leave)
Watchmen	: Sri V. A. Paily ,, N. C. Murugan ,, K. Koya ,, N. C. Balan
Asst. Lineman	: Sri K. Ravi

# Appendix IV

## LIST OF STAFF IN THE VARIOUS CAMPUSES

### COLLEGE OF AGRICULTURE, VELLAYANI

- Dean : Dr. N. Sadanandan  
Professor (Research : Dr. M. M. Koshy  
Co-ordination)

#### Department of Agronomy

##### *Scientists*

- Professor : Dr. V. K. Sasidhar  
Associate Professors : Sri K. P. Madhavan Nair  
" V. Ramachandran Nair  
" P. Chandrasekharan  
" G. Raghavan Pillai  
" V. Muraleedharan Nair  
Assistant Professors : Sri. N. Purushothaman Nair  
Smt Lekha Sreekantan  
" M. Meera Bai  
Jr. Assitant Professor : Smt S. Lakshmi

##### *Technical & Supporting staff*

- Farm Assistants : Sri K. Chellappan  
" L. Davy  
Smt J. T. Jasmine  
" K. Radhamma Thankachy  
Sri G. Raveendran Asari  
" M. S. Krishnakumar  
Typists : Smt P. Sarojini Amma  
" Leela Bai Amma  
Laboratory Assistants : Sri A. Augustin Nadar  
" N. Sreedharan Nair

#### Department of Agricultural Botany

- Professor : Dr. N. Krishnan Nair  
Associate Professor : Sri P. D. Vijayagopal (from 11/83)  
Assistant Professors : Smt N. Kamalam  
" D. Chandramony  
" D. I. Suma Bai

Junior Assistant Professor : Sri D. Wilson  
*Technical Staff*  
 Technical Assistant : Sri V. Sivadas  
 Farm Assistant : Sri P. Gopinathan Nair  
 Laboratory Assistants : Sri V. K. Sadasivan Pillai  
 „ C. Bhanu  
 „ K. Nanukuttan Nair

**Plant Physiology Section**

*Scientists*

Associate Professors : Sri. A. T. Abraham  
 Dr Sheshadrinath  
 Junior Assistant Professor : Smt D. S. Radhamma

**Department of Soil Science and Agricultural Chemistry**

*Scientists*

Professor : Dr R. S. Aiyer  
 Associate Professor : Smt Alice Abraham  
 Assistant Professors : Sri K. Harikrishnan Nair  
 „ O. Sundaresan Nair  
 „ P. Rajendran  
 Junior Assistant Professor : Smt P. Prabhakumari  
 (up to 24-11-83)

*Technical staff*

Bacteriology Assistant : Sri K. C. John  
 Assistant Chemists : Smt B. Vasundara Bai  
 „ G. Sushama  
 Technical Assistant : Sri K. Muraleedharan Nair

**Department of Plant Breeding**

*Scientists*

Professor : Dr V. Gopinathan Nair  
 Associate Professors : Sri K. Gopakumar  
 „ R. Gopimony  
 Assistant Professors : Sri S. G. Sreekumar (from 3-2-83)  
 „ Sverup John (from 3-2-83)  
 Assistant Professor : Smt J. Sreekumari Amma  
 (AICRP—Forage)  
 Junior Asst. Professor : Smt K. S. Shylaraj  
 „ „ (AICRP—Forage) : „ V. L. Sheela

*Supporting staff*

Farm Assistants : Sri M. Rajaratnam  
 Smt S. Sacheedevi (from 9-8-82)  
 Sri K. S. Ajayakumar (from 7-4-82)  
 „ S. R. Rajeevan (from 9-6-83)

Laboratory Assistant (Gr. II) : Smt Savithri Amma (from 13-5-83)  
Sri C. Ouseph (from 6-9-83)

Grade II Assistant / Typist : Smt P. Lalitha

### Department of Entomology

#### *Scientists*

Professor : Dr N. Mohandas

Emeritus Scientist : Sri J. Johnson

Associate Professors : Dr K. John Kuriyan  
,, A. Visalakshy  
,, George Koshy  
,, K. K. Raveendran Nair  
,, K. P. Vasudevan Nair  
,, K. V. Mammen (from 4-8-83)

Assistant Professors : Smt T. Nalinakumari  
Sri P. R. Rajan Asari  
Smt K. Santhakumari  
,, K. Saradamma  
,, Suma Kuruvilla (from 21-11-83)  
,, M. S. Sheela  
Sri C. Nandakumar (from 20-7-83)  
Dr P. B. Gopinath  
Smt S. D. Ritakumari  
Sri P. Reghunath (from 26-11-83)

Junior Asst. Professors : Smt D. Ambika Devi  
,, K. S. Premila  
,, K. Sudharma  
,, Hebsy Bai  
,, R. Ushakumari

#### *Technical / Supporting staff*

Graduate Technical Assistants : Smt A. Lakshmikutty  
Sri L. Venkitachala Sarma

Lab Assistant Gr. I : Sri M. Krishnan Nair

Lab Assistants Gr. III : Smt B. Sakunthala  
Sri L. Samkutty  
,, P. Thankayyan  
,, R. Sivanandan

Farm Supervisor : Smt S. Thank Bai

Farm Assistants Sr. Gr. : Smt H. Rachel  
Sri C. Brigidson

### Department of Plant Pathology

#### *Scientists*

Professor : Dr M. C. Nair

- Associate Professors : Dr S. Balakrishnan  
 „ James Mathew (up to 25-9-83)  
 Sri S. K. Nair (from 26-9-83)  
 Dr Susamma Philip  
 Smt G. Padmakumari  
 (up to 31-10-82)
- Assistant Professors : Dr B. Rajagopal  
 Smt K. J. Alice  
 Sri M. Abraham  
 Dr S. Bhavani Devi  
 Sri B. Balakrishnan (from 2-11-82)
- Junior Asst. Professors : Sri M. V. Rajendran Pillai  
 „ M. Vijayan  
 Sri P. J. Joseph (up to 5-1-83)  
 Smt V. K. Girija  
 „ D. Geetha

*Technical/Supporting staff*

- Farm Assistant (Sr. Grade) : Smt K. Rosammal  
 „ D. Subhadramma  
 „ S. Sarojini  
 Sri M. Rajaratnam
- Laboratory Assistants : Sri S. Kuttappan Nair  
 „ A. Aloysius  
 „ K. Balakrishnan
- Mali (Field Assistant) : Sri V. Sreedharan Nair

**Department of Agricultural Engineering**

- Professor : Dr. A. N. Rema Devi

*Administrative | Technical | Supporting staff*

- Technicians Grade I : Sri N. Sasidhara Panicker  
 „ T. Sekharan  
 „ Sreekantan Nair
- Laboratory Assistant Gr. I : Sri V. Purushothaman
- Oil Engine Driver : Sri M. Abdul Muthalif

**Department of Agricultural Statistics**

*Scientists*

- Professor : Dr. K. C. George (upto 31-1-84)
- Assistant Professors : Sri K. Jayaraman  
 „ P. Gangadharan
- Junior Asst. Professor : Sri M. Jacob Thomas

*Technical | Supporting staff.*

- Technical Assistants : Sri C. T. Mukundan  
 Smt P. Saraswathy
- Assistant Grade I : Sri Mohanachandran

### **Department of Agricultural Extension**

- Professor : Dr A. M. Thampi (from 19-11-83)
- Associate Professors : Sri O. Abdul Rahiman Kunju  
(from 8-12-1982)  
Dr G. Balakrishna Pillai  
(from 19-11-1983)
- Assistant Professors : Sri M. Mohammed Hussain  
(up to 20-11-83)  
Sri R. Prakash  
,, V. B. Padmanabhan  
(from 20-11-83)
- Assistant Professor : Dr B. Balu (up to 24-11-83)  
(Training Section) Smt G. Sobhana
- Assistant Professors (NARP) : Sri Ranjan. S. Karippai  
(up to 21-6-83)  
Smt S. Shylaja (from 22-6-83)

### *Technical/Supporting staff*

- Lab. Assistants Grade I : Sri V. Kesavankutty  
,, Surendran Pillai
- Artists : Sri Ganapathy  
,, Kesavan Namboodiri
- Farm Assistant (Agri.) : Sri J. Vimala Bai
- Typists Grade I : Smt K. Vimala (up to 25-5-83)  
,, C. Padmavathy (from 25-5-83)
- Typist (Training programme) : Smt Ponmani Mohana  
(from 16-7-83)
- Duplicator Operator : Sri S. Dickson

### **Department of Horticulture**

- Professor : Sri P. Sethumadhavan  
(up to 12-12-83)
- Associate Professors : Sri P. D. Vijayagopal  
(up to 30-9-83)  
,, G. Sreekantan Nair  
(from 1-10-83)
- Assistant Professor : Sri B. K. Jayachandran  
(from 15-9-83)
- Junior Asst. Professors : Smt Sabina George Thekkayam  
,, V. L. Sheela (working arrange-  
ment from AICRP on Forage Crops)

### *Supporting staff*

- Farm Supervisor Grade II : Smt K. Padmakshy  
,, L. Indira

Lab. Assistant Grade II : Sri R. Purushothaman  
 Lab. Assistants Grade III : Sri P. Alexander  
 „ A. Prabhakaran

### **Department of Agricultural Economics**

#### *Scientists*

Associate Professor : Sri K. S. Karayalar  
 Assistant Professor : Sri E. Thomas

### **Department of Food Science & Nutrition**

Associate Professor : Dr L. Prema  
 Assistant Professor : Smt N. K. Vimala Kumari  
 Junior Asst. Professor : Smt Mary P. Okkuru  
 Senior Research Fellow : Smt V. Usha  
 „ S. Chellammal

#### *Technical/Supporting staff*

Lab. Assistant Gr. II : Sri N. Manikantan Nair  
 Audio visual Operator : Sri N. Ayyappan Achari  
 Sr. Office Superintendent : Smt T. Lekshmikutty Amma

### **Department of Animal Husbandry**

#### *Scientists*

Associate Professor : Dr Skariah Oommen  
 Assistant Professors : Dr. E. T. Jacob  
 „ V. S. Balakrishnan  
 „ S. P. Suresan Nair  
 Junior Asst. Professor : Dr. Sabu Kuruvilla

#### *Technical/Supporting staff*

Farm Supervisors (Vety) : Sri R. Narayanan Nair  
 „ S. Sahadevan  
 Farm Assistant (Vety) Gr. I : Sri N. Christudhanam  
 Gr. II : Sri R. Ramachandran Nair  
 „ C. Prabhakaran  
 Milk Recorder : Sri G. Madhavan Nair

### **Department of Physical Education**

Junior Asst. Professors : Sri S. P. Pillai  
 Smt A. C. Marykutty

### **Instructional Farm, Vellayani**

Associate Professor : Sri K. Pushpangadan  
 Assistant Professor : Smt M. Suharban

Junior Asst. Professors	:	Smt K. R. Sheela " R. Devika
Farm Supervisor Grade I	:	Sri D. Sreedhara Panicker
Farm Supervisor Grade II	:	Sri S. Sadasivan Chettiar " K. Gopinathan Nair
Senior Grade Farm Assistants	:	Smt B. Indira Bai Amma " S. Kamala Bai Sri N. T. George " K. C. Retnakaran Nadar
Administrative Assistant	:	Sri C. Sasikumaran Nair
Senior Grade Assistants	:	Sri Rajendran Unnithan Smt B. Lalitha Bai
Grade I Assistants	:	Smt C. P. Padmakumari Sri C. Prabhakaran
Grade II Assistants	:	Sri N. Valsan " T. S. Mani
Typist Grade I	:	Sri V. Bhagaval Singh
Mechanic Grade III	:	Sri V. Gopinatha Kurup
<b>Administrative staff of the College of Agriculture</b>		
Administrative Officer	:	Sri V. Sreenivasan
Section Officers	:	Sri C. S. Ashok kumar " D. Gilbert " J. Kochukunju " V. K. Balakrishnan Smt B. Sreedhari Amma Sri K. Sreerangan
Senior Office Superintendents	:	Sri L. Radhakrishnan Potti Smt A. Lilly " D. Hymavathy " L. Lalitha " T. Lakshmikutty Amma
Superintendent (FC & D) Assistants	:	Sri M. R. Raveendran Sri A. William Smt M. N. Sreedevi Sri L. Wilson " M. N. Sasidharan Smt J. R. Fatima Malar Sri K. Viswanathan Asari " C. N. Radhakrishnan (up to 30-4-83) " K. Balachandran Nair (up to 30-4-83) " N. K. Mohankumar



- Assistants : Sri T. Sasikumar  
 Smt P. Saraswathy Amma (up to 28-5-83)  
 .. P. Jameela  
 .. B. C. Girija Devi  
 Sri E. Shamsudin  
 .. A. Abdul Karim (up to 5-12-83)  
 .. S. Reghupathy Chettiar  
 Smt Kumari Girija  
 .. V. Leela  
 .. Chandrika Kumari  
 Sri S. Viswakumaran Nair  
 .. P. R. Mohanachandran  
 .. S. Vallinayakom Pillai  
 .. N. Hirshikesan Nair  
 .. S. Ramachandran Nair  
 .. B. Sukesan (from 30-4-83)  
 .. P. Gopinathan Nair (from 28-5-83)  
 .. K. V. Purushothaman Nampoodiri  
 Smt G. Joice (from 3-5-83)  
 .. P. Lalithakumari Amma (from 31-5-83)  
 .. T. A. Mridulakumari (from 16-5-83)  
 .. M. Padmakshy (from 29-12-83)  
 .. Indira Devi (from 9-9-83)
- Typists : Smt S. Valsala Devi  
 Sri C. Rajendran Nair  
 Smt S. Radhamma  
 .. P. Sarojini Amma (from 23-5-83)  
 Sri Haridas (from 10-6-83)
- Typists : Smt P. V. Brazitha (from 27-5-83)  
 .. S. Majida Beevi (19-5-83)  
 .. C. Padmavathy (19-5-83)  
 Sri A. Ramachandran Unnithan (from 26-5-83)  
 .. B. Leela Bai Amma

## COLLEGE OF HORTICULTURE

Associate Dean : Dr P. K. Gopalakrishnan

## **Department of Pomology and Floriculture**

### *Scientists*

- Professor : Dr M. Aravindakshan  
(Special Officer, Centre of Excellence from 1-1-1983)
- Assistant Professors : Smt P. K. Valsalakumari  
,, T. Radha (up to 18-10-83)  
,, T. Valsamma Mathew  
(from 30-11-83)
- Junior Asst. Professors : Sri N. K. Parameswaran  
(up to 28-11-83)  
,, C. S. Jayachandran Nair  
(up to 29-11-83)

### *Technical/Supporting staff*

- Farm Assistants : Smt P. K. Vijayalakshmi  
Sri C. P. Sugathan
- Lab Attender : Sri K. R. Prabhakaran

## **Department of Plantation Crops**

### *Scientists*

- Professor : Sri S. Balakrishnan (up to 2-5-84)
- Assistant Professors : Smt P. A. Nazeema  
,, Rema Menon  
Sri E. V. Nybe (from 28-3-84)  
,, Joseph Philip
- Junior. Asst. Professors : Smt Lyla Mathew (from 31-4-83)  
,, T. Premalatha  
,, P. K. Sudha Devi  
Sri Sajjan Kurien

### **Sub Centre for the Project for Research in Ginger**

- Assistant Professors : Sri Koshy Abraham  
Smt Maicykutty P. Mathew

### **Scheme for P. G. Diploma in Natural Rubber Production**

- Assistant Professor : Dr T. Vilasachandran
- Junior Asst. Professor : Smt P. A. Valsala (up to 22-11-83)

### *Technical staff*

- Farm Assistant : Sri P. C. John

### *Administrative and Supporting staff*

- Laboratory Assistant : Sri E. K. Chathu

## **Department of Olericulture**

### *Scientists*

- Professor : Dr K. V. Peter

Assistant Professors : Sri T. R. Gopalakrishnan  
 ,, S.Rajan.  
 Smt Salikutty Joseph  
 ,, K. K. Santha (from 6-4-83)

Junior Assistant Professors : Smt Baby Lissy Markose  
 ,, P. Indira  
 Sri Suresh Bubu

*Technical/Supporting staff*

Farm Supervisors : Sri K. C. Kochumon  
 Smt M. K. Chandramathy  
 ,, N. J. Aleyamma

Lab Assistant : Sri K. K. Chandran

**Department of Agricultural Meteorology**

*Scientists*

Professor : Dr. P. Balakrishna Pillai

Asst. Professor : Sri. A. V. R. Kesava Rao  
 (from 12-12-83)

Res. Associate : Sri. P. Shadanan Nair  
 (from 19-8-83)

**Department of Processing Technology**

*Scientists*

Professor : Sri V. K. Damodaran (up to 30-11-83)

Asst. Professors : Smt K. A. Girija  
 Sri P. Jacob John

Junior Asst. Professor : Smt. V. Indira

*Technical/Supporting staff*

Processing Technology Assistant : Sri K. K. Kumaran

Lab Assistant : Sri K. G. Krishnan

**Department of Agronomy**

*Scientists*

Professor : Dr C. Sreedharan

Associate Professor : Dr M. Achuthan Nair  
 (from 21-11-83)

Assistant Professors : Dr P. V. Baiachandran  
 ,, J. Thomas  
 Sri K. C. Aipe (up to 13-1-84)  
 Dr B. Mohankumar (from 13-1-84)  
 Smt V. L. Geethakumari

Junior Asst. Professor : Smt Mercy George (from 20-7-82)

*Technical/Supporting staff*

Farm Assistant Grade I : Sri Madhavan Nair (from 30-5-83)

Farm Assistant Grade II : Sri P. K. Reghu (up to 17-5-83)





Junior Assistant Professors : Sri T. Premanathan  
 Smt V. K. Girija (Up to 14-10-83)  
 „ S. Beena (from 26-11-83)  
 Sri M. Govindan (from 26-5-83)  
 Smt D. Geetha  
 (from 25-8-83 to 25-11-83)  
 „ T. N. Vilasini  
 (from 25-11-83)

### **Ginger Scheme**

Assistant Professor : Sri Koshy Abraham  
 (from 13-6-83)

### *Technical/Supporting Staff*

Lab Assistant Grade III : Sri V. Nandakumar  
 Farm Assistant (Ag.) Gr. I : Sri V. Unnikrishnan  
 (from 20-4-83)  
 Typist Grade I : Sri V. M. Sulaiman  
 Farm Assistant (Agri.) Gr. I : Sri N. M. Mohanan (from 25-5-83)

### **Department of Agricultural Engineering**

#### *Scientists*

Professor : Sri T. P. George  
 Associate Professors : Sri K. John Thomas  
 Dr A. N. Rema Devi  
 Assistant Professors : Sri Jippu Jacob (from 9-9-83)  
 „ M. Sivaswami (from 22-11-83)  
 Dr. N. R. Viswambharan  
 (from 23-11-83)  
 Sri M. R. Sankaranarayanan  
 (from 7-3-84)  
 Jr. Asst. Professors Sri M. Sivaswami  
 (up to 22-11-83)  
 Smt K. P. Visalakshi  
 (from 4-2-83)  
 Pool Officer : Dr. N. R. Viswambharan  
 (from 1-9-83 to 23-11-83)

#### *Technical/Supporting Staff*

Technician Grade III : Sri P. M. Remesh Chandran  
 „ T. R. Viswambharan  
 „ T.V. Johny  
 Pump Operator : Sri E. Parameswaran Nair

## **Department of Agricultural Economics**

### *Scientists*

- Professor : Dr V. Radhakrishnan  
Associate Professor : Dr K. Mukundan  
(from 18-11-83)  
Assistant Professors : Sri K. Ravi  
(from 22-11-83)  
,, K. J. Joseph  
(24-11-83)  
Jr. Assistant Professor : Sri Jebaraj Norman  
(from 27-5-83)

## **Department of Agricultural Extension**

- Assistant Professor : Sri K. P. Ramachandran Nair  
(till 18-11-83)  
(Promoted and transferred to Communication Centre, Mannuthy as Associate Professor)

## **Department of Agricultural Statistics**

### *Scientists*

- Associate Professors : Sri P. V. Prabhakaran  
,, V. K. Gopinathan Unnithan  
Assistant Professor : Smt P. Soudamini (from 29-11-83)  
Junior Assistant Professor : K. S. Sujatha  
(Up to 28-11-83)

## **Department of Physical Education**

- Junior Assistant Professors : Smt. Susy V. John  
Sri E. Soman  
Marker : Sri K. L. Devassy

## **All India Co-ordinated Floriculture Improvement Project**

- Assistant Professor : Dr K. Gopikumar  
Junior Asst. Professor : Smt K. B. Sheela  
,, A. Suma

## **Kerala Agricultural Development Project**

### **Professors (Horticulture)**

- Coconut : Dr. K. Kumaran  
Cocoa : Dr. R. V. Nair  
Cashew : Sri K. K. Vidyadharan  
Pepper : Dr. Abi Cheeran

Professor (Radio Tracer)	:	Dr. P. A. Wahid
Associate Professor (Safety Officer)	:	Smt N. V. Kamalam
Associate Professor (Instrumentation)	:	Sri K. M. Nair
Asst. Professor (Nematology)	:	Sri Arthur Jacob
„ (Bio Chemistry)	:	Sri A. Augustin
„ (Soil Science & Agrl. Chemistry)	:	Dr. P. C. Antony
„ (Hort.)	:	Sri K. Rajmohan
„ (Pl. Pathology)	:	Sri. A. V. Mathew

#### **Department of Co-operation and Banking**

Associate Professor holding  
additional charge of Professor

(Co-operation)	:	Dr. C.A. Jos (from 6-2-84)
Associate Professor (Economics)	:	Sri U. Mohandas
„ (Commerce)	:	Dr Sreekumar Sreedhar (from 21-11-83)

Assistant Professor (Commerce) : Sri Philip Sabu (from 30-11-83)

Junior Assistant Professors

Commerce	:	Smt E. V. K. Padmini
Banking	:	Sri James Manalel
Co-operation	:	Sri T. Paranjothi

#### **Administrative staff of the College of Horticulture**

Administrative Officer	:	Sri P. K. Ramachandran Nair
Section Officer	:	Sri K. A. Appuchettiar „ Lourden Leord „ V. Venugopalan
Senior Gr. Asst.	:	Sri K. N. Pushpangadhan Smt K. K. Gauthami Sri K. Balachandran Smt P. T. Thankamani
First Gr. Asst .	:	Sri P. V. Sreedharan „ K. F. Mathew
Second Gr. Asst.	:	Smt K. S. Omana „ V. R. Santhakumari „ M. Girija „ Prema B. Nair „ A. Sheela Sri S. Vijayadas Smt C. K. Prabhavathy „ K. V. Alamelu



Senior Gr. Typist	: Smt K. M. Mary
First Gr. Typist	: „ K. Vimala
Second Gr. Typist	: „ M. L. Sosannam Sri G. Hareendran
First Gr. Typist	: Smt C. J. Catherin
Typist Gr. I	: Sri V. M. Sulaiman
Typist Gr. II	: „ L. Sobhanakumari
Lab. Asst. Gr. I	: „ M. C. Chandran „ T. R. Balakrishnan
Technical Asst.	: Sri M. Thankappan Nair
Lab. Assts. Gr. III	: Smt K. Thankamani Sri V. Nandakumaran „ P. K. Anandan „ P. Unnikrishnan „ K. R. Prabhakaran „ E. R. Chathu „ K. K. Chandran
Farm Supervisors	: Smt P. K. Vijayalakshmi Sri K. C. Kochumon „ P. C. John Smt K. V. Aleyamma Sri N. Madhavan Nair
Farm Asst. Gr. I	: Sri V. M. Mathew Smt. M. K. Chandramathi Sri C. B. Sugathan Smt N. J. Eliamma Sri V. M. Mohanan „ V. Unnikrishnan Smt B. Leela Bai
Higher Gr. Peon	: Sri M. N. Sivaraman
Peon	: „ R. B. Ibrahim „ K. V. Ramachandran „ M. K. Muraleedharan Smt M. V. Kunhai „ M. V. Eliamma
Watchman	: Sri K. P. Ummer „ P. I. Gulumammed
Reference Assistant	: Smt M. C. Lalitha Sri R. Manohar „ Rajasekharan
Driver	: Sri P. V. Sudhakaran „ M. K. Rajendran Nair
Asst. Grade II	: Smt Baby Saroja

Marker	Sri K. L. Devassy
Pump Operator	: Sri E. Parameswaran Nair
Duplicator Operator	: Sri P. A. Madhavan
Steward	: Sri N. P. Chandran
Matron	: Smt A. E. Rahel
Technician Gr. II	: Sri T. R. Viswambharan ,, P. M. Rameshchandran ,, K. V. Johnny ,, George Mathew ,, P. Surendran
Lab. Asst. Gr. III	: Sri K. G. Krishnan

### **College of C & B**

Typist	: Smt Geetha Bai
Assistant Gr. II	: Sri Chandramohan ,, T. M. Prema Smt R. S. Saroja
Peon	: Sri T. G. Radhakrishnan

### **COLLEGE OF VETERINARY & ANIMAL SCIENCES**

Dean	: Dr M. Krishnan Nair
Professor (Res. Coordination)	: Dr K. Radhakrishnan
Assistant Registrar (Technical)	: Dr T. R. Sankunny

#### *Academic staff*

#### **Department of Anatomy**

Professor in charge	: Dr P. A. Oommer
Associate Professor	: Dr Lucy Paily

#### **Department of Animal Breeding & Genetics**

Professor	: Dr G. Mukundan
Associate Professors	: Dr C. A. Rajagopala Raja ,, Sosamma Iype
Junior Asst. Professor	: Dr C. R. Girija

#### **Department of Animal Management**

Professor	: Dr T. G. Rajagopalan
Associate Professor	: Dr Kurien Thomas
Assistant Professors	: Dr Francis Xavier ,, P. C. Saseendran

#### **Department of Animal Reproduction**

Professors	: Dr K. Prabhakaran Nair : Dr V. Sudarsanan
------------	--

Associate Professors	:	Dr E. Mathai ,, M. S. Nair ,, E. Madhavan
Assistant Professors	:	Dr T. Sreekumaran ,, Joseph Mathew
Junior Asst. Professors	:	Dr K. Ramachandran ,, K. V. Atman ,, K. N. Aravinda Ghosh

#### **Department of Clinical Medicine**

Professor & Head	:	Dr K. M. Alikutty
Associate Professor	:	Dr N. M. Aleyas
Assistant Professor	:	Dr P. C. Alex
Junior Asst. Professors	:	Dr K. M. Jayakumar ,, P. G. Baby

#### **Department of Dairy Science**

Professor & Head	:	Dr M. Subrahmanyam
Associate Professors	:	Dr K. Pavithran ,, M. V. Sukumaran Sri N. Narayanan Nair ,, R. Rajendrakumar
Assistant Professors	:	Dr M. Mukundan ,, P. I. Geevarghese

#### **Department of Extension**

Professor & Head	:	Dr P. S. Pushkaran
Assistant Professor	:	Dr V. Raju
Junior Asst. Professors	:	Dr C. V. Andrews ,, M. R. Subhadra ,, George T. Oommen ,, P. J. Rajkamal

#### **Department of Microbiology**

Professor-in-charge	:	Dr S. Sulochana
Associate Professor	:	Dr K. T. Punnoose
Assistant Professor	:	Dr G. Krishnan Nair
Junior Asst. Professor	:	Dr D. Sudharma

#### **Department of Nutrition**

Professor & Head	:	Dr E. Sivaraman
Associate Professors	:	Dr C. T. Thomas ,, Maggie D. Menachery ,, C. S. James
Assistant Professors	:	Dr. T. V. Viswanathan Sri M. Nandakumaran Dr. A. D. Mercy
Junior Asst. Professor	:	Dr. P. Gangadevi

### **Department of Parasitology**

Professor	:	Dr. K. Rajamohanam
Associate Professors	:	Dr. K. Chandrasekharan
		„ V. Sathianesan
		„ K. Madhavan Pillai
		„ C. George Varghese
Assistant Professors	:	Dr. C. Pythal
		„ H. Subramaniam

### **Department of Pathology**

Professor & head	:	Dr. A. Rajan
Professors	:	Dr. K. M. Ramachandran
		„ K. I Mariyamma
Associate Professors	:	Dr. K. V. Valsala
		„ T. Sreekumaran
Junior Asst. Professors	:	Dr. N. Divakaran Nair
		„ C. R. Lalithakunjamma
		„ C. B. Manomohan

### **Department of Pharmacology & Toxicology**

Professor	:	Dr. M. K. Rajagopalan
Senior Scientist	:	Dr. Jacob V. Cheeran
Associate Professors	:	Dr. Zacharias Cheriyan
		„ P. Marykutty
Assistant Professors	:	Dr. N. Gopakumar
		Sri V. R. Reghunandan

### **Department of Physiology & Biochemistry**

Professor	:	Dr. G. Nirmalan
Associate Professors	:	Dr. G. Venugopalan
		„ M. G. Ramakrishna Pillai
		„ K. P. Sadanandan
Assistant Professors	:	Dr. K. P. Surendranathan
		Sri P. K. Ismail
Junior Asst. Professor	:	Dr. Sisilamma George

### **Department of Poultry Science**

Professor & head	:	Dr. A. Ramakrishnan
Professor	:	Dr. C. K. Venugopalan
Associate professors	:	Dr. G. Reghunathan Nair
		„ R. Sabarinathan Nair
Assistant Professors	:	Dr. V. K. Elizabeth
		„ K. Narayanankutty

### **Department of Preventive Medicine**

Professor	:	Dr. E. P. Paily
Special Officer—Clinics & Internship	:	Dr P. T. Georgekutty
Associate Professor	:	Dr K. Baby
Assistant Professors	:	Dr K. Venugopal ,, M. R. Saseendranath
Junior Asst. Professor	:	Dr M. Abdul Azeez

### **Department of Surgery**

Professor	:	Dr P. O. George
Associate Professors	:	Dr K. M. Muraleedharan Nair ,, A. M. Jalaludin ,, S. Ravindran Nayar ,, C. Abraham Varkey
Assistant Professors	:	Dr T. Saradamma ,, K. Rajankutty

### **Department of Veterinary Public Health**

Professor	:	Dr R. Padmanabha Iyer
Associate Professors	:	Dr M. Soman ,, P. Prabhakaran ,, E. Nanu
Assistant Professor	:	Dr M. T. Jose

### **Department of Statistics**

Professor & Head	:	Dr K. C. George
Assistant Professors	:	Sri K. L. Sunny ,, N. Ravindranath
Junior Asst. Professors	:	Smt V. Narayanikutty ,, K. S. Sujatha

### **Department of Animal Production Economics**

Professor	:	T. Prabhakaran
-----------	---	----------------

### **Administrative Staff of the College of Veterinary & Animal Sciences**

Administrative officer	:	Sri K. Balakrishnan Nair
Section officers	:	Smt V. R. Vijayamma Sri K. Kuttappan Achari Smt M. N. Sreedevi ,, E. K. Bharathy
Senior office Superintendent	:	Smt D. Hymavathy
Office Superintendent	:	Smt H. Razia Beevi

Senior Grade Assistants	:	Smt T. Rema Devi ,, Lillikutty Thomas ,, A. K. Kamala Bai ,, A. Subhalakshmi Amma
Grade I Assistant	:	Sri V. Jacob Simon Smt K. Rajalakshmi Amma
Senior Grade Assistant	:	Smt L. Syamala Sri P. Aliyar
Grade I Assistant	:	Smt K. S. Nirmala
Grade II Assistants	:	Sri K. S. Paul Smt Mabel Philip ,, C. Sherly Mathew ,, Brigit Kuruvilla Sri K. J. Kuruvilla
Senior Grade Typist	:	Sri T. D. Jose
Grade I Typists	:	Smt P. K. Kousalya ,, P. K. Kallyani ,, B. Kumary Sathya Bhama
Grade II Typists	:	Smt K. Padmavathy ,, K. A. Geetha
Drivers	:	Sri M. Balakrishnan ,, M. Sooryanarayanan ,, V. N. Sankarankutty ,, A. J. Antony
Duplicator Operator	:	Sri C. D. Jose ,, M. Gopinathan
Matron	:	Smt T. P. Sicily
Steward	:	Sri K. V. Sudhindran
Clerical Assistants	:	Sri E. Gangadharan ,, T. Narayana Menon ,, N. Raghavan Achary ,, K. K. Balakrishnan ,, C. K. Korappan ,, K. Gopalan
Peons	:	Sri K. Madhavan ,, K. T. Devassy ,, M. Somasekharan Smt V. Ammini Amma ,, P. L. Mariam ,, K. A. Mathiri
Attendants	:	Sri K. V. Sukumaran ,, M. Divakaran ,, K. A. Varghese ,, K. Saji Antony Smt K. R. Karthu

	Smt T. K. Saleena
	„ K. O. Rosakutty
	„ T. J. Thanka
	Sri P. N. Raghavan
Sweeper-cum-Attendants	: Sri V. V. Vasu
	Smt P. I. Kunjumol
	Sri P. K. Velayudhan
	„ A. Velayudhan
	Smt A. N. Saraswathy
	Sri K. P. Balakrishnan
	Smt P. S. Santhakumari
	„ V. Sreedevi
Sweeper	: Sri I. R. Rajan
	Smt T. K. Mariam
Sweeper-cum-Attendant	: Sri V. K. Narayanan
Regular Marker	: Sri U. Raghavan Nair
Cleaner-cum-Attendant	: Sri E. L. Timothy
Watchman	: Sri R. K. Dhirjan Bahadur Singh
Scavanger	: Sri P. K. Anthappan
	„ A. A. Krishnan
<i>Para technical staff</i>	
Research Assistants	: Smt Aniamma Chacko
	„ Mariamma Kurian
	Sri C. Ramadasan
Analyst	: Sri P. N. Vishnu Namboodiri
Lab Technician	: Sri T. K. Poulose
	„ C. Georgekutty
Farm Supervisors Gr. II (Vety.)	: Smt P. V. Kunjai
	„ T. Kallyanikutty
	„ V. K. Radha
	Sri O. Sreedharan
	„ C. Ramakrishnan
Farm Supervisors Gr. II (Vety.)	: Sri N. Bhaskaran Pillai
	„ E. Sreedhara Marar
	„ M. K. Kumaran
Senior Grade Farm Assistants (Vety):	Sri T. K. Abdul Rahiman
	„ A. S. Karunakaran
	„ T. K. Gopalan
Gr. I Farm Assistants (Vety.)	: Smt P. C. Mary
	„ P. C. Lilly
	Sri C. C. Narayanan
	Smt P. Remany
	Sri K. V. Balan

		Sri P. K. Vijaymani
		„ K. L. Jose
		„ K. K. Sasidharan Nair
Gr. II Farm Assistants (Vety.)	:	Sri J. K. Narayanan
		„ T. P. Balakrishnan Nair
		„ K. Shanmugham
		„ P. S. Kumaran
Technical Assistant	:	Smt P. Santha Bai
Radiographer	:	Smt K. Indira Devi
Audio visual Aid Operator	:	Sri Eugene G. Varghese
Gasman	:	Sri P. M. Joseph
Reference Assistant	:	Smt K. S. Ambili
		„ B. Leela
		Sri T. A. Joseph
		„ Abdul Razak
Syce	:	Sri V. L. Devassy
Lab Assistant Grade III	:	Sri C. C. Pandit

## COLLEGE OF FISHERIES

Dean	:	Dr M. J. Sebastian
Professor (Fisheries Research)	:	Dr P. M. Mathew (from 5-9-83)
<b>Department of Aquaculture</b>		
Professor	:	Dr D. M. Thampi
Associate Professor	:	Sri K. S. Purushan
		(from 5-11-83)
Assistant Professors	:	Dr Thressiama James
		Sri C. G. Rajendran
		„ Syed Ismail Koya (from 7-11-83)
Junior Asst. Professor	:	Dr M. V. Mohan (from 22-11-83)
<i>Supporting / Technical staff</i>		
Fieldman	:	Sri V. K. Balakrishnan
		„ K. K. Raghu
Fisherman-cum-Watchman	:	Sri P. J. Kunjappan
		„ P. P. Pushpakaran
		„ P. M. Gopi
		„ M. S. Mani

## Department of Fishery Biology

Associate Professor	:	Dr P. Rabindranath
Assistant Professors	:	Dr R. Shylajakumari
		„ T. M. Jose
Junior Asst. Professor	:	Dr. B. Madhusudana Kurup
		(from 7-11-83)



### **Department of Fishery Hydrography**

Associate Professor	:	Sri K. K. Varma
Assistant Professors	:	Sri P. S. Mrithunjayan Dr C. J. Cherian
Junior Asst. Professor	:	Sri N. N. Raman

### **Department of Fish Processing Technology**

Professor	:	Sri Cyriac Mathen (up to 26-8-83)
Associate Professor	:	Sri D. D. Namboodiri
Assistant Professors	:	Sri P. M. Sherief Dr. M. C. George
Junior Asst. Professor	:	Smt. Sosamma Cherian (up to 23-11-83)

### **Department of Management Studies**

Associate Professor	:	Sri T. M. Sankaran
Junior Asst. Professor	:	Sri Philip Sabu (up to 29-11-83)

### **Instructional Farm, Panangad**

Associate Professor	:	Sri K. M. George (from 8-12-83)
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### **Instructional Farm, Puduveypu**

Associate Professor	:	Dr. K. Jayasree Vadhyar (from 1-12-83)
Assistant Professor	:	Sri M. M. Jose (from 22-11-83)

### ***Technical/Supporting Staff***

Fieldman	:	Sri N. Chakrapani
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### ***Administrative staff***

Assistants Grade II	:	Smt. E. Indira (up to 26-10-83) ,, C. M. Girija (from 1-12-83)
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### ***Administrative Staff of the College***

Administrative Officers	:	Sri Philip. K. Kurian (up to 5-8-83) ,, K. G. Balakrishna Pillai (from 3-9-83)
Section Officers	:	Sri A. Kuriakose Smt. V. M. Lalithakumari (on leave)
Office Superintendent	:	Sri Paul Sextus
Senior Grade Typist	:	Smt. R. Sarada Devi
Reference Assistant	:	Sri O. P. Variath

Assistants Grade I	: Smt. M. S. Sulaika Beevi ,, C. Suchetha Sri P. U. Kesavan Smt. C. C. Rosily Sri K. G. Antony
Assistant Grade II	: Smt K. Muthumany ,, K. R. Santha ,, K. A. Lucy Mary
Clerical Assistant	Smt T. N. Kausallya
Driver Grade II (HD)	: Sri I. T. Rappai
Driver Grade II (LD)	: Sri A. P. Chacko ,, T. K. Ramanan ,, J. Joy
Peons	: Sri K. K. Raghavan ,, K. Rajendra Babu Pillai ,, P. M. Varghese ,, K. N. Sasikumar
Sweeper-cum-Attendant	: Sri R. Gopal Singh
Part-time Sweeper	: Smt P. V. Nabeesa
<b>Institute of Agricultural Technology, Tavanur</b>	
Director	: Sri K. Karunakaran
<i>Academic staff</i>	
Associate Professor (Ag. Engg.)	: Sri C. P. Mohammed
Assistant Professors	: Sri Philipose Joshua Dr. C. K. Sreedharan Unni Sri Mathew John ,, V. K. Raju (from 11-1-83) ,, S. M. Shahul Hameed (upto 8/83) ,, Jobi V. Paul ,, P. Ahmed (from 28-4-83)
Junior Asst. Professors	: Smt V. P. Lakshmikutty ,, T. J. Rehmath Niza Sri M. A. Peter ,, V. Krishnakumar (from 10-10-83) ,, Habeebur Rehman(from 9-12-83) ,, C. Rajagopal Dr. C. M. Aravindakshan Sri K. J. Joseph
Research Assistant	: Sri A. P. Gopalakrishnan
<i>Administrative Staff</i>	
Office Superintendent	: Sri George Thomas (upto 31-7-83)

Administrative Assistant	:	Sri D. Vinodakrishnan
Senior Grade Assistants	:	Sri C. Arumughan ,, K. P. Koyamu ,, C. Assainar ,, K. Kunhoosa ,, P. M. Parameswaran Namboodiri
Assistants Grade I	:	Sri P. Unnikrishnan (up to 6-5-83) ,, K. Mohammed Naha Smt K. P. Kalliani ,, K. U. Prabhavathi ,, K. Leelamma Sri V. Sivadasan
Office Superintendent (FC&D)	:	Sri K. Velappan
Stenographer Grade I	:	Sri. C. Krishnankutty Nair
Typist Grade II	:	Smt. A. J. Mary (Provisional)
Typist Senior Grade	:	Sri. K. P. Abdurahiman (from 20-6-83)
Farm Supervisor (Agri)	:	Sri A. Mohammedkunju (from 28-10-83)
Farm Assistant (Agri) Sr. Gr.	:	Smt R. V. Balamani
Farm Assistants (Agri.) Gr. I	:	Sri C. Subramanian ,, T. P. Ali ,, N. Saïdalikutty
Farm Assistant (Vety.) Gr. I	:	Sri P. Balakrishnan
Tractor-cum-Motor Mechanic	:	Sri K. T. Ramachandran
Librarian	:	Sri P. A. Parameswaran
Lab. Assistants	:	Sri P. Krishnankutty Nair ,, P. V. Kumaran ,, P. Theyyunki Menon
Trade Assistants	:	Sri T. K. Gopi (Provisional) ,, A. K. Padmanabhan ,, C. S. Krishnan ,, V. P. Kannan ,, C. Velayudhan ,, T. P. Aboobacker ,, P. Raveendran (up to 9/83)

## **Regional Agricultural Research Station, Pilicode**

### *Scientists*

- Associate Director : Sri K. Kannan  
(from 1-4-83 to 8-5-83)  
Dr N. Mohanakumaran  
(from 9-5-83 to-30-6-83)
- Professor [Agronomy] : Dr R. Ravindran Nair  
(from 1-7-83 to till date)  
(Professor holding full additional charge)
- Professor of Soil Science : Sri Babukutty (on leave)
- Associate Professor : Dr P. K. Narayanan Nambiar  
(Oil Technology)
- Associate Professor : Sri P. K. Sathyarajan  
(Plant Pathology)
- Associate Professor (Agronomy) : Sri I. P. Sreedharan Nambiar  
,, Sankara Panicker  
(from 30-11-83)
- Associate Professor : Sri K. C. Chandy  
(Plant Breeding)
- Assoc. Professor : Smt. Sumangala S. Nambiar  
(Entomology)
- Associate Professor : Dr G. S. L. H. V. Prasada Rao  
(Meteorology)
- Assoc. Professor (Genetics) : Sri N. K. Vijayakumar
- Assoc. Professor : Sri M. P. Abdurazak  
(Statistics)
- Associate Professor : Sri . Jayaprakash Naik  
(Horticulture)
- Assistant Professor : Sri T. C. Radhakrishnan  
(Pl. Pathology)
- Assistant Professor : Sri A. M. Ranjith  
(Entomology)
- Asst. Professor (Economics) : Smt C. Latha Bastine (JAP)
- Asst. Professor (Agronomy) : Sri Bhaskaran Nambiar
- Technical Staff*
- Farm Supervisor : Sri R. Nelson (from 12-8-83)

Farm Assistant Grade I	: Sri Basil Rodrigues ,, A. Vijayan ,, P. N. Ratheesan (from 27-5-83) ,, K. J. Loveson (from 27-5-83) ,, K. A. Kuriyan (from 29-5-83) Smt Rugmini Amma
<b>AICC &amp; AIP</b>	
Assistant Professor	: Sri P. C. Balakrishnan (from 23-4-83) : ,, Abdulkadher ,, A. Rajagopalan (from 9-12-83)
<b>Farm (Non-Plan)</b>	
Assoc. Professor (SS & AC)	: Sri N. N. Ramankutty
Asst. Professor (Botany)	: Sri P. K. Ramachandran Nambiar
,, (Pl.Pathology)	: Smt A. Naseema
<i>Administrative Staff</i>	
Administrative Officer	: Sri N. Padmanabhan Nair
Section Officer	: Smt C. M. Radhakutty
Senior Grade Assistants	: Sri P. M. F. Babu Smt. S. Droupathy
Assistants Grade I	: Smt M. Leela ,, Shobhanakumari ,, Lakshmikutty ,, Suma Varghese
Typist Grade I	: Smt P. Radha
Typists Gr II	: Smt V. P. Syamala Sri K. Raveendran Smt Lillykutty Sebastian
Lab. Assistants Grade III	: Sri V. Narayanan ,, P. K. Narayanan ,, K. M. George
Peons Higher Grade	: Sri P. Kannan ,, P. Raghavan
Peons	: Sri T. K. Chandran ,, T. Raghavan
Watchman Higher Grade	: Sri K. Koran
Rest House Keeper	: Sri K. Kunhambu
Driver Grade I	: Sri T. M. Sukumaran
Driver Grade II	: Sri A. V. Kunhikrishnan
Tractor Driver	: Sri P. Sasidharan Nair

## Pepper Research Station, Panniyur

### *Scientists*

- Professor : Dr C. A. Joseph (On working arrangement to Moncompu)
- Associate Professors : Sri V. Sukumara Pillai  
,, S. Sasikumaran Nair
- Assistant Professors : Sri P. K Unnikrishnan Nair  
,, K. K. Ibrahim

### *Technical/Supporting staff*

- Farm Supervisor Grade II : Smt M. J. Annakutty
- Farm Assistants Senior Grade : Sri P. Raghavan  
,, V. Kunchu  
,, P. J. Joseph
- Field Supervisor Grade II : Sri K. Unnikrishnan
- Farm Assistants Grade II : Sri T. Mohammed Haneefa  
,, Mohan Das  
,, A. Kunhimohammed  
,, D. Prasannakumar  
,, P. J. Joseph
- Lab. Assistant Grade I : Sri V. Achuthan
- Jeep Driver : Sri K. Sreedharan
- Administrative Assistant : Sri K. Prabhakaran Nadar
- Assistants Grade I : Sri V. Narayanan  
Smt Merly Sarojini  
,, S. Droupadi (up to 31-7-83)
- Typist Grade II : Sri N. Prakasan

## Regional Agricultural Research Station, Ambalavayal

### *Scientists*

- Associate Director : Sri K. Kannan (from 1-11-83)
- Associate Professor : Sri K. C. Aipe (from 23-1-84)  
(Asst. Professor against the post of Assoc. Professor)
- Assistant Professor : Sri C. M. George (from 7-1-84)  
(Jr. Asst. Professor against Asst. Professor)

### *Technical/Supporting staff*

- Farm Supervisors : Sri P. Damodaran  
,, P. Sreedhara Panicker  
(till 9-5-83)  
Smt K. Panky (from 16-5-83)
- Farm Assistant Senior Grade : Sri K. M. Vijayakumaran

Farm Assistants Grade I	: Sri V. K. Kumaran Smt P. Padmavathy
Farm Assistants Grade II	: Sri C. V. Kuttappan ,, K. M. George
Field Supervisor	: Sri K. C. Mohammed (till 29-2-84) ,, K. Raghavan
Lab Assistant	: Sri C. R. Balakrishnan
Jeep Driver	: Sri M. Unnankutty
Tractor Driver	: Sri M. Mohammedkutty
Oil Engine Driver	: Sri A. Varghese
Peons Higher Grade	: Sri K. Raman ,, K. Gopalan Nair ,, K. R. Chandrasekharan
Watchmen Higher Grade	: Sri T. Kunhappa ,, P. Moosa
Watchman Grade II	: Sri K. Ibrahimkutty
<i>Administrative staff</i>	
Administrative Assistant	: Sri A. K. Sreenarayanan (till 18-5-83) ,, V. Balagopalan (from 19-5-83)
Senior Grade Assistant	: Sri E. George
Assistants Grade I	: Sri K. Kelappan Smt P. Sulochana
Assistants Grade II	: Sri T. K. Abdul Azeez ,, K. M. Abdul Nazar
Senior Grade Typist	: Sri G. Shanmughan
Typist Grade II	: Sri T. R. Soman
<b>Citrus Scheme</b>	
<i>Scientists</i>	
Associate Professor	: Sri P. P. Balasubramaniam (till 18-5-83) (Asst. Professor against the post of Assoc. Professor)
Assistant Professors	: Sri T. P. Manomohandas (Jr. Asst. Professor posted against the post from 12-5-83 to 9-8-1983) ,, K. P. Mammooty (from 10-8-83)
Junior Asst. Professors	: Sri V. S. Devadas (from 21-5-83) Smt Jessy M. Kuriakose (from 28-5-83)

*Technical/Supporting staff*

- Farm Assistants Grade II : Sri V. P. Ramakrishnan  
„ K. Lakshmanan  
Lab Assistants Grade II : Sri A. Govindan Nair  
„ K. Achutha Kurup

**Krishi Vignan Kendra**

*Scientists*

- Associate Professors : Sri V. B. Padmanabhan  
(Asst. Professor) (up to 19-11-83)  
„ M. Mohammed Hussain  
(from 30-11-83)  
Junior Asst. Professors : Smt A. Radhamma Pillai  
„ Sansamma George (from 28-5-83)  
Sri T. P. Manomohandas  
(from 10-8-83)

*Technical/Supporting staff*

- Farm Assistant Grade II : Sri N. R. Rajan

**Cashew Research Station, Anakkayam**

*Scientists*

- Associate Professor : Dr. M. N. C. Nair  
Junior Asst. Professor : Smt P. V. Nalini (from 24-5-83)

*Technical/Supporting staff*

- Farm Assistant Grade III : Sri P. Bhaskaran  
Assistant Grade II : Smt T. Lakshmikutty (up to 18-4-82)  
„ P. Sushama

**Regional Agricultural Research Station, Pattambi**

*Scientists*

- Associate Director : Sri N. Rajappan Nair  
Professors : Dr G. Thyagarajan Nair  
„ K. P. Rajaram  
Associate Professors : Sri K I. James  
„ P. K. Gangadhara Menon  
Dr K. Karunakaran  
Sri V. P. Sukumaradev  
Dr L. Nadarajan (on study leave)  
Sri M. R. Chidananda Pillai  
„ D. Alexander  
Smt N. P. Chinnamma  
Sri Renji. P. George  
Dr J. Abraham  
Sri C. K. Prabhakaran Thampi  
(on leave)  
Smt P. Chandrika



- Assistant Professors : Dr A. Sreedharan  
Smt K. E. Savithri  
,, P. Sreedevi (on study leave)  
Sri K. Anilakumar (on study leave)  
,, Johnkutty (up to 3-10-83)  
Smt P. Sukumari (from 30-11-83)
- Assistant Professors : Smt M. B. Jalajakumari (on leave)  
,, S. Chandini (up to 6-1-83)  
,, Baby. P. Skaria  
Sri S. Mothilal Nehru  
,, P. C. Rajendran  
Dr G. Sankara Narayanan  
Sri K. Narayanankutty  
(Jr. Asst. Professor upto 13-6-83)  
Dr O. J. George  
Sri K. Viswambharan  
,, P. S. John (on study leave)  
Dr Jacob John  
Sri M. R. Sankara Narayanan  
(from 16-12-83)  
,, N. K. Parameswaran (Study leave)  
Smt C. A. Rosamma  
(Jr. Asst. Professor against the post  
of Asst. Professor)  
Sri V. U. Salahudin ,,  
Smt Jessy Thomas ,,
- Junior Assistant Professors : Smt C. A. Mary  
Sri R. Venkitaraman
- Technical Staff*
- Farm Supervisor Gr. I (Vety). : Sri K. Achuthan
- Farm Supervisors Gr. I (Agri.) : Sri P. V. Narayanan  
(Retired from service on 30-6-83)  
,, K. P. Kesava Menon  
Smt P. T. Sarada  
Sri Abraham K. Cheru
- Farm Assistants Senior Grade : Sri V. P. Rajappan Nair  
,, V. Kunju (on deputation for  
B. Sc. Ag.)
- Farm Assistants Grade I : Sri M. Narayanankutty  
,, C. P. M. Abdul Azeez  
Smt E. L. Raichel  
Sri K. Mohammadali

	Sri K. Sethumadhavan
	„ C. B. Sugathan (up to 1-6-83)
Farm Assistants Grade II	: Sri Girjavallabhan
	„ M. J. Joseph
	„ A. Abdurahiman
	„ E. R. Soman
	„ Sreenivasan Palassery
	„ David Dharmakumar
	„ C. G. Pradeep
	Smt K. S. Sujatha
	Sri Rajasekharan
Technician Grade I	: Sri C. A. Varghese
Technician Grade III	: Sri E. Abdul Hakkim
<i>Administrative Staff</i>	
Administrative Officers	: Sri K. Balakrishnan Nair
	„ T. P. Ponnann (from 14-10-83)
Section Officers	: Sri N. Soman
	„ K. Sivanandan
	„ K. K. Parameswaran
Senior Office Superintendent	: Sri K. Mammoo
Office Superintendent (FC&D)	: Sri M. P. Ramankutty Nair
Senior Grade Assistants	: Smt P. Meenakshykutty
	Sii K. Rengaswamy
	„ M. P. Ahammed
	„ P. M. Cherukutty
	Smt K. Parukutty
Senior Grade Typist	: Sri P. Haridasan
Assistants Grade I	: Sri M. G. Rajendra Babu
	Smt N. V. Thankamani
	Sri A. V. Sreenivasa Raghavan
Assistants Grade II	: Smt Leelamma Augustine
	Sri O. Sethumadhavankutty
Typists Grade I	: Smt S. Remani
	„ K. Leela
	„ M. A. Bhargavi
Typist Grade II	: Smt V. K. Rosey
Duplicator Operator	: Sri A. Jayagovindan
<i>Supporting Staff</i>	
Driver Grade I	: Sri K. M. Ayyappan
Drivers Grade II	: Sri M. V. Ramachandran
	„ T. R. Sasidharan

Laboratory Assistants Gr. III : Sri N. Govindankutty Nair  
 „ P. Sankaran  
 „ T. Gangadharan  
 „ M. P. Sankaran  
 „ V. P. Balasubramanian  
 „ M. Vasu  
 „ K. R. Ganesh  
 Smt P. Santhakumari

Clerical Assistant Gr. I : Sri V. Bhaskaran

**Banana Research Station, Kannara**

*Scientists*

Associate Professor : Sri P. A. Varkey  
 Assistant Professors : Sri P. K. Rajeevan  
 „ Job Sathyakumar Charles  
 „ Prasannakumari Amma  
 (from 8-7-83)  
 Smt Alice Kurian (from 30-11-83)  
 Junior Asst. Professors : Smt C. K. Geetha  
 „ Baby Lissy Markose  
 (from 23-11-83 to 31-3-84)

*Technical Staff*

Farm Assistant Senior Grade : Sri N. Madhavan Nair  
 (Up to 23-5-83)  
 Farm Supervisor : Sri C. K. Vijayan (from 23-5-83)  
 Farm Assistant Grade I : Sri T. Ravindran  
 Farm Assistants Grade II : Sri P. R. Sathyan  
 „ P. K. Reghu  
 „ M. V. Sasidharan Nair  
 „ John Charles  
 Oil Engine Driver : Sri K. A. Narayanan

*Administrative and Supporting Staff*

Administrative Assistant : Sri K. Viswambharan (from 9-6-83)  
 Assistant Grade II : Sri U. P. Davis  
 Typist Grade II : Sri V. V. Joy (from 24-6-83 to  
 20-12-83)  
 Driver Grade II : Sri K. K. Thankappan  
 Peons : Sri R. Krishnan Nair  
 „ T. Achuthan Nair  
 Smt K. Sosamma  
 Watchman : Sri Beer Bahadur Singh

### **Command Area Research Centre, Vellanikkara**

Professor of Agronomy	:	Sri A. I. Thomas
Junior Asst Professors	:	Smt K. R. Lyla
		„ A. K. Babylatha
		Sri V. Krishnakumar (from 1-12-83)
		Smt K. P. Prameela (from 13-12-83)

#### *Technical/Supporting Staff*

Agricultural Demonstrators	:	Sri T. V. Kuttiachan
Grade II		„ M. C. Sachidanandan
		„ G. Udayakumar
		„ U. Divakar
		„ M. N. Pavithran
		„ P. K. Kumaran (from 18-5-83)
		„ T. R. Sudevan (from 19-5-83)
		„ M. K. Sreedharan (from 19-5-83)
Typist Grade II	:	Smt Subaida Beevi (from 9-6-83)
Assistant Grade II	:	Smt Rezia Begum
Driver Grade II	:	Sri M. V. Karappan (from 6-7-83)

### **Cashew Research Station, Madakkathara**

#### **All India Coordinated Spices & Cashewnut Improvement Project**

##### *Scientists*

Associate Professor	:	Sri P. G. Veeraraghavan
Asst. Professor (Entomology)	:	Sri D. Sitarama Rao
Junior Asst. Professor	:	Sri. V. A. Celine (from 25-11-83)

##### *Technical staff*

Farm Assistant	:	Sri C. Esarachandran
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##### *Administrative staff*

Assistant Grade II	:	Sri C. Chandran
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### **Multi State Cashew Research Project**

##### *Scientists*

Professor of Horticulture	:	Sri S. Balakrishnan (from 9-2-83)
Associate Professor (Ento)	:	Dr Susamma Mathai (from 30-11-83)
Assistant Professor (Hort)	:	Sri K. Aravindakshan (from 1-7-83)

*Technical staff*

Farm Assistant Gr. I : Sri M. J. Kochappan  
Gr. II : Sri P. U. Rajan

*Administrative/Supporting staff*

Driver : Sri P. I. Rappai

**Agricultural Research Station, Mannuthy**

*Scientists*

Professor : Sri T. F. Kuriakose  
(Project Coordinator, Rice)

Junior Asst. Professors : Sri P. A. Joseph (from 24-11-83)  
Smt K. P. Prasanna  
(from 27-5-83)

*Administrative Staff*

Administrative Assistant : Sri P. Gopinathan  
Senior Grade Assistant : Smt S. Vanaja  
Senior Grade Typist : Smt P. Joseph Reetha  
Assistants Grade I : Smt A. Santha Kumari  
Sri K. G. Somanath

Jeep Driver : Sri N. K. Antony  
Peons : Smt. I. Parukutty  
Sri C. R. Velayudhan

Watchmen : Sri Man Bahadur  
Sri P. V. Kumaran

**NARP (Mannuthy Centre)**

Associate Professors : Sri S. Janardhanan Pillai  
Dr K. Pushkaran (from 19-11-83)

Assistant Professor : Sri V. Ganesan

Design Engineer : Sri S. Somasekharan Nair

*Technical/Supporting Staff*

Technician Gr. III : Sri A. Raju  
,, K. M. Muraleedharan

Lab Assistant Grade III : Sri T. V. Parameswaran

Grade I Typist : Smt K. Leela

**NARP (Kole Land)**

Assistant Professor (Agro) : Sri T. M. Kurian (from 16-7-83)

Junior Asst. Professor : Smt Tessy Joseph (from 13-12-83)  
(Plant Breeding)

**AICRIP Double Cropping Sub-Centre, Mannuthy**

Assistant Professor (Botany) : Sri M. T. Kanakamani  
(from 27-5-83)  
(Jr. Asst. Professor)

**Oil Seed (ICAR)**

Assistant Professors : Sri Sunny K. Oommen  
(from 8-12-83)  
(Jr. Asst. Professor)

*Technical/Supporting staff*

Farm Supervisor Grade I : Sri V. Chakrapani

Farm Supervisors Grade II : Sri K. C. Achuthan  
,, T. K. Mithran  
Smt P. G. Yammuna

Sr. Grade Farm Assistants (Agri) : Sri S. Krishnan Chettiar  
,, M. P. George

Laboratory (Sr) Assistant Gr. III : Sri C. K. Dharmadas

I Grade Farm Assistants (Agri.) : Smt B. Radha  
Sri T. Gopalan  
Smt L. Radhammal  
Sri K. Vijayanarayanan

Field Supervisor : Sri T. Raman Nair

Mechanic/Tech. Gr. III : Sri V. K. Asokan

**Agronomic Research Station, Chalakudy**

*Scientists*

Professor (Agronomy) : Dr G. Raveendranathan Pillai

Associate Professor : Smt G. Santhakumari  
(Agrl. Chemistry)

Associate Professor (Agronomy) : Sri Jose Mathew (from 12-3-82)  
(Asst. Professor)

Assistant Professor (Agronomy) : Sri Kuruvilla Varghese

Assistant Professor : Smt C. R. Sudharma Devi  
(Soil Physics) (Jr. Asst. Professor) (from 23-12-83)

Assisant Professor : Smt P. K. Sushamma  
(Agrl. Chemistry) (from 18-11-83)

Assistant Professor (Ag. Engg) : Smt A. D. Anitha (Jr. Asst. Prof.)  
(up to 31-1-84)

***Technical/Supporting staff***

Farm Supervisor	:	Sri K. K. Chandrasenan
Farm Assistant Grade I	:	Sri E. N. Sudhakaran Nair
Farm Assistant Grade II	:	Sri P. N. Sadasivan ,, T. K. Vijayan
Laboratory Assistant Gr. III	:	Sri T. K. Velayudhan

***Administrative Staff***

Administrative Assistant	:	Sri H. Salalhudeen
Assistant Grade I	:	Smt K. Vinaya Bai
Assistant Grade II	:	Smt S. Sathee Devi.
Typist Grade II	:	Smt P. K. Sara
Pump Operator	:	Sri K. A. Subran
Jeep Driver	:	Sri K. Karunakaran
Ploughman	:	Sri K. C. Mathew
Peon	:	Sri K. Radhakrishnan

**Rice Research Station, Vyttila**

***Scientists***

Associate Professors	:	Sri P. J. Tomy (up to 30-9-83) ,, T. U. George Dr Suseela Jose (from 5-11-83)
Assistant Professors	:	Sri M. M. Jose (from 9-11-83 to 21-11-83) Smt P. Prabhakumari (from 30-11-83)
Junior Asst. Professors	:	Sri I. S. Bright Singh (from 9-11-83) Smt Reena Grittle Pinhero (from 25-11-83)

***Technical staff***

Farm Supervisor	:	Sri S. M. Jainulabdeen
Farm Assistants Sr. Grade	:	Smt M. J. Annakutty (up to 9-5-83) (vacant from 10-5-83)
,, Grade I	:	Sri P. M. Poullose
,, Grade II	:	Sri P. A. Moni ,, A. A. Abdulla
Laboratory Assistant	:	Sri P. Madhavankutty

***Administrative staff***

Administrative Assistant	:	Smt B. Rugmini Amma
Grade I Assistants	:	Sri K. M. Vincent Pereira Smt T. Vijayalakshmi
Grade II Assistant	:	Sri P. T. George.
Typist Grade II	:	Smt K. K. Mary

*Supporting staff*

Driver	:	Sri M. J. Joseph
Fisher men	:	Sri V. R. Lates ,, A. M. Kareem ,, K. G. Gopi ,, A. N. Reghu
Peons (Higher Grade)	:	Sri N. Vasu ,, N. S. Reghunandanan
Watchmen	:	Sri Beg Bahadur ,, I. Veeran

**Aromatic & Medicinal Plants Research Station, Odakkali**

*Scientists*

Associate Professor	:	Sri P. K. Chellappan Nair (from 1-4-83 to 31-3-84)
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*Administrative Staff*

Administrative Assistant	:	Sri K. Ravikumar
Senior Grade Assistant	:	Smt P. K. Elsy
Assistant Grade I	:	Smt V. K. Pathumma
Office Superintendent (FC&D)	:	Sri K. K. Ramachandran Nair
Peon	:	Sri M. M. Poulouse
Watchman	:	Sri P. T. Kalidasan

*Supporting Staff*

Graduate Lab. Assistant	:	Smt K. K. Santhakumari Amma
Lab. Assistant Grade I	:	Sri T. K. George
Boiler Attender	:	Sri K. Chellappa Mooppan
Farm Supervisor	:	Smt V. V. Mariamkutty
Senior Grade Farm Assistant	:	Smt K. Devaky
Farm Assistant Grade I	:	Sri K. M. Varghese

**Cardamom Research Station, Pampadumpara**

*Scientists*

Associate Professor (Pl. Path.) (ICAR)	:	Dr P. Karunkaran
Associate Professor (Entomology) (Non Plan)	:	Dr K. Sasidharan Pillai (from 29-11-83)
Associate Professor (Agronomy) (ICAR)	:	Sri G. K. Balachandran Nair
Associate Professor (Botany) (ICAR)	:	Sri K. Vasanthakumar Asst. Professor (Hort) working against the post
Junior Asst. Professor (Hort) (Plan)	:	Sri P. G. Sadhankumar (from 25-5-83)



## **NARP**

### *Scientists*

Assistant Professor : Sri P. Vijayakumar  
(Agrl. Extension) (from 15-2-84 to 16-7-84)

### *Technical staff*

Farm Supervisor Grade II : Sri L. Devy (from 29-10-83)

Farm Assistant Grade I  
(Non Plan) : Smt K. Devaky

Farm Assistant Grade II  
(Non Plan) : Sri K. K. Vijayakumar

Farm Assistant Grade II : Sri V. P. Prasadu  
.. P. K Abdulsalam

Farm Assistant Grade I : Sri V. P. Prasadu

Lab. Assistant Gr.II (ICAR) : Sri P. V. Joseph

### *Administrative staff*

Assistant Grade II : Sri A. Shahudeen  
.. M. P. Vijayachandra Babu

### *Supporting Staff*

Jeep Driver : Sri K. Chacko

Peon (Higher Grade) (ICAR) : Sri K. N. Sankara Pillai

Watchman (Non Plan) : Sri K. N. Raghavan  
.. K. Raghavan Pillai  
.. K. V. Thankappan  
.. K. K. Ramakrishnan

## **Regional Agricultural Research Station, Kumarakom Root (w) Scheme**

Professor (Agronomy) : Sri U. Mohammed Kunju

Associate Professor (Ent.) : Sri D. Joseph

Associate Professor (P. P.) : Sri G. Indrasenan

Assistant Professor (Agro) : Sri K. C. Rajan (from 26-11-83)

.. .. (Bot). : Smt P. Mayadevi (from 26-11-83)

Junior Assistant Professor : Smt Alice Antony (from 26-11-83)

### *Technical/Supporting Staff*

Office Superintendent (FC&D) : Sri K. V. Kurian

Farm Assistant (Ag.) Grade I : Sri K. N. Rajendran  
.. S. Sukumaran Nair  
.. M. Kamarudeen

Farm Assistant (Ag.) Grade II : Sri K. C. Varghese

Driver Grade II : Sri P. C. Kurien

## **NARP**

### ***Scientists***

Associate Professor (Eco)	:	Sri E. R. Narayanan Nair (from 23-12-83)
"    "    (Extri.)	:	Dr B. Babu (from 2-12-83)
"    "    (Fish.)	:	Sri K. S. Purushan (from 5-11-83)
Asst. Professor (Pl. B.) (J. A. P. working)	:	Sri K. A. Inasi
Asst. Professor (Micro. Bio)	:	Sri P. Sivaprasad (from 14-10-83)
"    (Bio-Chem)	:	Smt Sosamma Cherian (from 24-11-83)
"    (Fisheries)	:	Dr P. K. Abdul Azis (from 16-11-83)
"    (Pl. Physiology) (J. A. P working)	:	Smt Kavitha K. Mydin (from 26-5-83)
Asst. Professor (W. S.)	:	Sri Abraham Varghese (from 1-6-83)
"    "    (Hort.)	:	Smt Sabeena George (from 30-11-83)
"    "    (Ag. Engg.)	:	"    Lyla K. Mathew (on study leave) Sri E. K. Mathew (from 23-11-83)

### ***Supporting Staff***

Administrative Officer	:	Sri Philip. K. Kurian (from 8-8-83)
Assistant Grade I	:	Sri M. P. Govinda Pillai "    M. R. Ramachandran Nair
Grade I Typist	:	Sri M. C. Jayakumar Smt S. Vasundhara "    T. K. Ponnamma
Lab. Assistant Grade III	:	Sri N. Prakasan "    V. K. Vasu "    J. Thankan Smt P. S. Ratnam "    K. V. Rukiya
Artist	:	Sri P. K. Surendran
Peon (Higher Grade)	:	Sri A. A. Pankajakshan
Peon	:	Sri N. Purandaran

### **R A R S Kumarakom (Non Plan)**

#### ***Scientists***

Assistant Professor (P. P.)	:	Sri G. Mathai
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#### ***Supporting Staff***

Assistant Grade II	:	Sri P. G. Sreekanta Pai
Farm Assistant Grade II	:	Sri M. K. Vijayan

Driver Grade II	:	Sri T. M. Francis
Peon (Higher Grade)	:	Sri T. K. Sreedharan
Watchman (Higher Grade)	:	Sri K. K. Thankappan
Watchman	:	Sri M. Easo
Office Superintendent	:	Smt M. I. Balamani
Farm Supervisor	:	Sri M. N. Narayana Pillai
Section Officer	:	Smt Maryamma Eapen

### **Integrated Research Project**

#### *Scientists*

Junior Asst. Professor (Fish)	:	Sri K. G. Padmakumar
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#### *Supporting Staff*

Grade I Assistant	:	Smt M. N. Radhama
Fisherman	:	Sri P. Viswanathan
Watchman	:	Sri C. G. Mohanan
Farm Assistant (Vety.)	:	Sri M. Sukumaran
Farm Assistant Sr. Gr. (Agri.)	:	Sri K. K. Viswanathan ,, A. N. Parameswaran

### **Rice Research Station, Moncompu**

#### *Scientists*

Associate Professors	:	Smt K. S. Remamony (from 30-11-83) Sri B. Thomas Dr K. Sivan Pillai Sri K. Chandrasekharan Nair
Assistant Professors	:	Sri Madhusudanan Nair Smt N. Rema Bai (from 30-9-83) Sri Jim Thomas ,, S. Bhaskaran Smt Radha Devi (from 17-12-83) ,, Sumam George (from 30-11-83 onwards)
Junior Assistant Professors	:	Smt Leenakumary (from 1-9-83) ,, Annie Koruth (from 20-5-83) ,, Sheela Paul (from 15-12-83) ,, S. Sobhana (from 6-12-83)
Junior Statistician	:	Smt. P. R. Krishnakumary Amma

*Para Technical staff*

Farm Supervisor	: Sri K. Chellappan (from 26-5-83)
Senior Grade Farm Assistant	: Sri C. O. Mathai .. C. N. Raghavan Smt A. Belsi
Grade I Farm Assistant	: Smt Kamalamma (from 25-5-83)
Field Supervisor	: Sri V. Thankappan
Lab Assistant Grade II	: Sri N. Sivadasan
Lab Assistant Grade III	: Sri K. Chandrasekharan Nair .. K. Kunju Pillai .. K. K. Prabhakaran
Administrative Assistant	: Sri J. I. Valsalam

*Technical/Supporting staff*

First Grade Assistant	: Smt B. Sarasamma .. D. Vijayamma Sri K. P. Rajan
Grade II Assistant	: Sri. M. Mohammed Bashir .. V. Govindarajan
Typist Grade I	: Smt H. K. Khadeeja Beevi
Peons	: Sri P. K. Thankappan .. K. Sankaran
Watchman	: Sri K. P. Vidyadharan
Drivers	: Sri M. P. Janardhanan .. M. P. Paul

**Sugarcane Research Station, Thiruvalla (ICAR Scheme)**

*Scientists*

Associate Professor (Agronomy)	: Dr N. Neelakantan Potty (from 18-1-83)
Junior Asst. Professor	: Smt Sumam Susan Varghese (from 16-11-81)

*Para Technical staff*

Farm Assistant Grade I	: Sri V. P. Rajappan Nair (till 18-5-83) .. P. V. Reghunathan (from 19-5-83)
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**Survey appraisal and control of major diseases of sugarcane**

Assistant Professor (Pl. Path.)	: Sri A. V. Mathew (from 23-10-83)
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## KAU Scheme

Associate Professor (Pl. Br.) : Sri S. Sukumaran Nair  
(Head of station) (from 1-3-82)  
Junior Assistant Professors : Smt Elizabeth K. Syriac  
(from 2-12-82)  
,, K. Nandini  
(from 23-5-83)

### *Para Technical staff*

Farm Supervisor Grade II : Sri Antony Everest Mendez  
(from 18-5-83)  
Farm Assistant Grade I : Smt S. Nazeema (from 6-6-83)

### *Administrative staff*

Assistants : Smt B. Thankamony  
,, S. Ushadevi  
Senior Grade Typist : Smt C. B. Merlin

### *Supporting staff*

Driver Grade II : Sri P. Moideen  
Peon : Sri Bhaskaran  
Watchman : Sri S. Rajeev

## AICRP on Agricultural Drainage, Karumady

### *Scientists*

Assistant Professor (Agronomy) : Sri U. Jaikumaran (from 25-3-82)  
Assistant Professor (Ag. Engg.) : Sri Abu George (J. A. P.)

### *Para Technical staff*

Senior Grade Farm Asst. (Agri.) : Sri A. K. Ayyappan Pillai  
Grade II Farm Assistant (Agri.) : Sri K. G. Muraleedharan Pillai  
,, V. J. Rajamohan  
Technician Grade III : Sri K. Vasudevan  
,, K. Aravindan

### *Administrative staff*

Typist Grade I : Sri P. Nadaraja Pillai  
Assistant Grade I : Sri M. Abdul Salam

### *Supporting staff*

Peon : Sri G. Vasudevan  
Watchmen : Sri M. Mohammed Haneefa  
,, N. Raveendran

## **Rice Research Station, Kayamkulam**

### *Scientists*

Associate Professor (Ent.) (Head of the Institution)	: Sri. K. Balakrishna Pillai (from 6-4-81)
Associate Professor (Bot.)	: Smt S. Santhakumari
Junior Assistant Professor	: Smt Sushamakumari (from 2-8-83)

### **ICAR Scheme**

Associate Professor (Agron.)	: Dr K. Sivan Pillai (from 11-4-84)
Junior Assistant Professor	: Sri G. Surendran (from 23-11-83)
Junior Asst. Professor (Nutr.)	: Smt Lizy Behanan (from 29-10-79)

### *Para Technical staff*

Farm Supervisor	: Sri G. Raghavan Pillai
Senior Grade Farm Assistant	: Sri R. Madhavan Pillai
Grade I Farm Assistant	: Sri E. N. Raveendran Nair " N. Vasudevan
Lab Assistant	: Sri K. Joseph
Lab Attendant	: Sri S. Chandrasekhara Pillai (from 7-7-83)

### **Root (wilt) Scheme**

Assistant Professor (Pathology)	: Sri M. G. Vasavan (from 10-2-81)
Grade I Farm Assistant	: Sri R. Satheesan

### **ICAR Scheme**

Farm Assistant Grade II	: Sri T. J. Mathew
Driver Grade I	: Sri K. Sukumara Pillai

### *Administrative staff*

Administrative Assistant	: Sri Padmanabhan Nair (Vacant from 22-10-83)
Senior Grade Assistant	: Sri K. P. Rajendra Prasad Smt B. Thankamani
I Gr. Asst.	: Sri M. K. Govindan
Typist Gr. II	: Sri M. K. Muraleedhara Karnavar

### *Supporting staff*

Peon	: Smt Sosamma George
Watchmen	: Sri R. Kunjukrishnan " G. Sreedharan

## College of Agriculture, Vellayani—NARP Southern Region

### *Scientists*

Associate Director	:	Dr A. G. Gopinatha Menon (up to 26-10-83) ,, N. Mohanakumaran (from 26-10-83)
Associate Professors		
Soil Science	:	Sri P. R. Ramasubramonian
Plant Breeding	:	Dr P. Manikantan Nair
Agrl. Statistics	:	,, P. Saraswathy (from 1-6-83)
Assistant Professors		
Soil Science	:	Smt R. S. Shehana (from 2-12-83)
Plant Breeding	:	Smt P. Manju
Nematology	:	Smt M. S. Sheela (from 15-3-82)
Agrl. Extension	:	Smt S. Shylaja (from 21-6-83)
Agrl. Statistics	:	Sri R. Balakrishnan Asan
Horticulture	:	Sri S. M. Akbar (from 27-10-82) Smt G. R. Sulekha (from 9-12-83)

### **Special Station, Kottarakkara**

Associate Professors		
Soil Science	:	Sri Abdul Hameed (from 21-11-83)
Horticulture	:	Sri M. K. Mammen (from 28-11-83)
Assistant Professors		
Agronomy	:	Smt Annamma George (from 17-3-82)
Entomology	:	Sri C. Nandakumar (from 20-7-83)
Plant Pathology	:	Smt K. K. Sulochana (from 1-6-83)
Economics	:	Smt A. M. Santha (from 18-5-83) (Junior Asst. Professor posted against the vacancy of Assistant Professor)

### *Supporting staff*

Farm Assistants (Agri.) Gr. I	:	Sri V. John George (from 27-5-83) ,, P. A. Sankutty (from 25-5-83) ,, V. D. Tulasidas (from 28-5-83) ,, S. R. Rajeevan ,, K. S. Ajayakumar
Laboratory Assistants Gr. I	:	Sri J. Dasayyan Nadar Smt S. Saraswathy Amma
Driver Gr. II	:	Sri R. Soman Nair
Photographer	:	Sri M. S. Kuriakose
Duplicator Operator	:	Sri C. Madhusoodanan Nair

*Administrative staff*

Administrative Officer	:	Sri A. P. Lawrence
Typist Gr. I (Steno)	:	Smt P. Radha
Asst. Gr. I	:	„ V. Chandrika
Asst. Gr. II	:	Sri M. Abdul Nujum
Typist Gr. I	:	Sri S. Reghavan „ K. C. Mohanakumar

**Cropping Systems Research Centre, Karamana**

*Scientists*

Associate Professor (Head of the Station)	:	Sri Sivasankara Pillai (up to 30-11-83)
Professor (Head of the Station)	:	Dr E. Tajuddin (from 22-11-83)
Asst. Professors	:	Smt S. Ramamony (from 1-4-83 to 24-11-83) Sri S. Devanesan (from 16-3-84) (working against this post) „ E. Shahul Hameed (from 1-12-84) „ P. Yageen Thomas (from 11-10-83) „ M. Subramonia Iyer (from 18-10-83)
Junior Asst. Professors	:	Smt P. B. Usha (from 10-10-83) Sri Sam T. Kuruthottical (from 10-10-83) „ K. P. Jagan Mohan

*Para Technical staff*

Farm Assts. Gr. I	:	Sri M. Ravikumar Smt D. Sulochana Sri A. Sasidharan
Typist Gr. I	:	Smt B. Sukumari Amma

*Supporting staff*

Peon Higher Gr.	:	Sri P. K. Sukumaran Nair
Watchman	:	Sri P. Madhavan Nair

**ECF—Cannanore Unit**

*Scientist*

Associate Professor	:	Sri K. Bhaskaran Nambiar (from 1-10-83)
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*Para Technical staff*

Farm Supervisor : Sri L. Christudas  
Senior Grade Farm Assistant : Smt J. Vimala

*Administrative staff*

Administrative Assistant : Sri P. N. Ramachandra Kurup  
Senior Grade Assistant : Smt N. Sujatha  
II Grade Assistant : Smt J. Jeslet Mercy  
II Grade Typist : Sri K. Gopikuttan Nair

*Supporting staff*

Higher Grade Peon : Sri P. Velappan Nair  
Higher Grade Watchman : Sri J. Vijayan

**Livestock Research Station, Thiruvazhamkunnu**

*Scientists*

Associate Professor : Dr. P. P. Balakrishnan  
(from 17-11-83)  
Junior Assistant Professor : Dr. M. O. Kurien

*Administrative staff*

Administrative Assistant : Sri T. N. Sankunny  
Senior Grade Assistant : Sri N. U. Jayarajan  
Assistant Grade II : Sri S. Prakash  
Typist : Sri M. Mohandas  
Peons Higher Grade : Sri K. Muhammed  
,, P. Bharathan  
Farm Assistants (Agri.) : Sri V. M. George  
,, P. M. Joshy  
,, K. C. Sanuprasad  
Farm Assistants (Vety.) : Sri C. Mohammed Usman  
,, O. K. Sukumaran  
Lab Assistant : Sri G. Venu

*Supporting staff*

Farm Supervisor (A) : Sri K. Chellappan  
,, K. Ramakrishnan  
Farm Assistant (V) Grade I : Sri P. P. Narayana panicker  
,, M. Ummer

**AICRP on Poultry for Eggs, Mannuthy**

*Scientists*

Senior Scientist (Professor) : Dr A. K. K. Unni  
Nutritionist (Asst. Professor) : Dr (Mrs.) Maggie Menachery  
(till 7-8-83)  
,, T. V. Viswanathan (from 8-8-83)

Junior Poultry Geneticist (Assistant Professor) : Dr M. R. Rajan  
 Junior Poultry Pathologist : Dr (Mrs.) V. K. Elizabeth  
 (JAP working against the post till 30-10-83)  
 „ Lalithakunjamma (from 1-11-83)  
 Farm Manager (Asst. Professor) : Dr. P. A. Peethambaran  
 (JAP in addl. charge)  
 Statistician (Asst. Professor) : Smt Gracamma Kurian  
 Junior Research Assistant (Junior Assistant Professor) : Dr P. A. Peethambaran  
 „ Leo Joseph  
 „ (Mrs.) Amritha Viswanath (till 30-10-83)

*Para Technical staff*

Chick Sexer : Sri M. K. Vijayakumar  
 Computer : Smt K. C. Kamalamma  
 Egg Grader : Sri V. S. Bhaskaran  
 Lab. Assistants : Sri C. Ramachandran  
 „ K. R. Sivaraman  
 „ M. V. Chandran  
 „ M. G. Vasu  
 Electrician : Sri E. T. Paul  
 Driver : Sri V. N. Dasan

*Administrative staff*

Assistants Grade I : Sri M. Abdul Salam  
 „ V. S. Skandakumar  
 Assistant Grade II : Smt C. R. Jaya  
 Typist Grade II : Smt P. K. Eswary  
 Peon : Smt P. D. Annamma

*Supporting staff*

Weighman : Sri P. N. Raghavan  
 Chowkidar : Sri K. L. Devassy  
 „ K. Koya  
 Poultry Attendants : Smt K. Chandrika  
 Sri C. R. Antony  
 „ N. Prabhakaran Nair  
 „ I. Veeran  
 „ R. Vijayan

## **AICRP on Agricultural by-products Mannuthy**

### *Scientists*

Associate Professor	:	Sri P. Ramachandran
Assistant Research Officer/ Assistant Professor	:	Dr George Mathen
Senior Research Assistant/ Junior Assistant Professor	:	Dr K. Annamma Kurien Dr Jose John Chungath

### *Para Technical staff*

Farm Assistant (Vety.)	:	Sri K. V. Balan Smt M. C. Anni ,, M. Lalithamma Sri K. P. George
Mechanic/Technician Grade III	:	Sri K. P. Sudarsanakumar

### *Administrative staff*

Assistant Grade II	:	Smt P. Sreelatha
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### *Supporting staff*

Laboratory Attendant/ Livestock Attendant	:	Sri K. R. Gopalakrishnan ,, C. Mohammedkutty ,, Soman Nadar ,, Kunjumoideen
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## **Co-ordinated Research Project on Goats, Mannuthy**

### *Scientists*

Associate Professor (Genetists)	:	Dr. K. R. Krishnan
Associate Professor (N)	:	Dr N. K. Kunjukutty
Assistant Professor (Path).	:	Dr C. B. Manomohanam (from 31-10-83)
Assistant Professor (Animal Reproduction)	:	Dr V. Vijayakumaran
Assistant Professor (Farm Management)	:	Dr B. Nandakumar (9-5-79) (study leave)
	:	Dr K. C. Raghavan (from 12-1-84)
Assistant Professor (Stat.)	:	Smt T. K. Indirabai (from 28-11-83)
Junior Assistant Professors	:	Dr K. N. Aravindaghosh (from 16-8-83) Dr P. Gangadevi (from 28-7-83)

### *Para Technical staff*

Technical Assistant	:	Smt V. M. Sarada
Senior Computer	:	Sri K. Krishnankutty
Laboratory Technician	:	Smt A. Leela ,, V. Indira Sri K. Velayudhan

*Administrative staff*

Grade I Assistant : Smt M. Baby  
Sri M. Abdul Samath  
Smt P. R. Sreedevikutty  
Grade II Assistant : Smt P. Vijayakumari  
Grade II Typist : Smt A. Vasantha

*Supporting staff*

Driver : Sri C. T. Louis  
Class IV Employees : Sri A. G. Rajendran  
" P. K. Karappan  
" K. Sankaran Nair  
" V. Ponnappan

**Pig Breeding Farm, Mannuthy**

*Scientist* : Dr K. S. Sebastian (from 6-4-83)

*Para Technical staff* : Sri K. M. Neelakantan Kartha  
" V. M. Jacob  
" E. Sreedhara Marar

*Administrative staff* : Smt V. V. Radhamma  
" P. P. Annamma  
Sri V. V. Kunhambu

*Supporting staff* : Sri T. M. Kesavan

**Fodder Research & Development Scheme**

Fodder Research Officer : Dr. A. M. Chandrasekharan Nair  
Farm Supervisor (Vety.) : Sri K. J. Varghese  
Farm Supervisor (Agri.) : Sri C. V. Thomas  
Farm Assistant (Veti.) : Sri. P. A. Francis  
Farm Assistant (Agri.) : Sri K. Kesavan  
Tractor Driver : Sri K. K. Padmanabhan  
Lab Assistant : Sri K. V. Mohammed  
Watchman : Sri C. Kumaran Nair

**University Poultry & Duck Farm, Mannuthy**

*Scientists*

Associate Professor : Dr. G. Reghunathan Nair  
(till 31-5-83)  
" R. Sabarinathan Nair  
(from 1-6-83)

*Para Technical staff*

Farm Supervisor (Vety.) Gr. II : Sri U. T. Dominic  
Farm Assistant (Vety.) : Sri M. V. Chandran  
Smt P. K. Ammini

Poultry Servant : Sri C. Kuttikrishnan Nair  
,, R. Vijayan  
,, A. Sreedharan Nair

*Administrative staff*

Administrative Assistant : Sri P. V. Gopalakrishnan Nair  
Assistants : Sri P. K. Nataraja Pillai  
,, K. Balakrishnan  
Peon : Sri M. Ayyappan

**Veterinary Hospital, Kokkalai**

*Scientists*

Associate Professor : Dr. K. Ramadas  
Assistant Professors : Dr. K. Venugopalan  
(from 10-6-83 to 29-2-84)  
,, K. Rajankutty  
(from 1-3-84)  
,, A. D. Joy  
(from 3-1-83 to 9-6-83)

*Para Technical staff*

Farm Supervisor (Vety.) Grade I : Sri. C. K. Lakshmanan  
Farm Supervisor (Vety.) Grade II : Sri M. Chinnavan

*Administrative staff*

Grade I Assistants : Smt. K. S. Nirmala  
Sri K. K. Sadeesan

*Supporting staff* : Sri M. K. Sheik Abdul Rahiman  
,, K. O. Varghese  
,, N. K. Sankaran  
Smt. K. N. Saraswathy

**Cattle Breeding Farm, Thumburmuzhi**

Associate Professor : Dr. V. Prasad  
(Assistant Professor)

*Technical | Administrative staff*

Farm Supervisor (Agri.) : Sri R. Chandran Pillai  
Farm Asst. (Sr. Gr.) : Sri P. P. Sankaran  
Farm Asst. (Vety.) : Sri A. N. Sreedharan  
,, V. Sukumaran Nair  
Pharmacist : Sri C. K. Aleyas  
Gr. II Assistant : Sri K. K. Kuttappan

# Appendix V

## LIST OF PUBLICATIONS

### FACULTY OF AGRICULTURE

#### RICE

##### College of Agriculture, Vellayani

Gopinathan Nair V. (1982). The mutual dependence of  $M_1$  fertility and  $M_2$  mutations in rice. *Agric. Res. J. Kerala* 20 (1): 5-10.

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# Appendix VI

## PROJECT CO-ORDINATION GROUPS

### AGRICULTURE

#### Rice

Project Co-ordinator : Prof. T. F. Kuriakose

Members : Prof. P. N. Pisharody, Dr. V. Gopinathan Nair,  
Sri N. Rajappan Nair, Dr K. Karunakaran, Sri K. I. James,  
Sri P. J. Tomy, Dr V. K. Sasidhar, Sri P. K. Gangadhara Menon,  
Dr. R. S. Aiyer, Sri N. N. Ramankutty, Dr. C. C. Abraham,  
Dr M. J. Thomas and Dr. M. C. Nair.

#### Coconut, Arecanut & Oil palm

Project Co-ordinator : Prof. K. Kannan

Members : Sri B. Thomas, Sri E. P. Koshy, Dr P. K. Narayanan Nambiar,  
Dr C. Sreedharan, Dr R. Vikraman Nair, Dr T. V. Viswanathan,  
Dr A. I. Jose, Dr T. S. Venkitesan, Dr M. C. Nair, and Dr K. M. Rajan

#### Spices

Project Co-ordinator : Dr Abi Cheeran

Members : Officer i/c HRS Ambalavayal, Officer i/c PRS, Panniyoor,  
Officer i/c CRS Pampadumpara, Mr S. Sasikumaran,  
Dr T. S. Venkitesan, Mr D. Joseph, Dr K. Karunakaran, Dr A. I. Jose,  
Dr C. C. Abraham and Dr N. Mohanakumaran.

#### Cocoa & Other Beverage crops

Project-Co-ordinator : Dr. R. Vikraman Nair

Members : Dr K. Kumaran, Prof. of Horticulture (Processing Technology)  
Dr C. K. Peethambaran, Dr P. J. Joy and Dr N. Mohanakumaran.

#### Cashew

Project-Co-ordinator : Prof. K. K. Vidhyadharan

Members : Prof. of Hort (Cashew), Mr. P. G. Veeraraghavan,  
Dr M. N. C. Nair, Dr C. C. Abraham, Dr Abi Cheeran and  
Dr M. Aravindakshan

#### Fruit crops and Floriculture

Project Co-ordinator : Dr M. Aravindakshan

Members : Prof. V. K. Damodaran, Prof. K. Kannan, Prof. of  
Horticulture (College of Agriculture, Vellayani)  
Sri P. C. Jose, Officer i/c BRS Kannara, Officer i/c  
HRS Ambalavayal, Officer i/c AICRP on Floriculture  
and Sri G. Madhavan Nair.

### **Vegetables and Tuber crops**

Project Co-ordinator : Dr K. V. Peter

Members : Prof. of Horticulture, College of Agriculture, Vellayani,  
Dr N. Mohanakumaran, Dr. T. S. Venkitesan, Dr C. Sreedharan,  
Dr K. I. Wilson, Sri G. Madhavan Nair and Asst. Professor i/c  
AICRP on Tuber crops, Vellanikkara.

### **Pulses and Oil seeds**

Project Co-ordinator : Dr V. Gopinathan Nair

Members : Dr. N. Krishnan Nair, Dr. T. V. Viswanathan,  
Smt. S. Santhakumari, Assistant Professor (AICRP on Intensification  
of Pulses Research, RARS Pattambi) Dr. V. K. Sasidhar,  
Prof T. F. Kuriakose, Sri. M. R. C. Pillai, Dr. R. S. Aiyer,  
Dr. P. J. Joy, Dr. Abi Cheeran and Dr. S. K. Nair

### **Essential oils and Medicinal plants**

Project Co-ordinator : Dr. S. Ramachandran Nair

Members : Dr. A. I. Jose, Dr. C. C. Abraham, Dr. M. K. Rajagopalan,  
Dr. P. Varadarajan Nair, Assoc. Professor, AMPRS, Odakkali, Officer  
i/c HRS Ambalavayal and Sri. Joseph Philip

### **Post Harvest Technology**

Project Co-ordinator : Prof. K. K. Vidhyadharan

Members : Sri Luckins. C. Babu, Dr. K. V. Mammen, Mr. Jacob John,  
Dr. K. V. Peter, Prof. P. Sethumadhavan, Sri. V. P. Sukumara Dev,  
Dr. Susamma Philip, Dr. S. K. Nair, Dr L. Prema and Assoc. Professor  
(AICRP on Agri. By-Products College of Veterinary & Animal  
Sciences)

### **Sugarcane & Miscellaneous crops**

Project Co-ordinator : Dr K. M. Narayanan Namboodiri

Members : Prof. A. I. Thomas, Dr. R. Vikraman Nair, Sri S. Sukumaran  
Nair, Sri R. Ravindran Nair, Sri P. K. Chellappan Nair,  
Sri K. Chandrasekharan Nair and Dr M. C. Nair

### **Fodder Crops**

Project Co-ordinator : Dr C. Sreedharan

Members : Dr V. Gopinathan Nair, Sri G. Raghavan Pillai,  
Sri K. P. Madhavan Nair, Prof. T. F. Kuriakose, Dr. M. C. Nair  
and Assoc. Prof. (Livestock Research Station, Thiruvazhamkunnu)

### **Plant Protection**

Project Co-ordinator : Dr N. Mohandas

Members : Mr K. P. Vasudevan Nair, Mr K. P. Madhavan Nair  
Dr C. C. Abraham, Dr K. P. Rajaram, Dr M. C. Nair,  
Dr T. S. Venkitesan, Dr Abi Cheeran, Dr K. M. Rajan,  
Mr K. K. Ravindran Nair, Dr James Mathew and Dr. S. K. Nair



## **Soils & Agronomy**

Project Co-ordinator : Dr P. Padmaja

Members : Dr C. Sreedharan, Dr R. Vikraman Nair, Dr V. K. Sasidhar,  
Sri P. J. Tomy, Dr R. S. Aiyer, Dr K. P. Rajaram, Dr A. I. Jose,  
Sri P. K. Gangadhara Menon, Sri N. N. Ramankutty and  
Dr P. Balakrishna Pillai

## **Farm Economics, Extension and Statistics**

Project Co-ordinator : Dr V. Radhakrishnan

Members : Prof. of Agrl. Extn., Vellayani, Sri K. S. Karayalar,  
Sri E. R. Narayanan Nair, Dr K. Mukundan, Dr T. Prabhakaran  
and Sri P. Ramachandran Nair

## **Soil Conservation & Farm Mechanisation**

Project Co-ordinator : Prof. T. P. George

Members : Dr M. Remadevi, Sri P. Jacob John, Sri A. K. George,  
Dr P. Balakrishnan Pillai, Sri John Thomas and Sri K.P. Madhavan Nair

## **Cropping patterns & Farming systems**

Project Co-ordinator : Dr V. K. Sasidhar

Members : Sri P. N. Pisharody, Dr K. P. Rajaram, Sri N. Rajappan  
Nair, Sri K. I. James, Sri K. Kannan, Dr N. Mohanakumaran,  
Sri K. P. Madhavan Nair, Dr C. C. Abraham, Dr Abi Cheeran,  
Dr V. Radhakrishnan, Dr Ananthasubramaniam, Dr K. Karunakaran,  
Dr R. Vikraman Nair and Sri P. J. Tomy

## **VETERINARY & ANIMAL SCIENCES**

### **Cattle & Buffaloe**

Project Co-ordinator : Dr C. R. Ananthasubramaniam

Members : Dr G. Nirmalan, Dr K. Radhakrishnan, Dr G. Mukundan,  
Dr C. K. Thomas, Dr M. Subramoniam and Dr E. Sivaraman

### **Goat Improvement**

Project Co-ordinator : Dr. G. Mukundan

Members : Dr. B. R. Krishnan Nair, Dr. C. A. Rajagopala Raja,  
Dr. N. Kunjikutty, Dr. E. Mathai, Dr. K. M. Ramachandran,  
Dr. N. M. Aleyas, and Dr. K. Rajmohan

### **Poultry & Ducks**

Project Co-ordinator : Dr. A. Ramakrishnan

Members : Dr. A. K. K. Unni, Dr. Maggie, D. Menachery, Dr. A. Rajan,  
Dr. Sosamma Iype, Dr. C. K. Venugopalan and Dr. S. Sulochana

**Pig, Elephant, Dog & Other species**

Project Co-ordinator : Dr. T. G. Rajagopalan

Members : Dr. C. K. Thomas, Dr. Kurien Thomas, Dr. P. Ramachandran,  
Dr. C. T. Thomas, Dr. K. Chandrasekharan, Dr. K. Radhakrishnan and  
Dr. Jacob. V. Cheeran

**Artificial Insemination & Animal Reproduction**

Project Co-ordinator : Prof. of Animal Reproduction

Members : Dr. K. Prabhakaran Nair, Dr. M. S. Nair, Dr. E. Mathai,  
Dr. P. K. Abdulla, Dr. C. K. Thomas, Dr. B. R. Krishnan Nair and  
Dr. P. Ramachandran

**Animal diseases**

Project Co-ordinator : Dr. A. Rajan

Members : Dr. E. P. Paily, Dr. P. K. Abdulla, Dr. K. Rajmohan,  
Dr. M. K. Rajagopalan, Dr. N. M. Aleyas and Dr. P. O. George

**Miscellaneous**

Project Co-ordinator : Dr. K. Pavithran

Members : Dr. M. Soman, Dr. G. Mukundan, Dr. C. T. Thomas,  
Dr. T. G. Rajagopalan, Dr. Jacob, V. Cheeran and Dr. T. Prabhakaran

## Appendix VII

### LIST OF NEW RESEARCH PROJECTS SANCTIONED DURING THE YEAR 1983-84

#### AGRICULTURE

##### Rice

- Screening of rice varieties and cultures for resistance to blast, sheath blight and brown spot (RARS, Pattambi)
- Evaluation and standardisation of systemic chemicals in controlling rice leaf blast under upland conditions (RARS, Pattambi)
- Economic spray schedule for the chemical control of sheath blight (RARS, Pattambi)
- Chemical control of rice gall midge (RARS, Pattambi)
- Cataloguing rice varieties/cultures of Kerala against major pests of rice (RARS, Pattambi)
- Extent of adoption and constraints in the adoption of improved agricultural technologies (RARS, Pattambi)
- Observational trial on the requirement of different combination of NPK for short duration variety rice in kole land (ARS, Mannuthy)
- Observational trial on the performance of paddy crop under subsurface drainage (Karumady)
- Developing male sterile lines of rice adapted to local conditions (RRS, Moncompu)
- Effect of application of lime on economising the use of inorganic N to rice (RRS, Moncompu)
- Split application of potash to rice (RRS, Moncompu)
- Observational trial on the effect of top dressing of complex fertilisers (RRS, Moncompu)
- Adaptive trial on the effect of Steatite (RRS, Moncompu)
- Evaluation of Mussorie phos coated urea for efficiency in low land rice (RRS, Moncompu—AICRIP)
- Study of interdependence of climatological factors and yield of paddy with reference to the additional and punja crop in Kuttanad (RRS, Moncompu)

##### Spices

##### ICAR PROJECTS

- Multilocational trial (CRS, Pampadumpara)
- NPK fertilizer experiment (CRS, Pampadumpara)

### **Revised technical programme approved (ICAR)**

Katte disease of cardamom (CRS, Pampadumpara)

Etiological studies on clump rot / Azhukal disease of cardamom (CRS, Pampadumpara)

Epidemiology of Azhukal disease of cardamom (CRS, Pampadumpara)

Evaluation of fungicides against *Phytophthora* sp. causing Azhukal disease of cardamom (CRS, Pampadumpara)

### **Fruit crops and Floriculture**

Effect of number of suckers retained on the performance of ratoon crop of banana (BRS, Kannara)

Nutritional requirement of pineapple var. Kew (BRS, Kannara)

Standardisation of methods of propagation in *Phyllanthus emblica* Linn (Vellanikkara)

### **Vegetables**

Effect of sublethal doses of Decamethrin and carbaryl on the orientation, feeding, reproductive rate and survival of key pests of Brinjal (Vellanikkara)

Evaluation of synthetic pyrethroids against pest complex of egg plant (Observational trial) (Vellanikkara)

Evaluation of inter varietal hybrids of brinjal for yield and resistance to bacterial wilt (College of Agri., Vellayani)

Evaluation of interspecific hybrids of bhindi with reference to yellow vein mosaic resistance and heterosis (College of Agri. Vellayani)

Evaluation of the productivity of chilly hybrids ( " " )

Multilocational trial of pre-release cultures of chillies (Vellayani)

### **Pulses & Oil seeds**

Studies on the effects of coating of cowpea seed with Mussorie phos (ARS, Mannuthy)

Identification of groundnut varieties for the southern region (Vellayani)

Multilocational trial of pre-release cultures of sesamum (Vellayani)

Initial evaluation trial on cowpea (Vellayani)

Final evaluation trial on cowpea (Vellayani)

### **Sugarcane**

ICAR

Varietal and plant population interaction in sugarcane (ICAR) (SRS, Thiruvalla)

Zonal Varietal trial (ICAR) (SRS, Thiruvalla)

Trial on herbicidal control of weeds in sugarcane (ICAR) (SRS, Thiruvalla)

Trial on Mussorie phosphate (ICAR) (SRS, Thiruvalla)

Study of the morphophysiological character associated with resistance to water logging in sugarcane (ICAR) (SRS, Thiruvalla)

Fluff exchange programme (ICAR), (SRS Thiruvalla)  
Experiment to find out optimum level of P and K for sugarcane (SRS, Thiruvalla)  
Trial on Bhooshakthi (SRS, Thiruvalla)  
Maximising sugar production by changing cropping pattern of sugarcane (SRS, Thiruvalla)  
Multilocational trial with promising varieties of sugar cane (SRS, Thiruvalla)

### **Medicinal plants**

Weedicide trial on Palmarosa (AMPRS, Odakkali)  
Studies on the changes taking place in the physical and chemical properties of lemongrass oil during prolonged storage (AMPRS Odakkali)  
Fertility level on *Rauvolfia serpentina* (AMPRS, Odakkali)  
Influence of nitrogen levels on a two year crop of *Dioscorea floribunda* (AMPRS, Odakkali)  
Evaluation trial on *Solanum viarum* (AMPRS, Odakkali)  
Statistical study of optimal regeneration cycles and methods to ensure sustained yield of medicinal produce in *Coleus vetiveroides*, *C-aromaticus*, *Eupatorium-triplinerve* and *Ruta graveoleus* (Vellannikkara)  
Effect of planting materials and time of harvest on yield and quality constituents of rhizomes in *Acorus calamus* L. (Vellannikkara)  
Standardisation of propagation technique in

- 1 *Rauvolfia serpentina*
- 2 *Piper longum*
- 3 *Solanum indicum*
- 4 *Sida retusa*
- 5 *Ruta graveolens*
- 6 *Vitex negundo*
- 7 *Acorus calamus*
- 8 *Maranta arundinaceae*
- 9 *Hemidesmus indicus*
- 10 *Indigofera tinctoria* (Vellannikkara)

Effect of graded levels of N, P and K on the growth, yield and alkaloid content in *Catharanthus roseus* (Vellannikkara)

### **Fodder**

Multilocational trial of pre-release clones of guinea grass (College of Agri., Vellayani)  
Collection and evaluation of indigenous and exotic varieties of forage crops (College of Agri., Vellayani)  
Initial evaluation trial on guinea grass (College of Agri., Vellayani)  
Final evaluation trial on Stylospecies (College of Agri., Vellayani)

Final evaluation trial on Dinanath grass (Vellayani)  
Final evaluation trial on maize for fodder (Vellayani)  
Final evaluation trial on guinea grass (Vellayani)

**Soils & Agronomy**

Documentation on laterites (Pattambi)  
Establishment of a laterite museum (Pattambi)  
Agronomy of laterite soils (Pattambi)  
Softening of hardened laterite material for agricultural purposes (1) Chemical methods (2) Biological methods (Pattambi)  
Fundamental studies on the physical properties of different types of laterites in Kerala (Pattambi)  
Studies on the organic matter status of laterite soil profiles of Kerala (Pattambi)  
Evaluation of available phosphorus and potassium in soil using a common extractant (Vellanikkara)  
Relative efficiency of rice varieties for absorption and utilisation of soil and fertilizer phosphorus (Vellanikkara)  
Observational trial on the evaluation of crops other than rice in Kole lands (ARS, Mannuthy)

**Farm Mechanisation**

Mechanical control and utilisation of floating type aquatic weeds (Vellanikkara)

**P. G. Programmes**

Influence of path co-efficient analysis and principal component analysis in turmeric (Vellanikkara)  
Influence of weather parameters on yield of coconut (Vellanikkara)  
Forecasting of rice yield using climatological variables (Vellanikkara)

**Fisheries**

The role of supplementary feeding, organic manuring and natural productivity in the culture of tiger prawn, *Penaeus monodon* (Puduveypu)  
Induced maturation and breeding of tiger prawn *Penaeus monodon* in captivity (Puduveypu)  
Mixed culture of *Lates calcrifer* and *Tilapia mossambica* in brackish water ponds (Puduveypu)  
Survey of the seed resources of cultivable brackish water predatory fishes in the Puduveypu area (Puduveypu)  
Observational trials on culture of Indian Major carps and exotic carps in Vellayani lake area (Panangad)

## Appendix VIII

### STATUTES AND AMENDMENTS ISSUED DURING 1983-84

SRO No. 710/83 dated 11-4-83-First statutes prescribing method of appointment, qualifications, salary and allowances and age limit for the posts of Proof Reader, Copy Holder, Computer and Helper.

Amendment to Statute issued vide Govt. Notification No. Go MS 34/82/ AD dt. 15-1-82 under section 49 (6) of the Act 12 changing the designation of Conductor as "Bus Attendant".

(Notification No. GA/28620/A3/82 dated 24-4-1983)

No. 42131/P5/72/AD dt. 2-8-82 under section 49 (6) of the Section 12 of Act 39 of 1971.

(Notification No. GA/390/A3/83 and GA/44875/A9/82 dt. 9-4-83)

SRO NO. 264/72 dt. 1-6-'72 (Professors, Assoc. Professors and Assistant Professors).

(Notification No. GA/7498/A3/83 dt. 29-4-83)

SRO No. 447/72 deleting the department "(6) Therapeutics" and the same including as a subject under the department "Clinical Medicine". The department (20) "Fisheries" deleted from the Faculty of Veterinary and Animal Sciences.

(Notification No. GA/50611/A3/81 dt. 24-5-83)

Amendments to Clause 4 (a) of Statutes SRO No. 1060/76 (as amended vide Notification No. GA/22534/A3/80 dt. 18-9-82 (Notification No. GA/2005/A3/83 dt. 25-6-83)

Amendment under SRO No. 839/74 to the ordinance No. 1/1976 dated 15-8-76.

(Notification No. GA/210/A3/83/ dt. 24-7-83)

Amendments to Statute SRO No. 293/72.-

(Notification No. GA/561/A3/82 dt. 3-10-1983)

Amendments to Statute SRO No. 815/79, notified vide GO MS No. 257/79/AD dated 23-6-'79.

(Notification No. GA/8762/A3/83 dated 29-9-'83)

Amendments to Statute SRO:1065/79 dated 22-8-'79.

(Notification No. GA/7062/A3/83 dated 8-10-'84)

Amendments to Statute SRO 293/72 dated 15-6-72.

(Notification No. GA/4538/A3/83 dated 17-10-'84

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