

802072

SUMMARY REPORT

OF THE

KERALA AGRICULTURAL UNIVERSITY

1994

(1-4-1994 to 31-12-1994)



KERALA AGRICULTURAL UNIVERSITY
VELLANIKKARA 680 654, THRISSUR

Processed, compiled and edited by :

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Vellanikkara

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SUMMARY REPORT - 1994
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CHAPTER 1

GENERAL ADMINISTRATION

1.1. Vice_Chancellor

Dr A.M.Michael continued as the Vice-Chancellor of Kerala Agricultural University during the period under report.

1.2. Major visits of Dr.A.M.Michael, Vice-Chancellor to Research Stations/Other Institutions/Countries, etc.

04-04-1994	Regional Agricultural Research Station, Pilicode
20-04-1994	Regional Agrl. Research Station, Ambalavayal
22-05-1994	} University of Lund, Sweden.
to	
27-05-1994	
01-06-1994	Poultry Farm, Pig Breeding Farm, Instructional Farm, Mannuthy.
04-06-1994	Regional Agrl. Research Station, Pattambi.
14-06-1994	Krishi Vigyan Kendra, Manjeswar.
12-06-1994	Central Plantation Crops Research Institute, Kasaragod
15-06-1994	University of Agricultural Sciences, Bangalore; Indian Institute of Hort. Research, Bangalore.
28-06-1994	College of Fisheries, Panangad.
13-07-1994	Agronomic Research Station, Chalakudy.
28-07-1994	Regional Agrl. Research Station, Pilicode.
30-07-1994	University of Agricultural Sciences, Bangalore
02-08-1994	Pookot Girijan Colony, Kalpetta
08-08-1994	College of Fisheries, Mangalore
11-08-1994	Central Institute of Fisheries Education, Bombay
24-08-1994	College of Co-operation & Banking, Mannuthy
27-08-1994	CPCRI Regional Station, Kayamkulam.
17-10-1994	Fisheries Research Station, Puduveyppu.
29-10-1994	Krishi Vigyan Kendra, Kottarakkara
01-11-1994	Krishi Vigyan Kendra, Manjeswar
03-11-1994	College of Horticulture, Vellanikkara
04-11-1994	Aromatic and Medicinal Plants Research Station, Odakkali.
06-11-1994	College of Agriculture, Vellayani
17-11-1994	College of Vety. & Animal Sciences, Mannuthy
18-11-1994	Sugarcane Research Station, Thiruvalla
20-11-1994	Cardamom Research Station, Pampadumpara
28-11-1994	Banana Research Station, Kannara.
13-12-1994	College of Veterinary & Animal Sciences, Mannuthy
19-12-1994	Information & Sales Centre, Mannuthy
22-12-1994	College of Fisheries, Panangad.

1.3. Meetings participated - KAU and other Institutions:

04-04-1994	Attended the public meeting chaired by the Hon'ble Minister for Agriculture at Nileswar, Pilicode.
08-04-1994	Inaugurated the students union activities of the

08-04-1994	Colleges of Veterinary & Animal Sciences, Mannuthy. Inaugurated the environmental education training organised by Sastra Sahitya Parishad at Thrissur.
28-04-1994	Agricultural Universities' Vice-Chancellors meeting at New Delhi.
29-04-1994	Wrap up meeting with World Bank Team on NARP at Kochi.
03-05-1994	Commissioning of the Indoor Stadium at Agricultural College, Vellayani.
04-06-1994	Inaugural function of the Information and Sales Centre at RARS, Pattambi.
28-06-1994	Function in connection with the release of the fishing boat of the College of Fisheries, Panangad.
04-07-1994	Project Steering Committee on Water Management at ICAR, New Delhi.
23-08-1994	Inaugural session of NBPGR Laboratory building at the Regional Station, Vellanikkara.
12-10-1994	Inaugural function of KAU Students Union at Regional Theatre, Thrissur.
21-10-1994	Chief Guest in the award giving ceremony of Vimala College, Thrissur.
29-10-1994	Inaugural function of Krishi Vigyan Kendra, Kottarakkara
17-11-1994	Inaugurated the Annual Day of Economics Department of St. Aloysious College, Elthuruthu.
18-11-1994	Inaugural function of the research lab. building of the Sugarcane Research Station, Thiruvalla.
20-11-1994	Inaugural function of the Trainees Hostel at CRS, Pampadumpara.
19-12-1994	Inaugural function of the Kerala Agricultural University X'mas Bazaar at Sales Centre, Mannuthy.
08-04-1994	} }
04-10-1994	
05-10-1994	
10-10-1994	
11-10-1994	
18-10-1994	} }
19-10-1994	
04-05-1994	
09-06-1994	
23-06-1994	
11-07-1994	} }
26-08-1994	
22-09-1994	
25-10-1994	
13-12-1994	
30-04-1994	} } } } } } } } } } } } } } } } } } } }
30-08-1994	
12-12-1994	
22-07-1994	
05-09-1994	} } } } } } } } } }
06-10-1994	
1-11-1994	Chaired the selection committee meeting for selection of students under sports quota for

26-11-1994 } undergraduate admission.
 08-12-1994 } Meeting of the committee constituted by the
 Govt. of Kerala for Karshakothama awards.

1.4. Conferences attended:

28-6-1994 Inaugurated the National Seminar on Fisheries at Puduveypu.
 17-12-1994 Agricultural Fare at Thiruvananthapuram and delivered the Key Note address in the Seminar on Women's role in Agriculture.

1.5. Summer Institute/Workshops etc.

17-08-1994 Presided over the Technology clinic on Ayurvedic Drugs and Herbal Cosmetics at Thrissur.
 24-08-1994 Workshop on Consumer Co-operatives in Educational Institutions at College of Co-operation & Banking.
 05-09-1994 Inaugurated the mushroom house and the short term training on mushroom cultivation at the College of Horticulture.
 03-11-1994 Inaugurated the training programme of National Horticultural Board at College of Horticulture, Vellanikkara.
 06-11-1994 National Symposium on Management of Ecosystem and sustainable utilization of Biological Resources at Thiruvananthapuram.
 " Inaugurated the Management Development Programme of ICDP at Ayyanthole.
 15-12-1994 Inaugural function of the Annual Conference of Indian Society of Agricultural Statistics at Veterinary College, Mannuthy.
 21-12-1994 One day workshop on Indigenous Knowledge of systems in Farming at College of Horticulture, Vellanikkara.

1.6. Any other informations

Inaugurated the closing ceremony of the Tennis Tournament at Puzhakkal, Trichur on 2-4-94. Held discussions at Mangalore with Prof. V.A.P. Naik, and Professor, Krishi Vigyan Kendra, Manjeswar, regarding the preparation and submission of the proposals of the scheme for Waste Land Development Programme under the Krishi Vigyan Kendra, Manjeswar in Kasaragod District on 8-8-94 and 12-8-94.

1.7. Officers of the KAU

Designation	Name	Period
Vice-Chancellor	Dr. A.M. Michael	-cont'd-
Registrar	Sri.E.K. Mahi	
Comptroller	Smt.Elizabeth John	
Director of Research	Dr. M. Aravindakshan	i/c upto 2-9-94
	Dr. G.R.Pillai	i/c upto 6-9-94
	Dr. N. Mohanakumaran	i/c 6-9-94 onwards

Designation	Name	Period
Director of Extension	Dr. V.K. Sasidhar	i/c upto 27-6-94
Director of Physical Plant	Dr. E. Thajudhin	i/c 27-6-94 onwards
Dean (Agri)	Sri. P.O. Thomas	-cont'd-
Dean (Vety.)	Dr. C. Sreedharan	i/c -cont'd-
Dean (Agri. Engg.)	Dr. A. Rajan	-cont'd-
Dean (Fish.)	Dr. K. John Thomas	i/c -cont'd-
Director of Students Welfare	Dr. M.J. Sebastian	i/c -cont'd-
Assoc. Dean (Hort.)	Dr. T.G. Rajagopalan	i/c -cont'd-
Assoc. Dean (Co-Opn. & Banking)	Dr. C.C. Abraham	i/c -cont'd-
Special Officer (Forestry)	Sri. M. Mohandas	i/c upto 19-4-94
	Sri. H. Nagesh Prabhu	upto 19-4-94
	Dr. U. Mohamed Kunju	i/c upto 20-6-94
	Dr. S. Chinnamany	upto 16-11-94
	Dr. P.A. Wahid	i/c 16-11-94 onwards

1.8. General Council Meeting

Two meetings of the General Council were held during the period as under:

- 22-07-1994 (62nd meeting) - Government Guest House, Thycaud, Thiruvananthapuram
- 19-11-1994 (63rd meeting) - Co-Bank Towers, Thiruvananthapuram.

1.9. Executive Committee Meetings

- 04-05-1994 (281st) Govt. Guest House, Thycaud, Thiruvananthapuram
- 09-06-1994 (282nd) Govt. Guest House, Thycaud, Thiruvananthapuram
- 23-06-1994 (283rd) -do-
- 11-07-1994 (284th) -do-
- 26-08-1994 (285th) Land Mortgage Bank Conference Hall at Thiruvananthapuram
- 22-09-1994 (286th) Sri Moolam Club, Thiruvananthapuram
- 25-10-1994 (287th) Kerala State Co-operative Agricultural Development Bank Hall, Thiruvananthapuram.
- 03-11-1994 (288th) KAU Headquarters, Vellanikkara
- 13-12-1994 (289th) Kerala State Co-operative Agri. Development Bank Hall, Thiruvananthapuram.

1.10. Establishment Committee Meetings

- 07-04-1994 KAU Headquarters, Vellanikkara
- 16-05-1994 KAU Headquarters, Vellanikkara

17-10-1994
07-11-1994

KAU Headquarters, Vellanikkara
Govt. Guest House, Thycaud,
Thiruvananthapuram.
KAU Headquarters, Vellanikkara

24-11-1994

1.11. Works Committee

04-06-1994

Regional Agri. Research
Station, Pattambi
FSRS, Sadanandapuram.

29-10-1994

1.12. Assurance Committee

11-04-1994 (61st meeting)

CRS, Pampadumpara

16-06-1994 (62nd meeting)

KAU Headquarters, Vellanikkara

05-08-1994 (63rd meeting)

RRS, Kayamkulam.

14-12-1994 (64th meeting)

KAU Headquarters, Vellanikkara

Planning & Development Committee

During the period, two meetings of planning and development committee were held on 3-2-94 and 9-12-94 at College of Horticulture, Vellanikkara and AMPRS, Odakkali respectively.

CHAPTER 2

ACADEMIC MATTERS

2.1. Students statistics

As on 31-12-1994 there were 2827 (2114 for UG courses and 664 for PG course and 49 for Diploma) students on the rolls of Kerala Agricultural University. During the year 626 students were admitted, and 308 (181 UG, 9 Diploma and 118 PG) students completed their courses. The students' statistics of the University as on 31-12-1994 are furnished below:

2.1.1. Undergraduate programme

Institution	No. of students on rolls	No. of students admitted	No. of students qualified
Faculty of Agriculture College of Agriculture, Vellayani	427	82	55
College of Horticulture, Vellanikkara	476	71	-
College of Agriculture, Pilicode-Nileswar **	-	29	-
College of Forestry, Vellanikkara	78	14	-
College of Co-operation & Banking, Mannuthy	114	28	12
Total	1095	224	67
Faculty of Veterinary & Animal Sciences College of Veterinary & Animal Sciences, Mannuthy	756	136	102
Faculty of Fisheries College of Fisheries, Panangad	139	43	12
Faculty of Agri. Engineering & Technology Kelappaji College of Agricul- tural Engineering & Technolo- gy, Tavanur	124	24	-
Grand Total	2114	427	181

** The College was started during the Academic year 1994-95.

The Diploma students' statistics as on 31-12-1994

Institution	Number of students on		
	rolls	admitted	qualified
PG Diploma in Natural Rubber Production College of Horticulture, Vellanikkara	34	12	9
Diploma in Dairying College of Veterinary & Animal Sciences, Mannuthy	25	-	-
Grand Total	49	12	9

2.1.2 Post-graduate programme

Institution	No. of students on					
	rolls		admitted		qualified	
	M.Sc.	Ph.D	M.Sc.	Ph.D	M.Sc.	Ph.D
Faculty of Agriculture						
College of Agriculture, Vellayani	156	50	43	11	38	10
College of Horticul- ture, Vellanikkara	183	50	53	13	26	2
College of Forestry, Vellanikkara	22	-	9	-	3	-
College of Co-op: & Banking, Mannuthy	8	-	3	-	-	-
Total	369	116	108	24	67	12
Faculty of Veterinary & Animal Sciences						
College of Veterinary & Ani. Sci. Mannuthy	105	33	35	7	24	4
Faculty of Fisheries						
College of Fisheries, Panangad	15	-	5	-	6	-
Faculty of Agri. Engg. & Tech.						
Kalappaji College of Agri. Engg. & Technology, Tavanur	26	-	8	-	5	-
Grand Total	515	149	156	31	102	16

Board of Studies:

Two meetings of Board of studies (Agrl.) viz. XXXII and XXXIII meetings were held on 19-4-94 and 16-8-94 at College of Agriculture, Vellayani. Three meetings (XXII, XXIII and XXIV meetings) of the Board of studies of Faculty of Veterinary & Animal Sciences were held at College of Veterinary & Animal Sciences, Mannuthy on 23-5-1994, 8-8-1994 and 18-8-1994 respectively. The II meeting of Board of Studies (Agrl. Engg.) Faculty was held on 25-8-1994.

Academic Council meetings held:

Date	No. of meeting	Venue
30-4-1994	64th meeting	KAU Headquarters
30-8-1994	65th meeting	KAU Headquarters
12-12-1994	66th meeting	KAU Headquarters

The important decisions taken in the Academic Council meetings are given below:

64th meeting of Academic Council held on 30-4-1994

Decided to recognise the Indian Institute of Horticultural Research, Bangalore as a Centre for Post-graduate Research leading to Ph.D. programme under KAU.

65th meeting of Academic Council held on 30-8-1994

Approved a proposal to start Diploma in Agricultural Sciences at RARS Pattambi, Ambalavayal and Kumarakom.

Approved the revised syllabus for B.Sc. (Forestry) programme of KAU.

Approved the syllabus and mandatory regulations for the award of B.V.Sc. & A.H. degree programme from the Academic year 1994-95 onwards.

Approved to create Department of Veterinary Bio-chemistry and Department of Livestock Products Technology (Meat Technology) in the Faculty of Veterinary and Animal Sciences.

Approved to start post-graduate diploma in Meat Processing Technology during 1995-96 in the Department of Livestock Products Technology at College of Veterinary & Animal Sciences.

66th meeting of Academic Council held on 12-12-1994:

Approved to start Ph.D. programme in Rural marketing Management at College of Cooperation & Banking.

C H A P T E R 3

E D U C A T I O N

3.1. COLLEGE OF AGRICULTURE, VELLAYANI

3.1.1. DEAN : Dr. C. Sreedharan continued as Dean i/c.

3.1.2. Academic position as on 31-12-1994

Dean	Prof.	Assoc. Prof.	Asst. Prof.	Others	Total		
					S	P	V
1	16	34	74	-	125	108	17

3.1.3. Changes in Academic Position during the period : Dr. N. Mohan Das, Professor (R.C.) retired from service on superannuation on 6-6-1994. Dr. K.M. Rajan has taken charge as Professor (R.C.) with effect from 6-6-1994 (A.N.).

3.1.4. Administrative and supporting positions as on 31-12-1994

AG/AA	SO/SOD	Asst.	Typist	FS/FA	LA	Driv.	Class-IV	Others	Total
2	14	33	20	28	28	8	35	64	232

3.1.5. Academic Programme

3.1.5.1. Students Statistics: UG Programme (on the rolls)

Year of Admn. & Course	Men	Women	Foreign	Students	Total
B.Sc. (Ag.):					
1988 Admission	1	-	-	-	1
1990 Admission	15	43	-	-	58
1991 Admission	20	40	-	-	60
1992 Admission	18	42	-	-	60
1993 Admission	16	36	-	-	52
1994 Admission	14	76	-	-	90
PG Programme (on the rolls)					
1991 Admn. Ph.D.	1	3	-	-	4
1991 Admn. Ph.D. (H.Sc.)	-	2	-	-	2
1992 Admn. M.Sc. (Ag)	1	2	-	-	3
1992 Admn. Ph.D.	3	6	-	-	9
1992 Admn. M.Sc. (H.Sc.)	-	1	-	-	1
1992 Admn. Ph.D.	-	2	-	-	2
1993 Admn. M.Sc. (Ag.)	13	21	-	-	34
Ph.D.	3	6	-	-	9
M.Sc. (Hort.)	2	4	-	-	6
Ph.D. (H.Sc.)	-	1	-	-	1
M.Sc. (H.Sc.)	-	6	-	-	6
1994 Admn. M.Sc. (Ag)	15	12	-	-	27
Ph.D.	3	1	-	-	4
M.Sc. (Hort.)	3	3	-	-	6
M.Sc. (H.Sc.)	-	6	-	-	6

Students who completed the course during the period

Name of course	Men	Women	Foreign students	Total
Ph.D.	3	1	-	4
M.Sc. (Ag)	6	3	-	9
Ph.D. (Home Science)	-	1	-	1
M.Sc. (Home Science)	-	4	-	4

3.1.5 2. Study tours

The All India Study Tour of the fourth year B.Sc.(Ag) (1990 admission) was conducted from 18-9-1994 to 8-10-1994. Fifty two students accompanied by Dr.P.Rajendran, Assistant Professor (Soil Science) as tour leader, completed the tour in 21 days. The tour party visited important agricultural research stations of ICAR, APAU, ICRISAT at Hyderabad, BARC, Bombay, IARI, New Delhi, WTC, National Physical Laboratory, New Delhi, NRI, New Delhi and other centres of agricultural importance. On their way back, they visited 'Agmark' lab, Soil Survey Directorate, Nagpur and Madras Fodder Demonstration Farm at Avadi.

All India Study tour of the III B.Sc.(Ag) students (1991 admission) was conducted from 14-11-1994 to 5-12-1994. Fifty eight students under the leadership of Dr.V.K.Venugopal, Associate Professor (Soil Science) participated in the tour covering a period of 22 days. The students visited important Agricultural Research Institutes of ICAR, Agricultural Universities in Andhra, Hissar, University of Horticulture and Forestry, Solan, IARI, New Delhi and Bhabha Atomic Research Centre, Bombay.

3.1.6. Faculty Improvement

3.1.6.1. Details of participation of Scientists in Seminars/ Workshops/Training/Symposia/Summer Institutes etc.

Name & Designation	Type of course	Venue	Period
Dr.Thomas Varghese Professor (Soil Science)	Training Course in Soil Reference Collection and Data-base	TNAU, Coimbatore	06-6-94 to 17-7-94.
Dr.M.S.Aiyer Assoc. Professor (Soil Science)	-do-	-do-	
Dr.M.S.Aiyer Assoc. Professor (Soil Science)	Computer appli- cations in Res. Management	NAARM, Hyderabad	19-7-94 to 30-7-94
Dr.Thomas Varghese Professor (S.S.)	Training programme on Ecology and Environment	IMG, Trivandrum	04-7-94 to 08-7-94.

Dr. P. Prabhakumari Asst. Professor (Soil Science)	Vermi-composting of Ayurvedic medi- cines and Herbal cosmetics	Thrissur	17-8-94 to 18-8-1994.
Dr. P. Padmaja Professor & Head (S.S)	4 4 4		
Dr. Thomas Varghese Professor (S.S)	4 4		
Sri. P. A. Korah Professor (S.S)	4 } Workshop on Vermicompost Technology	College of Agriculture, Vellayani	26-9-94 to 29-9-94
Dr. Prabha Kumari Asst. Professor Dr. Usha Kumari Asst. Professor (S.S)	} } }		
Dr. S. Pushkala Assoc Professor (S.S)	} Diamond Jubilee } Workshop of } Indian Society } of Soil Science	IARI, New Delhi	28-11-94 to 01-12-94
Dr. P. Prabha Kumari Asst. Professor (S.S)	}		
Dr. D. Wilson Asst. Professor (Plant Breeding)	"Advances in Agrl. Microbiology with special reference to mycorrhizal sym- biosis and their role in crop productivity"	G.K.V.K, Bangalore	22-8-94 TO 10-9-94
Dr. Kuruville Varghese Assoc Professor (Agronomy)	Integrated Farming System Research and Management for sustainable Agriculture	TNAU, Coimbatore	06-6-94 to 15-6-94
Sri. P. H. Lathif, Assoc. Prof. (Agronomy)	-do-	-do-	
Dr. S. Mothilal Nehru Assoc Prof. (Extn.)	Case preparation and use	IMG, Trivandrum	22-12-94 to 24-12-94
Dr. L. Prema, Professor (H.Sc.)	Workshop on "Women in Agriculture"	Kanakakunnu Palace, Thiruvanan- thapuram	21-11-94 to 22-11-94
Dr. S. Shilaja, Assoc. Professor (Extension)	-do-	-do-	-do-
Dr. L. Prema, Professor (H.Sc.)	Seminar on "Industries based on Agriculture"	Kanakakunnu Palace, Thiruvanan- thapuram.	15-12-94 to 17-12-94
Smt. N. K. Vinala- kumari, Assoc Professor (Home Science)	-do-	-do-	-do-

Smt. M. Ranjini, Asst. Professor (Home Science)	UGC/ICAR Sponso- red refresher course	Avinashi- lingam H. Science Institute, Coimbatore	23-11-94 to 21-12-94
Dr. C. S. Jachandran- Nair, Assoc. Prof. (Hort.) Dr. S. Bhaskaran, Assoc. Prof. (Extn.)	Summer Institute on Advances in Horticulture Summer Institute on "Advances in Agrl. Extension".	IIHF, Bangalore IARI, New Delhi	23-8-94 to 13-9-94. 21-9-94 to 10-10-94
Dr. N. Kishore kumar, Asst. Prof. (Extn.)	-do-	-do-	-do-
Smt. Elamma Job, Asst. Professor (Economics) Dr. S. Bhaskaran, Assoc. Professor (Extension)	Summer Institute International Workshop on alternative approaches in extension for sustainable agriculture	TNAU, Coimbatore TNAU, Coimbatore	16-5-94 to 04-6-94. 14-12-94 to 04-6-94
Dr. Shilaja, Assoc. Professor (Extn.) Dr. Shobhana, Assoc. Prof. (Extn.) Dr. N. Kishorekumar Asst. Prof. (Extn.) Dr. N. Kishorekumar, Asst. Professor (Extension)	-do- -do- Seminar on Forest Management	-do- -do- Indian Institute of Forest Management, Bhopal.	-do- -do- 24-12-94 to 25-12-94

3.1.6.3. Details of Trainings/Symposia/Workshop etc. conducted

Type of course	Period	Number of participants
06-09-94 to 09-09-94 "Training programme on Bio-Technology" for Officers of Department of Agriculture	4 days	6
26-09-94 to 29-09-94 Training on Vermiculture	4 days	8
17-10-94 to 22-10-94 Advances in Agriculture to A.E.Os. of Canara Bank	5 days	22
19-12-94 to 23-12-94 Basic training on fertilizers and pesticides to sales personnel of Co-operative Bank	4 days	5

3.1.7. College Library

Details	Additions	Progressive total
Books	258	23,444
Indian Journals	45	45
Foreign Journals	33	33
Bound volumes	-	3,809

3.1.8. Hostels

Hostel	No. of inmates	Name of Asst. warden
U.G. Men's Hostel	59	Dr.L.Rajamony upto 31-7-94 Dr.S.Bhaskaran from 1-8-94
P.G. Hostel (Men's)	28	Prof.N.Ramachandran Nair
Women's Hostel	155	Dr.S.Shilaja upto 31-7-94 Smt.SoffiCherian from 1-8-94

3.1.9. Instructional Farm

The farm has an area of 73 hectares of garden land and 165 hectares of 'Kayal' land. To enhance the farm revenue the following programmes have been implemented.

Production and distribution of seeds of newly released vegetable varieties of KAU;; ornamental planting materials including foliage and flowering plants; quality coconut seedlings; Collection, multiplication and distribution of major banana varieties, orchids, anthurium and other rare plants; Establishment of additional progeny orchard and green house; Mobile Sales Programme and participation in the agricultural exhibitions and melas; Production of processed fruit and vegetable products utilising farm produces; Production of fodder, etc.

3.1.9.1. Dairy farm and Poultry Unit:

From the dairy Unit functioning in the College 29578.5 litres of milk obtained and 49307 eggs produced. In the Veterinary hospital attached to the Animal Husbandry Department a total number of 763 cases were treated and 97 pregnancy diagnosis were done. Artificial insemination was done in 18 cows.

3.1.10. Outreach Programme

N.S.S. Activities: Community centres at Kakkamoola and Palappur continued to function under the supervision of the NSS Unit of this College during the period under report. Eighteen NSS Volunteers donated blood to patients at various hospitals in Thiruvananthapuram City. A one day medical camp was organised by the NSS Unit on 28th August 1994 in the campus. About 300 patients availed the benefit. Dr.D.Wilson, Assistant Professor (Plant Breeding) one of the Programme Officers attended the National Integration Camp from 1-5-1994 to 5-5-1994 at Parambikulam. He

also attended the Orientation Course for Programme Officers of National Service Scheme from 1-8-1994 to 13-8-1994 at NES Training and Orientation Centre, Rajagiri College of Social Sciences, Kalamassery.

Exhibitions, etc. : In connection with the inauguration of the Krishi Vigyan Kendra at Kottarakkara on 29-10-1994, this Institution participated in exhibition arranged there in a big way.

At the instance of the Government of Kerala, a State Agricultural Fair was conducted at Kanakakkunnu Trivandrum from 14-12-1994 to 18-12-1994. This Institution made all arrangements for the participation of Kerala Agricultural University.

The Instructional Farm of this Institution participated in the Agricultural-Horticultural Fair organised by the Agri-Horti Society, Alappuzha from 21-12-1994 to 27-12-1994.

Students Union and Welfare Activities

The College Students Union 1993-94 was inaugurated on 16-5-1994 by the well known Cartoonist Sri. Abu Aabraham. Sri. N. Krishnan Nair, IPS, Additional Director General of Police was the Chief Guest. Sri. Rajeevnath (Cine Director) inaugurated the Arts Club; Prof. V. Madhusoodanan Nair (Poet) spoke on the occasion.

On 4-4-1994 in connection with the "World Environmental Day" a Seminar on Agricultural Scenario in Kerala - Problems and Prospects was organised.

An exhibition of ICAR Publications was organised in the College under the auspices of the students Union on 4-8-94, 5-8-94 and 6-8-94.

A painting exhibition was organised on 12-8-94 and a quiz competition was also conducted.

A discussion on the topic "Student-Teacher Relationship" was carried out on 10-10-94.

On 21-10-94 a Seminar on "Recent Trends on Agriculture" was organised.

Women's Day :

A function exclusively for women was organised on 26-10-94. Smt. Sugatha Kumari (Poetess), Prof. Nabeesa Ummal etc. participated in the function.

Interclass Arts Festival (Arangu) was celebrated from 3-11-94 to 5-11-94 and the programme was inaugurated by Dr. Babu Paul. IAS.

Sports and Games: Annual interclass athletic meet was conducted on 18th and 19th May, 1994. Inter-collegiate tournaments in shuttle and table tennis were conducted at Mannuthy and this College teams participated in the tournaments on 22nd and 23rd July, 1994. Two women students and three men for Ball Badminton participated in the Inter University tournaments held at Mangalore and Tirunelveli respectively during December, 1994 representing Kerala Agricultural University.

3.1.11. Important visitors:

Sri.P.P.George, Hon'ble Minister for Agriculture; Sri.Pandalam Sudhakaran, Hon'ble Minister for Sports; Dr.N.N.Goswamy, Dean and Joint Director, IARI, New Delhi; Smt.Aruna Sundara Raj, IAS, District Collector, Trivandrum; Sri.Subhash, IAS, Director of Sports, Kerala; Sri.Sooranad Raja President, Sports Council, Trivandrum and Sri.N.Krishnan Nair, IPS, Additional Director General of Police, Kerala.

3.1.12. Other activities

The newly constructed Indoor Stadium cum Auditorium was inaugurated on 3rd May 1994 by Sri.P.P.George, Hon'ble Minister for Agriculture. Sri.Pandalam Sudhakaran, Minister for Sports presided over the function. Sri Sooranad Rajasekharan, President, Kerala Sports Council and Sri.Subbiah, IAS, Director of Sports, spoke on the occasion. Trivandrum District Competition for "Keralothsavam" organised by the Revenue Department was conducted in the College grounds.

3.2. COLLEGE OF HORTICULTURE

3.2.1. Associate Dean

Dr.C.C.Abraham continued as the Associate Dean i/c during the period.

3.2.2. Academic staff as on 31-12-1994

Out of a total of 135 sanctioned staff positions, 33 remained vacant as on 31-12-1994.

Asso. Dean	Prof.	Asso. Prof.	Asst. Prof.	Others.	S	Total	
						P	V
1	17	23	94	-	135	102	33

3.2.3. Paratechnical/Administrative/Ministerial/Supporting staff position as on 31-12-1994

Out of a total 125 sanctioned positions of non-teaching staff belonging to various categories, 109 remained filled up, there being only 16 vacancies.

3.2.4. Academic programme

3.2.4.1. Student statistics

U.G. Programme

As on 31-12-1994 there were a total of 301 students on rolls for the B.Sc (Ag) course.

Year of admission	Men	Women	Total
Admission prior to 1991	7	1	8
1991 admission	31	34	65
1992 admission	38	37	75
1993 admission	41	34	75
1994 admission	33	38	71
Make up course	7	-	7
Total	157	144	301

students completed B.Sc(Ag) programme			
	Men	Women	Total
1988 admission	1	1	2
1989 admission	1	-	1
1990 admission	20	28	48
Total	22	29	51

Course		Men	Women	Total
M.Sc.(Ag.)	Agron	9	11	20
	Pl. Breeding	4	9	13
	SS & AC	8	10	18
	Entomology	2	7	9
	Agri. Econ.	2	4	6
	Plant Path	3	3	6
	Agri. Extn.	3	5	8
M.Sc.(Hort)	Pom. & Flori.	5	8	13
	Pln. Crops	1	10	11
	Oleri	2	6	8
	Processing	2	3	5
M.Sc.(Ag. Stat.)	1	11	12	
M.Sc.(Ag. Econ.)	-	2	2	
M.Sc. (FS & N)	-	6	6	
M.Sc.(Agro Met)	-	1	1	
Total	42	96	138	

Doctoral Programmes on rolls:				
	Men	Women	Total	
Ph.D.(Ag)	Agron	8	5	13
	SS & AC	4	4	8
	Plant Breeding	2	6	8
	Entomology	-	2	2
	Agri. Extn.	2	1	3
	Plant Pathology	3	3	6
Ph.D.(Hort)	Pom & Flori.	1	1	2
	Proc. Tech.	1	-	1
	Pln. Crops	1	3	4
	Olericulture	2	8	10
Total	24	33	57	

students completed Master's programme & Doctoral programme

	Men	Women	Total
M.Sc.(Ag.) Agron	-	3	3
Plant Breeding	-	2	2
Agri.Extn.	-	1	1
Agri.Econ.	2	-	2
Entomology	-	1	1
SS & AC	1	-	1
M.Sc.(Ag. Econ.)	3	-	3
M.Sc. (Ag.Stat)	-	1	1
M.Sc.(Hort.)	1	3	4
Total	7	11	18
Ph.D. (Ag.)	1	-	1

3.2.5. Study Tours:

The All India study tour for the III year B.Sc. (Ag) batch (1991) of students was conducted from 22-10-94 to 16-11-94. The students visited the premier institutions of agricultural research/education/development of Hyderabad, New Delhi, Dehra Dun, Solan, Kufri (Shimla), Cuttack, Trombay and Calcutta.

The II year batch (1992) of students were taken for their South Indian tour in two stages first during 17-10-1994 to 29-10-1994 covering Ooty, Coimbatore, Mysore, Bangalore, Vyttil, Puttur, Ambalavayal, Pilicode, Kalpetta and the second stage from 3-11-94 to 10-11-1994 covering Kayamkulam, Palode, Thiruvananthapuram, Kanyakumari, Madurai, Myladumpara, Mattuppetty and Kottayam.

Field Training: The field training programme for the final year B.Sc.(Ag) batch of students was conducted in Regional Agricultural Research Station during 14-11-1994 to 26-11-1994 and in selected Krishi Bhavans during 28-11-1994 to 9-12-1994.

3.2.6. Faculty Improvement

3.2.6.1 Changes in the Faculty positions

Dr. C.T.Abraham, Associate Professor (Agron) joined the Department of Agronomy on 30-5-1994 on completion of the 3 months training under Bio Technology, National Associateship at Acibarn University, USA. Smt.D.Girija, Assistant Professor, Microbiology was deputed to undergo the Ph.D.programme in Agricultural Microbiology at the IARI, New Delhi in September 1994. Smt.S.Beena, Assistant Professor, Plant Pathology entered on leave for undergoing the Doctoral programme in the College of Horticulture, Vellanikkara from 19-9-1994. Mr M.C.Naraysankutty, Asst.Professor, Department of Processing Technology entered on study leave for 3 years for undergoing the doctoral programme in Horticulture from 19-9-1994.

3.2.6.2. Seminars/Workshops/Training/Symposia/Summer Institutes etc. attended:

Name of scientists	Course details	Venue and Date
Mr.K.Satheesh Babu	Summer Institute on Advances in Agri. Economics with special reference to Natural Resources and Environmental Economics	TNAU, Coimbatore 16, May to 4 June 1994.
Mr.S.Krishnan Asst. Professor Dept. of Ag.Stat	Recent advances in Agri. Stat. with special reference to linear modelling	IASRI, New Delhi 16, May to 4 June 1994
Dr N.Saifudeen Assoc Professor Radio Tracer Lab.	Computer Application in Agro Research	NAARM, Hyderabad 19-30 July 1994
Dr.NK Parameswaran Assoc Professor Dept. of Pom. & Flori.	IX specialized NARP Training in Horticulture	CIHNIP Lucknow 17 May to 15 June 1994
Mr.V.K.Raju Professor i/c Dept. of Process- ing Tech.	-do-	-do-
Dr.C.K.Geetha Asst. Professor Dept. of Pomology & Floriculture	Summer Institute on Advances in the production technology of temperate fruits	Dr.Y.S. Parmar University of Horti. & Forest- ry, Solan 3-24 July 1994
Dr.Sajan Kurien Asst. Professor Dept. of Pomology & Floriculture	-do-	-do-
Dr.Sarah T. George Asst. Professor Dept. of Pomology & Floriculture	-do-	-do-
Dr R.Kesavachandran Asst. Professor Dept. of Plantation Crops & Spices	Summer Institute on Cell Technology and Genetic Engg.	Centre for Plant Molecular Biolo- gy (CPMB), TNAU, CBE 15th June to 5th July 1994
Dr K.T.Prasannakumari Asst. Professor Dept. of Pl.Breeding	-do-	-do-
Dr K.Pushkaran Assoc Professor Dept. of Agrl.Bot.	KHDP Trainer's Training	Institute of Management in Govt. Trivandrum 16-27, August '84

Smt. Lissamma Joseph Asst. Professor Dept. of Plantation Crops & Spices	Training on in vitro and cryopreservation technology for gene banks	NBPGR, New Delhi 10-29 October 1994
Dr N.N. Potti Professor(Agro.)	Training of Management Development Programme on integrated programme for cereal development	Sponsored by MANAGE held at the Extn. Direc- torate 7-18 November 1994 Central Sericul- ture Research & Training Insti- tute, Mysore Nov.8 to 13 Dec. 1994
Dr AM Banjith Assoc Professor Dept. of Agri.Ent.	Intensive bivoltine Training Programme in Sericulture	IITM, Pune Octo.24-Nov.8, 1994
Dr.P.Balakrishna- Pillai Professor & Head Dept. of Agro.Met.	Medium range weather forecasting	IITM, Pune Octo.24-Nov.8, 1994
Dr.A.V.R.Kesava Rao Asst. Professor Dept. of Agro.Met.	Five week training on Remote Sensing Funda- mentals and Applica- tions to Agriculture and Soils	Space Applica- tions Centre, ISRO, Ahmedabad from Dec.29th 1994 for a month
Dr A.Sukumara Varma	National symposium on Mushrooms, Solan	8-10, April '94
Dr Sally K. Mathew Assoc Professor	National Seminar on Diseases of Spices	NRCS, Calicut 7-8, April '94
Dr PK Rajeevan Prof. & Head i/c Dept. of Pomology & Floriculture	National Floriculture Seminar	Trivandrum 6-7 May 1994
Dr C. Bhaskaran Assoc. Professor & Head, Dept. of Ag. Extension	Int. Congress on Kerala Studies	Trivandrum 27-29 August 1994
Dr T.P. Murali Asst. Professor Dept. of Pomology & Floriculture	XXVI Int. Hort. Congress	Kyoto, Japan 21-27, August '94
Dr A.V.R. Kesava Rao Asst. Professor Dept. of Ag. Met.	Third Review meeting of AMFU Project	Technology Bhawan, DST, New Delhi 25-27 July 1994
Dr P.J Joy Professor(Ento.)	Group meeting of Bio Control workers	UAS, Bangalore 18-19, Octo., '94

Dr. S. Rajan, Professor & Head i/c Dept. of Olericulture	IX National Seed Seminar	TNAU, Coimbatore 7-9 December 1994
	-do-	-do-
Dr. K. T. Prasannakumar and Smt. T. Girija, Dept. of Agrl. Bot.		
Dr. T. P. Murali, Asst. Professor. Dept. of Pom. & Flori	XII AIICFIP Workshop	AFAU, Hyderabad, 12-14 Dec. 1994.
	-do-	-do-
Smt. A. Sobhana, Asst. Professor Dept. of Pom. & Flori		
Dr. C. Bhaskaran, Professor & Head i/c Dept. of Ag. Extn.	International Work- shop on Alternative Extension approaches	TNAU, Coimbatore, 13-17 Dec., 1994.
Dr. P. A. Nazeem. Assoc Professor Dept. of Plantation Crops & Spices	PLACROSYM XI Calicut	30 November to 3 December 1994
	-do-	-do-
Smt. M. R. Shylaja, Asst. Professor, Dept. of Plantation Crops & Spices		
Dr. R. Vikraman Nair Professor, CCRP	-do-	-do-
Dr. V. K. Mallika, Assoc. Professor, CCRP	-do-	-do-
Dr. Koshy Abraham, Assoc Professor, CCRP	-do-	-do-
Dr. A. Sukumara Varma, Assoc. Professor Dept. of Pl. Path.	-do-	-do-
Mr. A Augustin, Asst. Professor	National Seminar on Cashewnut Development in the VIII Plan	Goa 15-4-94 to 16-4-94
-do-	Pesticide Residue Analysis at the Central Plant Protection Training Institute, Hyderabad	1-6-94 to 26-8-94

 3.2.6.3. Details of Training/Symposia/Workshop held in the
 College:

Details of the training programmes and periods.	Course Directors	No.of persons trained.
Training on mushroom cultivation (5-7 Sept. 1994)	Dr.A.Sukumara Varma, Assoc Professor (Dept.of Pl.Path & Home Sci. Unit)	25 farmers
Training on mushroom cultivation (3-5 Oct. 1994)	-do-	21 farmers
(17-19 Oct. 1994)	-do-	13 farmers
(7-9 November 1994)	-do-	25 farmers
(15-17 Dec. 1994)	-do-	16 farmers
Training on Plant Tissue culture (1 July to 31, August 1994)	Dr.R.Vikraman Nair Professor, CCRP	4 farmers/ nursery men
(1 Oct. 1994 to 30 Nov. 1994)	-do-	18 unemployed persons.
(1-2 Sept. 1994)	Smt.Norma Xavier Asst.Professor Home Sci.Unit	54 unemployed persons (13 sponsored by SC/ST Corporation)
Home Science Food Preservation and Processing (16-18 Aug. 1994)	Dr.V.Usha, Asst. Professor Home Sci. Unit	16 women
(28 Sept. to 1 October 1994)	-do-	10 women
Herbicide use in rice cultivation Post Harvest Technology of spices (24-26 Aug. 1994)	Dr.C.T.Ahraham, AICRP Weed Control Dr.E.V.Nybe Professor i/c Dept.of Pln.Crops	9 Asst. Directors of Dept.of Agri. 17 Dy.Directors and Asst.Directors of Dept. of Agri.
(6-8 Sept. 1994)		
Training on Post harvest handling and processing of fruits and vegetables (25-29 Oct., 1994)	Mr. V.K.Raju, Professor i/c Dept.of Proc. Tech.	10 Asst. Directors from the Dept. of Agri and 1 official from the KHDP
Nursery production and Management (3-18 Oct., 1994)	Dr.P.K.Valsalakumari Assoc Professor Dept.of Pom. & Flori	22 unemployed youth

3.2.7. Library: As on 31-12-1994 there were a total of 26.7 titles and 161 journals (120 Indian, 21 foreign and gratis/exchange copies)

3.2.8. Hostels: Dr.D.Seetharama Rao continued as the Assistant Warden of the Men's Hostel and Dr.N.,P.Chinnamma continued as the Assistant Warden of the Ladies' Hostel. Mr.A.S.Anilkumar and Mr.E.V.Anoop were appointed as Resident Tutors of the Men's Hostel during the period and they assumed their duties on 16-11-1994 and 1-12-1994 respectively. As on 31-12-1994 there were total of 258 inmates in the Ladies' Hostel including 3 students of the College of Forestry and 41 of the College of Co-operation and Banking. In the Men's Hostel there were a total of 224 inmates as on 31-12-94 including 51 students of the College of Forestry.

3.2.9. Instructional Farm: Dr.K.K.Ibrahim, Professor continued to hold charge of the Instructional Farm during the period. The total area of the farm is 95.35 ha of which coconut occupied 32.00 ha. The other perennial crops are mango (4.00 ha), cocoa (2.15 ha), cinnamon (1.40 ha), clove (1.25 ha), guava (2.00 ha), sapota (0.85 ha). The area under annual crops occupied 3.00 ha. Rubber occupied 35.00 ha, the area under roads, buildings, forest trees being 14.70 ha. Work on the production of hybrid coconut seedlings was started during the year in the year for the first time. A total of 138 bunches were hybridized from selected mother palms with promising pedigree record. (LO x G5 WCT x GB; WCT x MYD). The setting of nuts in hybridized bunches was quite good.

Area utilisation:

Coconut	32.00 ha.
Mango	4.00 ha
Cocoa	2.00 ha
Cinnamon	1.40 ha
Clove	1.25 "
Guava	1.00 "
Sapota	0.85 "
Annual crops (Vegetable, Banana etc)	3.00 "
Rubber plantations	35.00 "
Forest trees, road, buildings and Horticultural nursery	14.70 "

Total 95.35 ha.

During the period 145 kg vegetable seeds of different varieties worth Rs.54,850/- were produced. The production of other planting materials and ornamental plants amounts to Rs.2,19,353/-.

3.2.10. Outreach programmes

Workshop on traditional knowledge system

The Department of Agricultural Extension in collaboration with the National Watershed Development Programme for the rainfed areas (NWDPA) conducted a one day workshop on Traditional knowledge systems ('Nattarivu Samvadam') on 21-12-1994 in the College.

The Hon'ble Vice-Chancellor inaugurated this workshop which was attended by sixty farmers and thirty extension functionaries of the Department of Agriculture. Indigenous cultivation practices of rice, coconut, banana and vegetable crops were identified and the scientific rationale behind the practices codified for field testing through adaptive trials.

National Service Scheme

Smt. Norma Xavier and Dr. Ranjan S. Karippai continued as the NSS Programme Officers during the period. The NSS volunteers participated in the University level NSS camp held at Anappara (Parambikkulam) during 2-7 May 1994. Blood donation services were continued and 47 volunteers donated blood during the report period. Classes were taken for the benefit of 300 women beneficiaries on post-harvest technology of various fruits and vegetables. kitchen gardening, mushroom cultivation. Ten peer leaders (NSS) were trained on AIDS/HIV for the UTA programme. The NSS units celebrated the AIDS fortnight during 1-14 December 1994 by conducting group discussions using AV aids.

Students' Union Activities:

The Students' Union 1993-94 was inaugurated on 6-4-1994 by Artist Mr. Namboodiri. Smt. Oormila Unni, Cine Actor inaugurated the Arts Club. The interclass Arts Festival 'Sraavanam 1994' was held on 3-5 August 1994. The III year B.Sc. (Ag) batch secured the first position in the competition. The Hostel Unions were inaugurated on 27-5-1994 by Smt. Neena Rawat, IPS, ASP, Thrissur. Mr. C.P. Rajasekharan, Station Director i/c AIR, Trichur felicitated. The College team actively participated in the KAU Youth Festival 'Varsham 1994' held at the Mannuthy Campus on 8-9-10 August 1994 and secured the runner up trophy for having obtained the second overall position (101.5 points). An exhibition of the paintings of Ms. Kavitha Balakrishnan was held on 20-7-1994.

The post graduate day was held on 3-9-1994. Mr. Kunjunny Master eminent poet felicitated the post graduate students on the occasion. The College team participated in the Inter Collegiate Badminton Shuttle tournament held at Thrissur on 22-23 July 1994 and won the third position for Men and Women teams. For the Intercollegiate Table Tennis tournament held on 22-23 July 1994 the College Men's team won the first place and the Women secured the second place.

AICRP on Med. & Aro. Plants, Vellanikkara:

Students of Annamalai University visited on 28-9-94. A team of 59 trainees and 3 Faculty members from Regional Health and Field Workers Training Centre, Calicut visited on 30-9-94. Dr. Santha Krishnan, Department of Botany, Jawaharlal Nehru University, New Delhi visited on 1-10-94. M.C. Ravindran, Deputy Director of Agriculture, Mahe visited on 3-11-94. Prof. T.A. Panicker, Co-ordinator, Medicinal Plant Programme, P.D.S. Peerumade visited on 23-12-94. Alberto M. Corte's Torrico (Spain), II BAN Student, Ayurveda College, Coimbatore visited on 23-12-94.

3.2.11. Important visitors

Dr. Mathew Dagg, Agri. Research Management Consultant to

RAWOO, Netherland and Dr. Wesley M. Shrum, Social Science Consultant, RAWOO, Netherland visited on 6-5-1994.
 Dr. P.E. Kolattukudy, Director, Bio-technology Centre, Ohio State University, USA, visited on 25-7-1994.
 Dr. G. Kalloo, Project Director of Vegetables, Varanasi, visited on 10-8-1994.
 Dr. H.V. Mohan Ram (Chairman, DBT Review Team), Delhi University; Dr. B.S. Rao, BARC, Trombay; Dr. S. Natesh, DBT, Govt. of India; Dr. C.K. George, Executive Director, Spices Board and Dr. Renu Swarup, Senior Scientific Officer, DBT visited on 16-11-1994.

3.2.12. Progress of Plan Schemes

Outlay 94-95 (lakhs)	Expenditure incurred	Percentage of utilization
36.150	14.550	40.24%

3.3. COLLEGE OF CO-OPERATION & BANKING, MANNUTHY

3.3.1. Associate Dean

Dr M. Mohandas continued as the Associate Dean i/c, during the period.

3.3.2. Academic position as on 31-12-1994

Assoc. Prof. Dean	Assoc. Prof.	Asst. Prof.	Others	S	P	V
1	3	7	20	-	31	24 7

3.3.3. Changes in Faculty position during the period

Name & Designation	Department	Date of joining
Dr G. Veerakumar, Asst. Prof.	Co-op. Management	9-11-94
Smt. Vanaja Menon -do-	Rural Marketing Management	1-11-94
Smt. Usha Devi. K.N. -do-	-do-	1-11-94
Sri. E.G. Ranjith Kumar -do- Kumar	Co-op. Management	1-11-94
Smt. K.A. Sunanda -do-	Development Econ.	7-12-94
Dr M.A. Lizzy, -do-	Rural Banking & Finance Management	26-11-94

3.3.4. Administrative & Supporting staff position

Name of Station	AO/ AA	SO/ SOS	Asst. Typ.	FS/ FA	LA	Dri.	Cl. IV	Others	Total
College of Co-op.	1	3	6	3	-	-	1	3	18

3.3.5. Academic Programmes

3.3.5.1. Students Statistics: UG Programme (on rolls)

Year of Admn.	Men	Women	Foreign students	Total
1990	12	7	-	19
1991	11	6	-	17
1992	15	8	-	23
1993	18	12	-	30
1994	17	12	-	29
PG Programmes (On rolls)				
1992	1	2	-	3
1993	2	-	-	2

Students who completed the course during the period

Name of Course	Men	Women	Foreign students	Total
B.Sc (C&B)	8	4	-	12

3.3.5.2. Details of scientific staff participated in seminars /workshops/training/symposia/summer institutes etc.

Name of Scientist	Seminar/Symposia	Period of deputation
Dr M. Mohandas, Assoc Dean i/c Dr A. Sukumaran, Asst. Professor Dr K.A. Suresh, Asst. Professor Mr. Philip Thomas, Asst. Professor Dr K.P. Mani, Asst. Professor	Masters Training programme organised by NIRD, KILLA	7-17 November,
Mrs. F. Shaheena, Asst. Professor Mr. N. Ravindranath, Assoc Professor Statistics, Mannuthy Smt. K.A. Sujatha, Asst. Professor Dr K.P. Mani, Asst. Professor	Refresher Course in Economics, A.S.C., J.N.U., New Delhi	21 days from Sept. 25, 1994
	49th Annual Conference of Indian Society of Ag.	15 - 17 December 1994
	Refresher Course on Quantitative Methods in Economics, Bharathiyar University, Tamilnadu	9-4-94 to 29-4-94

3.3.5 3. Details of Seminar/Workshop/Symposia etc. conducted

Particulars	Total No. of Scientists
Workshop on Consumer Co-operatives in Educational Institutions of Kerala on 24-27, August, 1994	80

3.3.6. College Library

Details	Additions	Progressive
Books	399	4402
Indian Journals	-	57

3.3.7. Hostels

Hostels	No. of inmates	Name of Asst. Warden
Men's Hostel	78	Dr. A.M. Jose
Women's Hostel	47	Smt. Chinnamma

3.3.8. Outreach Programme

N.S.S. Activities	Date	Description
1994 August., 15	15	- Observation of Independence Day
August., 17	17	- Chingam Ist was celebrated as Karshaka Dinam
August., 19	19	- Campus Cleaning Programme
August., 20	20	- Observation of Sadbhavana Day
Sept., 6	6	- National Integration Day was observed by arranging a talk on Communal harmony
Sept., 10	10	- Conducted Anti-Drug campaign
Dec., 7	7	- Made a kitchen garden at Juvenile Home, Ramavarmapuram
Dec., 30	30	- The Annual NSS 10 days Special Camp was inaugurated at Monody

3.3.9. Important Visitors

Mr. Katsuhiko Saki, Managing Director, Ritumeikan University Co-operative, Japan and Member, International Relations Committee, NFUCA. Dr. Yashantha Dongre, Reader, Department of Commerce, Mangalore University, Mangalore and Zonal Secretary, International Co-operative Alliance. Mr. T. Paranjothi, Principal, Institute of Co-operative Management, Madurai. Mr. K.R. Aravindakshan, President, Kerala State Co-op. bank Limited, Trivandrum. Mr. G.K. Panickar, IAB (Retd.), Chairman, Kerala Dinesh Beedi Workers' Central Co-op. Society Limited, Kannur.

3.3.10. Progress on Plan Schemes

Outlay for 1994	Expenditure (Rs. in lakhs)	Targets
3.396	-	-

3.4. COLLEGE OF FORESTRY, VELLANIKKARA

3.4. College of Forestry, Vellanikkara.

3.4.1. Special Officer.

Sri.H. Nagesh Prabhu was the Special Officer of the College of Forestry upto 19.4.'94. Dr.U. Mohammed Kunju was the Special Officer in charge upto 20.6.'94 and Dr.S.Chinnamany as Special Officer upto 16.11.'94. Dr. P.A. Wahid is continued as Special Officer in charge from 16.11.'94.

3.4.2. Academic position as on 31-12-'94

Scientific Staff Position:

Spl. Officer.	Prof.	Assoc Prof.	Asst. Prof.	Others	Total		
					S	P	V
1	-	6	7	-	14	10	4

3.4.3 Changes in the academic positions

Shri.Nagesh Prabhu,IFS was relieved on 20-4-94 from the post of special officer.Dr.S.Chinnamony has taken over the charge on 20-6-94 and was relieved on 16-11-94 AN. Dr.P.A.Wahid, Prof.&Head Radio Tracer Lab. assumed charge as special officer i/c,on 16-11-94.

3.4.4. Paratechnical/Administrative/Ministerial/Supporting positions as on 31-12-94

AO/AA	SO/SOS	Asst.	Typ.	Fs/FA	LA	Driv.	Cl.VI	Others	Total
1	2	2	1	-	-	1	-	-	7

3.4.5. Academic Programme: Students Statistics

Year of admission	Men	Women	Total
U.G.Programme			
B.Sc.Forestry			
1991	9	-	9
1992	9	-	9
1993	10	1	11
1994	10	4	14
PG Programme			
M.Sc.Forestry.			
1992	6	-	6
1993	6	-	6
1994	9	-	9

Students who completed the course during the period:

Name of course	Men	Women	Total
M.Sc.Forestry	4	-	4

3.4.6. Study tours:

The third and final year B.Sc. (Forestry) students were taken on All India Study Tour from 7-4-94 to 24-4-94 under the leadership of Dr. P.K. Ashokan and Dr. K. Gopikumar. They were taken to FRI, Wildlife Research Institute, Soil Conservation Laboratory, Silvicultural Research Plot, Konasar division and Sal forests of Dehradun, National Park, Borivilli, Tarapurwala Aquarium, Bombay, Birds Sanctuary Barathpur also to IARI, Delhi and NRI, New Delhi. The third year students were also taken to ICAR Stations at Ooty and Mettupalayam as a part of the course soils and water conservation. The 2nd year students were taken to F.I.T. Always as a part of the course harvesting of wood.

3.4.7. College Library:

Details	Additions	Progressive Total
Books	59	2120
Indian Journals	11	11
Foreign Journals	3	28

3.4.8. Hostels:

At present the students of this college are accommodated in Horticultural College Hostel. The hostel building of College of Forestry is nearing completion.

3.4.9. Instructional Farm:

The new area allotted to College was sub divided into three blocks, block A (for wood lots), block B (for sexual propagated materials) and block C (for rare and endangered species). Planting of three hectares of area was completed during the period. Gap filling in arboretum I and II were also carried out. A tree crop nursery was being maintained in the premises of the college. Seedlings and stumps of teak, Albezia, casuarina, Acacia, Terminalia, Artocarpus, Pongamia etc. raised in the nursery and by students through "Earn While you Learn" programme were sold to farmers.

3.4.10. Students Union Activities:

The World Environmental Day was celebrated by the students Union. A film festival was conducted in KAU auditorium on September 7 to 9th. Interclass arts competitions were held on September 8th, 1994. A slide and video show on Pooyamkutti was conducted on December 9th. The college teams participated in Inter-Collegiate Shuttle Badminton tournament held at Indira Stadium on 22nd and 23rd of July, 1994. and also in the Inter-Collegiate table tennis tournament held during July '94. Mr. Anilkumar.R. represented the University at the Inter-University shuttle badminton tournament held at Andhra Pradesh. The college came on 5th in the Inter Collegiate Arts Festival. The college held at Veterinary College. Sri. Kannan, C.S. of this college was selected as "Kalaprathibha" for the fifth time.

3.4.11. Outreach programmes: NSS: Under the auspicious of NSS about 500 tree seedlings were planted in the Industrial Estate at Ollur. The NSS volunteers also donated blood for the patients.

Exhibitions: College of Forestry actively participated in Agricultural Fair at Thiruvananthapuram conducted from 14 to 18th of December '94. Seeds, minor forest produce, wildlife films and tree seedlings were exhibited there. Seedlings were also sold in the exhibition.

3.5. COLLEGE OF VETERINARY & ANIMAL SCIENCES, MANNUTHY

3.5.1. Dean
Dr.A. Rajan continued as the Dean during the period.

3.5.2. Academic position as on 31-12-1994

	Dean	Prof.	Asso.Prof.	Asst.Prof.	Others	Total		
						S	P	V
	1	45	51	82	-	179	137	42

3.5.3. Paratechnical/Administrative/Ministerial/Supporting Staff in position.

AO/AA	SO/SOS	Asst.	Typ.	FS/FA	LA	Driv.	Cl. IV	Others	Total
1	10	15	-	25	2	7	7	56	123

3.5.4. Academic Programmes:
Students Statistics: UG Programme

Year.of adm.	Men	Women	Foreign	Total
1983	2	-	-	2
1984	1	-	-	1
1985	2	-	-	2
1986	16	2	-	18
1987	15	5	-	20
1988	76	42	-	118
1989	60	36	-	96
1990	60	24	-	84
1991	58	24	-	82
1992	24	68	-	92
1993	71	31	-	102
1994	74	41	-	115
Total	459	273	-	732

P.G. Programmes			
M.V.Sc.			1
1990	1	-	1
1992	-	1	21
1993	16	5	31
1994	25	6	
Ph.D			2
1991	2	-	2
1992	2	-	1
1993	1	-	7
1994	6	1	
Grand Total	53	13	66

Number of students completed the course.

B.V.Sc. - 102, M.V.Sc. - 1.

Study tour:

All India study tour, South India study tour and all Kerala studytour were conducted as in previous years.

3.5.6 Faculty Improvement:

3.5.6.1 Details of participation of scientists to seminars, workshops training/symposia/summer institutes etc.

Name of Scientist	Seminar/Symposia/ workshop, etc.	Period of deputation
Dr.K.V.Valsala, Assoc Prof. Dr.Koshy Varghese Asst.Prof. Dr.B.Gangadharan Asst. Professor,	Annual Convention of Veterinary Path. at Vet. College, Anand.	December 1994
Dr.V.Sathianesan, Professor.	6th National Congress of Vety.Parasitology at Jabalpur.	October 1994
Dr.C.B.Manomohanan, Assoc Prof Dr.Koshy Varghese, Dr.B.Gangadharan, Dr.T.Leena Devi, Asst.Professors. Sri.Jacob Thomas, Sri.Mathew Sebastian Asst.Professors	Summer Institute on Advances in Pathology at CV & AS, Mannuthy	June 1994
Sri.Mathew Sebastian, Asst.Prof.	Summer Institute on Advances in Agril. Statistics at IASI, New Delhi. Refresher Course in Statistics at Cochin University.	May, June 94
Smt.T.K.Indira Bai,	Refresher Course in	March 1994
		November 1994

Smt. U. Narayanikutty, Asst. Professors. Dr. K. Baby, Prof. & Head	} } } } }	Statistics at Cochin University. Seminar cum Workshop on Vety. Epidemiology & Preventive Medicine at Institute of Animal Hea_ lth & Biological, Manga_ lore.	November 1994
Dr. K. Vijayakumar, Asst. Prof.		Summer Institute on Epi_ demiological models in the forecasting of dis_ eases of Livestock & Poultry at IVRI, Izatnagar.	June 1994
Dr. G. Girish Varma, Asst. Prof.		Summer Institute in Animal Nutrition at IVRI, Izatnagar.	March 1994
Dr. Jacob. V. Cheeran, Professor. Dr. George Mathen . Assoc Professor.	} } }	International seminar on Wild Life at Delhi	29_31st October 94
Dr. T. P. Balagopalan, Dr. C. B. Devanand, Asst. Professors.	} } }	Recent advance in Sur_ gical Technique and their application in Farm and Pet animals at Madras.	June 1994
Dr. Rajankutty, Assoc Professor.		Workshop on package of practice on Livestock and Poultry at Mannuthy	May 1994
Dr. Stephen Mathew, Assoc Professor (NC)		Training in animal Production and Manage_ ment at Hissar.	November 1994

3.5.6.3 Details of Training/Symposia/Workshop etc. conducted
at the College.

Date	Type of course	Period	No. of participants
February 1994	Training for field Veterinarians in disease diagnosis.	3 months	14
July 1994	Training for field Veterinarians in disease diagnosis.	3 months	15
June 1994	Summer Institute on Advances in Vety. Path. & Disease Diagnosis	3 months	15
June 1994	Trg. to Para Techni_ cal staff.	20 days	1
April 1994	Training in feed ana_ lysis for para Tech. staff of A.H. Dept. of Lakshadweep Admn.	25 days	1
November 1994	Production and Standa_ rdization of Vety. Biologicals.	3 months	5

September 1994	Animal Disease Diagnosis.	10 days	14
October 1994	Tranining of A.H Officers in Poultry Production and Management	3 months	5
September 1994	Training on special clinical diagnostic procedure.	10 days	6
October 1994	Training in applied nutrition and feed analysis for officers of A.H. Dept.	10 days	7
December 1994	Training in diagnosis and control of parasitic disease for Vety. Officers.	15 days	3
December 1994	Annual conference of the Indian Society of Agricultural Statistics.	3 days	150

3.5.7 College Library

Details	Progressive total
Books including journals	20519
Indian Journals	63
Foreign Journals	60
Journals received on exchange/grates	24

3.5.8. Hostels

Hostel	No. of inmates	Name of Asst. Wardens
P.G. Hostel	48	Dr.V.S.Balakrishnan
U.G.Men's Main	120	Dr.P.G.Baby
U.G.Men's Annex	150	Dr.Jose John Chungath
Ladies	190	Dr(Mrs).Girija NandaKumar.

3.5.9. Outreach programmes.

NSS Activities: The following are the highlights of the NSS Unit's activities for the period from 1.4.94 to 31.12.1994:

Blood group determination camp: This camp for the benefit of the newly admitted students, employees of the Faculty and the labourers of the farms attached to the Faculty was organised on 13.4.1994. A total of 88 students and 20 employees including the labourers tested their blood group

One day camps: During the above period the unit organised two one day camps. A camp on 24.4.94 was conducted at Perumpilavu in collaboration with the local Panchayat. Animal Husbandry Department and other agencies. There was a animal health cum infertility camp, a cattle show and sale of KAU publications and seeds and also a mini exhibition of different breeds of poultry and broiler rabbits. 122 student volunteers including the local youths participated in the camp. Another camp on 9.10.94 was organised at Pazhunnana in Chowannur Panchayat in collaboration with the Animal Husbandry Department, local Panchayat, Co-operative Service Bank, Milk Marketing Co-operative Society and United India Insurance Company. A infertility health clinic, examination of faecal samples of animals for parasitic infections, a mini exhibition of different breeds of poultry and broiler rabbits and the products, charts & literature on various animal diseases and their control etc. a farmers' seminar and discussion were the main terms of the camp. 150 volunteers including the local youths attended the camp.

Goraksha camps: The Goraksha camp organised by the Vety. Surgeon, Puthenchira was attended by 3 NSS student volunteers. A camp organised by the Dept. of Extension of the College and PDDP, Kalady was attended by 23 student volunteers.

National Integration Camp: This camp organised by KAU at Parambikkulam was attended by 6 girls and 6 boys.

Orientation talk: An orientation talk for the benefit of NSS student volunteers by Prof. P.K. Mohammed, Co-ordinator, NSS Orientation & Training Centre, Kalamassery, with the award of certificates to the student volunteers by Dr. Tajuddin, Director of Extension, i/c. KAU with Dean presiding was organised on 19.7.94.

Special camping programme: Five days special camping programme from 11th to 15th August was organised at Parali. Work programmes, Inoculation against contagious diseases of cattle, Farmers' Seminar, Sports and cultural competitions for school students' Farmers' quiz etc. were the attractions of the camp. 150 persons participated in the camp.

Nature camp: The camp was sponsored by the Forest Department at Eravikulam National Park from 18th to 20th August. Thirty volunteers participated in the camp.

Activities evaluation: A meeting to evaluate the camp activities of the unit was convened on 4.9.94 with all the student volunteers, employees and teachers who participated in various camps with Dean occupying the chair.

NSS Advisory Committee meeting: The College NSS advisory committee was convened on 5.11.94.

Other activities: The NSS volunteers were actively involved in the blood donation to the needy.

3.5.10. Important Visitors:

Dr. O.P. Kathuria, Director, IASRI, Dr. P.V. Sukhatme, Exe. President, ISAS, Dr. K. Gopalan, Former VC of CUSAT, Dr. Prem Narin, Secretary, ISAS, Dr. S.S. Pillai, Jt. Director, IASRI (Rtd.), Dr. P.C. Choudhary, Prof. & Head, Dept. of Vety. Med., College of V&AS, Tirupathi & Dr. K. Mohandas, Director, Sreechitra Instt., Thiruvananthapuram.

3.6. COLLEGE OF FISHERIES, PANANGAD

3.6.1. Dr.M.J.Sebastian continued as Dean i/c.

3.6.2. Academic positions:

Dean.	Prof.	Asso.Prof.	Asst.Prof.	Others.	S	P	Total
	4	14	32	-	50	32	18

3.6.3. Changes in Academic positions:

During the period three Assistant Professors have vacated their posts, two of them on leave and one on deputation for higher studies, one each from Department of Processing Technology; Department of Fishery Biology and Department of Management Studies (the one on deputation).

3.6.4. Administrative/Para-technical & Supporting Staff position as on 31-12-'94

AO/AA	SO/SOS	Asst. Ty.	FS/FA	LA	Driv.	Cl.IV	Others	Total	
1	5	10	4	1	4	4	6	10	45

3.6.5. Academic Programme:
Students Statistics:

Year of Admission and Course	Men	Women	Foreign students	Total
U.G. Programme				
B.F.Sc. 1989	2	1	-	3
1990	6	6	-	16
1991	14	7	-	21
1992	16	3	-	19
1993	22	12	-	34
1994	26	14	-	40
Total	86	43	-	129

P.G. Programme				
M.F.Sc. 1992	1	-	-	1
1993	2	1	-	3
1994	3	2	-	5
Total	6	3	-	9

Students who completed the course during the period:

B.F.Sc.	2	1	-	3
M.F.Sc.	2	2	-	4

3.6.6. Faculty Improvement:

3.6.6.1. Details of scientific staff deputed for higher studies:

Name of the scientist	Course to which deputed	Duration	Place to which deputed
Smt. V. Malika	Ph.D.	3	Central Institute of Fisheries Education, Bombay.

3.6.6.2 Details of participation of scientists to Seminars/Workshops/Training/Symposia/Summer Institutes, etc.)

Name and Designation	Type of Course &	Venue	Period
Dr. D. D. Namboodiri, Assoc. Professor	Seminar on Interational Congress on Kerala Studies at Thiruvananthapuram.		27th to 29th August 1994.
Dr. P. M. Mathew, Professor	Workshop (Investment opportunities in Aquaculture (NABARD) at Calicut		22nd Aug. 1994
Dr. P. M. Mathew, Professor.	Training Programme (Fish Breeding, Farming and Hatchery Management) at Kumarakom.		5th to 3th September '94.
Dr. Anna Mercy, Assoc Professor	- do -		-do-
Dr. P. M. Mathew, Professor	Training Programme (Ornamental Fish culture) at Mannuthy.		August & Sept. 1994.
Sri. P. S. Mrithunjan, Assoc Prof.	Refresher Course (UGC sponsored) - Instrumental methods in Environmental Monitoring at Cochin University.		3rd to 26th November '94.
Dr. K. V. Jayachandran Asst. Professor	- do -		-do-
Dr. K. K. Varma, Assoc. Professor	Conference ('PACEM IN MARIBUS XXII')		4th to 8th December '94.
Smt. Alphi Korath, Asst. Professor	Annual Conference & Seminar of Indian Society of Agricultural Statistics		15th to 17th Dec., 1994.

3.6.6.3 Details of Training/Symposia/Workshop, etc. conducted at the College:

Date	Type of Course	Period	No. of participants
April	Training for Bank Officials (Functional programme on Fisheries Dept. (NABARD)	One day	30

April and May	Training programme for unemployed youth on self-employment in Fisheries (Two batches)	10 days (For each batch)	60
May	Training in Processing	3 days	10
June	As part of Training - Classes on Biofertilizers	2 days	20
August	Ornamental Fish Culture - Practical Training	1 day	15
September	-do-	2 days (2 batches)	20
November	Training on 'Paste Products Technology' (Sponsored by STEC)	5 days	12

3.6.7 College Library:

Details	Addition during the period	Progressive Total
Books	128	10,035
Indian Journals	-	32
Foreign Journals	-	21
Others	127	1,748

3.6.8 Hostels:

Hostels	No. of Inmates	Name of Asst. Warden
Men's Hostel	79	Dr. P.M. Mathew. Professor

3.6.9 Instructional Farm:

Farm Area : 10 ha wet land (Out of 28.5 ha)
18.5 ha Garden land.

Out of wet land 5 ha. are leased for Prawn Filtration; 0.5 ha for experimental prawn culture; 2.5 ha area converted in Fish ponds where culture of brackish water and fresh water fish and prawn culture is practiced. A significant portion of garden land is being occupied by buildings, roads, play-grounds etc. Coconut is the main crop and these are about 1,250 numbers of yielding trees. New coconut seedlings (500 Nos) are planted during this year in addition to 450 Nos. Teakwood seedlings planted. A total number of 25,604 coconut were sold during the period. 10,148 numbers of Ornamental fishes were sold in addition to 93 packets of seeds of the same. Other fish seedlings were also sold to the tune of about 36 thousand.

3.6.10 Outreach Programmes: During the period, under the Unit of this College, certain training programmes in Fish culture, Agriculture and Animal Husbandry for the unemployed youth of this locality was organised. The training programme sponsored by the NSS Training and Orientation Centre, Kalamasseri. 60 unemployed youth (both male and female) made use of this Course.

KERALA AGRICULTURAL UNIVERSITY

No.R5/65050/95.

Directorate of Research,
Vellanikkara,
Dated: 30-09-1995.

From

The Director of Research.

To

The Dean, College of Agriculture, Vellayani.

The Dean, College of Fisheries, Panangad.

The Dean, Kelappaji College of Agrl. Engineering &
Technology, Tavanur.

The Assoc Dean, College of Horticulture/
College of Forestry/
College of Cooperation & Banking,
Vellanikkara.

The Special Officer, College of Agriculture, Nileswar.

The Associate Director, Regional Agricultural
Research Station, Pillicode/Pattambi/
NARP(SR), Vellayani/Ambalavayal/
Kumarakom.

✓ The University Librarian, K.A.U., Vellanikkara. (2 copies)
The Head,

Sir,

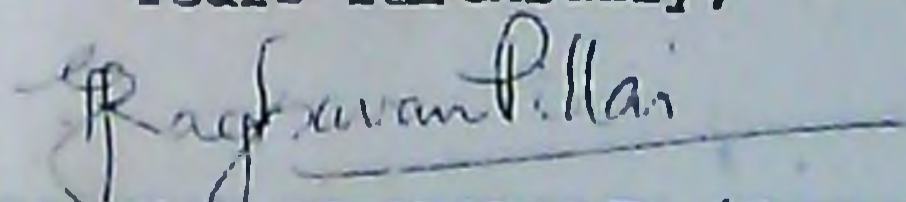
Sub:- Summary report of KAU-1994 - Copy - Forwarded

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Please find enclosed herewith a copy of the summary
report of KAU 1994 for reference.

Kindly acknowledge the receipt.

Yours faithfully,



ASSOC DIRECTOR OF RESEARCH (Farms)
FOR DIRECTOR OF RESEARCH.

Seven NSS Volunteers of this College participated in a 5-day Camp (inter-University) at Parambikulam during 1st to 5th May, 1994.

An 'AIDS' Awareness seminar was held at the College under the auspices of the NSS Unit on 16th December 1994. Also a film-show on the same topic was followed. Quami Ekta was celebrated by taking National Integration Pledge by students and staff on 23rd November, 1994.

Exhibition: College of Fisheries participated in the "Agriculture Fair '94" held at Kanakakkunnu Palace, Thiruvananthapuram during 14th to 18th December, 1994 together with other Colleges of Kerala Agricultural University. Live specimens of giant Freshwater prawn both adult and juveniles, and Ornamental fishes, models of various fishing crafts and gears and fishery products attracted visitors.

Students' Union Activities: The inaugural function of Students' Union activities for the year 1993-94 was held on 26th October 1994. Sri.P.T.Kunjumohammed, MLA, inaugurated the Union, and also the inter-class Arts Festival, "Fish-Fest '94". Inter-class arts and literary competition were held during the following three days. A Poster Exhibition and a Seminar on the topic on 'Status of Women in the Contemporary Era' was organised by the Students' Union on 16th December, 1994.

Sports and Games: The Annual Athletic Meet of the College of Fisheries was held on 3rd May, 1994. The City Police Commissioner Sri.Loknath Behra was the Chief Guest at the Valedictory Function. Miss.Shiny, C.K. represented the College in the University Basket Ball (Women's) team, which won the match.

Social Activities: Farmers' day was celebrated by planting Teak wood seedlings by Students and staff of the College.

3.6.11 Important visitors

Justice Ms.P.Janaki Amma; Sri.P.T.Kunja Mohammed, MLA; Sri.A.J.Vijayan, Editor, 'Alakal'; Dr.Joseph Padayatti, Professor (Rtd.), Centre for Genetic Engineering, Indian Institute of Science; Sri.C.Chериан, President, Indian Sea Food Exporters Association; Sri.M.K.R.Nair, Director, I.F.F.P.; and Dr.K.Gopakumar, Director, CIET, were the important visitors who visited the College during the period under report.

3.7 KELAPPAJI COLLEGE OF AGRIL.ENGG.& TECHNOLOGY, TAVANUR

3.7.1. Dean: Prof.K.John Thomas is the Dean in charge from 1.10.93 onwards.

3.7.2. Academic position as on 31-12-1994

Dean.	Prof.	Asso.Prof.	Asst.Prof.	Others.	Total		
					S	P	V
1	7	12	39	-	59	27	32

3.7.3. Changes in Academic position during the period

One post of Assistant Professor under NARP has been shifted to KHDP, Vellanikkara with effect from 25-1-'94. Sri.CP Mohammed, Professor is on leave without allowance for months from 15-10-'94.

3.7.4. Administrative/Para-technical & Supporting Staff position as on 31-12-'94

AO/AA	SO/SOS	Asst. Ty.	FS/FA	LA	Driv.	Cl.IV	Others	Total
1	5	11	3	7	5	2	15	24
								73

3.7.5. Academic Programmes
3.7.5.1. Students Statistics

Year of adm. & Course	Men	Women	Foreign	Total
UG Programme				
B.Tech. Course				
1989	2	-	-	2
1990	7	1	-	8
1991	10	7	-	17
1992	12	6	-	18
1993	16	9	-	25
1994	14	10	-	24
PG Programme				
M.Tech. Course				
1993	6	2	-	8
1994	1	7	-	8

Students who completed the course during the period:

Name of Course	Men	Women	Foreign Students	Total
B.Tech. Course	4	11	-	15
M.Tech Course	6	1	-	7

3.7.5.2. Study tours: The all Kerala study tour of 91 and 92 admission B.Tech. students of this College was conducted during the period from 1-12-94 to 20-12-94.

3.7.6. Faculty improvement

3.7.6.1. Details of scientific staff deputed for higher studies

Name of scientists	Course to which deputed	Duration	Name of Univ. to which deputed
Sri.V.R.Ramachandran, Asst. Professor	Ph.D		TNAU, Coimbatore
Sri.George Mathew, Asst. Professor	Ph.D		IIT, Kharagpur
Smt.J.Renukakumari Asst. Professor	Ph.D		College of Engg., T.V.M

3.7.6.2. Details of participation of Scientists in seminars/workshops etc.

Name & Designation	Type of course	Venue	Period
Dr E.Komala Amma, Asst. Professor	Refresher Course in Chemistry	Unty. of Kerala, TVM.	27-12-94 to 17-1-95

3.7.7. College Library

Details	Additions	Progressive total
Books 16741	9	16750
Indian Journals 61	-	61
Foreign Journals 32	-	32

3.7.8. Hostels

Hostel	No. of inmates	Name of Assistant Warden
Men's Hostel	66	Sri.Xavier K.Jacob, Asst. Professor
Women's Hostel	42 students & 5 staff members	Smt.Santhi Mary Mathew

3.7.9. Instructional Farm

Production of coconut seedlings have been enhanced substantially. This year 4700 seeds of WCT has been planted in the nursery for production and distribution of seedlings during next year. Substantial increase has been made in the acreage under vegetable seed production. Planting is in progress to achieve the targeted production of 440 kg. vegetable seeds. A new propagation unit has been established for large scale production of cashew and mango grafts. During the period under report, 5525 cashew grafts and 1325 mango grafts have been produced. The progress of the production programme is satisfactory. 8000 nos. of rooted pepper cuttings of Panniyur-1 variety has been produced which is now ready for distribution to the public.

Farm Development Activities:

Two numbers of low cost green houses with a total floor space of 400 sq. are under construction in the propagation unit attached to the farm. A total cost of Rs.1 lakh is estimated for completing the work. Intensive programme of intercropping has been undertaken in about 1 ha. of garden land by planting 165 nutmeg seedlings and 200 mangala arecanut seedlings as intercrop in coconut. 220 nos. of grafts of Anakayam 1, Dhana and Kanaka varieties of cashew have been planted in the farm to establish a cashew progeny orchard for further multiplication. Massive tree planting programme has been undertaken by planting about 2000 tree saplings along the border of the farm lands. Steps have already been taken to bring under irrigation, about 6 ha. of garden land (planted mainly with coconut) by installing pipe line at an anticipated cost of Rs.2 lakhs. The work is expected to

be completed by the end of March 1995. A Sprinkler/micro sprinkler irrigation unit has been installed in the propagation unit at a total cost of approximate Rs.25,000/-.

Seed and Nursery Programme

During the period 12505 kgs. of paddy seeds and vegetable seeds of 76.1 kgs. were produced. 1827 nos. of coconut seedlings, 8000 nos. of pepper rooted cuttings (Panniyur-1), 5525 nos. of cashew grafts and 1325 nos. of mango grafts were also produced. Vegetable seeds of different varieties of 76.1 kg were produced. Developmental activities Three plots available in front of the Ladies Hostel and the Agricultural Building were converted into a Lawn-cum-Garden by planting Carpet grass and roses. A task force consisting of 6 student volunteers was formed for further development and maintenance of the garden. A talk on Secularism and Fundamentalism by Mr. Mohamed Amar, Managing Director, BEST Cannanore was arranged on 18-8-94 for the benefit of students of the College.

Sadbhavana Day was observed on 20th August with a memorial meeting presided over by Dr. KI Koshy. In his brief speech, Dr Koshy emphasised the need for promoting harmony among people of all religion eschewing violence. All the students and staff who attended the function took the Solidarity pledge administered by the Dean in charge. The NSS Day was observed on 24th September in a befitting manner. Essay competition and poster competition were organised involving the student volunteers and the winners were given merit certificates.

A group of ten volunteers were motivated to initiate Plague Awareness Campaign in the adopted Village with necessary information. They visited the Community Centre and selected houses in the adopted area and conveyed the message relating to plague, AIDS and popular scientific agricultural practices.

A favourable climate for launching the VTA Projects in the Campus was created. A talk on 'Awareness of AIDS and Healthy Life Style' was arranged for the benefit of peer leaders selected under VTA. Posters relating to various aspects of HIV/AIDS were displayed and group discussions on the subjects were conducted. World AIDS Day was observed on 1st December in a befitting manner. Folders and other reading materials in AIDS and its prevention were distributed among selected group leaders with a view to implementing AIDS and its prevention were distributed among selected group leaders with a view to implementing AIDS Awareness programmes in the Campus. Six Volunteers donated blood to the patients during the period under report.

3.7.10. Students' Union Activities

The KCAET Union election for 1993-94 was conducted on 16-7-94. The Union was inaugurated by Dr E.J. James, Executive Director, CWRDM and Arts Club by Sri.P.Surendran, Novelist on 4th August, 1994. The College team participated in the Inter Collegiate Youth festival between 6th and 12th August, 1994. Our team participated in the All Kerala Inter Engineering College Arts festival at Trichur from 1st to 3rd September, 1994. A cultural programme viz., 'Poothapattu' was staged by Sasthra Sahitya Parishad on 26-8-94. The College Arts festival was held from 3rd to 7th November, 1994.

3.7.10.3. Sports & Games

This year inter collegiate tournaments were held only in shuttle badminton and Table Tennis. In both the events the College team participated. They fared well in the tournament. The College team participated in the Malappuram District. Basketball championship and Amateur Athletic championship.

3.7.11. Important visitors

Dr Gyanendra Singh, Assistant Director General(Engg.), ICAR, New Delhi visited on 27-9-94.

3.7.12 Progress on Plan Schemes

Outlay for 1994-95	Expenditure incurred	Percentage of utilization
51.979**	1.758	3.38%

** includes 50 lakhs on C.S.S for strengthening Agrl.Engg. Dpts. of S.A.Us.

3.8 COLLEGE OF AGRICULTURE, NILESWAR, PILICODE

3.8.1 Special Officer: Dr.U.Mohamed Kunju is the Special Officer i/c from 1-7-94 the date on which the college started functioning

3.8.2. Academic position sanctioned as on 31-12-94

Sp.Off.	Prof.	Asso.Prof.	Asst.Prof.	Others	S	P	V
1	-	-	1		2	2	-

3.8.3. Paratechnical/Administrative/Ministerial/Supporting staff in position:

AO/AA	SO/SOS	Asst.	Typist	FS/FA	LA	Dri.	Cl. IV	Others	Total
1	1	-	-	1	-	-	1		4

3.8.4. Academic programmes

Students Statistics ;
U.G Programme (on the rolls)

Year of admn. & course	Men	Women	Total
1994 B.Sc. (Agr)	10	8	18 (admn. cont'd)

3.8.5. Hostels

Hostels	No. of Inmates	Name of Asst. Warden
Men's Hostel	8	Dr.U. Ramachandran Assistant Professor
Women's Hostel	6	' '

CHAPTER 4 RESEARCH

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16 COLLEGE OF FORESTRY	72
17 COLLEGE OF VETY.	72 - 75
18 KCAET.	76
19 SOUTHERN ZONE	76 - 81
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24 RESEARCH PROPOSALS FORWARDED	94 - 96
25 CAMPUS DEVELOPMENT	96
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27 PAPERS PUBLISHED	97 - 98
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CHAPTER - 4

RESEARCH

4.1. Administration

Dr. M. Aravindakshan continued as Director of research i/c upto 2-9-94. Dr. G.R. Pillai, Asso. Director of Research was in charge of the Director of Research upto 5-9-94. Dr. N. Mohanakumaran, Asso. Director, took charge as the Director of research i/c from 6-9-94.

The associate Directors of Research at Headquarters during the period were,

Dr. M. J. Thomas	Asso. Director of Res. (Planning)	
Dr. P. B. Pillai	Asso. Director of Res. (Monitoring & Evaluation)	
Dr. G. R. Pillai	Asso. Director of Res. (Adaptive Res. & Training)	
Dr. M. S. Nair	Asso. Director of Res. (Vety. & Ani. Sciences)	
	(upto 19-11-94 till superannuation)	

The Zonal Associate Directors were

Southern Zone	Dr. N. Mohanakumaran	upto 6-9-94
	Dr. C. Sreedharan	i/c from 7-9-94 onwards
Special Zone	Dr. R. R. Nair	Cont'd.
Central Zone	Dr. K. M. Rajan	upto 4-6-94
	Dr. N. Krishnan Nair	from 8-6-94 onwards
High range Zone	Dr. K. Kumaran	Cont'd.
Northern Zone	Dr. N. Krishnan Nair	upto 2-6-94
	Dr. U. Mohamed Kunju	from 3-6-94 onwards

4.2. Faculty positions:

The details of Faculty positions in the various research stations are furnished in Table 4.2.1. Administrative and supporting staff positions are given in Table 4.2.2

4.2.1: Scientific staff positions

Organization	Cadre (sanctioned)					Total		
	Dir.	Assoc. Dir.	Prof. Prof.	Asst. Prof.	Others	S	P	V
SOUTHERN ZONE								
RARS, Vellayani	1	-	7	21	20	49	43	6
FSRS, Kottarakkara	-	-	2	8	-	10	5	5
CSRC, Karamana	-	2	-	4	-	6	4	2
CRS, Balaramapuram	-	-	1	1	-	2	2	-
SPECIAL ZONE								
RAPS, Kumarakom	1	-	5	9	-	15	15	-

Organisation	Cadre (sanctioned)					S	P	V	Total
	Dir.	Assoc. Dir.	Prof. Prof.	Assoc. Prof.	Asst. Prof.				
RSS, Moncompu	-	-	1	2	12	1	16	14	2
RPS, Kayamkulam	-	-	1	3	4	-	8	7	1
RHS, Vyttila	-	-	2	2	1	-	5	5	-
SPS, Thiruvalla	-	-	-	2	6	1	9	6	3
AI on Agri. Drainage, Karumady	-	-	-	1	2	-	3	3	-
CENTRAL ZONE									
RARS, Pattambi	1	-	2	10	27	-	40	17	23
CHS, Anakkayam	-	-	-	1	2	-	3	1	-
AMRS, Odakkali	-	-	-	1	3	-	4	4	-
ARS, Mannuthy	-	-	-	1	4	-	5	3	2
Fisheries station	-	-	-	-	2	2	6	4	2
ARS, Chalakydy	-	-	1	1	4	-	6	6	-
CRS, Madakkathara	-	-	-	1	2	1	4	3	1
BRS, Mannara	-	-	-	3	7	-	10	8	2
CRS, Thiruvazhankunnu	-	-	2	3	7	-	12	9	3
Campus development	-	-	-	-	2	2	5	5	-
NORTHERN ZONE									
RARS, Pilleode	-	-	6	14	13	8	42	26	16
FHS, Penniyur	-	-	1	1	6	1	9	4	5
HIGH RANGE ZONE									
RARS, Ambalavayal	1	-	1	5	9	-	16	10	6
KVK, Ambalavayal	-	-	1	-	8	5	14	10	4
CRS, Pampadumpara	-	-	-	3	5	-	8	5	3

Table 4.2.2: Administrative & Supporting staff in position

Name of Station	AO/AA	SO/SOS	Asst.	Ty.	FS/FA	LA	Dri.	Cl. IV	Others	Total
SOUTHERN ZONE										
RARS, Veliyayani	1	3	7	4	10	9	2	2	2	40
FSSS, Kottarakara	1	-	2	1	4	-	1	1	1	11
CSRC, Karamana	1	-	1	1	2	1	-	1	1	8
CRS, Balaramapuram	1	-	2	1	2	-	-	3	-	9
SPECIAL ZONE										
RARS, Kumarakom	1	5	7	4	10	4	3	6	4	44
RPS, Moncompu	1	1	4	1	4	5	2	-	-	8
RPS, Kayamkulam	1	-	2	1	5	2	1	6	-	18
RPS, Vyttila	1	-	2	1	4	1	1	2	-	14
SPS, Thiruvalla	1	-	2	1	3	-	1	2	2	12
Karumady	-	1	1	1	3	1	-	2	2	10
CENTRAL ZONE										
RARS, Pattambi	1	4	11	5	17	8	8	15	9	78
CRS, Anakkayam	-	-	1	1	2	1	-	4	2	11

Name of Station	AO/ AA	SO/ SOS	Asst.	Ty.	FS/ FA	LA	Dri.	Cl. IV	Others	Total
ARS, Mannuthy	1	-	3	1	5	1	2	4	1	18
Fisheries station	1	-	2	1	1	1	1	-	2	09
Campusdevelopment	-	-	1	2	5	1	-	-	-	09
ARS, Chalakudy	1	-	2	2	7	2	1	1	2	18
AMPBS, Odakkali	1	-	2	1	4	3	-	4	1	16
CBS, Madakkathara	-	-	1	-	2	1	-	2	-	6
BRS, Kannara	1	-	1	2	5	1	1	7	2	20
LRS, Thiruvazham- kunnu	1	-	6	2	9	2	1	20	4	39
NORTHERN ZONE										
RARS, Filicode	1	5	6	4	12	4	1	24	-	57
PRS, Panniyur	1	-	2	1	5	-	1	3	-	13
HIGH RANGE ZONE										
RARS, Ambalavayal	1	1	5	3	12	3	2	18	2	47
KVK, Ambalavayal	1	1	1	1	-	-	1	7	5	17
CRS, Pampadumpara	1	-	2	2	5	1	1	4	16	32

4.3. Research projects in operation in Agricultural Research Stations

Region and Station	No. of experiments		Total
	KAU	Externally aided	
SOUTHERN ZONE			
Vellayani	39	27	66
FSRS, Kottarakkara	21	1	22
CSRC, Karamana	1	6	7
CRS, Balaramapuram	3	1	4
SPECIAL ZONE			
RARS, Kumarakom	23	-	23
RRS, Moncompu	35	-	35
RRS, Kayamkulam	22	-	22
FRS, Vyttila	11	-	11
SRS, Thiruvalla	28	-	29
CENTRAL ZONE			
RARS, Pattambi	20	34	54
AMPBS, Odakkali	5	1	6
ARS, Mannuthy	11	10	21
ARS, Chalakudy	4	7	11
CRS, Madakkathara	2	14	16
CRS, Anakkayam	1	5	6
BRS, Kannara	5	23	28
LRS, Thiruvazhamkunnu	-	1	1

Region and Station	No. of experiments		Total
	KAU	Externally aided	
HIGH RANGE REGION			17
RARS Ambalavayal	13	4	9
CRS, Pampadumpara	2	7	
NORTHERN ZONE;			23
RARS, Fillicode	20	3	14
PRS, Panniyur	5	11	

4.4. Research Schemes/Projects in operation as on 31-12-1994

SOUTHERN ZONE:

ICAR -Co -ordinated
CRS Karamana

01. AICARP Project Directorate of Cropping Systems Research
Karamana & ECF Unit, Kayamkulam.

RARS Vellayani

02. AICRP on Forage Crops
03. AICRP on Nematode Pests
04. AICRP on Pesticide Residue
05. AICRP on Honey bee

ICAR Adhoc
College of Agriculture

- * 06. Development of soya rice blended food recipes

RARS Vellayani

07. Epidemiology of honey bee disease in Kerala and its management.
- * 08. Collection evaluation cataloguing and genetic improvement to tailor better commercial varieties with export potential in ANTHURIUM spp.
09. Homestead agroforestry systems of Kerala -Productivity of the extant homestead models and increasing the efficiency of the models
10. Nitrogen fixing bacteria associated with plantation and orchard crops of Kerala.
- * 11. Evolving techniques for the invitro propagation of economically important mono & poly embrionic mango varieties of Kerala.

Dept. of Agriculture (GOK)

- * 12. Field testing of tissue culture plants & training in plant tissue culture operated (one center at Vellayani & 3 centers at Vellanikkara)

Dept. of Biotechnology (GOI)
RARS Vellayani

13. Management of root diseases of important spice crops of Kerala with VA mycorrhiza
14. Micropropagation of the tree spices in Kerala (Clove and Nutmeg).
15. Rhizobium pulses association development of efficient strains of Rhizobium suitable for acid soil conditions.

Potash Research Institute of India
RARS Vellayani

16. Standardisation of plant part as an index of potassium status in banana, Musa Nendran.

Dept. Science Tech. and Environment
RARS Vellayani

17. Evaluation of acidity parameters in wet land soils of Kerala in relation to nutrient availability
18. Impact of sustainable farming practices on Soil properties and crop productivity
19. Monitoring of pesticide residues in milk and milk products in Kerala:
20. Potential of Bioagents (Bacillus macerans and Bacillus circulans) for the control of root knot nematode in the field.
21. Studies on pesticide residues in meat body fat, blood and various organs of animals slaughtered for meat purpose.
22. Identity of phytophthora affecting coconut and pepper and their bio control (STED)

CENTRAL ZONE

ICAR Co-ordinated
College of Horticulture

23. AIC Floriculture Improvement Project
24. AIC Vegetable Improvement Project
25. AICRP on BCCP
26. AICRP on Medicinal & Aromatic Plants
27. AICRP on Weed Control
- * 28. All India Network project on Agricultural Ornithology

RARS Pattambi

29. AIC Pulses Improvement Project
30. AICRIP - Double Cropping Main Centre
31. NSC - Breeder Seed Production Unit

ARS Mannuthy

32. AICRIP - Double Cropping Sub-centre

College of Forestry

33. AICRP on Agroforestry (Functioning at LRS, Thiruvazhamkunnu)

CRS Madakkathara

34. AICRP on Cashew - Research on Cashew

KCAET Tavanoor

35. AICRP on Energy requirements in Agriculture sector

36. AICRP on Farm Implements & Machinery

BRS Kannara

37. AICRP on Fruits (Banana)

ARS Chalakkudy

38. AICRP on Water Management

College of Vety. & Animal Sciences

39. AICRP on Pigs (Pig Breeding Farm)

40. AICRP on Poultry

41. Field progeny testing project at Mannuthy.

* 42. Network programme on micronutrients in Animal Nutrition and production Implementation

* 43. Network programme on embryo transfer technology in animal production.

ICAR Adhoc Research Project

College of Horticulture

44. Evaluation of tomato for summer season.

* 45. Species relationship in the genus piper and the scope of related taxa in the improvement of Piper nigrum L.

* 46. Standardisation of agrotechnics in foliage plants

* 47. Studies on the influence of variety, maturity & storage of Cashew apple on the quality of fermented products (wine & liquor)

* 48. Technology development for handling and utilization of common type of jackfruit of Kerala.

* 49. Traditional & appropriate technologies for insitu rain water harvest under humid tropical situations

* 50. Triploid Breeding of Tetraploid Hybrids of Palayankodan (Musa Mysore) x Pisang Lilin (Musa AA Pisang Lilin) for disease resistance

* 51. Nutritional studies on the availability of iron

* 52. Cytogenetic investigations of Kaempferia galanga L., Piper longum L. and Andropogon paniculata Brum.

53. Survey collection, evaluation, conservation and cataloguing of germplasm of certain under exploited perennial vegetables.

* 54. Heterosis in chilli & brinjal associated with resistance to bacterial wilt.

College of C&B

55. An evaluation of group management techniques in Agriculture adopted to enhance production and productivity of paddy in Kerala.

College of Vety & AS

56. Conservation of germplasm of Vechur Cattle of the coastal area and dwarf cattle of the high range of Kerala.
* 57. Effect of Tannin rich feeds on bypass protein availability
58. Studies on blood groups and biochemical polymorphism in cattle.
59. Utilisation of elephant energy with enhanced system efficiency

College of Forestry

60. Rainwater conservation in coconut based agroforestry systems by water harvesting techniques.
61. Standardisation of bareroot nursery techniques of some important tree species used for agroforestry planting in Kerala
* 62. Nutrient cycling in coconut based intensive multiple crop planting system.

RAHS Pattambi

63. Breeding for resistance to mosaic viruses in chilly (capsicum annum L).

Cadbury's India Limited
College of Horticulture

64. Cocoa research collaboration project between KAU and Hindustan Cocoa Products Ltd.

Central Silk Board
College of Horticulture

65. All India Co-ordinated experiments on sericul at VKA

Coconut Development Board
College of V & AS

- * 66. Development and standardisation of Dairy foods incorporating coconut

Dept. of Biotechnology (GOI)
College of Horticulture

67. Tissue culture research on Black pepper

- Dept. of Agri. & Cooperation (GOI)
 68. Central sector scheme for integrated programme for the development of spices. (ARS Mannuthy & Co Hort.)
 CRS Madakkathara
 69. Central Sector Scheme for the Integrated Cashew Development - Establishment of Madakkathara Centre
 AMPRS Odakkali
 70. Central scheme for development of medicinal and aromatic plants. (AMPRS Odakkali & COH, Vellanikkara)
- Dept. of Animal Husbandary, (GOK)
 College of Vety & Animal Sciences
 71. A comparative study of the diagnostic techniques to evolve a simple rapid method for the diagnosis of rabies in domestic animals
 72. Ascitic syndrome in poultry
 73. Etiology, diagnosis and control of Mastitis in Crossbred Cattle
 74. Investigations on mortality of Ducks in Kuttanad, Kerala.
 75. Kid Mortality
 76. Scistosomiasis in cattle in buffaloes in Thrissur and Palakkad districts.
- Dept. of Atomic Energy, GOI.
 College of Horticulture
 77. Studies on coconut palm in coastal Quilon district of Kerala.
- Dept. of Science Tech. and Environment
 College of Horticulture
 78. Bio-ecological studies on the odonata (Dragon flies) with special reference to their predatory potential in the biological control of important rice pests.
 79. Establishment of the Nursery for distribution of budded Cocoa plants and hybrid seedlings at the KAU.
 College of Fisheries
 * 80. Pesticide induced histopathological changes in selected fresh water of Kuttanad, Kerala
 College of V & AS
 81. Assessment of the mortality pattern in livestock and poultry
- European Economic Community
 82. Research & Development and breeder seed production programme of Kerala Horticulture Development Programme
- Indian Council of Social Science Research
 * 83. Organisational alteration for development - A study on the role of Govtl & Non Govtl. organisations for rural development in Kerala
- Kerala Forest Development Fund
 College of Forestry
 84. Clonal propogation of Rosewood through tissue culture.
 85. Standardisation of nursery techniques of selected tropical forest tree species.

National Horticultural Board
College of Horticulture

- * 86. Pilot testing of technology of Papaya based projects
- * 87. Transfer of technology in low cost nursery production & management, techniques.

Other Depts. (GOK)

LRS Thiruvazhamkunnu

- * 88. Establishment of forage & seed production units through effective utilisation of waste lands.

College of Forestry

- * 89. Habitat Utilisation of animals and their parasitic burden with special reference to Elephants in Vazhachal Forest Division

Rubber Research Institute of India

College of Horticulture

- 90. Root activity studies on rubber using p 32 as a tracer

USDA/FERRO

College of Forestry

- 91. Light utilization and canopy nitrogen use efficiency of component crops in some selected agroforestry systems.

National Water Development

Fisheries Station Pudukkottai

- * 92. Demonstration and Training model for a fishery based farming system in Coastal Wasteland- implemented at Fisheries Station

LRS Thiruvazhamkunnu

- * 93. Establishment of forage and seed production units through effective utilisation of wastelands.

HIGH RANGE ZONE

ICAR Co-ordinated

CRS Pampadumpara

- 94. AICS & CIP - Research on Cardamom

Central Silk Board

RARS Ambalavayal

- 95. All India Co-ordinated experiments on sericulture at Ambalavayal

NORTHERN ZONE

ICAR Co-ordinated

PRS Panniyur

- 96. AICRP on Spices - Research on Pepper

RARS Pilicode

- 97. AICRP on Cashew

ICAR Adhoc Research Project

RARS Pilicode

- 98. Crop weather models for Cashew.

Dept. of Agri. & Cooperation (GOI)
 RARS Pilicode
 99. Central Sector Scheme for the Integrated Cashew Development -
 Establishment of Pilicode Centre
 * 100. CLIMATE and COCONUT
 PRS Panniyur
 101. Central sector scheme for integrated programme for the devel-
 opment of spices (Panniyoor & Ambalavayal)

PROBLEM ZONE

ICAR Co-ordinated
 RRS Mancompu
 102. AICRIP - BHP & GSV Merger - Sub-centre
 Karumady
 103. AICRP on Agrl. Drainage
 SRS Thiruvalla
 104. AICRP on Sugarcane
 RRS Kayamkulam
 105. AICRP on oilseeds for groundnut and sesamum

ICAR Adhoc Research Project
 RRS Mancompu
 106. Evaluation of cultivated and wild rice germplasm for
 biotic stresses
 * Projects started during the period

4.4.1 TABULATED STATEMENT OF RESEARCH SCHEMES OPERATED BY
 DIRECTORATE OF RESEARCH AS ON 31-12-1994

	Faculty				Total
	Agri	Vety.	Agri.Engg	Fish	
Co-ordinated	28	5	2	-	35
ICAR Adhoc schemes	27	4	-	-	31
Other schemes	31	7	-	2	40
Total	86	16	2	2	106

4.4.2 REGION-WISE TABULATED STATEMENT OF RESEARCH SCHEMES
 OPERATED BY DIRECTORATE OF RESEARCH AS ON 31-12-1994

	ICAR		Non-ICAR		Total
	Co-ordi.	Adhoc	Co-ordi.	Adhoc	
Southern Zone	5	6	-	11	22
Central Zone	21	20	1	29	71
High Range Zone	1	-	1	-	2
Northern Zone	2	1	-	3	6
Problem Zone	4	1	-	-	5
Total	33	28	2	43	106



4.5. Research Schemes terminated during the period 1-4-94 to 31-12-94

Faculty of Agriculture
ICAR Adhoc

Southern Region Vellayani

1. Nutritional studies on pulses

2. Evaluation of vasicular arbuscular mycorrhiza as bio control agent against wilt diseases of pepper

NON ICAR: ICFRE(GOI)

College of Forestry

3. Studies on intercropping of forest trees with fast growing nitrogen fixing tree

NON ICAR: ICSSR

Southern Region Vellayani

4. Socio economic and cultural determinants influencing nutritional status of women workers

ARS Chalakudi

5. Pilot project on farm water management

Faculty of Veterinary & Animal Sciences

ICAR Adhoc

College of Vety. & Animal sciences, Mannuthy

6. Nutrient requirements of broiler rabbits

NON ICAR : USDA/FERRO

College of Vety. & Animal sciences, Mannuthy

7. Etiology and pathobiology of the carcinoma of the mucosa of the ethmoid in domestic animal

4.5.1 TABULATED STATEMENT OF RESEARCH SCHEMES TERMINATED DURING THE PERIOD 1-4-1994 TO 31-12-1994

	Faculty				Total
	Agri	Vety	Agri.Engg	Fish	
ICAR Schemes	2	1	-	-	3
Others	3	1	-	-	4
Total	5	2			7

4.6. Research Journals

Name of the journal	Editorial Board Met	No. issues
Journal of Tropical Agriculture	Nil	One
Journal of Veterinary and Animal Sciences.	14-7-1994	One

4.7. Faculty Research Committee Meeting
 4.7.1. Veterinary Faculty

The FRC of Veterinary faculty was met on 3-8-94 at the college of veterinary and animal sciences, Mannuthy. A total of 36 projects were approved.

Major decisions: It was recommended to strengthen the research co-ordinator's wing by filling up the vacancy of Professor (RC) with adequate staff. It was decided to recommend sanctioning the post of stenographers to each departments. Infrastructural facilities available in the various farms attached to the faculty should be available for undertaking research projects of the students.

4.7.2. Agricultural Faculty

The Faculty Research Committee (Agriculture) met two times during the period under report. The details are given below:

44th meeting of the Faculty Research Committee (Agriculture) was held at the College of Horticulture, Vellanikkara on 25th August 1994.

45th meeting of the Faculty Research Committee (Agriculture) was held at the Regional Agricultural Research Station, Kumarakom on 30th November 1994.

A total number of 70 research projects (PG - 17, externally aided - 41 and KAU - 12) were cleared in 44th meeting.

A total of seventy research projects (PG - 1, externally aided - 35 and KAU - 34) were cleared in the 45th meeting. Hence the total number of research projects approved in the faculty during the period is 140.

It was decided that in addition to the Annual Research Report being published every year, the salient aspects of research achievements and recommendations will be released as a separate document, supported by illustrations and photographs which will be of immense help to policy makers, administrators, scientists, agricultural specialists, professional students and farming community.

4.7.3. Agricultural Engineering Faculty:

The F.R.C of Agricultural Engineering Faculty met during the period on 5-5-94 at KCAET, Tavanur and approved 8 projects.

4.8. Scientists deputed to Summer Institutes/Workshops/Seminars etc

Name of Scientist	Seminar/Symposia/workshop, etc.	Period of deputation
Regional Agri. Res. Station, Vellayani		
Dr.P.R. Ramasubramonian Prof. of Soil Science	XIV Zonal Workshop of the High Ranges Zone	22.4.94 Ambalavayal

Name of Scientist	Seminar/Symposia/ workshop, etc.	Period of deputation
Dr.P.R. Ramasubramonian Prof. of Soil Science	XVI Zonal Workshop of the Central Region	26.4.94 Pattambi
All scientists of the Southern Region	XVI Zonal Workshop of the Southern Region	18.5.94 Vellayani
Dr. T. Nalinakumari & Dr. S. Naseema Beevi Assoc. Profs.(NC) Ent.	6th Annual Workshop of AICRP on Pesticide Residues	16-17 May, 1994 Ludhiana
Dr. T. Nalinakumari Assoc. Prof.(NC),Ent.	Training programme on Integrated Pest Management	7.7.94 to 9.9.94 IRRI, Philippines
Dr. Abraham Jacob Professor, Ent.	Seminar cum workshop on Bee diseases, their diagnosis & mngmnt.	6.12.94 to 9.12.1994 Bangalore
FSRS, Kottarakkara Ms. Darley Jose Asst. Prof. (Hort.)	Environment Seminar by Gandhi Peace Foundation	17.5.94 Punalur
Ms. Darley Jose Asst. Prof. (Hort.)	CATT. Envir. & Devlpmt. by Rationalist Society of Kerala	21.5.94 Kollam
Ms. Darley Jose Asst. Prof. (Hort.) & Smt. S. Lekshmi Asst. Prof. (Agro.) Miss. Darley Jose Asst. Prof. (Hort.)	Summer Institute on Integrated Farming System Research and Dvlpt. for Sustainable Agriculture International Congress on Kerala Studies	6-15 June, 94 TNAU, CBRE. 26-29 Aug, 94 AKG Centre, Trivandrum
Dr. K. Vasanthakumar Assoc. Prof.(Hort.)	Group Seminar on cashew orgnsd. by KJP Research Foundation, Tvm.	5.12.94 Kollam
CSRC, Karamana Sri.V. Ramachandran Nair Prof. of Agronomy	XVI Zonal Workshop of the Problem Area Zone	7.5.94 Kumarakom
Dr. C. Sundaresan Nair Assoc. Prof. of S.S. & Dr. S. Ravi, Assoc. Prof. (Pl. Path.)	XVI Zonal Workshop of the Southern Region	18.5.94 Vellayani
CRS, Balaramapuram Dr. G.K. Balachandran Nair Prof. of Agronomy & Dr. G. Padmakumari, Prof. of Pl. Path.	XVI Zonal Workshop of the Southern Region	18.5.94 Vellayani
SPECIAL ZONE		
BARS, Kumarakom: Sri.G.Mathai, Professor	National symposium on mushroom at NCMRT, Solon, H.P.	8-10, April 1994.
Sri.K.A.Inasi,	Training on computer	19-30 Jult,

Name of Scientist	Seminar/Symposium/ workshop, etc.	Period of deputation
Asst. Professor	application held at NAAARM, Hyderabad	1994.
RRS, Moncompu: Smt. R. Devika, Asst. Professor	Anther culture trg. TNAU, Coimbatore	May, 1994. do
Smt. Ahmed Regina Asst. Professor	do	do
Dr. L. Remadevi, Professor	National symposium on management of eco- system.	7-9 Nov.
Dr. P. V. Nair, Professor	Management Development Programme on ICDF	7-11 Nov. 94
RARS, Kayamkulam: Dr. Sverup John, Associate Professor	Orientation cum Trg. on oil seed research Hyderabad.	27-30 Sept. '94
Dr. P. Sushamakumari, Asst. Professor	XLV Annual Rabi oil- seed research, UAS, Bangalore.	24-27 Aug., '94
SRS, Thiruvalla: Dr. D. Alexander, Assoc. Professor	AICRP Annual Workshop at Navasari	27-30 Nov.. '94
Sri. K. Sreekumar, Asst. Professor	do	do
AICRP on Agrl. Drainage, Karumady	Annual workshop of AICRP on Agrl. Drainage at ECKVV, Kalyani, West Bengal	
Sri. Madhusudan Nair, Assoc. Professor	do	
Sri. T. D. Raju, Asst. Professor	do	
Fisheries station, Puduveyypu		
Dr. K. S. Purushan, Assoc. Professor	Second Review Meeting of Agro- Forestry operational Research Project under Technology Exten- sion held at Kattupakkom, TANUVAS, Madras for present- ing the progress report of Wasteland project.	17-07-94 to 21-07-1994.
-do-	International congress on Kerala studies at University College, Trivandrum to present the paper.	27-08-94 to 29-08-1994.
Dr. Annamma George, Assoc. Professor.	Seminar in connection with 'Farmers day' on pokkali cultivation of rice at Mangalya Auditorium.	17-08-1994.

Name of Scientist	Seminar/Symposia/ workshop, etc.	Period of deputation
CENTRAL ZONE		
RARS, Pattambi:		
Dr. Jose Mathew	Integrated farming systems research and management for sustainable agriculture at TNAU, Coimbatore.	6-6-94 to 15-6-94
Dr. Jose Mathew, Dr. L. Nadarajan	Third NARP training programme on computer application in Agrl. Research at NAARM, Hyderabad.	19-7-94 to 30-7-94
Mrs. T. K. Bridgit	International Workshop on constraints, opportunities and innovation for wet seeded rice at Bangkok, Thailand.	31-5-94 to 3-6-94
Dr. L. Nadarajan	International symposium on plantation crops (PLACROSYM XI) Kozhikode	30-11-94 to 3-12-94
Dr. K. Anilakumar	Management development programme for integrated rural development programme in rice based cropping system area, organised by MANAGE, Hyderabad at CTI, Mannuthy.	7-11-94 to 18-11-94
ARS, Mannuthy	Summer Institute on recent Advances in Plant Breeding	10 days (4-7-94 to
Dr VV Radhakrishnan	for Biotic and Abiotic stresses on crop plants - PAU, Ludhiana	13-7-94)
	16th Zonal Research and Extension Advisory Council Meeting - RARS, Pattambi	1 day (26-4-1994)
Dr U. Jayakumaran	16th Zonal Res. and Extn. Advisory Council Meeting - RARS, Pattambi	1 day (26-4-94)
	Co-ordination group meeting in Rice at College of Agriculture, Vellayani	1 day (3-8-1994)

NORTHERN ZONE

RARS Pilicode

Dr.Latha Bastin

Summer Institute on
'Advances in Agricul-
tural Economics and
Natural Resources Ecoco-
mics' at TNAU, Coimbatore

16-56-94 to
4-6-1994

Dr.M.Govindan

Summer Institute on Recent
advances in Agrl.Microbio-
logy with special reference
to Mycorrhiza held at UAS,
Bangalore.

21-8-1994 to
9-9-1994

HIGH RANGE ZONE
RARS, Ambalavayal

Dr T.P. Manomohan das,
Assistant Professor

Computer application
in Agriculture at
NAARM, Hyerabad

17-7-94 to
30-7-94

KVK, Ambalavayal

Dr Jacob John,
Assoc. Professor
& Head, KVK

Zonal workshop at KVK
Pondicherry

27-6-94 to
29-6-94

Dr Abdul Kareem

Computer application in
Agriculture at NAARM &
Management at Hyderabad

19-7-94 to
30-7-94

Dr Abdul Kareem

ICAR training for trainees
of KVK staff

19-8-94 to

CRS, Pampadumpara:

Dr Arthur Jacob.J.,
Assoc Professor
Dr.V.K.Girija-

District level
Agrl. Seminar on
on Pepper held at
Nedumkandan

30-4-94

Dr Arthur Jacob.J,
Assoc Professor

T&V Workshop held at
Thodupuzha
-do- at Vandiperiyar

11th & 12th May

9-6-1994

"

-do-

7th & 8th
August 1994

Sri.V.R.Shajan
Asst. Professor

T&V monthly workshop
at Thodupuzha

26th & 27th
August 1994

Dr V.K.Girija
Asst. Professor
Dr Arthur Jacob
Asso.Professor

Agrl. Seminar at
Pampadumpara

22-5-94

Dr Arthur Jacob }
 Assoc Professor }
 Dr V.K.Girija }
 Asst. Professor }
 Ms. Ancy Joseph, }
 Research Associate }

Seminar on 'Transfer
 of Technology in
 Spices" at ICRI,
 Myladumpara

One day seminar
 on 25-10-04

4.9. Details of Seminar/Workshops/Symposium conducted

Station	Particulars	
RARS, Vellayani		
Training on basic aspects of insect/bee pathology		16-25 Nov., 94 Vellayani
Training on Propagation techniques and nursery management of crop plants	Nursery entrepreneurs of Kollam district	7-8 July, 94 Kottarakkara
Training on Principles and practices of homestead fmg.	Asst. Directors of the Dept. of Agri.	26-29 Sept. 94 Kottarakkara
Training on current trends in Animal production for the homesteads of Kerala	Farmers	16-18 Nov., 94 Kottarakkara
Training on mushroom cultivation for unemployed women	Unemployed Women	12-14 Dec., 94 Kottarakkara
Nursery techniques in plantation crops, spices and fruit plants RARS, Pattambi	Farmers	19-21 Dec., 94 Kottarakkara
	Advanced training on Rice production technology for Agri. Officers of Kri- shi bhavans of Central and Northern region on 25-28 October, 1994. Nine scientists participated.	
Fisheries station, Puduveypu	One 6 days' training programme for farmers was conducted at the station between 19th and 24th December 1994.	
RARS, Ambalavayal	Field training of B.Sc(Ag.) training students from College of Horticul- ture, Vellanikkara on 14-11-94 to 26-11-94	
CRS, Pampadumpara	A One day seminar on the "Problems and prospects of cardamom cultiva- tion" was conducted on 21-11-94. Scientists from 'Indian Cardamom Research Institute', Myladumpara and 'Cardamom Research Station', Pampadumpara handled the classes.	

 4.10. The following scientific staff are undergoing higher studies

Station	Scientist	Institute in which
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PROBLEM ZONE:

RARS, Kumarakom:	Sri.K.J. Joseph Assoc Professor	GKVK, Bangalore (for Ph.D.)
	Smt.K.Geetha, Asst. Professor	COA, Vellayani (for Ph.D.)
RRS, Moncompu:	Smt.Elizabeth K Syriac, Asst.Professor	COA, Vellayani (for Ph.D.)
	Smt.Ahmed Regina Asst. Professor	Sydney University, Australia (for Ph.D.)

CENTRAL ZONE

RARS, Pattambi:	Mrs. T.K.Bridgit, Asst.Professor	Ph.D.Programme (KAU)
	Smt.Rahmath Niza Asst.Professor	TNAU, Coimbatore (Ph.D. programme)
	Smt.Elsy, C.R. Asst.Professor	-do-
CRS, Anakkayam	Smt.P.V.Nalini Asst. Professor	Ph.D. Part-time.
CRS Madakkathara	Dr.S.Pathummal- Beevi, Associate Professor	Post-Doctoral Studies in Univ. of Cardiff, Wales, U.K.

SOUTHERN ZONE

RARS, Vellayani		
Smt. T. Jiji Asst. Prof.(Ent.)	Ph.D. (availing study leave)	KAU, Vellayani
Sri. R. Krishnakumar Asst. Professor	Part-time Ph.D. (availing study leave)	KAU, Vellayani

 4.11. Measures taken for farm development and to increase Farm Revenue

Southern Zone:

FSRS, Kottarakkara : Nil during the period
 CSRC, Karamana : The defective pump house was
 reconstructed and the pump re-erected on a new platform. Expendi-
 ture on this was met from Plan provision of Rs.50,000/-
 Planted 130 Manjium saplings. Prepared a coconut nursery of 5000
 coconut seednuts.

CRS, Balaramapuram : Pumpsets already installed to irrigate intercrops in coconut. Awaiting power connection.

At CSRC, Karamana, sprinkler irrigation system is being installed for irrigating garden land crops of vegetables, banana etc, and also the coconut nursery at a cost of Rs. 25,000/-. This work, to be executed by the Kerala Agro-Industries Corporation, is expected completion within a month. Repairs to irrigation canals were completed.

At CRS, Balaramapuram, pumpsets have been installed for irrigation of the intercrops. Power connection is awaited.

PROBLEM ZONE:

Kumarakom:

Reclamation of land for extending area for cultivation of vegetables etc. - 0.5 ha; Area under vegetable increased and its cultivation intensified. Installed a new Axial flow pump for drainage.

Kayamkulam:

0.5 ha of garden land has been brought under vegetable cultivation. 1000 Nos. of banana have been planted as intercrop in the garden land. 200 Nos. of mangala seedlings have been planted as mother palms for seedlings production. 50 Nos. of manjium and teak seedlings were planted along the border. Installed a 1.5 HP electric motor for irrigating garden lands.

Thiruvalla:

850 arecanut seedlings were planted along the border. A 1.5 HP motor has been installed to irrigate vegetables in about 0.5 ha.

Fisheries station, Puduveyypu

Removal of mangrove weeds, excavation of feeder canals and fish ponds for setting up a model farm for fishery based cropping system in the coastal wasteland. Excavated seed traps in the low lying areas near barmouth, deepening and clearing of existing canals connecting reservoirs, pools etc. within the campus for increased seed recruitment.

Cultivation of fast growing fishes in ponds not used for experiments; Capture fishery from feeder canals and reservoirs; Planted 100 Nos. of coconut seedlings in suitable area near beach; Raised coconut seedling nursery of high yielding local variety; Nutrient rich pond bottom soil dumped in coconut basins.

Seasonal cultivation of vegetables and intercrops like colocasia, tapioca, pappaya, plantain etc. taken up on experimental basis on fish pond bunds and other suitable areas. Planted

casuarina, teak, mahagony, matty, Thespasia, Vaka etc. (Total 16,900 Nos.) in the interspace of coconuts, the newly acquired beach area and other unutilized areas in the campus.

Area utilization

Coconut cultivation	-	2.5 ha.
Fish culture	-	4.0 ha
Feeder canal	-	5.0 ha
Fish seed collection	-	30.0 ha
Casuarina plantation	-	10.0 ha
Beach	-	20.0 ha
Meadows	-	30.0 ha
Marsh wasteland	-	59.5 ha

Total	-	161.0 ha

CENTRAL ZONE

CRS, Anakayam:

Nine hundred cashew grafts and hundred and fifty mango grafts were planted as progeny orchard. All the uncultivated areas were brought under cultivation. The waste lands were reclaimed and utilised for nursery purpose. Intercropping with Pineapple and other crops were started to augment farm revenue. About 50 labourers were given training on nursery production.

Programme for large scale production of planting materials of important crop plants of Malappuram District was started. In addition to Cashew, Pepper, Mango, Nutmeg, Coconut, Pineapple and other crops were introduced for large scale multiplication and distribution. Irrigation facilities were developed by digging an open well and construction of a ground level water tank and pump house.

AMPRS, Odakkali:

Farm Development Activities

Motorable approach road has been constructed to every block of the farm; All the available water sources have been fully utilised; All the cultivable area has been brought under cultivation; Avenue planting of coconuts, pepper, nutmeg and clove has been undertaken; The nursery started for the production and supply of medicinal plants has been strengthened.

Irrigation facilities developed

All the blocks have been brought under irrigation by constructing a master water tank of one lakh litre capacity. Efficient irrigation systems like drip, spmrinkler, etc. are also installed.

CRS, Madakkathara:

The unyielding old cashew trees (seedling progenies) were auctioned and new planting was taken up with softwood grafts of High Yielding varieties. Intercropping with pineapple was taken up in the scion bank area. About 500 Nos. of teak stumps were

planted in the boarder of the research station during 1993 and 1994. Herbicide application could reduce the labour cost in weeding and harvesting was made effective and easier. Scion materials were collected from MSCRP plots located at Palakkad, Thrissur and Malappuram district and the graft production could be enhanced to 50,000 Nos. during 1993 and 1994.

Area utilization

An additional area of 2 ha. from the estate was allotted to this station for the layout of new MLT experiment. An additional area of 2 ha has been brought under the scion bank with High Yielding Varieties for making available maximum scions for grafting. 2 ha. uncultivated area from the KAU Estate has been brought under cashew for scion collection as well as for getting revenue.

The borewell attached to the station has been commissioned during 1994. Drip irrigation has been installed during 1993-94 for getting maximum scion materials, from the scion bank.

BRS, Kannara:

Intensive cultivation of banana, coconut, pepper and vegetables. Every available area of the farm was utilized for planting banana suckers and raising vegetables to strengthen the sale of suckers and vegetable seeds to the public. Sprinkler irrigation system was installed in coconut and nutmeg nursery.

ARS, Chalakudi

As part of farm development activities, drainage facilities in coconut experimental plots at Water management Unit, Vellanikkara has been improved. Temporary barbed wire fencing on eastern side of the coconut experimental plots was provided. During summer season, large scale cultivation of vegetables has been undertaken. As part of Seed and Nursery Programme, good quality seeds of important vegetables viz. bhindi, Amaranthus, Snakegourd, Bittergourd, Ashgourd, Cucurbits etc. have been produced.

LRS, Thiruvazhamkunnu.

Established a forage and seed production Unit through effective utilization of funds provided under Integrated Wasteland Development Programme.

Highlights of Dairy Section : Herd strength : 264, Total cows : 145, Milch cows : 82, Average milk yield/day (kg) : 4.92, Milk average : 5.4 Kg.

NORTHERN ZONE

RARS, Pillicode:

A semi permanent dry cattle-shed to house 16 animals and a goat-shed to house 20 adult goats were constructed. Lab equipments worth Rs. 1.53 lakhs were procured during the period.

PRS, Panniyur:

Planted 500 Nos. of ordinary banana and 200 Nos. of Nen-dran.

HIGH RANGE ZONE

Regional Agricultural Research Station, Ambalavayal

The vacant land in Block-VI is being utilized for planting Mulberry under the All India Co-ordinated Experiment on Sericulture. An irrigation well in Block I and a ground level tank in Block II have been constructed utilizing NARP funds.

CFS, Pampadumpara:

Construction of pumphouse, taking pits for planting cardomom, uprooting the stubbles in block I, construction of retaining wall in the rose garden, dry rubble packing on both sides of the stream etc. were the main activities.

Additional area brought under cultivation was 2 ha. for Cardomom, 0.4 ha. for coffee and 0.4 ha. for pepper. A 16 HP diesel engine was installed in Nellikunnu. Check dam in Block I was further strengthened.

4.12. Seed and Nursery Programme

SOUTHERN ZONE

Farming Systems Research Station, Kottarakkara

Details of seeds production and disposal are given below:

Item	Qty. Nos. produced	Receipts (Rs)
Coconut seedlings	2500	
Cashew grafts	1340	27,600
Mango grafts	150	2,250
Jack grafts	175	2,625
Vegetable seeds	Nil	--
Total		32,475

CSRC, Karamana:

Coconut seednuts 5,000 Nos. have been planted in nursery for distribution of seedlings during next June.

CRS, Balaramapuram:

Coconut seednuts of 13,353 Nos. of WCT and 2135 Nos. of T x D was sown during the period:

Total 1097 pepper cuttings, 4239 WCT and 1672 T x YD coconut seedlings were distributed till 31.12.94. Banana suckers are available for distribution.

SPECIAL ZONE (Problem Areas)

The following seeds and planting materials were produced and distributed from the station during the period under report.

Kumarakom:

Paddy seeds	:	5517 kg.
Banana suckers	:	3073 Nos.
Glyricidia cuttings	:	395 Nos.
Garcinia grafts	:	126 Nos.
Fish fingerlings	:	100 Nos.
Piglets	:	13 Nos.
Mushroom spawn	:	199 Nos.
Vegetable seeds	:	4 kg

Moncompu:

Breeder rice seed	:	50 kg (MO4)
Foundation seed	:	6136 kg

Kayamkulam:

Coconut (Seed collection from disease free palms)	:	4238 Nos.
Clove	:	5000 Nos
Nutmeg	:	15000 Nos
Ornamental plants	:	495 Nos
Vegetable seeds	:	255 kg
Orchids	:	85 Nos.
Mushroom spawn	:	301 Nos.

Vyttila:

Paddy seed	:	4600 kg
Cowpea	:	6.5 kg
Fish fingerlings	:	2546 Nos.

Thiruvalla:

Vegetable seeds	:	20.5 kg
Nutmeg	:	7000 Nos.

CENTRAL ZONE

Regional Agricultural Research Station, Pattambi

1. Mango grafts	3000 Nos.
2. Papaya seedlings	5000 Nos.
3. Pepper cuttings	4000 Nos.
4. Nutmeg seedlings	1000 Nos.
5. Ornamental plants	5000 Nos.
6. Vegetable seeds	80 kg

Agricultural Research Station, Mannuthy

Seeds and planting materials produced upto 31-12-94.were as under:

coconut WCT seedlings -11437 nos., LO seedlings - 14602 nos., Arecanut seedlings - 27974 nos., Nutmeg seedlings - 3503 nos., Clove seedlings - 5064 nos., Mango grafts - 3688 nos., Sapota grafts - 653 nos., Guava Layers - 958 nos., Champa layers - 522 nos., Pepper cuttings - 2780 nos., Jack - 22 nos., Other fruit plants - 500 nos., Bush pepper - 300 nos., other spices - 219 nos., Ornamental plants - 1000 nos and Medicinal plants - 300 nos.

Cowpea - 159.100 kg., Amaranthus - 39.950 kgs., Bittergourd - 43.250 kgs., Bhindi - 34.250 kgs., Brinjal - 2.000 kgs., Ashgourd - 10.000 kgs and cucumber - 5.000 kgs were produced.

Foundation seeds of paddy - 3579 kg were also produced. Total value of produces comes to Rs.11,03,468/-.

Agronomic Research Station, Chalakudy

1. Red Triveni seed	6985 kg
2. Neeraja seed	309 kg
3. Vytila-3 seed	110 kg
4. Bittergourd seed	9 kg
5. Bhindi seed	9.5 "
6. Amaranthus seed	14 "
7. Cucumber seed	26 "
8. Drumstick seed	1900 pkt.
9. Cowpea seed (Kanakamoni)	23 kg
10. Kowpea seed (Local)	7.5 kg
11. Snakegourd	13.5 kg
12. Ashgourd	13.5 kg
13. Pumpkin seed	12.69 "
14. Brinjal seed	55 "
15. Gingely seed	89.25 "
16. Drumstick seedlings	56 Nos.
17. Coconut seedlings	30 "
18. Nendran suckers	350 Nos.
19. Palayankodan suckers	27 Nos.

Banana Research Station, Kannara

Banana suckers	1,00,000	Nos
Amaranthus	100	kg
Bhindi	125	kg
Pumpkin	20	kg
Cowpea	50	KG
Nutmeg	25,000	
Pepper	10,000	
Coconut	20,000	

Cashew Research Station, Madakkathara

Cashew grafts	52,964	Nos.
Cashew seedlings	5,302	Nos.

Cashew Research Station, Anakkayam

Cashew: 30000 cashew softwood grafts were distributed and 4000 grafts are being ready for sale.

Mango: 700 grafts are ready for supply.

Nutmeg: 700 nutmeg seedlings are raised for distribution.

Coconut: 500 WCT coconut seedlings are also raised for distribution.

Pepper: All released varieties of Pepper from Pepper Research Station, Panniyur introduced and rapid multiplication is being done for large scale production of planting materials in the next year.

Ornamental Plants: About 200 ornamental plants in pots were raised and utilised for production and distribution of planting materials in ornamental plants.

Cowpea: Cowpea and Amaranthus were tried as nursery crop in new cashew plantation and 25 kg. good quality seed of Kanskamony is available for supply.

900 cashew grafts and 150 mango grafts were planted as progeny orchard to overcome the shortage of scion material.

The expenditure and receipt in the Revolving Fund for the planting material production is Rs.1,72,250/- and Rs.4,05,667/- respectively

LRS, Thiruvazhamkunnu.

Congosignal	-	120	kg.
Andropogan	-	10	"
Cowpea	-	200	"
Guinea grass	-	10	"
Teosinte	-	200	"

Fisheries station, Puduveyypu

In addition to meeting the requirements of the station, the following quantity of fish and shrimp seed were sold out to pisciculturists during the report period.

<u>Chanos chanos</u> (milk fish)	-	66,075	Nos
<u>Mugil cephalus</u> (grey mullet)	-	1,115	"
<u>Liza macrolepis</u> (mullet)	-	53,310	"

Total	-	1,20,500	Nos

NORTHERN ZONE

Regional Agricultural Research Station, Pilicode

The following seeds and seedlings were produced during the period:

Coconut seedlings	68,000	Nos.
Arecanut seedlings	1,30,000	"
Paddy	500	Kgs
Cashew grafts	16,900	Nos
Mango grafts	182	Nos
Banana suckers	2,250	Nos
Rose budlings	235	Nos
Ornamental plants	3,000	Nos
Pepper cuttings	30,000	Nos.
Bush pepper	1,000	Nos.
Bitter gourd	20.2	kg
Snake gourd	0.25	kg
Cucumber	55.80	kg
Cowpea	25.00	kg
Pumpkin	18.95	kg
Tomato	0.51	kg
Brinjal	2.31	kg
Chilli	0.23	kg
Mushrooms spawn	1229	b

Pepper Research Station, Panniyur

The following planting materials have been produced during the period. Rooted pepper cuttings - 2.00 lakhs; Bush pepper - 3,000 Nos; Arecanut seedlings - 33,000 and Other grafts - 500 Nos.

HIGH RANGE ZONE

Regional Agricultural Research Station, Ambalavayal

Paddy seed: Different varieties of 6193 kg were produced.

Ornamental Plants:

Variety	Quantity
Pepper rooted cuttings	151000
Nutmeg seedling	672
Clove	6815
All Spices	6379
Vanilla	2282
Cardamom	7690
Bittergourd	3.5 kg
Bhindi	8 kg
Brinjal	8 kg
Arecanut	22173
Mango grafts	4052
Papaya	626
Mangostein	2281
Guava	703
Mushroom spawn	385 bottles
Rose	19400

Cardamom Research Station, Pampadumpara

Item	Quantity	Receipt
1. Cardamom	30,000 nos.	18,092/-
2. Rose budling	6,000 nos.	37,950/-
3. Rooted pepper cuttings	8,000 nos.	465/-
4. Potted rose	100 nos.	1,520/-
5. Other plants	1,000 nos	3,306/-
6. Rose flowers	-	1,829/-
Total expenditure = Rs.5,590/- (excluding labour charges and cost of inputs)		

4.15. Major Research Achievements

4.15.1. College of Agriculture, Vellayani:

Soil and Agronomy

A study conducted revealed that potassium alone or in conjunction with N and P significantly improves coconut yield. Q/I parameters of K has major role in determining coconut yield.

A study was conducted to investigate the physico-chemical properties of coconut garden soils intercropped with fodder. It has been observed that the moisture percentage increased in plots grown with guinea grass and congosignal grass. Fodder crops decreased the bulk density of soil. Hydraulic conductivity and infiltration rate were positively influenced by fodder cultivation in coconut garden. Significant reductions in soil temperature was noted in fodder cultivated plots.

Studies on the effect of varieties and mineral nutrition on the oil content and quality parameters of coconut oil revealed that the tall varieties are the better oil yielders followed by

hybrid and dwarf. The main effect of K had a significant but negative effect on the oil content of the samples collected. Varietal influence was more significant than the effect of mineral nutrition.

From a study, 50 percent substitution of K (as muriate of potash) with Na (as common salt) on equivalent basis recorded 31% increase in yield of cassava over full potash application. So substitution of potassium upto 50 percent by Na of common salt can be successfully adopted in cassava cultivation.

Rice and rice based cropping system

The study on the Agronomic evaluation of rice cultivars for the rainfed conditions of Kerala revealed the suitability of varieties like Jaya, Tulasi and Rasi for rainfed first crop season. The N & K dose can be reduced to 1/4th during the first crop season without any adverse effect on yield. Pre-sowing treatment with water, 2.5 KCl and Triazole improved grain yield and net income in rainfed rice.

From a trial it was observed that by incorporating, Azospirillum, at least 25% of fertilizer nitrogen can be saved in rice culture.

Vegetable

In a study conducted on the nutrient moisture interaction under phasic stress irrigation of sweet potato in summer rice fallows, it was revealed that irrigation full CPE (3 cm depth) at tuber initiation and at tuber maturity phase recorded significantly higher water use efficiency and net returns as compared to stress induced during tuber initiation phase. Nitrogen and potash at 50 kg/ha recorded maximum water use efficiency and net returns.

From a study on brinjal it was noticed that 25% nitrogen could be saved by mixing urea with neem cake and applied as a single dose at the time of planting.

A study on induction of genetic recombinations in interspecific crosses of 'Abelmoschus' revealed good genetic diversity in bhindi germplasm. The selection of early flowering types with increased fruit weight is suggested for enhancing the level of yellow vein mosaic resistance in bhindi. A. cailliei was identified as better donor parent for transferring yellow vein mosaic disease resistance. The irradiated population exhibited higher variation as compared to the non-irradiated counterparts indicating the release of variability through the breakage of undesirable linkage. The irradiated crosses A. cailli x Anakompan and A. cailliei x Banivenda were identified as better crosses for isolating recombinants. The isolated recombinants can be utilised for further breeding programme for evolving high yielding resistant varieties in bhindi.

Fruits and floriculture

Study on the management practices of gladiolus indicated that "Vinks glory" and "Oscar" are suitable varieties for southern tracts of Kerala. "Tropic seas" and "Friendship" are found to be suitable for cut flowers.

4.15.2. College of Horticulture

Commercial Crops: In cashew, greater absorption of foliar applied urea was obtained within 7 days when nutrient solution was sprayed along with teepol between 11.00 hrs and 14.00 hrs directing the spray to the lower surface of terminal leaves of the latest emerging flush in March. As the cashew leaves possess thinner cuticle with large number of stomata on the lower aspect, it is desirable to target the ventral sides of the lamina for foliar application of nutrients.

Among the major nutrient elements, only nitrogen showed a significant influence on cane yield. The increase in yield of cane due to application of N above 165 kg/ha was not significant. The N P K treatments had no influence on the juice quality parameters.

Spices: The turmeric lines VK-47 and VK-82 were advanced to farm trials. VK-47 has a production potential of 36 t/ha of fresh rhizomes with a dryage of 20.15% and curcumin content of 7.25%. The advanced line VK-82 yields 30 t/ha of fresh rhizomes having curcumin content of 7.39%. The check variety yielded only 16 t/ha of fresh rhizomes with dry rhizome output of 4.29 t/ha, the curcumin content being 6.15%.

Vegetable crops: The winged bean culture PT-52, pumpkin line CM-349 (yield per plant 10.59 kg), tomato line LE-79-5 and the snake gourd hybrid line PR-1 were approved for conducting farm trials. The tomato line LE 79-5 is having medium sized and white coloured fruits possesses field resistance to bacterial wilt and fruit cracking. The yield potential of this variety is 43.5 t/ha. The farm trial series on the chilly line CA-219, the brinjal type SM-6-6 and the white fruited bittergourd MC-84 were completed and release proposals were submitted to the University Variety Release Committee. SM-6-6 is an early variety (45-55 days) having nonprickly stem and white and medium long fruits with a mean productivity of 1.42 kg/plant (30 t/ha). Proposed for release as 'Swetha', this is the first white fruited brinjal variety in India which possesses resistance to bacterial wilt.

CA-219 which is proposed for release as 'Ujwala' is an advance over Manjari in terms of bacterial wilt resistance and pungency (Capsaisin 0.4%) and colour value (139.29 ASTA units). This possesses long fruits of dark green colour at maturity turning bright deep red on ripening. Ujwala is an ideal variety for pot culture in homesteads because of its compact growth and attractive clustered fruits.

The best season for paprika cultivation was found to be from August to January under warm tropical humid situation. Among 20 paprika genotypes evaluated, CA-517 with medium sized deep red fruits showed promise in terms of incidence of bacterial wilt disease.

Fruits and Floriculture:

The gerbera variety Fresly was found to possess earliness in flowering with maximum number of blooms. Growth regulator treatments with GA 100 ppm and CCC 750 ppm showed positive influence on the induction of earliness on flowering, number of blooms, longevity of flowers, flower size and vase life.

Aromatic and medicinal plants:

Comparative evaluation of five selected types of Piper longum revealed that the angle of insertion of spike bearing branch, number of spikes/branch, number of spike bearing branches and green spike yield are characters influencing dry spike yield. Seemathippali showed superior performance in respect of all these attributes.

Dry rhizome output from Katcholam was comparable when grown under shade and open conditions, indicating the scope for successful introduction of the crop in coconut gardens as a promising intercrop. Rhizome yield and oil out turn were found to be two independent characters and this brings out the need for selection criteria for high yielding types.

Biotechnology:

Somatic embryoids and in vitro shoots derived from field explants could be successfully regenerated to plantlets by micropropagation. This is an important break through in the micropropagation of cocoa.

Callus mediated organogenesis could be obtained from root and inflorescence explants of Gladiolus.

The effect of various supplements added to the MS and VW media on the shoot proliferation in Dendrobium was studied and the best treatment was found to be peptone 40 ppm + NAA 2.0 ppm + BA 5.00 ppm in VW medium. In vitro pollination techniques resulted in seed set in ginger for the first time. Histological examination of ovules after pollination confirmed development of the embryo after fertilization.

All stages of micropropagation namely, culture establishment, propagule multiplication, rooting, hardening and plant out were standardised for the high yielding varieties of black pepper.

TOT and Rural Development:

The informal inter-personal communication network that is existing among the members of the group farming committee was found to contribute significantly towards diffusion of location specific and problem oriented improved agricultural technology.

The feasibility of using certain techniques for the improvement of precision in the estimation of treatment effects was examined empirically and it was found that the use of appropriate functional forms of the covariance adjustment model with preexperimental yield as the concomitant variable resulted in a significant reduction of error. The nearest neighbour-hood analysis (NNA) and moving block method were also found to be better than the conventional method of stratification.

Cadbury-Cocoa Project:

Forty three new clones, were field planted in June 1994. enhancing the accessions in germplasm VI to 366.

Two hybrid progeny trials, one as a part of II stage breeding programme and another of III stage breeding programme were field planted in June 1994.

Three scion orchards of 15 highest yielding clones were field planted during the year to supply 'chupan budwood' for further rapid multiplication.

A comparative yield trial with 38 clones suspected to be tolerant to VSD was field planted in June 1994.

Top working was completed in about 1000 cocoa plants and the performance of these trees was found to be much promising.

4.15.3. College of Co-operation & Banking: Not applicable

4.15.4. College of Forestry

The tree species like *Albizia folcateria*, *Cassia renigera*, *Trema Orientalis*, *Acacia manjium* etc. has been identified as fast growing species while species like *Jacaranda mimosaeifolid*, *Dalbegia latifolia*, *Samadera indica* has been identified as slow growing species. Most of the tree species evaluated in the college of Forestry were found to be moderate in growth. Studies conducted in the nursery revealed that there is a positive relation between seed weight and seedling vigour.

4.15.5. College of Vety. & Animal Sciences

During the period under report 215 samples were examined for infection agents out of this, 170 samples were found to be +Ve. for infections agents the percentage of +Vo. isolates were higher in 1994. *Staphylococca* emerged as the single major organism causing mastitis. The anti-biogram pattern & the drugs of choice were identified.

Studies on the immunosuppressive effects of aflatoxin in ducks it significantly suppressed revealed that the bone marrow. This was characterised by leukopenia & anemia. In the same species when carbafuran and 2,4D were administered slight leukocytosis with neutrophilia and reduction in haemoglobin was observed.

Survey on the chromosome abnormalities in goat revealed that reproductive abnormalities such as subfertility, repeat breeder etc. has no correlation with chromosome status.

A total of 638 cross bred animals were typed for haemoglobin. For typing the blood group of bovine more than 46 bovine mono-valent blood typing reagents were produced at this College. The population was found to be in genetic equilibrium set of H6 locus.

Under the progeny testing scheme in cross bred cattle, survey showed that a good percentage of cows are having less than 3.5% fat in their milk.

A nucleus stock of Vechur and other dwarf Cattle of Kerala is maintained in the College. The milk fat percentage of Vechur cattle vary from 4.1-5.8. They are found to be more disease resistant studies on the utilization of condensed cheese why proved that it can be effectively used for replacing skim milk powder in the preparation of yoghurt.

For enhancing the therapeutic value of yoghurt it was found that Bifido bacterium bifidum can be used as an adjuvant bacteria in the preparation of yoghurt.

The antibacterial activity of dhi yoghurt against some common pathogen was found to be increased by Lacidophilis. Studies on serum cholesterol level in rats fed with dhi & yoghurt containing L.acidophilus revealed that it significantly reduce the serum cholesterol level.

Cows milk in which the fat was replaced to the extent of 50% and 100% with coconut fat can be effectively utilised for preparation of Mozzarella cheese.

Studies on downer cow syndrome revealed that higher incidence of this is among Jersey Cross bred cattle during summer season.

Incorporation of dried spleen @ 0.1% in the diet of rats and rabbits enhances the growth rate & nutrients utilization. At least 25% of the feed nutrients can be spared by adopting this method. In broiler rabbits a ration containing 16% crude protein and 2500 K. Cal/KG. of DE is found to be satisfactory for optimum growth upto third month after weaning but for overall growth 20% of C.P is found to be essential for optimum biological efficiency.

Studies to assess the mineral status of animals indicated that the levels of major as well as trace elements in the blood of cattle and the feed samples collected the farm and neighbouring areas around Mannuthy were all within normal range indicating satisfactory mineral status in the locality.

It was demonstrated that Prostaglandin therapy could be used successfully in the Management of Oestrous cycle in cross bred cattle.

Studies on establish the nutrient requirement of broiler rabbit and to arrive at the optimum age of slaughter indicated that soviet chinchilla broiler rabbit required as crude protein level of 16.2% & 2500 K. Cal of DE per Kg. feed for optimum growth. The optimum age of slaughter in terms of economic efficiency was identified to be 56-112 days after weaning.

It was demonstrated by transplantation studies and using various chemotherapeutic immuno suppressive agents that ethmoid cancer could be transplanted in mice successfully employing Cyclophosphamide.

Systematic investigation on the aetiology of Mastitis revealed that staphylococci were the most common Pathogen associated with mastitis.

The formulation procedure of a quail meat product called quail meat patties was standardised. It was also established that this product could be stored upto 60 days at -15°C and upto 6 days at 5°C without any quality deterioration or change in consumer acceptability.

Centre of Excellence in Pathology, College of Vety. & Animal Sciences, Mannuthy:

Duck plague and pasturellosis were observed as independent or mixed infections.

By experimental studies taking duck as a model it was demonstrated that Aflatoxin has significant suppressive effect on the bone marrow characterised by leukopaenia and anaemia.

Sublethal doses of carbofuran and 2.4D treated ducks showed slight leukocytosis with neutrophilia and reduction in haemoglobin when compared to the control group.

The pathogenesis of mitogen response in the cutaneous tissue of cattle indicated immunological response.

Centre for Advanced Studies in Animal Genetics & Breeding:

Screening of crossbred bulls used for A.I. in Kerala:

53 crossbred bulls of 3 genetic groups (H.F. cross, Jersey cross and Brown Swiss Cross) was analysed for chromosomal status. The reproductive status of these bulls viz. Freezability of semen, morphology and morphometry of spermatozoa were also analysed. The study revealed three bulls to have abnormal semen producing ability. One bull produced oligospermic supermic semen. The second bull produced semen with high percentage of knobbed acrosome defect. The third bull revealed normal semen

but not even an ejaculate suitable for freezing. The bull producing semen with high percentage of knobbed acrosome defect exhibited, tetraploid/diploid (4n/2n) mosaicism in 6.67% cells studied. More detailed analysis on the reproductive status as well as cytogenetic status is required to make on definite conclusions.

Chromosome Profile of crossbred bulls in Kerala

Crossbred bulls of three genetics groups viz. H.F. cross, Jersey and B.S. cross used for A.I. in Kerala were karyotyped using peripheral blood leukocyte culture technique. The metaphase spread revealed 29 pairs of acrocentric autosomes and one submetacentric X chromosome. The Y chromosome was submetacentric in H.F. crossbreds whereas it was more towards metacentric in Jersey and B.S. crossbreds. The G banding of metaphase spreads revealed 405 G bands and this made the identification of each chromosome more easier. In morphometry the X chromosome was the second largest chromosome in all the breeds studied.

A survey on chromosome abnormalities in goats:

The normal chromosome complement in $2n = 60$ with 58 acrocentric autosome and acropcentric X chromosome was observed. The Y chromosome was the smallest and the only submetacentric are in the Karyotype. Among the reproduction data no chromosomal abnormalities were noticed in repeat breeder and subfertile goats. The reproductive abnormalities such as sub fertility, repeat breeder etc. has no correlation with chromosome status.

Parentage control in cattle using blood types

More than 702 crossbred animals available at various farms of Kerala State were blood typed using the reagents available at this centre. Parentage studies are carried out in 88 sire - Dam - offspring sets available.

Blood Groups and Biochemical Polymorphism in cattle:

More than 46 bovine monovalent blood typing reagents were produced at this Centre. 39 polyclonal antisera collected and stored subjected to absorption. 638 crossbred animals were typed for hemoglobin. The population was found to be in genetic equilibrium set of Hb locus.

Genetic studies on the immune response of broiler rabbits:

The contact sensitivity to DNCB in different broiler rabbits breeds have been assessed. The JR to BRBC as well as the immunoglobulin status of these animals have been assessed. The data awaits final analyses.

ICAR Scheme on Progeny Testing procedures in crossbred cattle utilising information from both large and small herds to develop a methodology for evaluation of breeding bulls and also to bring in genetic improvement in the cow population a scheme on progeny testing of crossbred bulls was undertaken.

The basic milk production in the area selected for scheme in Trichur District was found to be 1504 kg i.e., about 5 kg/day per cow. The milk production of cows of illiterate owners as well as those with different levels of education did not differ.

A milk recording system has been developed and factors have been developed for 22 fortnightly test day milk yields independently to predict 305 days lactation yield. It was seen that under field condition monthly recording would be enough to predict 305 days yield with sufficient accuracy. Contract recording was found to be suitable under field condition.

The alarming percentage of cows with less than 3.5% milk fat in early lactation prompts a genetic improvement as well as management improvement. The PFA act stipulating a minimum of 3.5% milk fat should be relaxed.

Sires were ranked on the basis of daughter average and contemporary average. The rank and product moment correlation of sire proofs between the two methods were 0.996 and 0.921.

4.15.6. College of Fisheries: NIL.

4.15.7. Kelappaji College of Agri. Engg. & Technology, Tavanur

Modifications were carried out on the tractor operated paddy harvester and was successfully demonstrated to farmers with an average field capacity of 0.5 ha/hour with improved concave. The flow through paddy thresher was found to give maximum threshing and winnowing efficiencies with 1000-1200 kg of cleared paddy per hour. A power operated arecanut Dehusker was designed and fabricated and found satisfactory. The best season for paddy cultivation in 'Kari' soils of Kuttanad is found August to November. A spacing of 30m is recommended for laying out sub surface drainage in Kari lands of Kerala to obtain an average grain yield of 4.6 tones/hour.

4.15.8. SOUTHERN ZONE

Rice:

Under the project on genetic improvement of Cheradi, IET I exhibited a variability range among the tested varieties, for grain yield from 123 g to 608 g and for straw yield from 150 g to 138 g. The variability among the Cheradi types indicated ample scope for selection in terms of grain and straw yields. The experiment is being repeated during Mundakan 1994.

Excess chaffing in rice: In the two experiments conducted at (1) Nilamel ela of Neyyattinkara Sub division and (2) CSRC, Karamana, the percentage of yield increase of grain over that of the control in insecticide, fungicide and its combination treatments was 23.5, 5.9 and 21.6 in the location (1) and 5.4, 7.1 and 16.0 in the location (2) respectively during virippu of 1994.

Pulses and oil seeds

Cowpea: In a CYT conducted with 20 grain cowpea selections and two check varieties during kharif 94, under the project on Genetic improvement of cowpea, the highest seed yield was recorded by the variety VCP-4 (927kg/ha) followed by V-271 (804kg/ha)

In an IET conducted with 30 grain cowpea varieties during summer 1994 in rice fields, the variety CoVU-810 recorded the highest mean seed yield of 834 kg/ha followed by the variety DFLC-210 with 799 kg/ha and variety CoVU-358 with 795 kg/ha. During this season, the earliest maturing variety was CoVU-869 with duration of 58 days.

Fodder grass: Guinea grass varieties (42) were maintained in the germplasm. They are being cataloged with the help of a descriptor. Fifteen varieties of stylosanthes were maintained in the germplasm. Guinea grass was superior to congosignal grass in fodder yield. The green fodder yield of guinea grass was influenced by nitrogen levels. The higher two levels of nitrogen viz; 150 and 225 kg/ha were on par and significantly superior to the lower levels on green fodder yield.

Comparative fodder production of guinea grass and gumba grass under coconut gardens, revealed the superiority of guinea grass over gumba grass. Alley cropping studies in coconut garden revealed that guinea grass intercropped in subabul alleys with 200: 50: 50 kg N, P₂O₅ and K₂O / ha registered the higher fodder yield. The yield of subabul was however, very low due to severe psyllid attack.

Herbage and seed production studies on annual forage legumes showed that cowpea was the best suited annual legume for forage and seed purpose. The different P levels tried had little influence on forage and grain yield, but the highest P level of 60 kg P₂O₅ / ha registered the highest grain yield. The teosinte variety TL-51 recorded the maximum green fodder yield of 15kg / plot of 12 m² in the first cutting taken on 16.10.94. In the FET on guinea grass, the variety PGG-489 recorded the maximum green fodder yield of 20kg / plot of 12m².

An ICRISAT-NBPGR-KAU collaborative programme on collection, conservation, evaluation and utilisation of the germplasm of ICRISAT's mandate crops, is undertaken by the AICRP (Forage) at Vellayani Centre. About 3000 lines of sorghum and minor millets were maintained and observations taken periodically.

Nematology

In banana, paring the rhizome of banana and dipping in hot water at 55°C for 20 minutes and application of neem cake @ 1kg/plant or carbofuran @ 0.5 kg ai / plant at the time of planting, effectively checked the infestation of *Rhodophelus similis* and increased the yield of banana significantly.

In paddy, the application of phorate @ 1 kg ai/ha at 7 DAP and 50 DAP reduced the population of rice cyst nematode *Heterodera oryzae* and increased the yield of paddy.

In vegetables, root dip of brinjal seedlings at transplanting in zolone (500 ppm) solution for 1 1/2 hours resulted in reduced galling of roots and increased yield.

Pesticide residue studies

In brinjal, the dissipation of quinalphos revealed that the residues dissipated to below the MRL in 11 days when applied at both the doses of 500 g ai/ha and 1000 g ai/ha.

In paddy, the residues of quinalphos and butachlor applied @ 1 kg ai/ha at transplanting were below detectable level in grains, straw and husk, while 0.01 and 0.14 ppm could be recorded in the straw when triazophos was applied at 0.25 and 0.5 ka ai/ha one month before panicle initiation stage. Hence these can be safely applied to paddy at the specified stages.

In cowpea, the dissipation pattern of lindane revealed that even the initial deposit of lindane was below MRL of 3 ppm when applied at both the doses of 0.05 and 0.10 per cent concentration. The effect of decontamination techniques showed that 25.5 to 46.9 per cent residue could be removed by washing alone, while 30.66 to 59.38 per cent by washing followed by cooking.

In cardamom, the monogezeb residues from the initial deposit of 7.07 ppm (0.2 per cent) and 14.76 ppm (0.04 per cent) dissipated to below the MRL of 3 ppm within 12 and 19 days respectively. The residue could be brought down to the tune of 37 to 82 per cent by vigorous washing.

In cowpea and amaranthus, carbofuran residues dissipated below the MRL of 0.1 ppm in 27 days when applied @ 0.50 kg ai/ha while in 29 days when applied @ 1.0 kg ai/ha. Waiting periods were fixed for carbofuran in amaranthus as 28 days and 30 days when applied @ 0.05 kg ai/ha and 1.00 kg ai/ha respectively.

From the studies on the degradation of mancozeb residues in pepper, the mean initial deposit of 9.80 mg/kg and 13.46 mg/kg dissipated to 97.84 and 99.80 per cent respectively within 28 days of treatment. In dry pepper berries, the initial levels of 23.54 mg/kg and 38.86 mg/kg dissipated to below detectable level in 28 days. In fresh pepper, the waiting period of mancozeb was fixed as 15 and 19 days when applied at 0.20 and 0.40 per cent concentration, while in dry pepper the corresponding figures were 19 and 21 days.

Monitoring of market samples of animal feed concentrates showed HCH residues in all the samples in range of 0.141 to 0.409 MG/kg. Green fodder and straw were free of any HCH or DDT residues.

Monitoring of pesticide residues in farm gate vegetable samples viz., cowpea, bhindi, bittergourd, snakegourd and brinjal showed that cowpea and bittergourd had residue of monocrotophos and bhindi had residues of phosphamidon, all above the MRL level of 0.20 ppm, while snakegourd and brinjal had monocrotophos residues in levels below MRL.

Recovery of monocrotophos studied in bittergourd, cowpea, snakegourd and cucumber at 2 levels of fortification i.e. 0.20 and 0.50 ppm indicated 85.34, 79.40, 80.31 and 81.50 per cent mean recovery in bittergourd, cowpea, snakegourd and cucumber respectively.

Plant protection: Mites belonging to the family Tetranychidae (*Tetranychus* sp.) and Tarsonemidae (*Tarsonemus* sp.) were found to infest *Adhathoda* severely. *Tetranychus ludeni*, *Tetranychus neocallidonicus*, *T. cinnabarinus* and *T. cucurbitae* are the major phytoph-

mites of the family Tetranychidae infesting vegetables and ornamentals. Brevipalpus phoenicis and Tenuipalpus sp. belonging to the family Tenuipalpidae are causing severe chlorosis in ornamental plants and medicinal plants. The important predatory mites belong to the genus Amblyseius.

Fruits and Floriculture

Anthurium andreaeanum : Ninety seven varieties of Anthurium andreaeanum are being maintained in the germplasm in shade house. Prior to the period under report, mother plants of eight varieties of Anthurium andreaeanum viz; Kalympong red, Kalympong orange, Honeymoon red, Chilli red, orange, pink, white and Lady Jane were established in shade houses. Morphological and floral characters were evaluated. Hybridisation was attempted in 39 combinations out of a total 64. Successful fruit set was observed in 35 combinations and seeds of 28 combinations were sown. Out of these 28 sown, the seeds of KR x KR and KO x W have not germinated. Good germination was noticed in combinations HR x KR, HR x OO, HR x CR and P x CR. (HR-Honeymoon red, KR- Kalympong red, CR- Chilli red and KO- Kalympong orange). The remaining combinations could not be undertaken due to non-availability of pollen. Varieties HR x CR, P x CR, W x OO, OO x HR and CR x W had good seedling vigour. Multiplication of three varieties i.e; Pink, White and Lady Jane, by splitting the suckers from the plants was carried out. Twenty new plants of Lady Jane, 18 plants of Pink and 15 of White have been potted.

Integrated farming system and increasing productivity of homesteads: The findings on the project 'Comparative economics of homestead farming with and without livestock showed a predominance of local breeds over crossbreeds. Output to input ratio was 1.07 for local breeds and 1.20 for crossbred animals. Introduction of livestock is an attractive proposition both in terms of income and employment generation, especially when the animals are cross-breeds. The staggered distribution of income from livestock was an added advantage.

Studies on Phytophthora affecting coconut, Cocoa and Pepper: Under the STED project on identity of Phytophthora affecting coconut and pepper and their biological role, plant isolates from diseased areas were brought in to pure culture by standard techniques. A total of 22 phytophthora isolates from foot rot infected pepper plants were made, of which five were from pepper grown in coconut gardens, one from a plantation having coconut, pepper and cocoa, five from a farm with coconut, arecanut and pepper and the remaining eleven from pure pepper plantations. Six phytophthora isolates from bud rot infected coconut palms were made, of which three were from pure coconut plantations and three from a coconut-pepper intercropped farm. Two isolates of phytophthora were made from black pod infected cocoa grown along with coconut. From the diseased orchid plant grown under a coconut tree also, two phytophthora isolates were made. All these were purified from infected plants.

Morphological studies: Sporangial length, breadth and L/B ratio and also the drawings of all the isolates were completed. None of these produced oogonia and antheridia in the culture.

Artificial inoculation of Phytophthora on rooted cuttings of pepper and one year old coconut seedlings resulted in typical symptom of bud rot in coconut within 14 to 21 days depending on climate. Cross inoculation studies indicated that the isolates No: C1, C3, C4 and C5 produced typical symptoms of foot rot on pepper, while the isolates from pepper failed to produce bud rot symptoms on coconut.

Mating studies on pepper, coconut and orchid indicated that none of the combinations produced oospores.

To locate antagonistic organisms against phytophthora, phyllosphere microflora from 25 coconut and 2 pepper varieties were isolated and their ability to inhibit phytophthora spp. was studied. A total of 52 organisms (23 fungi and 29 bacteria) were isolated from the phyllosphere of coconut and pepper, of which seven fungi and one bacteria showed antagonistic properties against phytophthora spp.

Beneficial microorganisms and productive insects

Honey bee disease: The disease infecting the honey bees has been identified as the Thai sac Brood caused by a virus. Survey made in several disease belts in Kerala revealed that a few colonies apparently free from disease survived. The apparently disease free colonies (18 Nos.) procured during March 94 were under observation for disease incidence. Nine colonies were lost due to Thai sac brood virus disease. The remaining ten colonies survive with varying intensity of infection, but with relatively low intensity. In general, the survival of the Italian bees under the Kerala conditions is satisfactory and so far, no disease has been observed in these colonies.

Observations on the effect of artificial feeding of sugar syrup to Italian honeybees indicated that 500g sugar per colony per week and 1000g sugar per colony biweekly are advisable with regard to good brood development, honey and pollen stores. Peak hours of foraging activity of A. mellifera were found to be from 9 to 11 hours, while lowest activity was found to be 6 AM and 6 PM.

Sericulture: Application of NPK @ 130:65:65 kg/ha/year and 300:120:120 kg/ha/year under the rainfed and irrigated conditions of intercropping in coconut gardens respectively recorded the maximum foliage production in mulberry.

VAM: Artificial inoculation of tissue culture plantlets of rose with VAM fungi significantly increased their growth and establishment. Glomus etunicatum recorded 65 per cent establishment against zero establishment noticed in mycorrhizal plantlets.

Stand VAM culture Glomus monosporum considerably reduced the nematode infestation in black pepper. The mortality rate of pepper cutting in the nursery due to 'foot rot' disease was reduced to 40 per cent as against 100 per cent recorded by the control. VAM fungus Glomus fasciculatum was found to be the predominant VAM fungus associated with pepper plants grown in different locations in Kerala.

Native VAM cultures have been developed, of which isolate 4 and 6 significantly increased the nursery growth of pepper plants. Cuttings inoculated with isolate 6 showed considerable tolerance against foot rot disease. Inoculation with VAM fungi could save 25 to 50 per cent of the recommended dose of P_2O_5 in cassava.

Pot and field studies conducted in ginger, turmeric and cardamom indicated that inoculation with VAM fungi at the time of planting significantly increase the growth and resistance to root pathogens (root knot nematode and *Pythium* in ginger and *Phytophthora* in cardamom. Native VAM fungi have been isolated and developed for ginger, turmeric and cardamom.

Nitrogen fixing bacteria - Azotobacter and Azospirillum:
The effect of azotobacter and azospirillum inoculation on root induction in bush pepper, growth and establishment of pepper, mango, jack, clove and nutmeg seedlings showed better growth response in nutmeg and pepper after inoculation.

Sustainable farming practices: Studies on the impact of sustainable farming practices on soil fertility and crop productivity made during Rabi 83 and kharif 84 with test crop bhindi indicated a clear tendency by the sustainable plots to enhance total yield from season to season compared to conventional system.

Biotechnology: The tree spice species (Clove & Nutmeg) under study are found to be slow in responding to in vitro culture. However, multiple shoots (6x) could be induced in nutmeg shoot tip cultures and single auxiliary shoots could be induced from nodal explants of clove.

In nutmeg multiple shoots could be separated, elongated and rooted. Acclimatization and planting out are being attempted. In nutmeg physiological pre-conditioning of the explant sources (mother trees) by physical and chemical treatments in vivo (mainly using plant growth regulators) could generate sizable number of juvenile orthotropic shoots which could be used as good explants for culturing.

Tissue Culture

Cashew: Progress has been achieved in refining the techniques of in vitro propagation of cashew via somatic embryogenesis and enhanced release of auxiliary buds.

Red Banana : Explants were collected from superior plants of Red Banana grown in the Instructional Farm, Vellayani and were established on MS medium with supplements. The established root apices were transferred to a proliferation medium for the induction of multiple shoots. The cultures are being maintained.

Jack: Explants of jack variety Mutton Varicka collected from the Instructional Farm, Vellayani were established on MS medium with supplements. They are being multiplied on a proliferation medium.

Orchid: The Orchid Red Vanda was established through callus regeneration from leaf explants. The regenerated shoots are being multiplied on a proliferation medium consisting of MS basal medium with supplements

Anthurium: Leaf explants of Anthurium andreaeanum (pink variety) were cultured on modified MS medium for the induction of callus. Its production is under observation.

Vegetables: Resistance to bhindi yellow vein mosaic virus has been located in the species viz, Abelmoschus moschatus, A. tetraphyllus, A. manihot ssp. tetraphyllus and Hibiscus huegelii.

Maintenance of breeder seeds of released / recommended varieties: Breeder seeds/planting material of the following varieties released/recommended are being maintained.

Chillies	-	Jwalamukhi, Jwalasakhi
Rice	-	Aarathy, Remya
Cowpea	-	Chharodi-1, V-26
Blackgram	-	TAU-2
Veg. Cowpea	-	Malika, Sharika
Guinea grass	-	Haritha, Marathakom
Sweet Potato	-	Kanjhangad
Amaranth	-	Arun
Bhindi	-	Kiran
Sesame	-	Soma, Surya, Thilak
Groundnut	-	TG-3, TG-14, Spanish improved

4.15.9. SPECIAL ZONE OF PROBLEM AREAS

Regional Agri. Research Station, Kumarakom

The results of a survey conducted on the socio economic impact of the change in ecology consequent on the commissioning of the Thanneermukkam salt water barrier indicated that paddy cultivators and toddy tappers were beneficiaries of the Thanneermukkam barrier. Coconut cultivators were not benefited by the regulator. Fishermen community, coir workers and shell collectors were adversely affected by the regulator.

Trials conducted to develop an integrated farming system model involving coconut fish and livestock revealed that an integrated farming system involving coconut, banana, fodder and livestock recorded an increase of 157 percent in net profit when compared to mono culture of coconut.

Studies on fish diseases have given very interesting data on the disease therapeutics and patho-biology. Diseased fishes showed abnormal decline in haemoglobin and erythrocyte count, abnormal increase in total leucocyte count (TLC) and ESR values. Increased lymphocyte count was characteristic (Lymphocytosis). The disease could be cured by treatment with povidone iodine, a common and cheap microbicidal agent.

A simple and new algebraic formula by name "P-Gans" formula has been newly derived to estimate precisely the influence of area and productivity on the production trend of a crop over a period of time. The formula can be used both for research and extension activities which can be used by Government agencies in highlighting the achievements and for taking various policy decisions relating to various plantation crops as well as paddy. The formula is the first of its kind in the field of Agricultural Statistics.

Rice Research Station, Moncompu:

Based on the yield, pest and disease tolerance and other agronomic characters, one blast-resistant rice culture viz., KAU-M.28-1-1 (MO5/Improved Sona) was proposed to the Variety Evaluation Committee for approval and release.

One culture, KAU MO-1 20-19-4 was advanced to farm trial. Six promising cultures tolerant to iron toxicity, three cultures with seed dormancy specifically suited to additional crop season, two multiple resistant cultures were also in advanced stages. Culture IET 6661 (Kumer/CE 57) with white medium bold grains was given for farm trial in Palakkad district, Kottarakkara and Neyyattinkara.

Rice Research Station, Kayamkulam:

Rice: Cul.8781 a cross between Ptb-20 x Mashuri was identified as a medium statured high yielder having tolerance to pests and diseases. The culture was accepted by the NARP workshop for farm trial (Average yield - 4000 kg/ha.).

P-22 a mutant of Ptb-20 (irradiated at 22 kr) was found suitable for the second crop season and the culture was accepted for farm trials by the NARP workshop (Average yield - 4200 kg/ha.).

A mutant of local Oorumundakan (irradiated at 44 kr) has been identified as promising. The culture is in the M4 stage.

Application of cattle manure to supply 25% of the total recommended dose of nitrogen together with the balance nitrogen and recommended dose of P and K as chemical fertilizers to get maximum production is confirmed from Permanent Manurial Trial.

Sesamum: Cultures 5-2 ACV-1 x IS 5 and Cul-10-3-2, CST-785 x B 14 with an average yield of 623 kg/ha, respectively were identified suitable for summer rice fallows. These cultures have an oil content of 48.5 and 51.5% respectively. These cultures will be proposed for Farm Trials in the next workshop.

The types/cultures OMT-1165 has been found suitable for garden lands during kharif season (August-September) with an average yield of 632 kg/ha and oil content 50.50%. The type/culture CST-785 has been found suitable for summer rice fallows with an average yield of 555 kg/ha and oil content of 50%

Under AICRP on Oil Seed programme, the Cul-AVTs-29 recorded the higher seed yield of 706 kg/ha.

Groundnut: Under AICRP on oil seeds programme the Cul-INS-9313 recorded highest pod yield of 2918 kg/ha during summer season Cul-ISK-9410 recorded the highest pod yield of 3626 kg/ha during kharif season.

Two promising groundnut evolved at this centre viz., 614 and 608 were supplied to Pattambi, Nileswar and Menonpara for conducting multiloctional trials. The results of the trials are yet to be received.

Greengram: The variety/type Pusa-8999973 recorded the highest seed yield of 1379 kg/ha. The variety is medium tall and has a duration of 72 days.

Cucumber: The seed treatment of triazoles is found to be effective in minimizing the irrigation requirement of cucumber. The crop could be raised by giving 20-25 irrigations in sandy tracts using the triazoles derivative, triadimefon. The chemical induces drought tolerance in cucumber.

Orchids: In vitro multiplication studies carried out in the tissue culture laboratory standardised protocol for multiplication of orchids in four dendrolium types. The ex vitro hardening and establishment procedures have also been standardized.

Rice Research Station, Vyttila:

The ionic mechanism of salinity tolerance in rice genotypes viz., Pokkali and chettivirippu could be located. Under saline condition compartmentalisation of sodium in the underground portion could be noted in pokkali. Higher uptake of potassium and translocation into upper stem and upper leaves and lower uptake of calcium and translocation into upper stem and upper leaves are other ionic mechanisms of salinity tolerance in pokkali.

In chettivirippu some salt exclusion mechanism impart salinity tolerance. The high yielding variety Jaya is found to be susceptible to salinity owing to higher uptake and translocation of sodium and calcium coupled with reduced uptake and translocation of potassium into aerial parts.

The research works conducted to modify the existing land preparation methods in pokkali system of rice cultivation, revealed that ridge formation can be resorted as an alternate method to mound formation if the sowing is done 1-2 weeks prior to the setting in of monsoon. Sowing on ridges taken at 40 and 60 cm apart gave very good germination and plant stand establishment.

Sugarcane Research Station, Thiruvalla:

The Kerala Agricultural University released two high yielding sugarcane varieties from the elite clones evolved in this station. "Madhuri" (Cul.No.750/83 - COT 1-88322) is now a popular variety among sugarcane cultivators. Madhuri is a high yielding (116 ton to 124 ton per hectare) midlate maturing variety (12 months) moderately resistant to red rot disease and is suitable for flood prone and garden land situation.

The variety "Thirumadhuram" (Cul.No.577/84) is a midlate maturing high yielding variety with an average yield of 104 ton to 133 ton respectively in the garden situation of South Kerala and Semi arid tracts of Palakkad district.

The research efforts for the evolution of sugarcane varieties for different agroclimatic tracts of Kerala and fluff exchange programme during the subsequent years has resulted in the selection of nine high yielding, disease resistant varieties with higher sucrose parentage, which are under farm trial stage. Cul 1740/88 is found to be a flood tolerant one. Cul 527/85 was identified

as a superior sugarcane genotypes in the farm trials. The culture has out yielded Madhuri. This variety is non lodging and hence highly suited for flood prone areas and has been proposed for release.

In the AICRP trials, two Coimbatore cultures out yielded all varieties with high sucrose percentage and jaggery recovery. Hence, these two cultures Co 88017 and Co 88121 are promoted for farm trials.

Results of weedicidal trials conducted at Menonpara prove that weed growth in sugarcane can be economically controlled by two applications of weedicide first with Atrazine @ 2 kg ai/ha as pre-emergence followed by 2,4-D @ 1 kg/ha as post emergent.

An improved genotype of snakegourd "Kaumudi" was released by University Variety Release Committee. The variety gives an average yield of 50 ton/ha. Its white colour with thick flesh and less fibre content has got great acceptance among farmers as well as consumers.

In bittergourd an improved selection No.1010 has been proposed for release. It gives an average yield of 25 ton/ha.

AICRP on Agrl. Drainage, Karumady:

From the data collected since 1985, it is inferred that the average hydraulic conductivity is 0.231 m/day and the transmissivity is 0.334 m²/day. The above values can be used for future large scale adoption of sub surface drainage in this area.

There was a significant difference in crop parameters between the sub-surface drained area and control where farmers adopted only surface drainage according to their local practice. Although the plant panicles/m² was found to be not significantly superior. The panicle length, 100 grain weight, and straw yield were also not much influenced by the adoption of sub-surface drainage. In all the other parameters viz., height at sub-surface drainage had significantly over the control. There was an incremental yield by the adoption of sub-surface drainage to an extent of 33 per cent in the 30 m spacing.

The data with respect to filter study experiment collected during the previous year of 1992-93 has been analysed and the results clearly indicates that there is no significant difference among the treatments whichever be the hydraulic head. This reveals that no filter is as good as any of the other filters tried. This confirms the previous years results.

Fisheries station, Puduveyypu

Appropriate fish pond management techniques mainly giving emphasis on reducing silt intake into the system by suitable methods, enhanced the fish yield @ 2.16 tones/ha/11 months during biculture of Chanos chanos and Mugil cephalus from the brackishwater wetlands at Puduveyypu.

4.15.10. CENTRAL ZONE

BARS, Pattambi

Rice and rice based cropping system

In a trial to find out rice varieties suitable for late planted Kharif situations, IET 5914, Neeraja and Red Mashuri out yielded others. In an experiment to evaluate partially acidulated phosphate rock in rice, significant response to P application was recorded upto 60 kg P₂O₅/ha. The different P sources were comparable.

From a study on P fertilizer sowing techniques, root dipping with superphosphate slurry recorded highest mean yield among different sources and methods of application.

Seedling mortality due to herbicide application was considerably reduced in wet seeded rice when herbicide safener mixtures were applied.

Evaluation of insecticides for pest control in rice indicated better performance by Miral 3G and Hostathion 0.25 kg a.i./ha.

Screening of 70 cultures against gall midge indicated 31 as resistant, 11 as moderately susceptible and 28 as highly susceptible.

Multiple resistant screening of 183 genotypes showed RM-25, Navara (Black), FTB 7, culture 8781 as moderately resistant to gall fly. The genotype Kanchana, Cul.8757, Aathira, RM-15, Cul 90-91, Jayathy, Edavaka, Navara (NBPGR), Cul.8781, Cul.C 3-2 and PTB 28 were moderately resistant to stem borer.

Out of the 188 cultures screened under National screening nursery, moderate resistance was shown by 31 cultures against gall midge and by 12 cultures against stem borer.

Studies indicate the effectiveness of sex pheromones for attracting the male ones of stem borer whereas the technique is not effective against leaf folder.

Studies with light trap indicate heavy population of rice bug during September-October 1994.

Out of 754 entries comprising NSNI, NSNII and DSN, none were rated as highly resistant to leaf blast whereas 63 were resistant and 522 were moderately resistant.

Out of 756 entries screened for sheath blight resistance comprising of NSN I, NSN II and DSN 73 were resistant and 360 were moderately resistant.

Beam 75 WP and Contaf 5 EC were found to be promising for controlling blast and sheath blight diseases.

Soil science experiments showed that continuous addition of green leaves alone without the application of fertilizer has adverse effect on the growth and yield of rice on long term basis.

In water logged lowland rice soils, split application of urea reduces N loss through ammonia volatilization significantly.

In the initial variety trial for Basumati with 24 entries IET 14135 recorded the maximum yield with 130 days duration.

In the advanced variety trial with 21 cultures, for Basumati, IET 13359 recorded the maximum yield.

Tuber Crops

Among the 38 accessions of colors evaluated, cul.59 recorded the highest tuber yield followed by cul.44 and cul.28.

Vegetable

Applying more organic manures and less chemical fertilizers improved the storage life of fruits and germinations of seeds in cucumber and ashgourd. Out of the 73 accessions of ashgourd, AG-13, AG-53 and AG-44 were found to be field tolerant to mosaic.

Pumpkin raised in September and October is comparatively free from mosaic incidence.

Pulses

In the comparative yield trial with 18 entries cul.2, V.240 and GC-3 were found promising.

CRS, Madakkathara

A clonal germplasm conservation block with 120 accessions was established.

Out of the 4 hybrids viz. H-1598, H-1608 and H-1610 identified as high yielders of this centre. The two hybrids H-1598 and H-1608 have been released as Kanaka and Dhana respectively. Dhana was accepted for release in the national level during XI Biennial Workshop. Eighteen high yielding cashew varieties evolved at six Cashew Research Centres of India are under evaluation at this centre. The highest yield (12.87 kg/tree) was obtained from M-26-2 (Vriehachalam) during 6th year after planting.

Screening of vigorous and less vigorous cashew types revealed it is possible to identify the less vigorous in the seedling stage itself using morphological characters, phenolic content in leaves, stomatal index, bark percentage in root etc. as criteria.

Fifty six hybrid seedlings were planted in the field during 1993-94.

With the available data, it could be noticed that application of neem oil 5 percent on tree trunk and exposed roots is effective in preventing stem borer infestation for 2 months. Sevidol granules @ 50 g/tree as basin prevent infestation for three months.

The important predators noticed on cashew inflorescence in unsprayed area were the spiders, mirid bug and chrysopa larvae.

The accessions, Bzl-120, Bzl-239, Bzl-244, Anakayam-1, Madakathara-1, K-22-1, H-3-13, H-3-17, H-680, H-683, H-719, H-1596, H-1597, H-1598, H-1600, H-1608, H-1610, M-1-2, A-26-2, K-16-1 were comparatively tolerant to tea mosquito infestation during 4th year of planting.

CRS, Anakayam

Among the varieties available in the collection and maintenance of cashew types, the type K-19-1 which possess high yield and nut size is recommended for release in the Zonal Research and Extension Advisory Committee meeting held at Pattambi during April 1994.

The pruning experiment showed yield increase and other beneficial results - healthy growth, less insect pest attack and increased scion production due to different type of pruning.

Out of the 216 hybrids evolved and maintained at this station, 37 types are prominent with it's large nut and kernel size. These types are now under further observations for their yield potential and their yield potential and other economic characters.

ARS, Chalakudy

Rice:

Studies on the effect of lime in reducing iron toxicity in paddy soils of Chalakudy command area revealed that application of lime at 600 kg/ha as one top dressing recorded the highest grain yield and significantly superior to lime applied at 300 kg/ha and 900 kg/ha.

On-farm Watermanagement Studies indicated that during summer the plots where water management treatments were given produced higher yields than control. The yield increase in continuous stagnant submergence was 88.6% over control. In treatments 7 cm irrigation one day after disappearance of ponded water and 7 cm irrigation 3 days after disappearance of ponded water, the yield increases were to the tune of 53.8% and 49.9% respectively over control.

Banana:

Studies on the response of banana var. Nendran to graded doses of N and K under different watermanagement practices revealed that irrigation at 20 cm CPE with 50 litres of water (approximated interval of 4-5 days) was superior to irrigation at 40 mm CPE and 60 mm CPE. The recommended dose of N and K of the package of practices of KAU is found to be sufficient for realising higher yields.

Studies on the effect of various mulches on growth and yield of banana cv. Palayankodan grown under irrigated and rainfed conditions revealed that the highest yield was obtained when 4 cm irrigation was given at 30 mm CPE (at 6-7 days intervals) and mulched with dried leaves.

Coconut:

Studies on the drip and basin methods of irrigation in coconut revealed that palms irrigated at 100% ET through drip system recorded the maximum number of leaves, nuts and flowered earlier than rest of the treatments.

Vegetables: A new method of irrigation viz. Bubbler irrigation developed at this centre being successfully practiced in vegetable cultivation and is found efficient in labour saving and in terms of economy of water use.

As part of vegetable seed production, the following vegetables were cultivated. Bittergourd, Snakegourd, Ashgourd, Cucumber, Pumpkin, Brinjal, Amaranthus, Cowpea.

ARS, Mannuthy

The station has proposed for the release of the short duration rice variety Cul. 10-1-1 as Ahalya for recommendation to korie lands. Hybrid coconut seed production programme was started at the station to produce Keraganga and Lakshaganga hybrids. F1 lines of hybrid rice is being maintained at the station for evaluation

Fisheries station, Puduveypu

Appropriate fish pond management techniques mainly giving emphasis on reducing silt in take into the system by suitable methods, enhanced the fish yield @ 2.16 tonnes/ha/11 months during bicul-
ture of Chanos chanos and Mugil cephalus from the brackishwater wetlands at Puduveypu.

AMPRS, Odakkali

Lemongrass:

Morphological description of 423 accessions of lemongrass was made. A lemongrass type with high content of geranyl acetate which has high demand in perfumery/agarbatti industry has been identified.

OD-455 (Thathimalangatha grass):

Cultivation practices of OD-455, a geraniol yielding accession, were standardized.

Cinnamon: A high eugenol yielding cinnamon type has been identified.

Kacholam: Manurial requirement for kacholam was optimized. A GLC method for differentiating male and female secretion of civet has been developed.

BRS, Kannara:

Banana: A total of 206 banana accessions are being maintained at the station. These accessions were described using IBPGR banana descriptor.

Seven hybrids from H1 to H7 were evolved in banana of which H1, and H2 were found promising with good dessert qualities. Other hybrids are being evaluated.

The effect of micronutrient on growth and yield of banana variety Nendran revealed that response in yield to the extent of 7%, 12%, 14%, 18%, 11% and 21% respectively were observed with ZnSo₄ (0.5%), FeSo₄ (0.2%), MnSo₄ (0.2%), ZnSo₄ + FeSo₄ + CuSo₄, commercial formulation of micronutrients (foliar) and commercial formulation of micronutrients (soil) application.

Chemical control of rhizome rot revealed that application of carbofuran 40g/plant + drenching the basins of the plant with 5000 ppm Blitox recorded minimum percent mortality.

Application of 2,4-D 30 ppm (foliar spray) and tetracycline 1000 ppm (Foliar spray) were found effective in saving the banana plants from the Kokkan disease to a certain extent.

Sigatoka leaf spot disease of bananas could be controlled by alternated spray of Bavistin (0.1%), Calixin (0.05%) and Dithane M-45 (0.2%) or Bavistin (0.1%) alone or Calixin (0.05%) alone.

The varieties Pisang lilin, Kanchikela, Sannachenkadali, H1, H2, Manoranjitham, Chinali, Sugandhi and Mannan were graded as resistant to leaf spot disease and Kadali, Kodappanillakunnan and Dwarf Cavendish as susceptible varieties.

Survey of the insect pests of banana conducted at Thrissur, Malappuram, Ernakulam, Idukki, Alappuzha and Pathanamthitta districts revealed the prevalence of Pseudostem borer Odoiporus longicollis, Rhizome weevil Cosmopolites sordidus, Banana aphid ntalonia nigronervosa and defoliators Spodoptera litura and Pericallia ricini.

Biology and population dynamics of banana aphid revealed that adults are reddish brown, elate and apterous forms are present and females breed parthenogenetically. Nymph has four instars covering a period of 8-9 days. Population was peak during September and December. Predators recorded were Scymnus sp and Menochilus sexmaculatus both belong to the family coccinellidae.

The Radopholus similis and Heterodera oryzaicola were the main nematode pests recorded in Thrissur, Palakkad and Malappuram districts and Helicotylenchus sp in Idukki district.

The banana nematodes in the soil could be controlled to a great extent by the application of carbofura @ 1.25 g ai per plant at planting followed by dip treatment of pared suckers in 0.5% phosphamidon or dip treatment of pared suckers along with raising sunnhemp as intercrop.

Screening of banana germplasm against nematode pests revealed that the promising varieties Amrit Sagar, Chenkadali, Dwarf Cavendish, H2, Adukkal, Karpoorsavally, Sugandhi, Chinali, Klue Teparod and Pisang lilin were found as poor host against Heterodera oryzaicola and Falayankodan, Njalipoovan, Monsmarie, Kunnan, H3, H4, Kodappanillakunnan and Mysore ethan as good hosts.

Pineapple:

Twenty four varieties of pineapple are being maintained at Pineapple Research Centre, Vellanikkara and detailed descriptors with respect to the Vegetative, floral and fruit characters were prepared.

Eight hybrid varieties of pineapple H1 to H8 from the Cross Kew x Ripley Queen were evaluated and hybrid H7 was found to be comparatively superior to others.

Evaluation of the fungicide contaf 5% EC against sigatoka leaf spot disease of banana showed that drenching the plant basins with contaf 2 ml/litre of water recorded minimum disease incidence followed by contaf 4 ml/litre and contaf 1 ml/litre.

4.25.11. NORTHERN ZONE

RARS, Pilloode

Coconut: The hybrid coconut variety "Kerasoubhagya" released. Coir seeds broadcasted as green manure crop was incorporated into the soil. Hybridisation work in coconut started by selecting 200 mother palms. 1194 female flowers were pollinated with the pollen collected from Malayan Yellow Dwarf and Gangabondam. Recording of annual observations from experimental coconut palms was started. Providing irrigation to coconut palms was also started.

In the Agro-meteorology section, the annual yield for 1994 was analysed which indicated that providing irrigation till water is available during summer is not detrimental to coconut farms. This was in confirmation with previous years' research.

The data on coconut area, production and productivity of the entire state were collected from 1960 to 1993. Monthly wholesale price of coir and oil were also collected. The methodology on coconut production price was prepared and got approval from M/s. MARICO. Trend analysis of coconut area, production and productivity of state as a whole was also worked out.

Rice: The grain yield of Jaya, Jyothi and Triveni during Kharif 1994 was relatively low when compared to that of Kharif 1993. The grain yield during Kharif 1994 was 4.2 t/ha (5.0 t/ha in 1993), 4.7 t/ha (5.5 t/ha in 1993) and 4.3 t/ha (5.0 t/ha in 1993) in case of Jaya, Jyothi and Triveni respectively. The low yield was attributed due to heavy wet spell. The simulated and observed grain yields were in good agreement. However, the simulated values were at higher side as the CERES Rice model has not taken into account the effect of yield due to incidence of pest and diseases.

All the test varieties were taken up during Rabi 1994-95 also. The phenological data are being recorded. The crop performance was good.

Cashew: The annual growth parameters of cashew varieties have been recorded and the observations on flowering and reproductive behaviour are in progress.

Survey and collection of bold nut of cashew is in progress.

Crop weather model for Cashew:

There was a delay in crop duration (bud break to harvest) in all the three test varieties viz., BLA-129-1, BLA-39-4, NDR-2-1 from south to north of Kerala. The length of rainy season was seen in all the locations before the rainy season ceases. This was in confirmation with the previous years' results.

The following observational trials are being carried:

Performance of *Dioscorea alata* as an intercrop in coconut garden under different doses of fertilizers.

Screening *Dioscorea alata* varieties under open/partially shaded conditions.

Evaluation of ginger varieties under open and partially shaded conditions.

Performance of turmeric varieties under open and partially shaded conditions.

Status of farm mechanisation in Kasaragod District.

Research highlights:

Among the germplasm collection planted in 1976 Kudat and St. Vincent were the top yielders.

The cumulative nut production data indicated that KERASREE recorded more than two fold increase over WCT.

The net return was maximum in case of Kacholam though arrow root recorded the highest yield as an intercrop in coconut garden.

The results of farm trial indicated that superiority of improved lines of Cucurbitaceous summer vegetables (Cucumber CS-1, Bittergourd MC-2, Snakegourd TA-2, Ridgegourd LA-1).

In Banana cv Nendran increase in bunch weight and reduction in crop duration were achieved by using large sized suckers (More than 1500 g).

Fertilizer dose of N:P:K 120:120:240 per plant with irrigation water at the rate of 30 litres during December and January, 40 litres during February, March, April and May at weekly intervals was found to be optimum for Foovan Banana raised as intercrop in coconut garden.

PEP, Panniyur:

Pepper: Crop improvement

Among the 76 cultivated types of black pepper included in the germplasm, 7 cultivars yielded more than 4.0 kg green berries per vine. TMB IV with a green berry yield of 10.92 kg per vine stood first followed by Karimunda III (6.53 kg) and Kalluvally IV (4.65 kg). In the comparative yield trial initiated during 1980, KS 14 (Sreekara) recorded the highest green berry yield of 6.97 kg per vine followed by Karimunda and Panniyur 1. Culture 239 (Panniyur 5) with a green berry yield of 3.27 kg per vine

stood first in the multilocal trial of promising cultures. Among the 9 black pepper cultivars included in another multilocal trial, Kalluvally gave the highest green berry yield of 2.58 kg followed by Kuthiravaly (1.96 kg) and Neelamundi (1.78 kg).

Crop Management:

In the irrigation-cum-fertilizer trial on two black pepper cultivars, irrigation at IW/CPE ratio of 0.25 produced the maximum green spike yield of 3.52 kg per vine. Among the 9 cultivars/cultures/varieties tested in arecanut garden, Culture 239 (Panniyur 5) stood first, the green berry yield being 5.38 kg per vine. n Pepper vines trained on Pongalyam (*Ailanthus malabaricum*) recorded the highest green spike yield of 3.68 kg followed by those trained on *Erythrina indica* and *Glyricidia*.

Crop protection:

In an experiment laid out to control *Phytophthora* foot rot and nematode disease management in black pepper, minimum leaf infection was noticed in the treatment receiving all cultural practices + 1 kg neem cake + 3 g a.i. phorate/vine + 1% Bordeaux mixture spray + 2 drenching with 0.2% Copper oxychloride. In controlling nursery diseases, spraying and drenching with 0.2% validacin was found to be the best treatment under medium shade conditions

4.15.12.HIGH RANGE ZONE

RARS, Ambalavayal

Rice

Among the 49 accessions in the rice germplasm Kirwana recorded the highest grain yield of 6077kg/ha followed by Intan. Among the five scented varieties tested Pusa basmati-1 recorded the highest grain yield of 2462 kg/ha.

Spices

Ginger cultivar V2E5-2 recorded the highest yield (67.55t of fresh rhizomes/ha) followed by PG-835(63.25t/ha) among the 36 ginger cultivars tested.

Forty varieties of turmeric germplasm were maintained and Sugandham recorded the maximum yield (44.22 t/ha) followed by Mundakka-yam.

Vegetables

Cabbage variety 'September' recorded the highest yield of 50.48 t/ha.

Among the eight Cauliflower varieties tested Pusa Early Synthetic recorded the maximum yield of 5.85 t/ha followed by BOC - 10 (5.63 t/ha).

Among the seven radish varieties tested yield was maximum for R.S.8 (55.57 t/ha) followed by Pusa Chetki.

Carrot variety HC-1 recorded the maximum tuber yield of 7.9 t/ha among the seven varieties tested. Among the five varieties of Beet root evaluated Blood red recorded the maximum yield of 15.11 t/ha. Among the 12 varieties of peas evaluated IIHR-14 recorded the maximum pod yield (3.575 t/ha) followed by FC-1. Among the 12 varieties of French Beans evaluated Sel-909 recorded the highest yield of 6.18 t/ha followed by hybrid dwarf.

CBS, Pampadumpara

Cardamom

Seventy seven cultivated types and sixteen wild relatives of cardamom are being maintained in the germplasm. Description of germplasm lines is in progress. A full fledged four replicated trial was laid out during the report period for the conduct of multilocational trial in cardamom. Considerable variation was observed among the treatments in the incidence of shoot and capsule borer and thrips in the experiment entitled "Cultural and chemical control of thrips, shoot and capsule borer of cardamom."

Pepper

The performance of released varieties as well as promising selections of pepper is being evaluated. Thirty pepper types are being maintained in the germplasm.

Tree Spices

Six lines each of nutmeg and cinnamon are being maintained.

4.15.13. List of Project proposals submitted to various funding agencies

LIST OF RESEARCH PROPOSALS FORWARDED FOR FINANCIAL ASSISTANCE

Sl. No.	Title	Budget Estimate (lakhs)	Name of Funding Agency
1	Clinico-therapeutic studies on Downer Cow syndrome	14.01	ICAR
2	Vermiculture for sustainable agriculture in Kerala	9.30	ICAR
3	Crop-fish-livestock based farming system in coastal wetlands	40.00	,,
4	Housing system for crossbred dairy cattle	9.87	,,
5.	Better utilization of Coffee husk and tapioca plant wastes for feeding cattle of high range of Kerala.	5.00	,,
6.	Cassava Biotechnology small grants programme 1994 - proposal for training grant. Columbia		International Centre for Tropical Aquaculture Columbia.

- | | | |
|---|--------|---|
| 7. Evolving high yielding strains of oyster mushrooms (<i>Pleurotus</i> spp.) and development of post harvest technology suitable for their long range export. | 9.83 | ICAR |
| 8. Better utilization of Coffee husk and tapioca plant wastes for feeding cattle of high ranges of Kerala. | 5.00 | ICAR |
| 9. Studies on post harvest technology of black pepper (<i>Piper nigrum</i> L.) | 7.6 | ICAR |
| 10. Variability in iron and zinc availability in the laterite and laterite soils of Central Kerala with reference to Rice Nutrition | 5.40 | ICAR |
| 11. Urinary Carcinogenic and calculolytic agents in ruminant and monogastric animals. | 14.27 | " |
| 12. Slaughter waste Biostimulators on nutrient utilization and economics of gain in goats | 9.06 | ICAR |
| 13. An investigation on Chromosomal damage to the Cattle of Radioactive belt areas of Kerala. | 4.60 | ICAR |
| 14. Application of drip irrigation in plantation crops and spices | 2.64 | ICAR |
| 15. Conservation of Germplasm of Sweedishi Cattle of Kerala for improvement of productivity using multiple ovulation embryo transfer technology. | 51.90 | DBT |
| 16. Banana Improvement Programme | 1.90 | BIP Washington |
| 17. Clean environment Project people's programme for solid waste Management with special emphasis on sustainable Agriculture. | 18.18 | Ministry of Environment & Forests, New Delhi. |
| 18. Dissemination of household energy conservation practices and fuel efficient technologies among rural women. | 0.25 | Kerala State Committee for STPEA, Trivandrum |
| 19. Establishment of a research and demonstration of centre for fresh water prawn farming in Kerala | 114.46 | DBT |
| 20. Evaluation of perforated Fertilizer sachets for improving productivity in young teak plantation. | | Chief-Conservator of Forests, Trivandrum |
| 21. Integrated farming of Poultry and fish for sustainable agriculture in rice based wetland ecosystem of Kuttanad, Kerala. | 16.00 | DST, New Delhi |
| 22. Studies on Cultivation processing and preservation of <i>Monia Mirura Kurz</i> live food organism for prawn larvae. | 32.93 | DBT, N.Delhi |
| 23. To set up Model Cashew Apple Processing unit of 100 Tonnes Capacity at KAU Main Campus. | 68.55 | Directorate Cashew Development, Cochin. |
| 24. Study on the influence of Vermi compost on the growth and diseases spectrum of major crops of Kerala. | | DST, New Delhi. |
| 25. Study on the Role of Governmental and Non-Governmental Organisation for Rural | 0.38 | ICSSR, New Delhi |

- Development in Kerala.
26. An ex-post facto-study on Goat keeping among the scheduled caste weaker section. 0.34 STED, Trivandrum
 27. Developing Microbial inoculants for the intercrops of coconut garden (Vegetable & Pineapple) 25.25 DST, New Delhi.
 28. Development of Mycoherbicides for the biocontrol of Water hyacinth (Eichhornia Crassipes Mart. (Solms.)) 0.75 STEC, Trivandrum
 29. Introduction of Cage system of Egg Production in the Homesteads. 15.61 DST, New Delhi.
 30. Course - Veterinary Clinical Laboratory 7.43 MOHRD, Dept. of Education, GOI, N. Delhi
 31. Research work on Economics of Tree growing on farm lands of Kerala. 6.00 ICFRE, New Forest, Dehra-Dun.
 32. Application for Emeritus Scientists Fellowship STED, Trivandrum
 33. For funding under the Ford Foundation's Campus Diversity Initiative. 15.00 FORD Foundation New Delhi.
 34. Establishment of a Plasticulture Development Centre for Research Development and Transfer of Technology. 50.78 Ministry of Agriculture, Department of A&C, GOI, New Delhi
 35. Feasibility of Developing Cassava based extruded product as an income generating activity for the unemployed women. 1.20 KSWDC, Trivan -drum
 36. Test of soil Chemical Hypothesis on the Incidence of Root(wilt) Disease of Coconut Palm. 10.20 Coconut Development Board, Cochi.
 37. Indigenous and Integrated Techniques for soil and Water Conservation. 1.40 STEC, Trivandrum.
 38. An Assessment of the Stressed ecosystems of Kerala. 19.20 DST, New Delhi.
 40. System Stimulation and Growth modeling for Rice and Cassava 7.85 DST, New Delhi.

4.15.14 Campus Development

The Campus Development programme involves the general development and beautification of the Campus. Avenue trees planted along the roads were maintained. Replanting and gap filling was done wherever necessary. Sprinkler irrigation line was extended to an additional area of 2 ha. in Vellanikkara Campus and a new sprinkler line was provided to the Cashew Research Station, Madakkathara. About 10 acres of new area was brought under cultivation with various crops.

The Central Nursery is a plant propagation and nursery management unit at the main campus to produce planting materials of elite species of horticultural crops. During the period under report procured about three lakhs of arecanut and distributed to various research stations. One lakh nuts were sown in the Central Nursery. About 80,000 coconut seednuts (Chandrakalpa and West Coast Tall) were also sown. We could achieve a sale worth Rs.11 lakh during the period under report. Gap filling maintenance orchard No. I with mango, guava, sapota and minor fruits and establishment of another orchard with new varieties of mango grafts was done.

4.15.16. Fodder Research Activities

Fodder Development Activities in KAU for the period

The Fodder production strengthening was carried out as a continuing programme from 1.4.94.

The highlights of achievements are:

Introduction of high yielding and nutritive forage crops by replacing the existing low yielding and poor quality grasses. A total area of 34 ha. has been brought under high yielding forage crops during this period.

The local grasses could be replaced with better species from 80 ha. in '92-93 to 54 ha. in '94-95. During the period 1.4.94 to 31.12.94 there is increased forage production by 19% over 1992-93, in spite of the constraints like labour shortage, manual harvesting etc.

Replacing in a phased manner the already available 10 to 12 year old hybrid napier and guinea grass crops.

The green fodder production enhanced from 6225 tons in '92-93 to 7380 in '94-95.

Leguminous forage production as a part of the "Legume bank" commenced.

Implementation of waste land development programme through forage crop cultivation, silviculture and afforestation.

Production of quality seeds of forage grasses and legumes.

Production and distribution of vegetative planting materials of forage grasses (about 2.5 lac clips).

The cultivated grasses include Hybrid napier, Congosignal, solarander setavia, Guinea riversdale and legumes such as stylo scabra, stylo ciat and Desmanthes virgatus.

The seasonal crops were Hybrid maize, Teosinte, cowpea and Fodder trees subabul and Calliandra.

The area under different crops in the three forms are Thiruvazhamkunnu 89 ha., Mannuthy 69 ha. and Thumburmuzhi 20 ha. respectively.

Total silage produced : 912 tons (Thiruvazhamkunnu 312 tons, Mannuthy 600 tons.)

4.15.17. Papers published

Station	Scientific	Popular	Total
College of Agriculture	12	6	18
College of Horticulture	38	16	54
College of Co-operation and Banking, Mannuthy	2	-	2
College of Forestry, Vellanikkara.	3	-	3
College of Veterinary & Animal Sciences, Mannuthy	5	1	-
College of Fisheries, Panangad.	3	-	3
Fisheries station	11	2	13
KCAET, Tavanur.			Nil
Southern Zone	40	10	50
Special Zone			

Kumarakom			
Vyttila	3	-	3
Central Zone	2	-	2
Pattambi			
Anakkayam	10	8	18
Odakkali	1	-	1
Madakkathara	3	-	3
Kannara	5	-	5
Mannuthy	2	2	4
Northern Zone	1	-	1
Filicode			
Panniyur	10	-	10
Highrange Zone	3	-	3
RARS, Ambalavayal	1	-	1
CRS, Pampadumpara	1	-	1

4.15.19. Monitoring visits

Director of Research

17-05-1994	Cashew Research Station, Madakkathara
19-05-1994	Cashew Research Station, Anakkayam
26-05-1994	Cardamom Research Station, Pampadumpara
31-05-1994	Rice Research Station, Kayamkulam
14-06-1994	Regional Agri. Research Station, Ambalavayal
14-07-1994	Regional Agri. Research Station, Pattambi
23-07-1994	Farming System Res. Station, Kottarakkara

Associate Director of Research (V&AS):

16-04-1994	Livestock Research Station, Thiruvazhamkunnu.
26-04-1994	Regional Agri. Research Station, Ambalavayal
27-04-1994	Regional Agri. Research Station, Filicode.
07-05-1994	Regional Agri. Research Station, Kumarakom
18-05-1994	College of Agriculture, Vellayani
04-07-1994	Livestock Research Station, Thiruvazhamkunnu
15-07-1994	Livestock Research Station, Thiruvazhamkunnu
14-09-1994	Fisheries Research Station, Puduveyppu
28-09-1994	Rice Research Station, Vyttila
03-10-1994	College of Agriculture, Vellayani
22-10-1994	Livestock Research Station, Thiruvazhamkunnu
09-11-1994	Livestock Research Station, Thiruvazhamkunnu
11-11-1994	College of Fisheries, Panangad
16-11-1994	Krishi Vigyan Kendra, Kottarakkara

Associate Director of Research (Plg):

15-07-1994	Cardamom Research Station, Pampadumpara
09-08-1994	Rice Research Station, Moncompu
04-10-1994	Cardamom Research Station, Pampadumpara
10-10-1994	Rice Research Station, Moncompu
11-10-1994	Sugarcane Research Station, Thiruvalla
11-10-1994	Rice Research Station, Kayamkulam
12-10-1994	Rice Research Station, Vyttila
17-10-1994}	
18-10-1994}	Regional Agri. Research Station, Kumarakom
28-10-1994	NARP Southern Region, Vellayani
11-11-1994	Cardamom Research Station, Pampadumpara.

Associate Director of Research (AR & T):

09-02-1993	Banana Research Station, Kannara
10-11-1993	Pepper Research Scheme, Vellanikkara
17-11-1993	Aromatic & Medicinal Plants Res. Station, Odakkali
04-12-1993	AICRP on Agro-forestry, Thiruvazhamkunnu
27-04-1994	Agronomic Research Station, Chalakudy
31-07-1994	Aromatic & Med. Plants Res. Station, Odakkali
12-08-1994	Cashew Research Station, Madakkathara
17-09-1994	Agricultural Research Station, Mannuthy
05-12-1994	Banana Research Station, Kannara
21-12-1994	FARS, Pattambi

Associate Director of Research(M&E)

26-04-1994	Regional Agri. Research Station, Ambalavayal
27-04-1994	Regional Agri. Research Station, Pilicode
27-04-1994	Pepper Research Station, Panniyur
17-05-1994	Regional Agri. Research Station, Ambalavayal
16-08-1994	Regional Agri. Research Station, Pilicode
17-08-1994	Pepper Research Station, Panniyur

4.15.20. Important Visitors
SOUTHERN ZONE

Name & Address	Purpose	Date
Dr. A. N. Goswamy, Dean & Jt. Director, IARI, Delhi	Visit & Extension lecture	2.5.1994 Vellayani
Dr. D. P. Singh, ADG (Vegetables) ICAR, New Delhi	Visit	6.1994 Vellayani
Smt. Saraswathy Kunjukrishnan, Member, Exec. Committee, KAU.	Attended Farm Advisory meeting	13.6.1994 Kottarakkara
Adv. D. Vijayakumar, Chairman, Accounts Committee, KAU.	Visit	20.6.1994 Kottarakkara
Dr. P. J. Thampi, State Land Use Commissioner, Kerala	Discussion on preparing a perspective plan for land use	16.7.1994 Vellayani
AICRP (Forage) Monitoring team	Monitoring of the progress of AICRP (Forage)	15 & 16 Aug. 1994 Vellayani
Dr. Mathur, ADG (Edn), ICAR, New Delhi	Visit	6.8.1994 Vellayani
Sri. D. Vijayakumar, Member, General Council, KAU.	Discussion on KVK implementation	21.7.1994 FSRS, KTKRA
Sri. Pandalam Sudhakaran, Minister for Sports, Kerala KTKRA.	Visit	21.8.1994 FSRS.

Sri. P. P. George, Hon'ble
Minister for Agrl., Kerala

Sri. R. Balakrishna Pillai
Hon'ble Minister for Transport,
Kerala

Sri. Kodikunnil Suresh, M. P.

Inauguration
of the K.V.K.

29.10.94
KTKRA

Sri. Johny Nelloor, MLA

Sri. Punalur Madhu, MLA
Adv. D. Vijayakumar

Sri. Rajasekharan Nair
President, Vettikavala
Panchayat

PROBLEM ZONE

Kumarakom

Sri.P.S.Gahlavt, Chief Manager (Marketing), India Ltd., New Delhi
visited on 12-5-1994.

Mr.Wesley M Shrum, Ph.D, Secretary, Society for social studies,
Louisiana State University, USA visited on 23-5-1994.

Dr.M.N.Sinha,Zonal Co-ordinator.KVK,Bangalore visited on 28-10-94

Dr.Gurubachan Singh, Principal Scientist, ICAR,New Delhi visited
on 12-10-1994.

Kayamkulam:

The members of the Assurance Committee visited on 5-8-1994 and
the Accounts Committee of the General
Council met on 27-8-1994.

Thiruvalla

Dr.K.C.Alexander,Director,Sugarcane Breeding Station,Coimbatore.

CENTRAL ZONE

RARS, Pattambi

Dr.Wesley M. Shrom of Louisiana State University and his team
visited the station on 18-5-1994.

ARS, Chalakudy:

Dr.R.K.Rajput,Project Director,Directorate of Water management
Project, Bahuri visited the centre from 28th to 30th March 1994.

BRS, Kannara:

Dr.Wesley Shrum, Associate Professor, Louisiana State University,
Dr.Govind Parayil of Cornell University and Shekkan Tushibagwale
of Louisiana State University visited the station on 10-5-
1994.Dr.H.P.Singh, Project Co-ordinator (ICAR) visited the sta-
tion.

802072



CRS, Anakkayam

Sri. Johnny Nelloor, MLA and Executive Committee Member of KAU, visited the Station on 16-11-1994.

Sri. P.P. Balasubramanian, Director of Cashewnut Development, Cochin, visited the Station on 24-11-1994.

ARS, Mannuthy

Sri. V.M. Shamsudheen, Director of Agriculture, Union Territory of Lakshadweep visited the station on 25-6-1994.

Smt. Saraswathi Kunjikkrisnan, Sri. Johnny Nelloor, MLA, Sri. M.P. Thami, MLA and Sri. Jose Joseph, Executive Committee Member visited the station on 7th and 8th April, 1994.

AMPRS, Odakkali

Dr. U.S. Sharma, Director (RDT & E), Central Coir Research. Mr. Sukumaran, Executive Director, Oriental Manure Mills, Kottayam visited the station on 17-8-1994.

CRS, Madakkathara:

Sri. P.P. Balasubramanian, Director, Directorate of Cashewnut development, visited the station on 10-6-94 & 1-11-94.

Sri. R.N. Hegde, Manager (Tech), NABARD, visited the station on 29-9-94.

Director, Central State Farm, Aralam, visited on 10-10-94.

CBF, Thumburmuzhi

Dr. Gurcharan Singh, Principal Scientist (LPM), IARI, New Delhi on 11.10.94.

Sri. M.P. Thami, M.L.A., Sri. Johnny Nelloor, M.L.A. and Sri. Jose Joseph visited the station on 19.12.94 in connection with the selection of casual labourers.

Sri. Johnny Nelloor, MLA and Executive Committee Member of KAU, visited the Station on 16-11-1994.

Sri. P.P. Balasubramanian, Director of Cashewnut Development, Cochin, visited the Station on 24-11-1994.

LRS, Thiruvazhamkunnu

Executive committee members visited the station recruitment/selection of casual labourers.

Sri. Prayar Gopalakrishnan & Accounts Committee Members visited the station for Accounts Committee Meeting.

Fisheries Station
Dr.P.Jambulingam, Assistant Director and M.Sc.Medical Entomology students, Vector Control Research Station, Pondicherry, visited the station on 7-10-1994.

Sri.David Pinhero, MLA, Kerala Assembly; Sri.K.C.Prasu Master, President, Narakkal Panchayath; Sri.C.K.Mohanan, President, Elamkunnapuzha Panchayath and Sri.M.K.Sivarajan, President, Edavanakad Panchayath, visited the station on 19-10-1994. Sri.V.K.Babu, MLA, Kerala Assembly; Sri.V.Khalid, Executive, BFFDA, Ernakulam and Sri.Karmachandran, Assistant Director, Agriculture Department, Government of Kerala visited the station on 24-12-1994.

HIGH RANGE ZONE

Ambalavayal

Sri.M.S. Joseph, Agri. Production Commissioner	-20-4-94
Dr Hemdy Eisa, Scientist, IDA Mission	-26-4-94
Dr Arun Varma, Scientist, IDA Mission	-26-4-94
Dr TC Jain, Chairman, IDA Mission	-26-4-94
Sri.MP Thami, MLA, Member, Exe. Committee	-30-7-94
Sri.Johny Nelloor, MLA, Member, Exe. Committee	-30-7-94
Dr AK Sadanandan, Project Co-ordination, NRCS, Calicut	-1-10-94
Dr GI. Khaul, Horticultural Commissioner, Govt. of India	-29-11-94

Pampadumpara

Sri.M.K.Purushothaman, General Council Member	-04.04.94
Dr M.S.Veeraraghavan, IAS, Rose Breeder	- 26-09-94
Dr Sadanandan, Project Co-ordinator, AICRP (Spices)	-04-10-94
Sri.P.Johny Nelloor, MLA	-10-10-94
Sri.E.M.Augusty, MLA	-10-10-94
Sri.M.K.Purushothaman, General Council Member, KAU	-10-10-94
Sri.P.P.George, Hon.Minister for Agriculture	-21-11-94
Sri.Johny Thomas, PAO, Idukki	-21-11-94
Sri.Jose Joseph, Exe.Committee Member	-21-11-94
Sri.M.K.Purushothaman, General Council	-21-11-94

NORTHERN ZONE

Pillicode

Hon'ble Minister for Agriculture, Kerala Sri.P.P.George, Superintending Engineer of the CPWD, Sri.M.Narayanan, MLA, Hosdurg, Agricultural Production Commissioner Sri.M.S.Joseph.

Members of IDA Mission visited the station on 27-4-94 and reviewed the progress of work.

Chairman and members of Statute Committee and Establishment Committee of the Kerala Agri. University visited the station during the period under report.

4.15.21. Important meetings held in the Directorate of Research
from 1-4-94 to 31-12-94

Date	Details of meetings held
06-04-1994	Peer Group Meeting at the chamber of Director of Research
30-04-1994	Meeting to discuss the Research support to NWDPR
30-05-1994	Plan Review meeting of ADRs
31-05-1994	Meeting on Land Use
05-07-1994	Project Co-ordinators Meeting
26-09-1994	Meeting of the Associate Directors
29-11-1994	Meeting to discuss the State State Agricultural Fair, 1994
05-12-1994	Meeting of Associate Directors
31-12-1994	Meeting of Associate Directors - Discussion of NARP group meeting at

4.15.22. Progress on Plan Schemes

Name of station	Outlay	Expenditure	Utilization
College of Agriculture, Vellayani	24.065	13.001	54%
College of Horti.	36.150	14.550	40%
College of Vety.& Animal Sciences, Mannuthy.	30.690	20.907	68%
Veterinary Hospital, Kokkalai	9.130	5.804	64%
College of Forestry	10.850	5.257	48%
PROBLEM REGION			
Kumarakom	8.679	4.668	54%
Kayamkulam	2.300	0.750	42%
Vyttila	1.600	1.030	60%
Thiruvalla	1.170	0.796	68%
Karumadi	9.775	5.735	58%
Moncompu	0.950	0.641	67%
CENTRAL REGION			
RARS, Pattambi	6.950	3.026	44%
ARS, Chalakudy	2.270	1.434	63%
BRS, Kannara	31.877	26.697	84%
CRS, Madakkathara	0.700	0.414	59%
AMPRS, Odakkali	3.220	0.640	20%
CBF, Thumburmuzhi	2.730	1.170	43%
CRS, Anakayam	1.750	1.400	80%
LRS, Thiruvazhamkundu	12.210	1.974	16%
ARS, Mannuthy	3.540	1.347	40%
Campus development	28.590	26.860	94%
Fisheries station	8.510	0.150	02%
NORTHERN REGION			
RARS, Pilicode	7.070	3.490	49%
PRS, Panniyur	9.150	4.999	55%
HIGH RANGE REGION			
RARS, Ambalavayal	9.370	2.315	25%
CRS, Pampadumpara	4.500	0.694	15%

CHAPTER - 5

DIRECTORATE OF EXTENSION, MANNUTHY

5.1. Director of Extension

Dr. V.K. Sasidhar continued as the Director of Extension in charge upto 27-6-94. Dr. E. Tajuddeen, Professor of agronomy, joined as Director of extension in charge on 28-6-94 and continued in the post.

5.2. Faculty position as on 31-12-94

5.2.1. Academic position

Organisation	Cadre (sanctioned)						Total		
	Dir.	Assoc. Dir.	Prof. Prof.	Assoc. Prof.	Asst. Prof.	Others	S	P	V
Directorate of Extension	1	1	-	-	-	-	2	1	1
Central Trg. Institute	-	-	1	1	2	-	4	2	2
Communication Centre, Mannuthy	-	-	2	8	13	-	23	15	8

5.2.2. Administrative Supporting/Para-technical/Ministerial/other posts

Name of Station	AO/AA	SO/SOS	Asst. Ty.	FS/FA	LA	Dri.	Cl. IV	Others	Total
Directorate of Extension	-	4	5	2	-	1	2	-	14
Central Trg. Institute	-	1	2	2	1	1	1	1	9
KAU Press	-	2	3	-	-	-	1	24	30
Communication Centre.	1	1	6	-	3	1	3	5	20

5.2.5. Communication Centre

Publication unit

The periodicals KALPADHENU (Malayalam quarterly) Vol 21, No. 3&4 were published. The K.A.U News Letter (English) is also published. Ten non-periodicals of different items were also published during the period.

Information Unit:

Information Unit:

During the period under report, 15 articles were published on agricultural and allied subjects in the Karshikarangam page of leading Malayalam Newspapers. News items relating to research and extension activities of the KAU were regularly broadcasted on all Fridays under the title "Kerala Agricultural University News".

The University has participated in the Trichur Pooram Exhibition in April '94, Trade Fair in Thirunskkara, Kottayam in July 1994 and National Exhibition at Thiruvananthapuram in December 1994. In the National Exhibition at Thiruvananthapuram, KAU bagged the 1st prize for the best pavilion.

Photographic services and audiovisual supports were also provided by the graphic unit for the University functions during the period under report.

Dr. P.A. Joseph, Assistant Professor was the Officer i/c of the information and Sales Centre during the period. During the Onam season one week 'Onam Fair' was organised at the Information & Sales Centre to facilitate the sale of agricultural products at reasonable prices. Similarly X'mas bazaar was opened at the Sales & Information Centre. It was inaugurated by the Hon'ble Minister for Agriculture Sri P.F. George.

The sale of various items to the farmers/public from the Information & Sales Centre, Mannuthy are:

a)	Meat products	6.54	lakhs
b)	Dairy products	1.13	"
c)	Poultry products	1.56	"
d)	Aquarium products	0.38	"
e)	Processed food items	0.78	"
f)	Vegetable seeds	3.60	"
g)	Publications	0.81	"
h)	Fruit plants	2.76	"
i)	Ornamental plants	1.22	"
j)	Plantation crops	11.36	"
k)	Spices	1.06	"
l)	Vegetable plants	0.15	"
m)	Medicinal plants	0.59	"
n)	Forestry seedlings	0.12	"
o)	Miscellaneous	1.49	"

The total revenue for the period was 33.74 lakhs including rent from Cafeteria. The following activities were also undertaken during the period: Video projections - 31 Nos, Farm Advisory Services - 451 Nos, Correspondence to enquiries of farmers - 80 Nos. Subscription to "Kalpadhenu" for 131 Nos. are received.

Steps were also initiated to construct an Information and Sales Centre at Kottarakkara. With the inauguration of a Centre of KVK at Kottarakkara, foundation stone was laid by the Hon'ble Minis-

Information and Sales Centre at Kottarakkara in October 1994.

Video cassettes on the following topics were produced during the period under report.

1. Underground pipeline water distribution systems for undulating terrains.
 2. Mushroom cultivation
 3. Reproduction in cattle
 4. Mycotoxicosis in animals
 5. Disease of ducks & rabbits)
-) Under various stages of preparation

Farm Advisory Service
Consultancy service to farmers:

Advises were given on different field problems in the field of agriculture and animal sciences to 293 farmers, in addition to the regular agroclinic service (451 farmers) at Information & Sales Centre. Replies to 95 queries on different agriculture and allied problems were sent through mail.

Programs through All India Radio:

Thirty seven news bulletins were prepared and broadcast on Fridays through KAU News bulletins. Dr. O. Abdul Bahiman Kunju, Dr. M. K. Sheila, Dr. Joy Mathew, Smt. K. K. Santha, Dr. Jayasree Sankar and Smt. Mrudula Devi had prepared and presented seven programmes each on different topics in agriculture through the Farm and Home programme.

Details of seminars conducted

Date	No. of participants	Date	No. of participants
05-4-94	165	25-06-94	75
06-4-94	250	16-07-94	55
08-4-94	200	17-08-94	100
do	150	09-09-94	75
09-4-94	200	14-09-94	150
do	55	24-09-94	105
16-4-94	150	26-09-94	1500
21-4-94	100	01-10-94	150
05-5-94	136	05-10-94	200
06-5-94	36	21-10-94	150
do	50	19-11-94	73
12-5-94	50	31-12-94	150
30-5-94	45		

Integrated Pest Management (IPM) Cluster demonstration and training programme:

IPM cluster demonstration and training programmes were successfully conducted during the period under report in two districts, Palghat and Trichur. Visit of 30 homesteads at different loca-

tions were conducted by the Scientists of the FAS during the report period. Dr.K.P.Vasudevan Nair, Professor (FAS) served as a resource person for the T&V monthly workshop conducted in Thrissur District.

Sale of publications: Sale of publications worth Rs.2.93 lakhs was made during the period under report.

'Karshakadinam' celebrations:

As a part of the celebration of the 'Kerala Karshakadinam' one day Agricultural Seminar was organised at KESS Centre, Nadathara on 17-8-1994 at Kozhukully under the Farm Advisory Unit of the Centre.

'Tree Planting Programme'

Under this programme 100 teak saplings were planted in the premises of Communication Centre, Central Training Institute and KAU Press in July 1994.

5.2.6. Central Training Institute:

Central Training Institute at Mannuthy with the training service scheme at the College of Agriculture, Vellayani came into being in 1986 as a special sub-project on National Agricultural Extension Project I primarily to meet the training needs of the higher level functionaries of the T & V System of Agricultural Extension operated by the State Department of Agriculture. A training unit is also functioning at Regional Agricultural Research Station, Pilicode.

Apart from the training programmes conducted for the State Department of Agriculture, training programmes are also conducted for higher level officers of the other government departments such as Animal Husbandry, Rubber Board, State Bank of Travancore, Co-operative Banks etc.

Sixty three training programmes were conducted during the period under report.

5.2.7. Krishi Vigyan Kendras:

Four Krishi Vigyan Kendras are functioning under the Kerala Agricultural University, viz., Pattambi, Ambalavayal, Manjeer and Kottarakkara.

The Krishi Vigyan Kendra, Pattambi conducted a total of 18 ski oriented training programmes for 343 participants during the period under report. Two seminars were organised in the station for the benefit of 69 participants and the scientists of the station, participated in 7 seminars organised at different parts of the state. Six radio talks were delivered by the Scientists of the KVK on various subjects. The Krishi Vigyan Kendra, Ambalavayal conducted a total of 39 training programmes for 1026 participants during the period. Ten seminars (520 participants), two exhibitions (20,000 participants), ten film shows (480 participants), one field day (150 participants) and one Farmers' Fair (10,000 participants) were organised in the station. The Scien-

tists of the station participated in 3 seminars organised at different parts of the state. Two radio talks were broadcasted on various subjects by the scientists of the station. The KVK Man-jeewar organised 10 training classes for the benefit of 203 farmers during the period. There were forty farm visits on agriculture and fisheries made during the period. Scientists of the Krishi Vigyan Kendra gave technical guidance to more than hundred farmers through field visits/farm visits. Two Kannada articles for the linguistic minority people of Kasaragod District were published in the Kannada Dailies viz., Prawn farming, Mackerel and Oil Sardine Fishery.

KVK, Kottarakkara was inaugurated by the Hon'ble Minister for Agriculture Sri.P.P.George on 29-10-1994 at the Cropping System Research Station, Sadanandapuram.

Lab to Land Programme:

The lab to land programme fully financed by the Indian Council of Agricultural Research is being implemented in the state through the Krishi Vigyan Kendras.

Village Adoption Programme:

The University has adopted villages for imparting technical know how to the small and marginal farmers. These Villages are located adjacent to the different research stations so that the Scientists can directly contact the farmers. In addition to the Technology transfer, the Scientists get feed back information for planning further research. 30 villages were adopted by various institutions under the University during the year.

5.2.8. National Service Scheme: Dr.V.K.Sasidhar, Director of Extension i/c continued to function as the Programme Co-ordinator of the NSS till 27-6-94. Dr.E.Tajuddin, Director of Extension i/c functioned as Programme Co-ordinator from 28-6-1994.

The National Service Scheme (NSS) has been functioning in all the teaching institutions under Kerala Agricultural University. The major activities include blood donation, campus cleaning work, collaboration in organising training for unemployed youth for self employment and organising discussion, meetings in 'AIDS' disease awareness, etc.

University Level Activities:

The Director of Extension has attended the NSS National award ceremony and the NSS Silver Jubilee Year concluding ceremony at Thiruvananthapuram on 24th and 25th September, 1994 besides other NSS programmes.

5.3. EXTENSION ACTIVITIES IN OTHER INSTITUTIONS

5.3.1. College of Agriculture, Vellayani:

Village Adoption Programme:

Twelve group discussions on various problems felt by farmer were conducted and suitable solutions suggested. Two training programmes namely, biofertilizers and their application and types of vegetable cultivation with low cost were conducted.

A special training programme was organised for the benefit of women farmers in Mushroom cultivation and preparation of various recipes in mushroom and embroidery and stitching clothes so as to enable them to utilize their resources towards production and as self employment avenue.

One day seminar and exhibition was conducted at venniyoor. Seminar was organised to create awareness and impart knowledge in Scientific cultivation. Discussion class were held in fertilizer application to paddy, coconut, Tapioca, Vegetables etc. Exhibition was organised involving agencies like ANERT, KVK, Mithranikethan, input agencies and Forest Department.

Radio talk and TV Programme

The academic staff from the various departments presented five programmes in T V and conducted 36 Radio talks highlighting the advances in farming.

Spawn Production and Cultivation of Mushroom

Quality spawn of Oyster mushroom was produced and distributed to mushroom growers on nominal price. Cultivation techniques were demonstrated to a number of visitors interested in mushroom cultivation.

Guest Lecture: Dr.N.N.Goswamy, Dean and Joint Director, IARI, New Delhi gave a lecture on "Recent trends in soil fertility" on 2-5-1994.

T & V Activities: Academic staff of the College served as resource personnel in the monthly T&V Workshops and also served in the diagnostic team and conducted field visits to investigate field problems.

Farm Advisory Service: Pests and disease affected plant samples brought by farmers and extension staff from Department of Agriculture were examined and proper control measures suggested. Farmers were also given necessary advice on crop management aspects. Necessary advice to the Livestock farmers was also rendered by the scientists of the Animal Husbandry Department.

Classes were handled by the scientists of this Institution to PG Diploma students in Sericulture from Rajeev Gandhi Centre, Tiruvandrum and to the Extension Staff of the Department of Agriculture. RATT Centre, Kazhakuttam.

Imported planting material Inspection Authority: The Professor & Head of the Department of Plant Pathology functioned as the Designated Inspection Authority of the State for issuing certificates after inspection of imported plants/planting materials.

Fruit Processing Unit: A Fruit Processing Unit is maintained by the Department of Home Science and jam, jelly, squash, wine etc. are manufactured mostly from the farm produce available and are being disposed off on no loss, no profit basis.

5.3.2. College of Horticulture, Vellanikkara:

During the report period 12,526 Nos. of packets (200 g) of the oyster mushroom valued at Rs.1,25,260 was produced by the mushroom production unit and distributed through the Information & Sales Centre, Mannuthy. A total of 6,865 Nos. of various kinds of fruit plants (mango, sapota, jack, garcinia, tamarind grafts, guava, lemon, pomegranate, West Indian Cherry, papaya etc.) were produced in the Department of Pomology and Floriculture and sold through the Information & Sales Centre, Mannuthy. The cocoa unit (CCRP) produced 3603 numbers budded plants and poly clonal seedlings.

Vegetable seeds totaling 1239 kg valued at Rs.4.86 lakhs was distributed from the Department of Olericulture during the period. Of this the quantity produced in the Dept. was 452.25 kg the rest being pooled from various KAU stations. The Department of Plantation Crops & Spices produced 8000 Nos. of clove seedlings and 25,000 Nos. of nutmeg seedlings for distribution.

Tissue cultured plantlets of black pepper (2000 Nos) and Katcholam (1200 Nos) were produced for distribution through the Department of Agriculture under the pilot project. The Instructional Farm, Vellanikkara produced 12,802 Nos. of arecanut seedlings (Mangala and Mohit Nagar). 4640 Nos. of mango grafts and over 4120 Nos. of various kinds of ornamental plants. The IF also produced 145 kg of vegetable seeds during the report period. A total of 20,000 Nos. of coconut seedlings (Laccadive ordinary) were also produced in the IF during the period. The Department of Processing Technology produced several kinds of fruit products valued at Rs.1.13 lakh during the year. The items were sold mainly through the Information and Sales Centres of the KAU.

Consultancy services: The Departments of Entomology, Plant pathology, Soil Sciences and Agricultural Chemistry, Pomology and Floriculture, Plantation Crops & Spices, Olericulture and Processing Technology continued to provide advisory and consultancy services to needy farmers.

Broadcasts through the AIR: The members of the faculty in the AICRP Centre on Medicinal and Aromatic Plants and certain scientists in the disciplines of Entomology and Plant Pathology actively participated in the farm school on AIR on 'Sasyajam Mrutyumjayam' sponsored by the Thrissur Station.

Farmers' seminars: The members of the faculty attended several farmers' seminars organised by the Department of Agriculture and delivered talks on various selected topics for the benefit of the cultivators.

Participation in Exhibitions: The College Departments actively participated in the State Agricultural Fair held at Trivandrum during 14-18 December 1994. The exhibits included selected medicinal plants; TC plantlets of cocoa, black pepper, katchalam, pineapple, minor fruits and vegetables, etc. Processed food items and vegetable seeds were made available for sale in the exhibition counter.

5.3.3. College of Co-operation & Banking, Mannuthy:

The Scientists of the college have been identified as resource persons for the training programmes conducted by Central Training Institute, Extension Training Centre, Kerala Institute of Local Administration, Small Industries Service Institute, District Co-operative Banks etc. Dr.M.Mohandas, Associate Dean i/c has served as a member of the technical advisory committee of Trichur District Paddy Processing and Marketing Society and also served as the Convenor of the District Level Co-ordination Committee for implementation of Intensive Development programme at Mattathur panchayat, Dr.N.Rajan Nair, Professor, Department of Rural Marketing Management and Dr.A.Sukumaran, Asst. Professor of the same department served as Guest Faculty for the part time M.B.A. Programme conducted by University of Calicut.

Three days workshop on consumer cooperatives in Educational Institutions of Kerala was organised by this college from 24th to 27th August 1994. Eighty participants attended the workshop. Scientists of this college attended two summer institutes (21 days) and two training programmes organised at different parts of the country.

NSS Activities: Chingam 1st was celebrated as 'Karshaka Dinam'. The College premises were cleaned by the student volunteers on August, 19th, 1994.

Sadbhavana Day was celebrated on August 20th 1994. National Integration Day was observed by arranging a talk on Communal Ceremony on September 6th, 1994. Conducted Anti-Drug Campaign on September 10th, 1994. Laid out a Kitchen garden at Juvenile Home, Ramavarmapuram on December 7th, 1994. The Annual NSS 10 days' Special Camp (Kodakara, Monadi) was inaugurated on December 30th, 1994.

5.3.4. College of Veterinary and Animal Sciences, Mannuthy:

The extension activities of the College included organising and conducting A.H. Seminars, giving lectures in A.H. seminars organising by various agencies, attending disease committee meetings, conducting vaccination, conducting and attending farmers seminar, taking classes on various aspects of Animal Husbandry, giving Radio talks, writing popular articles, village adoption programme, earn while you learn student programme, conducting surgical camp at various veterinary hospitals, delivering guest lectures, treatment of animals in hospitals, giving technical advice to feed manufacturers and farmers, analysis of feeds and fodder for proximate principles, analysis of biological samples feeds and fodder for toxic principles.

Services rendered to farmers:

Cases treated in the Veterinary Hospital, Mannuthy:

Total No. of cases treated	6147
Surgical operations	387
Vaccinations done	4076
Clinical samples examined	1061

Details of Insemination done

	A. I. Centre Kokkalai	Mannuthy	Total
Cows and buffaloes	1203	1671	2874
Goats	144	131	275
Revenue (Rs.)	14,295/-	16,901/-	21,196/-
Vaccination conducted against Rinderpest/Hemorrhagic Septi- caemia and Foot & Mouth disease	-	1,520	
Clinical materials for parasitic infection	-	780	

Details of Postmortem diagnosis made:

Poultry autopsy & disease diagnosis	11,768
Large animal autopsy	403
Histo-clinico pathology	1,547
Feed samples analytical for aflatoxin	463
Rabies diagnosis	248
Ethemoid cases in vestiglict	80

One thousand clinical specimen of various nature were examined microbiologically and result communicated. The Rabbit unit under the College distributed 300 pairs of improved varieties of Rabbit to farmers. The experimental animal division distributed 1780 Nos of animal to various institutions.

Seven radio talks were made by the staff members during the period. Nine farmers were attended. Three exhibitions were organised. Eight research papers were published.

1826 piglings were produced at the Pig Breeding Farm and distributed to the Department of Animal Husbandry. From the Dairy Plant 11,27,247 Rupees worth Dairy products were sold. Meat products to the value of Rs.8,45,961.55 were produced and sold from the Meat Plant.

NSS Activities: The following are the highlights of the NSS unit's activities for the period from 1-4-94 to 31-12-1994.

Blood group determination camp: This camp for the benefit of the newly admitted students, employees of the Faculty and the labourers of the farms attached to the Faculty was organised on 13-4-1994.

A total of 88 students and 20 employees including the labourers tested their blood group.

One day camps:

During the above period the unit organised two one day camps. A camp on 24-4-94 was conducted at Perumpilavu in collaboration with the local Panchayat, Animal Husbandry Department and other agencies. There was an animal health cum infertility camp, a cattle show and sale of KAU publications and seeds and also a mini exhibition of different breeds of poultry and broiler rabbits. 122 students Volunteers including the local youths participated in the camp.

Another camp on 9-10-94 was organised at Pazhunnana in Chowannur Panchayat in collaboration with the Animal Husbandry Department, local Panchayat, Co-operative Service Bank, Milk Marketing Co-operative Society and United India Insurance Company. An infertility cum health clinic, examination of faecal samples of animals for parasitic infections, a mini exhibition of different breeds of poultry and broiler rabbits and the products, charts and literature on various animal diseases and their control etc. a farmers' seminar and discussion were the main terms of the camp. 150 volunteers including the local youths attended the camp.

Goraksha camps:

The Goraksha camp organised by the Veterinary Surgeon, Puthenchira was attended by 3 NSS student Volunteers. A camp organised by the Department of Extension of the College and FDDP, Kalady was attended by 23 student volunteers.

National Integration Camp:

This camp organised by Kerala Agricultural University at Parambikkulam was attended by 6 girls and 6 boys.

Orientation talk:

An orientation talk for the benefit of NSS student volunteers by Prof. P.K.Mohammed, Co-ordinator, NSS Orientation & Training Centre, Kalamasserry, with the award of certificates to the student volunteers by Dr.E.Tajuddin, Director of Extension, KAU with Dean presiding was organised on 19-7-1994.

Special camping programme:

Five days special camping programme from 11th to 15th August was organised at Parali. Work Programmes, Inoculation against conta-

gious diseases of Cattle, Farmers' Seminar, Sports and Cultural competitions for school students, Farmers' quiz etc. were the attractions of the camp. 150 persons participated in the camp.

Nature camp:
The camp was sponsored by the Forest Department at Eravikulam National Park from 18th to 20th August 1994. 30 Volunteers participated in the camp.

Activities evaluation:
A meeting to evaluate the camp activities of the unit was convened on 4-9-1994 with all the student volunteers, employees and teachers who participated in various camps with Dean occupying the chair.

NSS Advisory Committee meeting: The College NSS advisory committee was convened on 5-11-1994.

Other activities:

The NSS volunteers were actively involved in the blood donation to the needy who were admitted in the various hospitals in Thrissur. The student volunteers were actively participating for making arrangements for the Clinical complex inauguration by the Minister for Agriculture on 17-11-1994.

5.3.5. College of Fisheries, Panangad:

Scientists of this college participated in seven training programmes/refresher courses organised at different parts of the country. Seven training programmes were conducted by the college for 167 participants during the period under report.

College of Fisheries participated in the 'Agriculture Fair, 1994' at Kanakakkunnu Palace, Thiruvananthapuram during 14th to 18th December, 1994. Farmers' Day was celebrated by planting teak wood seedlings by students and staff of the college. Scientists took classes on Aquaculture and related topics to the trainees of different training courses conducted at Panangad, Puduveypu, Mannuthy, Kumarakom etc. Seven radio talks were broadcast various topics related to Fisheries. An exhibition on 'Deep Sea Fishing' was organised at the college auditorium under the auspices of P.C.O. Centre, Thiruvananthapuram.

Various scientists of the College took classes on Aquaculture and related topics to the trainees of different training courses conducted at Panangad, Puduveypu, Mannuthy, Kumarakom etc. Seven scientists gave Radio talks on various topics related to Fisheries at the AIR, Cochin and Trichur stations. An exhibition on 'Deep Sea Fishing' was organised at the College auditorium under the auspices of P.C.O. Centre, Thiruvananthapuram. Village Extension Officer Trainees and Bank Officers visited the College. A number of Fish farmers visited the College and held consultations about Aquaculture with the Scientists. They purchased fish seeds also. Ornamental Fishes are supplied to the University Sales Counter at Mannuthy also.

NSS Activities: During the period, under the NSS Unit of this college, certain training programmes in Fish culture, Agriculture and Animal Husbandry for the unemployed youth of this locality was organised. The training programme was sponsored by the NSS Training and Orientation Centre, Kalamasseri. 60 unemployed youth (both male and female) were benefited by this course. Seven NSS Volunteers of this college participated in a five day camp (Inter-University) at Farambikulam during 1st to 5th May, 1994. An 'AIDS' Awareness seminar was held at the college under the auspices of the NSS unit, on 16th December, 1994. Also a film-show on the same topic was followed. Quami Ekta was celebrated by taking National Integration pledge by students and staff on 23rd November, 1994.

5.3.6. KCAET, Tavanur:

One day campus beautification programme was organised by the NSS unit of the college of 19-7-1994. Demonstration of post hole digger was conducted at Harrison's Malayalam Plantations, Falappilly on 12-4-1994. Exhibited improved farm implements and machinery at Trichur Pooram Exhibition from 17-4-1994 and at Sarvodaya Mela, Tavanur. A video film on Irrigation System Development has been made during the period under report.

5.3.7. Other Research Stations

5.3.7.1 Southern Zone: Necessary advice on all agricultural aspects was rendered to the visiting farmers by the scientists of the RARS, Vellayani; FSRS, Kottarakkara; CSRC, Karamana and CRS, Balaramapuram. The adopted villages are

Muttacaud & Kalliyoor	RARS/COA Vellayani
Ommannoor	FSRS, Kottarakkara
Edakkode	CSRC, Karamana
Kottukal	CRS, Balaramapuram

FSRS, Kottarakkara: A Krishi Vigyan Kendra (KVK) under ICAR/KAU started functioning in the campus of the FSRS Sadanadapuram, Kottarakkara with effect from 29.10.1994. The Associate Professor & Head, FSRS Dr. K. Vasanthakumar was appointed as the Training Officer, KVK.

A foundation stone for the construction of an Information-Cum-Sales Counter attached to the FSRS, Kottarakkara was laid by Hon'ble Minister for Agriculture, Kerala Shri P.F. George on 29.10.1994.

At the FSRS, Kottarakkara, a Farm Advisory Service catered to the agricultural needs of the farmers of Kottarakkara as well as the adopted village of Ommannoor on matters relating to diseases / pests of various crops like vegetables, banana, coconut, areca-nut, pepper etc. The scientists of the station visited farmers' fields periodically and offered technical advice to the farmers.

CSRC, Karamana:

Under the village adoption programme, the scientists of the CSRC, Karamana offered technical advice to the local farmers in solving field constraints. Ten farmers identified in the adopted village, and vegetable seeds and fertilisers were distributed to them. Expert advice on mushroom cultivation were rendered periodically on request from farmers.

CRS, Balaramapuram:

Under the village adoption programme, the scientists visited farmers' plots periodically and offered technical advice. A case study of one of the farmers of the Village Adoption Programme was prepared and forwarded to the Director of Extension.

5.3.7.2. PROBLEM ZONE: Kumarakom:

A short term training on fish breeding, hatchery management and fish farming was conducted during the period 5th to 9th September, 1994. A training on mushroom production was held for unemployed educated youths and growers during 5-7 October, 1994. Prof. G. Mathai, Professor of Plant Pathology was nominated as expert for giving professional guidance to the state department of Agriculture, Tripura on mushroom production for a period of two weeks. Prof. G. Mathai, Professor of Plant Pathology gave a radio talk on "Recent trends in mushroom cultivation" in All India Radio, Trivandrum on 28th December, 1994. The scientists of the station participated in the National Agricultural Fair organised by the Government of Kerala at Trivandrum from 14-18 December, 1994.

Moncompu: Village Adoption - Mithrakari has been adopted and fertilizer demonstration arranged. Farm Advisory service continued to function.

Kayamkulam: A Karshakadinam was organised on 'Chingam 1'. Participated in the Agriculture fair organised by the Agri-Horti Society, Kayamkulam from 29-12-1994 to 3-1-1995. Thekkekara Panchayat was adopted under Village Adoption Programme. Three training classes were conducted by the scientists.

Vyttila: An agricultural seminar was organised at the station on 'Chingam 1'. Nine radio talks were broadcasted from the AIR, Kochi. The scientists conducted four training classes on crop production.

Fisheries station, Puduveypu

Village Adoption Programme

As part of KAU Extension activity, Village Adoption Programme was implemented at the station during the report period. 25 families residing in a colony at Narakkal Panchayath were selected as beneficiaries and provided them with critical inputs worth Rs.2000/-.

Technical guidance in fish farming

Information on viable methods of brackishwater shrimp and fish farming were passed on to pisciculturists and other enthusiastic farmers through discussions and distribution of extension literature. Scientific fish farming was promoted by supplying seed of commercially important fish and shrimp species.

Radio talks:

In order to disseminate information regarding shrimp and fish farming, a number of radio talks were given and broadcast over Thrissur and Kochi Stations of All India Radio.

Publication of popular articles"

With a view to attract more entrepreneurs into scientific fish and shrimp farming activities, popular articles were published in several national and regional news papers as well as farm journals.

5.3.7.3.CENTRAL ZONE

RARS, Pattambi: An Information-cum-Sales Counter was formally inaugurated and started functioning since June, 1994 onwards. Planting materials on cereals, pulses, vegetables and horticultural crops of all kinds and KAU Publications were made available at the counter for sales. An information unit is also functioning at the counter.

The following training programmes were conducted at this station during the period under report.

- | | | |
|----|--|--------------------------|
| 1. | Training on production of quality seed production in rice. | 9-8-1994 to
11-8-1994 |
| 2. | Training on rice production technology | 25-10-94 to
28-10-94 |
| 3. | Training on integrated pest management | 27-9-94 to
29-9-94 |
| 4. | Training on fertilizers and pesticides | 22-11-94 to
25-11-94 |
| 5. | Training on sustainable use of rice fallows | 8-11-94 to
11-11-94. |

Field training for the final year B.Sc.(Ag) students (12 Nos) of College of Horticulture, Vellanikkara was conducted at this station from 14-11-94 to 26-11-94. The regional Farmer Scientist Interaction sessions were organised by the station regularly before and after the crop seasons, totally financed by the state Department of Agriculture. Twenty five progressive farmers identified and selected for the programme by the Agricultural Department. 'Karshakadinam' and 'World Food Day' was celebrated on August 17th and October 16th of 1994.

AMPRS, Odakkali: Participated in Krishimela and sale of planting materials from 2-5 September 1994. Training was imparted to four batches of Vocational Higher Secondary students on various aspects of agriculture. One day training was also given to the teacher trainees of DIET, Kuruppampady.

Dr. J. Thomas acted as the resource personnel for the KAEF of Idukki District.

The KAEF monthly workshop of Ernakulam district was held at the station on 8 & 9 September 1994 and activities of the station were explained by all scientists. Four radio talks were presented by the scientists of the station under the Farm School programme organised by the All India Radio, Trichur.

Good liaison was maintained between farmers, traders and industrialists from all over the country. Many farmers visited the station for obtaining first hand information on various aspects of medicinal and aromatic plants cultivation. Pamphlets on the general activities of the research station as well as the cultivation of the various crops were distributed and regular enquiries were attended to. Pamphlets on lemongrass, palmarosa, and vetiver were prepared both in English and in Malayalam. Krishimela was organised at Kothamangalam from 2-5 September 1994.

ARS, Chalakudy: A large number of farmers utilized the centre for getting technical advice on scientific cultivation of crops especially in the field of water management and pests and disease management. Suitable suggestions were given. In collaboration with Command Area Development Authority, group meetings were conducted in OFP areas and farmers problems were discussed and solutions suggested. Scientists of the station handled classes on water management aspects of various crops in seminars organised by Department of Agriculture and Command Area Development Authority, Government of Kerala.

BRS, Kannara: On first Chingam (17-8-94) "Karshaka Day" was celebrated at Banana Research Station, Kannara with the scientists and 20 leading farmers from the Marakkal area. A group discussion on the various aspects of banana cultivation was conducted.

A documentary on "Banana cultivation" was taken up by the Institute of Management, Government of Kerala during September, 1994 and Doordarshan, Trivandrum during December, 1994.

Sri. T. C. Radhakrishnan and Dr. JSK Charles visited farmers fields at Panancherry and Kadaplavattom of Trichur district and Adimali of Idukki district and rendered necessary technical guidance to the problems experienced by the farmers.

Dr. JSK Charles took classes of banana cultivation to the farmers

of Kodakara taluk arranged by NSS of College of Horticulture, Vellanikkara.

NORTHERN ZONE

5.3.7.5. RARS, Pilicode:

Associate Director and resource personnel attended the T&V monthly workshops for Kozhikode, Kannur and Kasaragod etc. Diagnostic team visits were made and recommendations given. Scientists of this station handled classes for the Farmers' Training programme organised in collaboration with Department of Agriculture. Classes were handled for the Agricultural Officers and Agricultural Assistants of the Department of Agriculture at RATTC, Taliparamba.

One day training programme was conducted in Mushroom cultivation for 3 batches of farmers at RARS Nileswar. Organised one day training programme in mushroom cultivation at Pilicode Vayal in collaboration with Nithyananda Polytechnic, Kanhangad during the period under report. Conducted 3 days training programme on Bio-fertilizers at RARS, Pilicode and RATTC, Taliparamba to the Officers of the Department of Agriculture from 3rd to 5th October, 1994 in collaboration with Regional Bio-fertilizer Centre, Bangalore.

A training programme on Agrometeorology of Plantation Crops was conducted to the Assistant Directors/Deputy Directors of the Department of Agriculture, during 26th to 28th December, 1994. Organised an Agricultural Exhibition at the NSS High School, Alakode during December, 1994 in connection with the Agricultural seminar.

Participated in the Agricultural Exhibition conducted at Kanakakunnu Palace, Thiruvananthapuram from 14th - 18th December, 1994. Another exhibition was arranged at Government High School, Kuttamath on 17th to 18th October 1994. The Veterinary hospital handled 294 cases and a total number of 146 artificial inseminations were done during the period.

Scientists of Pepper Research Station, Fanniyur participated in the exhibition organised by the Malabar Cancer Care Society, Kannur. Seven research papers were published during the period under report and four radio talks were broadcast through All India Radio, Kannur. Scientists of Pepper Research Station, attended 6 Agricultural Seminars and four training classes for the Agricultural Officers at RATTC, Taliparamba.

HIGH RANGE ZONE

5.3.7.4. RARS, Ambalavayal:

Diagnostic team visits were made by the Scientist along with the officers of the Department of Agriculture.

Sri.P.K.Unnikrishnan Nair, Associate Professor handled a

class on integrated disease management of phytophthora foot rot of black pepper at Fadinjarathara. Scientists of the station attended the Karshika Mela organised by Mathrubhumi daily at Kalpetta. Scientists also render service to the farmers regarding crop production and protection aspects of pepper, ginger, paddy, banana etc. Miss.Veenakumari and Smt.Nazeema, K.K. handled classes on nursery management practices in connection with a training programme conducted by Krishi Vigyan Kendra for nursery growers.

One day training on integrated disease management of black pepper was imparted to Agricultural Officers of Wayanad district by Sri.P.K.Unnikrishnan Nair, Associate Professor on 4-5-1994. Joint Directors, Deputy Directors and Assistant Directors of the Department of Agriculture were also participated in the training.

CHAPTER - 6

STUDENTS WELFARE ACTIVITIES

6.1 Dr.T.R.Rajagopal continued as the Director. Students' Welfare during the period.

6.2. Sports & Games

The following activities were conducted during the period under report.

6.2.1. KAU Inter-Collegiate Programmes, 1993-94

The following Inter-Collegiate tournaments were conducted

Sl.No.	Event	Date & Venue	Results
1.	Shuttle Badminton(Men)	22 & 23 July, 1994 Mannuthy.	I Veterinary II Agriculture
	-do- (women)	-do-	I Veterinary II Horticulture
2.	Table Tennis (Men)	-do-	I Horticulture II Agriculture
	-do- (women)	-do-	I Veterinary II Horticulture

6.2.2. Participation in the Inter-University Tournaments

1. Inter-University Table Tennis (Men) Tournament:
(Kurnool from 7-11-94 to 10-11-94)

Sl.No.	Name	College
1.	Mahesh, M.L. (Captain)	Co-operation & Banking College
2.	Saju, B.	College of Agriculture
3.	Deepu Joseph	College of Vety. & A.S.
4.	Bimal, R.S.	College of Veterinary & A.S.
5.	Akhalesh Ramachandran	College of Veterinary & A.S.
6.	Anil Kumar, B.	College of Forestry.

Manager: Smt.Susy V. John, Asso.Prof., College of Fisheries, Panangad

2. Inter-University Ball Badminton (women) Tournament)
(from 28-12-94 to 31-12-94 at Mangalore)

Sl.No.	Name	College
1.	Asitha, T.V.	Veterinary College

- | | | |
|----|----------------------|-----------------------|
| 2. | Shanthini Jayadevan | |
| 3. | Mini, B. | Veterinary College |
| 4. | Resmi Nair, R. | Veterinary College |
| 5. | Elizabeth V. Cherian | Forestry College |
| 6. | Deepa, S. | Agricultural College |
| | | Agricultural College. |

Manager: Smt. Susy V. John, Associate Professor,
College of Fisheries, Panangad.

3. Inter-University Cricket (Men) Tournament
(from 30-12-1994 to 31-12-1994)
Manomaniyan Sundaranar University, Thirunelveli

Sl.No.	Name	College
1.	Vimal, M.	College of Fisheries
2.	Sunilkummar, K.K.	College of Fisheries
3.	Pramod G. Krishnan	College of Fisheries
4.	Viju Varghese	College of Fisheries
5.	Santhosh Baby	College of Fisheries
6.	Ratish Chandran, A.	Agricultural College
7.	Dathan, C.S.	Agricultural College
8.	Sajith Babu, D.	Agricultural College
9.	Jaish, P.C.	Co-Op: & Banking College
10.	Linu Mathew Philip	Horticultural College
11.	Ajay Alex	Horticultural College
12.	Snil Karim	Horticultural College
13.	Gopakumar, G.	Veterinary College
14.	Gopalakrishnan, M.A.	Veterinary College
15.	Sudheer, P.S.	Veterinary College
16.	Bimal, P.S.	Veterinary College

Manager: Sri. E. U. Rajan, Assistant Professor,
Directorate of Students Welfare, KAU, Mannuthy

6.2.3. N.C.C. Activities: National Cadet Corps activities of this unit for the period from 1st April 1994 to December, 1994 are furnished below:

Parade: Regular parades and horse riding were conducted during the period.

Camps/Courses: 17 Nos. of NCC cadets attended Annual Training camp at Thyagaraja Poly Technic, Alagappanagar from 14 January to 22 June 1994. 3 NCC cadets attended basic leadership course at Siliguri (West Bengal) from 27 June to 8 July 1994.

10 NCC cadets attended CAWATC at Guruvayur from 14 September to 25 September 1994. This Unit organised and conducted All Kerala Directorate Combined Annual Training Camp at College of Veterinary and Animal Sciences, Mannuthy from 30 September to 11 October 1994. 49 NCC cadets of this unit attended the above camp. 2 NCC cadets of this unit attended the Rock climbing Training Camp

at Karnataka from 01 October to 12 October 1994. 2 NCC cadets attended the National Integration Camp at Bangalore from 20 October to 31 October 1994. RDC-95. 4 Boys NCC cadets and 2 Girls cadets have been selected to attend Republic Day Parade at New Delhi. 6 cadets attended the Pre-RDC-II on 29 November 1994 and 5 cadets attended the Pre-RDC-III on 26 Dec. 1994.

Adventure Activities/Trek: One Associate NCC Officer and 30 NCC cadets of this unit went for an Adventure-cum-Wild Life and Nature Study camp at Silent Valley National Park from 13 October to 15 October 1994.

3 NCC cadets of this attended the 'Ocean to Sky Trek' at Goa from 23 November to 04 December 1994. 15 NCC cadets went for a cycle expedition from Mannuthy to Mysore and back from 02 July to 11 July 1994.

Attachment Training with Regular Army Units: 10 NCC cadets attended the attachment training with 61 CAV at Jaipur from 11 July to 25 July 1994.

6.2.4. Social Service Activities

Eye Donation Pledge: One Regular Officer, one Associate NCC Officer and 27 NCC cadets took eye donation pledge and blood grouping prospective blood donors meeting at Ollukkara Panchayat on 17 April 1994.

Tree Planting: NCC cadets of this unit planted 300 saplings in Veterinary College Campus and mounted training area on 12 June, 1994. 500 saplings of trees have been planted on 10 August 1994 at the Veterinary College Campus by the NCC cadets of this unit.

Other Activities: NCC Day, 1994: NCC cadets and horses of this unit participated in the NCC Day Celebration on 27 November 1994 at Veterinary College Football ground. Our cadets gave excellent display of mounted activities including show jumping and tent pegging.

Sadbhavana Celebration: Sadbhavana fortnight celebration was celebrated from 20 August to 05 September 1994 at Trichur. 50 NCC cadets attended the NCC symposium on communal harmony at Town Hall, Trichur on 3 September, 1994. One Associate NCC Officer and 70 NCC cadets participated in the Sadbhavana Diwas at Veterinary College Auditorium on 20 August 1994 and pledge was administered to all the participants.

Independence Day Celebration: Commanding Officer, one Associate NCC Officer, 45 NCC Cadets and 5 horses participated in the Independence Day parade on 15 August, 1994 held at KAU Main Campus, Vellanikkara. 4 NCC cadets and 4 horses participated in the sports hostel ceremony at Indoor Stadium Trichur on 19 August 1994 where Sports Minister of Government of Kerala was the Chief Guest. 10 cadets of this unit volunteered to organise Lions Club 'Film Night' on 25 September 1994 at Municipal Stadium, Trichur.

6.2.5. University Employment Information and Guidance Bureau

The Activities of University Employment Information & Guidance Bureau for the period from 1-4-1994 to 31-12-1994 are: Nine Employment Information Bulletins published. Registered 99 students of Kerala Agricultural University for employment opportunities. Individual guidance about employment, and higher studies given to 382 candidates. Collected 222 items of information on Employment, Courses, Higher studies and Scholarships in India and abroad and disseminated to Colleges. 20 Group Guidance discussion conducted among various colleges for 325 students. Deputy Chief visited various colleges in Thrissur District and delivered the Career Guidance Talks. 520 visitors received information individually and 633 candidates visited occupational information room.

Deputy Chief visited 17 establishments for collecting information on job opportunities, training facilities, conducting of seminars and for promotion of guidance activities. Conducted on coaching class on various competitive examination for SC/ST candidates of Thrissur District for 40 working days conducted from 16-11-1994 to enable them to compete for examinations, like Public Service Commission, Staff Selection Commission Railway Recruitment Board etc., under the scheme special central assistance to special component plant.

6.2.6. Kerala Agricultural University Union Activities

The Kerala Agricultural University Union Youth Festival 'Varsham 94' was conducted from 7th to 10th August, 1994 at Mannuthy. College of Veterinary and Animal Sciences, Mannuthy won the overall championship. The Kerala Agricultural University Union, 1994-94 was constituted with the following office bearers:

- | | | |
|----|--|-----------------|
| 1. | Dr.A.M.Michael, Vice-Chancellor | Patron |
| 2. | Dr.C.C.Abraham, Associate Dean,
College of Horticulture,
Vellanikkara. | Vice-Patron |
| 3. | Dr.T.R.Rajagopal,
Director of Students' Welfare i/c | Staff Advisor |
| 4. | Sri.O.K.Paul,
Dy. Director of Students' Welfare i/c | Hon: Treasurer |
| 5. | Kum. Sunitha Warriar,
College of Horticulture, Vellanikkara. | President |
| 6. | Sri.Gopakumar.G.S.,
College of Agriculture, Vellayani. | Vice-President |
| 7. | Kum. Sreeranjini.A.R.,
College of Vety. & Animal Sciences,
Mannuthy | Vice-President |
| 8. | Sri. Sujith Karun,
College of Forestry, Vellanikkara | Secretary |
| 9. | Sri.Sujayan.K.,
College of Co-operation & Banking,
Mannuthy | Joint Secretary |

Inauguration of KAU Union: The present KAU Union was elected into Office on 27-8-94. Inauguration of the University Union took place on 12th October, 1994 at the Regional Theatre, Thrissur. It was inaugurated by Sri. Ezhacheri Ramachandran.

Thereafter, the University Union held a Journalism Camp - a 2 day seminar on the importance of Media and Mass Communications at the College of Co-Operation & Banking. It was inaugurated by the Assistant Editor of Sahitya Academy publications, Sri. Kodangotu Prabhakaran. The AIR took part in the Seminar. The Camp was held on the 16th and 17th of December, 1994.

The Union conducted a programme 'Sthree' in various colleges (in connection with Womens' Day - Projecting the status of Women in todays' society) as follows:

'Sthree' - Poster exhibition - 17th December 1994,
College of Fisheries, Panangad

'Stl.ree' - Poster exhibition-cum-seminar on 'Status of
women in Society' - College of Horticulture,
19th & 20th December 1994.

The Seminar was inaugurated by Prof. Meenakshi Thampam, MLA

Speakers : Smt. Geetha Hiranyan, Prof. KKTU College
Smt. Rajashri Kunhamma, Prof. of Philosophy,
Sree Kerala Varma College, Thrissur.
Smt. Sati Devi, Asst. Director, KILA

The Annual Indira Gandhi Memorial Inter-University Debate Competition from 22nd to 24th December, 1994 at New Delhi.

Name	College
Kum. Simi. B	College of Co-operation & Banking
Sri. Suresh Kumar. S.	College of Forestry
Manager: Sri. E. U. Rajan,	Asst. Professor.

Sixteenth Appreciation Course in Parliamentary Process and procedure at New Delhi from 4th to 8th July, 1994.

Sri. M. Velsayudhankutty, Asst. Prof. (Phy. Edn.) of KCAE&T., Tavanur, attended the sixteenth Appreciation Course in Parliamentary Process and Procedures held at New Delhi from 4 to 8 July 1994.

CHAPTER - 7

FINANCE WING

Smt. Elizabeth John, MA & AS continued as the Comptroller.

Release of Grant-in-aid

Out of Rs. 2210 lakhs provided for annual block grants to the University, the State Government have released grant-in-aid of Rs. 2403 lakhs (Rs. 675 lakhs under Plan & Rs. 1728 under Non-plan) for the period under report.

Receipt from ICAR and Other Sources

Internal resources have generated a revenue of Rs. 245.76 lakhs. Besides, ICAR and other funding agencies have released an amount of Rs. 400.79 lakhs towards specific scheme-tide assistance during the period. This includes advance release for Central Sector Schemes, National Waste Land Development projects back-log of NARP Phase II and Development grant of Rs. 44 lakhs. KAC has drawn and utilized 70% of the allocated grant-in-aid under the scheme "Development of Agricultural Universities assistance to Kerala Agricultural University for VIIIth Plan" in the first three years of the current Plan.

Liabilities

LA charges amounting to Rs. 17.15 lakhs relating to land acquired for the College of Fisheries, Panangad was discharged during the period of report.

Liabilities to the earmarked funds (PF, WPF etc.) upto 30-11-1994 have been fully cleared.

Welfare measures

The University had as in the past paid special attention towards welfare measures and there has been substantial improvement in clearing back-log of arrears in releasing house loan to employees. The details of sanction and disbursement of house loan and Motor Conveyance Advance is indicated below:

- | | | |
|--------------------------------|---|---|
| a) House Loan | | |
| 1. Teaching Staff | : | Upto 31-3-1993 |
| 2. Gazetted Non Teaching Staff | : | All applications upto 30-11-1994 cleared. |
| 3. Class III Employees | : | Upto 31-3-1993 |
| 4. Class IV Employees | : | All applications upto 31-12-1994 cleared. |
| 5. Labourers | : | Upto 31-3-1994 |

Upto-date application under HFS have been cleared. Interest rate of HFS has been reduced to 15% from 1-4-1993 onwards.

b) Motor Cycle Advances

An amount of Rs. 3.20 lakhs was released towards Motor Cycle Advance for payment upto 31-12-1994.

Accounts & Accounts Committee

The annual accounts of the University for the year 1992-93 is under preparation. All efforts are being made to clear the arrears in accounts.

The Accounts Committee had ten sittings during the reported period to consider the Annual Accounts and Audit Report for 1984-85 and 1985-86, finalised the reports and recommendations, which has since been accepted by the General Council in its meeting on 19-11-1994.

Utilisation Certificate

Audited Utilisation Certificate in respect of 40% ICAR and other externally aided projects for 1992-93 have been issued to facilitate draw of assistance. The Statutory Audit Wing has also been strengthened by posting additional staff to clear the back-log in audit.

Implementation of Central Parity Scales

Central Parity Scales was implemented in the University in July 1994. The additional commitment involved in extending the benefits to the University employees was to the tune of Rs. 360 lakhs (including arrears from 1-3-1992).

Revision of Pension

Revised pension scheme sanctioned to State Government employees from 1-4-1994 have been extended to the Kerala Agricultural University Pensioners also from 1-4-1994.

GPF and WPF Credit Cards

GPF credit cards have been issued upto 1992-93. With respect to WPF, credit cards have been issued upto 1991-92.

The financial position of the University for the period under report was tight. This is mainly on account of the unbridgeable gap between budgeted expenditure and identified resources. Subject Committee No. I of the Kerala legislature has recommended an enhancement of grant-in-aid to the University to filling up the short-fall in resources. High level Committee for fixation of grants has also considered the request for enhancement in grant-in-aid. Accordingly proposals for one time release of Rs. 14 crores to cover the expenditure on:

- i) Implementation of revised UGC/ICAR scales.
- ii) Implementation of Central Parity scales from 1-3-92.
- iii) L.A. charges of the College of Fisheries etc. was presented to Government. It is expected that the State Government may extend its helping hand by March 1995.

C H A P T E R - 3

KAU ESTATE

8.1. Estate Office

Shri. Pius Fernandez continued as estate officer till 30-6-94.A.N and Shri K.Sivanadan assumed charge as the estate officer on 11-7-94 F.N.

8.2. Staff

A. Staff governed by KAU Service Rules

1. Estate Officer	1
2. Section Officer	1
3. Senior Farm Supervisor	1
4. Assistant Grade I	1
5. Assistant Grade II	1
6. Typist grade II	1
7. Senior Grade Farm Assistant	1
8. Driver (LDV)	1
9. Peon	1
10. Watchman (Class IV)	1

B. Staff Governed by Plantation rules

1. Assistant Section Officer	1
2. Field Officer	1
3. Field Supervisor	1 (Upto 6-10-94)
4. Assistant Engine Driver	1
5. Special Grade Miller	1
6. Peon	1
7. Tappers (Regular)	22
8. Labourers	4
9. Tappers (Slaughter tapping)	15

There are 11 men and 16 women permanent labourers.

Casual labourers in the roll are 222 in numbers who are being allotted to various schemes/projects functioning in the campus. Out of this, 17 labourers have made permanent according to refixation of cadre strength.

A total area of the plantation at the take-over of the Estate was 391.44 hectares. Out of this, 233.30 hectares have been allotted to other schemes. The plantation has been extended to the various corners in the campus. A quantity of 1000 Nos. of teak stumps were planted in the road boundaries of the Estate.

A total quantity of 27,876.890 kgs of rubber has been produced during the period.

CHAPTER - 9

DIRECTORATE OF PHYSICAL PLANT

9.1. Director of Physical Plant

Sri. P.O.Thomas continued as the Director of Physical Plant. The stages of major works taken up by the Directorate are furnished below:

Works at the Vellayani Campus:

Extension and modification to the existing hall for Indoor stadium at Agricultural College, Vellayani, Maintenance to U.G.Men's hostel, Special repairs and maintenance to Ladies' Hostel (proposed mens' hostel) and maintenance to farm office and adjacent buildings are completed. Maintenance to P.G. Mens' hostel at Agricultural College, Vellayani and Construction of a Sales Counter and Information Centre at Agricultural College, Vellayani are in progress.

Works at Kottarakkara:

Under NARP Phase II construction of an open well, pump house, farm implement store, drain etc. at FSRS, Kottarakkara and metalling bituminisation of the circular road and approach road to Trainees' Hostel in the 'A' block of FSRS, Kottarakkara are completed. Construction of compound wall in front of A&B block at FSRS, Kottarakkara is in progress.

Works at Kayamkulam

Maintenance and repairs to the semi-permanent shed near cattle shed and converting into implement cum covered threshing floor at BRS, Kayamkulam is in progress.

Works at Fisheries College, Panangad:

Construction of compound wall on either side of bye road near to colony sides, construction of ladies hostel and construction of administrative building are in progress. Construction of carp cum prawn hatchery at Fisheries College, Panangad is started.

Works at RARS, Pattambi:

Under NARP Phase II providing black topping to the existing road and formation of new farm road upto the paddy lands and deepening and widening to the irrigation pond and construction of GL tank of 50,000 litre capacity are completed. Providing compound wall and fencing along the northern side boundary behind KVK buildings and construction of office cum conference hall are in progress.

Works at LRS, Thiruvazhamkunnu:

Construction of a P.G. Hostel is in progress. Special repairs to cattle shed at LRS, Thiruvazhamkunnu is started.

Works at KCAE&T, Tavanur:

Construction of an Academic Block, beautification of the front yard of guest house, construction of cattle shed and maintenance and repairs to D-type and E5 quarters, Boys' hostel are in progress. Construction of Training complex and hostel at KCAE&T, Tavanur is started.

Works at CRS, Pampadumpara:

NARP Phase II providing water supply arrangements and construction of a slow sand filter and soling, metalling and black topping the roads at CRS, Pampadumpara are completed. Maintenance to the buildings is nearing completion.

Works at RARS, Ambalavayal:

Under NARP Phase II, construction of a well, spouse and G.L. tank and construction of approach roads to the buildings at RARS, Ambalavayal are completed. Construction of class room and library is in progress. Construction of compound wall at RARS, Ambalavayal is started.

Works at Nileswar:

Construction of compound wall at Nileswar is in progress.

Works at Puduveyyu:

Construction of a building for housing of 15 KVA Generator set at Puduveyyu is completed. Construction of ponds and canals at Instructional Farm, Puduveyyu is started.

Works at Anakkayam:

Construction of a G.L. tank at Anakkayam is in progress.

Works at Vyttila:

Construction of compound wall at Vyttila is in progress.

Works at Moncompu:

Construction of Retention wall and providing fencing at RRS, Moncompu is nearing completion.

Works at Pilicode:

Under NARP Phase II, construction of approach road to buildings at RARS Pilicode is completed.

Works at Panniyur:

Under NARP Phase II, construction of approach road at Pepper Research Station, Panniyur is completed.

Works at Kannara:

Improving irrigation facilities at Kannara is completed.

Works at Madakkathara:

Under NARP Phase II, soling metalling and black topping of the road between nursery and office at Cashew Research Station, Madakkathara is completed.

Works at SRS, Thiruvalla:

Under NARP Phase II, construction of approach road to newly constructed laboratory buildings and construction of over head water tank and open well at SRS, Thiruvalla are completed.

Works at RARS, Kumarakom:

Under NARP Phase II, construction of approach road to newly constructed buildings at RARS, Kumarakom is completed.

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Works at UVH, Kokkalai

Construction of X-ray block at University Veterinary Hospital, Kokkalai is started.

Works at CSRC, Karamana:

Construction of compound wall along the eastern, northern and north west boundary of CSRC, Karamana is started.

Works at Main Campus, Vellanikkara:

Construction of a GL tank for irrigation purpose for KHDP at Main Campus, Vellanikkara is completed. Maintenance to Boys' hostel block No. I, II and dining block, construction of drying yard, labourers' waiting shed, seed store and compound wall at KHDP (EEC) at Main Campus, Vellanikkara, construction of forestry hostel and dining block, construction of central library and auditorium are in progress.

Works at Mannuthy:

Construction of additional room for store and laboratory-cum-treatment at Pig Breeding Farm, annual maintenance to Veterinary College and Animal Science block, construction of compound wall at southern side and yellow garden area, construction of generator cum store room for sales counter, construction of watchman shed are completed. Construction of compound wall and gate to the cattle shed of livestock farm is nearing completion. Construction of UG hostel, construction of additional class rooms and seminar hall at College of Veterinary & Animal Sciences, Mannuthy, construction of open styes and space for virology and toxicology lab., construction of office building near hatchery building at AICRP, Mannuthy, construction of a clinical complex at Veterinary College, construction of cowdung store at Livestock farm, special repairs and maintenance to UG Men's hostel (Annex) at Veterinary College are in progress. Construction of first floor (Part) above the meat technology at KAU, Mannuthy and providing boundary wall along the National Highway and Maintenance to damaged compound wall of western side of veterinary college, Mannuthy is started.



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