

A PROPOSAL FOR ESTABLISHING A COLLEGE OF TROPICAL  
HORTICULTURE & PLANTATION CROPS

Tropical Horticulture Central to Kerala's economy.

Although the main engine of economic growth in India is Agriculture, the vast diversity in crops and cropping practices affect the economic maps of the States to a considerable extent. Unlike most other States for instance, the economic map of Kerala is strongly dominated by perennial crops falling within the scope of Tropical Horticulture or Plantation Crops. Forests occupy roughly an area equivalent to one-half of the total cultivable area, which is of the order of 2,152,000 hectares in the State, while perennial horticultural crops, including plantation crops claim even a larger area (over 1,225,000 hectares). Tropical horticulture and perennial crops are therefore central to Kerala's economy.

Horticulture in general and plantation crops in particular have become in many countries, the most highly industrialised among all modern industries. The organisation of these approaches more closely to that of a factory than of a farm. Mostly capital-intensive in developed countries, these have remained highly labour-intensive in many developing countries, demanding however a high input of scientific knowledge, technological skill, managerial and organisational efficiency per unit of production. The commercial approach to perennial crop culture stimulates production economies, quality control and similar social and economic benefactions which are far removed from ill-organised agriculture as

... 2 ...



205625



205625

IR KAU/PR

is practised largely by peasants on an individualistic basis. Indeed perennial crop industries at their best represent the opposite extreme of traditional agricultural sector exemplified by individualistic peasant farming. They have no doubt achieved much and contributed a great deal to our nations economy. But in a country where modernised efficiency is restricted to only a few islands, they undoubtedly can produce a great deal more.

The contribution of tropical horticulture and plantation crops to the foreign exchange resources of our country is only a part of the story, significant though it is. Their contribution to the gross national product, personal income and employment are no less substantial. There is very considerable scope for substantial increase in contributions in all these directions. Particularly when per capita cultivated land is only 0.11 hectare and per capita foodgrains production is 0.15 kg. per day in Kerala, enhanced production per unit area of land offers the most attractive solution. Perennial crops deserve therefore the greatest and most urgent consideration since their capacity to yield more food per unit area in case of food yielding crops and in many other cases also more income per unit area, is well-known.

Economic progress can only be built on foundations which stimulate and foster productivity. illiteracy, instability, ignorance and poverty do not provide safe quarries for such foundations. With the march of science and generation of new technologies at a rapid pace opportunities for rebuilding our perennial

crop industries an stable foundation for continued growth are required to be availed of through all possible channels.

Strategies and techniques of specialised nature have to be evolved and applied, and managerial efficiency for mass production has to be encouraged if productivity is to be fostered in these specialised industries. A standardised approach for the improvement of all perennial crops only leads to the continued neglect of some, to the advantage of a few.

All around us we see today new technologies being generated and utilised to promote productivity. New technologies are neither generated nor utilised on command. The basic question we need to ask ourselves at the moment is --' Are the new technologies being made available as fast as our needs justify?' and 'What are the directions we want the technologies to go to secure the greatest results?'.

There is no question that perennial crops yield more per unit area and are far less vulnerable to the vagaries of weather than annual crops. Greater production and enhanced productivity are specially desirable, immediate and long range objectives in perennial crops, in view of their vastly greater potentialities. Being also a field suitable for labour-intensive approach, the developing countries have a singular advantage in hastening the progress of perennial crop industries--both in the production and utilisation side. As is well-known, in

labour-intensive ~~industries~~ developed countries find themselves at a disadvantage in competing with the developing countries, since in these industries unskilled work accounts for the major cost.

It has been said that the problem of poverty can be tackled best by enabling the poor to be more productive. The latest available figures indicate that agricultural labour alone constituted 47 millions in India in 1971. Increased productivity of this mass of humanity is a challenge, as also the utilisation of the increased productive resources to meet our tomorrow's needs. The plantation industries are well-known to be employment - intensive, and some of these industries are among the largest employer agencies in our organised sector.

The economic development of any area cannot be easy and effortless. It requires careful planning by appropriate persons and the most persistent and systematic efforts on all relevant fronts. Current trends may reveal only one or a few aspects to reality. While examining trends and fore-casting for tomorrow, we need to consider all aspects, so that we may force the face of progress consistant with our meagre resources. An agricultural university committed to inter-disciplinary approach and the three-fold functions of teaching, research and extension education is the appropriate agency to plan and pursue follow-up action on all fronts to ensure optimal achievement.

THE ROLE OF EDUCATION

Education has become the key opportunity for advancement all over the modern world replacing birth and wealth. If the essence of development is not to make the poor wealthy, but productive, education and training, knowledge and skill, are all necessary for ensuring sustained economic progress.

Our teaching and training programmes are currently directed generally towards a mass production pedagogy with standardization as the principal aim. The enrolments are often heavier than judged by available job opportunities, while curricula and methods of training are not modelled to make the trainees employable. Subjecting all to uniform discipline, attendance rules, grading, marking, teaching and learning processes is to prevent educational diversity and overlook individual requirements. As a consequence we have regimentation, which ultimately leads to frustration, low productivity and lack of job satisfaction.

The only way to fix the focus on education for the present and the future would be to innovate so as to be able to deal effectively with the kind of technology that will surround us and to utilise available human resources to the best advantage. This we can do only by making use of the expertise available from all parts of the State,

contd..6..

and if possible, even from outside. Such facilities are essential particularly at the initial stages, when harnessing of talents to meet the whole-time and entire needs of an institution becomes difficult, if not impossible. The continuing system of training in subjects in which the teacher himself lacks the training, is wasteful, and no institution can claim to have its faculties the needed expertise in all disciplines.

When horticulture was first taken up as a subject for higher training in India, the curriculum was drawn up by the available specialists who were few in number and who had naturally drawn heavily from their own experiences in a limited area of this country of continental size with unsurpassed diversity. The results of this exercise was that the most important commercial fruits and perennial crops of India suffered from sad neglect, even while crops of commercial significance in California or U.K. received in duly special attention. Crops of such great importance to the economy of the country like tea, coffee, rubber, spices, essential oil-yielding plants, medicinal plants, insecticidal plants, coconuts, arecanuts, jack fruits are some of the numerous perennial crops of India, which contribute a great deal to our economy and yet did not figure at all in the agricultural or horticultural curricula of earlier days and to an extent even today in most of our institutions. Both the under-graduate and post-graduate curricula were therefore incomplete and unreal, and have to be drastically revised to suit Kerala's Special needs and interests.

Strangely enough, inspite of these incomplete and obsolete curricula in some institutions, efforts have been made or are being contemplated to introduce new courses of training even at post-graduate level with almost similar defects with the result that attention towards the training in tropical horticultural crops of great importance is yet to attain satisfactory level. A centralised or standardised approach in these important matters may have at times disastrous consequences. Our curricula and other academic innovations should be such as to help the students of Kerala to define, explicate and determine from what is known, in order to apply the same in a given situation to secure the optimum results. This can be possible only when a new institution with courses of training and curricula fully in harmony with Kerala's needs is evolved.

At the same time our training programmes have to be limited to available potential job opportunities, if we do not wish to divert valuable resources to train merely unemployables or persons for whom job opportunities are non-existent. This involves priority of attention to programmes of training in those vocations where there is dearth of trained personnel. It is here that the need is very great in Kerala, since adequate training opportunities at any level do not exist at present in tropical horticultural crops of relevance to Kerala's economy. Neither training programmes exist to make available fully equipped persons for tropical horticultural or plantation crop production and utilisation professions, nor in-service training and refresher course facilities <sup>exist</sup> to enable the



employees keep step with the progress of modern technology.

Training of the existing personnel in the newer skills demanded by the newer technologies, is of great importance. In-service training and refresher courses to persons already engaged in production and utilisation of tropical horticultural and plantation crops, are therefore an urgent need. Linking these teaching and training programmes with research programmes is also an equally fundamental necessity, since teaching programmes isolated from research will be operating in a vacuum. Our educators cannot possibly continue to sleep-walk their way through their lives as if nothing has happened since their undergraduate days, and as if nothing ever will, says one critic. The same features may apply to some of our perennial crop researchers also. Unless we wake up and adopt measures for a real spurt for which today science and technology provides the major force, we are likely to continue with our obsolete knowledge and methods, both in the production and utilisation side.

#### Steps necessary

1. All horticultural crops of commercial importance in Kerala should be listed and covered in the undergraduate curriculum in order to give the students a basic understanding of their role in the State's economy.
2. The faculty members and the post-graduate students should be encouraged to choose one or more of these crops for special and intensive study and research taking care to choose problems of topical interest and of greatest urgency.

contd....

3. Specialists within Kerala and outside if possible, should be specially invited as guest lecturers and to conduct practical training courses, to permit the students gain a good insight into all aspects of production and utilisation of these crops.

4. Adequate provision should be made to visit and receive field training as often as necessary and for as long a period as desirable at the reputed centres for intensive production and research in the crops chosen for specialization.

5. Provision for intensive vocational training should be made after the basic training in the undergraduate stage is completed and before one is permitted to take up post-graduate course. Such vocational training should also be considered as a pre-requisite for employment. These vocational courses should be offered in selected plantations utilising local expertise. The possibility of obtaining assistance from the I.C.A.R. for the provision of hostel accommodation and transport facilities should be explored.

6. Training for self-employment should be introduced, so that the trainees by working on their own on small areas of 2 to 5 acres for at least a year could gain, the conviction that they could be gainfully employed by pursuing horticultural professions on their own.

7. A number of vocational courses developed on the principle of earning while learning should be imparted at different levels, tailoring share to the needs of the trainees.

Filling the gap between precept and practice

A real spurt towards horticultural production can result only when the planters are convinced with the standard of training imparted and when the Orchards and Plantations we offer as demonstrations are both profitable and economic. Periodic assessments of the progress made by each farm, nursery, orchard or plantation in the direction of increasing the productivity and the income is necessary, so as to maintain the effectiveness of these farms as meaningful demonstrations to the public. The gap between practice and precept is the crux of the peasant education programme and determines the success or failure of extension education programmes. If we allow our centres of production to vegetate towards insolvency, we cannot blame the public if they are sceptic of our schemes and recommendations. A change towards production economy in our farms, orchards and plantations is therefore urgently called for, so that our precepts and professions are in harmony. The entire vocational training programmes should be so modelled as to inculcate the confidence among the trainees as to the profitability of the vocation.

Obsolence of knowledge is most rapid in agriculture as in horticulture. Therefore, to allow the staff of the government or the University farms to operate at the level of the knowledge and technology extent at the period in which they graduated, is to provide for the continuance of sub-standard farms and orchards. Practical courses tailored to the needs of the Government & University employees of all levels, in Tropical Horticulture are urgently required to be provided by the University, if we have to

contd..11..

maintain the tempo of productivity and efficiency with the aid of modern science and technology. Here too, the assistance of experts available within the State and in the various horticultural or plantations will have to be harnessed to make the training courses effective.

Some features of Kerala's Horticultural Production.

In the statement appended are presented the available statistics of area, production and yield rates of some perennial crops in South Indian States.

The following inferences seem possible from the statistics furnished in the statement.

According to these figures, Kerala ranks below the All-India average in productivity of a number of horticultural and plantation crops, such as coconut, banana (where it is about half of the Indian average), black pepper and rubber. Only in relatively minor crops like arecanut and cashew, the yields are above the Indian averages.

Comparison on the basis of averages between Plantations and Orchards of low efficiency is perhaps misleading. What is relevant is the extremely and amazingly low efficiency of most of our plantations and orchards. In tea for instance, studies have shown that 50 per cent of crop is now being harvested from only 30 per cent of the bushes, which means that 70 per cent of the bushes which we are being maintained now at the same rate, are only producing half the yield of the other bushes. In mangoes, similar studies conducted for a 5-year period in one of the South Indian States revealed that out of

contd..12..

205625

2,000 trees, only two trees were yielding satisfactory crops annually. If only we can have cent-per cent inherently fruitful trees or bushes in every plantation, the yields can be stepped up to very great heights. Increased orchard or plantation efficiency is therefore, primary and urgent need. It is time we move from the erstwhile era of low or uncertain productivity to one where the horticultural industry can be the most productive contributor to our economy. If our research, teaching and training programmes are not geared to promote orchard or plantation efficiency, all our efforts may come to nothing.

At the same time in a developing country, we have to be concerned with priorities, not merely in problems of individual crops but among the crops themselves, to determine which of them should merit urgent attention.

Kerala is the premier State for the production of coconut, claiming roughly  $3/4$ th of area and production in the country, but contributing a harvest less than the Indian average by 270 kg. per hectare in 1970-71. In banana also, Kerala claims the leading area with about  $1/5$  of the area in the country but with a hectare production only about half of the Indian average. In cardamom and black pepper again, Kerala ranks first, but the per hectare yield is below the Indian average. Same is the story in rubber. These indeed provide a dismal picture, which can only be rectified after a well thought out programmes for research, teaching and training are formulated and implemented.

contd..13..

Among the Southern States, Kerala stands 2nd to Mysore in the area under coffee, inspite of which the yield of Kerala is low. It has been gathered that the progress in Coffee production has surpassed anything that we have achieved in the agricultural front during 1949-50 to 1968-69 with the exception of rubber. Kerala's coffee industry has obviously not participated in this spectacular progress. This is another instance where research, teaching and training programmes have to be linked to our development programmes to achieve rapid progress through enhanced productivity.

Identification of problems for research and development and fixing of priorities should therefore be the first and important exercise that the proposed College of Tropical Horticulture has to undertake, in order that this Faculty members and students may be meaningfully employed to plan for the progressive improvement for Kerala's perennial crop economy.

ESTIMATES:

Assuming that the case for institution of a series of educational and training programmes on Tropical Horticulture is essential and this should be done at minimum of cost but with maximum of efficiency, availing the facilities and expertise available outside the University as well, the following proposal has been developed.

Location:

About 200 hectares of land may be available in the new campus at Vellanikkara estate together with about 50 hectares of land under some horticultural crops and about 10 hectares of vacant land in the vicinity in the Veterinary College campus, will provide the necessary land space for the proposed College.

The break up of the area will be strictly in a manner as to provide facilities for teaching, training and research in those crops which are commercially important in this part of Kerala. For training in other tropical horticultural crops, the facilities available in or near reputed existing centres of production for crops like tea, coffee, cardamom, arecanut, coconut etc., will be availed of. Already, the University has four Coconut Stations from which the selection of best centres could be made for the purpose. Intensive arecanut production centres also exist at a short distance from Mannuthy. The private Spices Production centres in Kalady will provide suitable venue for the purpose. For tea and coffee also, facilities available in Wynad and the neighbouring areas could be utilised in collaboration with Coffee Board and UPASI. The Research Station at Pampadumpara could be commissioned. The only major requirements in these cases are adequate hostel accommodation and transport facilities. For this purpose, if a provision of 5 lakhs of Rupees for hostel and Rs.3 lakhs for transport facilities are provided by the I.C.A.R. as development grant, not only the standard of training can be guaranteed at the highest possible level availing the best of the facilities and expertise available in the State, but it would also enable us to offer a number of very badly needed in-service and refresher courses to employees in the private and public sectors, and other follow-up vocational courses to the different levels of personnel tailoring these to their disparate needs.

Rubber production and Technology has naturally to be a part of the College of Tropical Horticulture. No estimates for its transfer or operation under the auspices of the College are furnished here, since its continuance as an integral activity of the University is implied.

The present proposals, thus, contemplate the use of only the available facilities and exertise at a minimum additional cost.

Staff:

The current horticultural offerings at Mannuthy are based on meagre facilities in terms of staff, laboratory and field facilities, library etc. These have to be greatly enhanced even to fulfil the current committments. Since the enrolments may not be appreciably increased for the time being, the actual facilities suggested for the proposed College and for the utilization of about 200 hectares in the main campus at Vellanikkara and at Veterinary College campus, Mannuthy are considered adequate for the present. The staff proposed now are listed below:-

- |    |  |              |     |
|----|--|--------------|-----|
| 1. | Dean- Horticulture   | Rs.1200-1800 | - 1 |
| 2. | Associate Professor of Horticulture (Pamology)   | Rs.700-1250  | - 1 |
| 3. | -do- (Olericulture)  | -do-         | - 1 |
| 4. | -do- (for University Horticultural campus )  | ∅ -do-       | - 1 |
| 5. | Associate Professor of Horticulture for horticultural Vocational and off the campus training | ∅ -do-       | - 1 |
| 6. | Associate Professor of Horticulture in Vellayani Campus                                      | ∅ -do-       | - 2 |

(Two posts of ~~xx~~ Associate Professors are to be created at Vellayani to handle the work now being done by the Professor of Horticulture and Junior Professor of Horticulture. These will not therefore be additions to the cost estimates. One post has already been sanctioned for the existing College. Therefore, the net addition is only 3 posts)

- |    |  |       |
|----|--|-------|
| 7. | Associate Professor of Horticulture(Plantation crops) (One honorary basis utilising expertise from outside the University) | ∅ - 5 |
| 8. | Associate Professor of Horticultural Technology (One honorary basis as in (7) above )                                      | ∅ - 1 |



9. Assistant Professors on Rs.400-950 (One for each of the Associate Professor mentioned above. Six posts have already been provided in the sanctioned scheme and therefore, no addition is contemplated).

10. Instructors -- Rs.325-575 .. 9.

(these should be graduate or post-graduate with a minimum of one year's vocational training or experience)

(One for each of the above and three for Research Centre)

11. Ministerial and other staff:

- |                           |                    |
|---------------------------|--------------------|
| (i) Stenographers         | - Rs.170-385 - (2) |
| (ii) U.D.Typists          | - Rs.130-270 - (1) |
| (iii) U.D.Store Keepers   | - Rs.130-270 - (2) |
| (iv) U.D.Accountant       | - Rs.130-270 - (1) |
| (v) Messengers/ Peons     | - Rs. 70-115 - (2) |
| (vi) Laboratory Assistant | - Rs. 90-190 - (1) |
| (vii) Vehicle Drivers     | - Rs. 85-175 - (6) |

( The above ministerial and other staff are over and above the existing sanctioned strength of one L.D.Clerk, One L.D.Typist, one Laboratory Assistant, one Laboratory Attender, one peon and one Watchman)

( Tractor and Bull dozer drivers are not provided for in these estimates as these are expected to be available from the University's pooled resources)

The expenditure on additional staff for one year is estimated at Rs.1.243 lakhs ( Vide statement No.II)

Contingencies:

(a) Recurring:

The assignment of crops at the new campus may be roughly as given hereunder:

Coconut	..	20	hectares
Arecanut	..	5	"
Pepper	..	10	"
Cocoa	..	5	"
Mango	..	10	"
Other fruit crops	..	20	"
Tree spices	..	20	"
Cashew	..	10	"
Ornamental plants	..	10	"
Vegetables	..	10	"
Nursery, floriculture etc.	..	10	"
Essential oils, medicinal and insecticidal plants	∅ ..	10	"
Citrus	..	5	"
Papaya	..	5	"
Pineapple	..	10	"
Rubber (excluding the Estate area)	..	10	"
Banana	..	10	"
Farm buildings, machinery, storage, drying sheds etc.	∅ ..	5	"
Miscellaneous to be allocated	..	15	"
Total		..	200 hectares

For the above area of 200 hectares, the requirements of funds may be broadly as given hereunder.

		Rs
(i) Annual maintenance cost roughly @ Rs.1000/- per hectare	..	2,00,000
(ii) Laboratory requisites	..	25,000
(iii) Allowance for Guest speakers and honoraria for off-Campus teachers @ Rs.5000/- for each of the 5 disciplines	∅ ..	25,000
(iv) Maintenance and running charges of transport vehicles @ Rs.5000/- year/ each	..	30,000
Total	..	<u>2,80,000</u>

(b) <u>NON-RECURRING.</u>	
(i) Clearing, land scaping, soil conservation laying out and planting for 200 hectares of new area	.. Rs.2,00,000
(ii) Machinery and tools are not provided as they can be had from the ppol.	
(iii) Transport facilities and Hostel (to be met by I.C.A.R)	.. Rs.8,00,000
(iv) Farm Buildings including Work space, Green House, Gladd house, conservatories, packing and grading sheds, processing centres etc.	.. Rs.5,00,000
(v) Laboratory requisites	.. Rs.1,00,000
Total Non-recurring contingent charges	.. <u>Rs.16,00,000</u>

ABSTRACT OF EXPENDITURE

(a) Non-recurring charges	.. Rs.16,00,000
(b) <u>Recurring</u>	
(i) Pay of staff	.. Rs.1,24,312.00
(ii) T.A. of staff	.. Rs. 10,000.00
(iii) Contingencies	.. Rs.2,80,000.00
(iv) Miscellaneous & Unforeseen items	.. Rs. 10,688.00
	.....
	.. Rs. 4.25,000
Grand total	.....
	.. Rs.20,25,000
	ie. Rs.20.25 lakhs.

The total requirement works out to Rs.20.25 lakhs. Since an amount of Rs.3 lakhs has been provided already for the College and Rs.4 lakhs for Instructional Farm the ~~net~~ additional needs will be of the order of Rs.13.25 lakhs. However, ~~the~~ in the budget estimate s of the University for 1973 -74, separate provisions have been made for library, laboratories equipment and fittings, transport and travel facilities, the actual additional requirement will be considerably reduced.

The above estimates do not include provision for College building, furniture and residence for staff, students and guest speakers, as these are expected to be met from the University Development resources.

RECEIPTS:

In perennial crops, the receipt grow as the trees age. In the pre-bearing stage, only receipts from inter-crops are possible. The actual cost on a perennial crop project can only be ascertained by taking into consideration the income from a fully bearing orchard or plantation, which will continue to yield for very many years.

Income from 200 hectares of new area will gradually rise up from about Rs.500/- per hectare in the second year to Rs.2000/- or more per hectare from the seventh year. From the old available area of 50 hectares in Veterinary College campus also, the margin of profit may rise with the contemplated improvements. Since no provision is made for expenditure for that area, no income has also been shown for the old area in these estimates. Taking into consideration the income at the full bearing age, a rough estimate of receipts from all crops envisaged under the present programme at the new campus will be not less than Rs.2000/- per hectare, while the maintenance cost may be only Rs.1000/- per hectare, leaving a possible net profit of Rs.1000/- per hectare. This is considered a good return on the investment.

CONCLUSION

Kerala's horticultural productivity is not high, but the potentialities are enormous. Kerala is a State fairly bursting with opportunity in tropical horticulture. Professional preparation in the production and utilisation of tropical horticultural crops, if undertaken by the University in a broad-based manner as indicated in these proposals, will provide a proof that the University is not tradition-bound but is sensitive to the character and needs of the State. It is to meet the undeniable needs for such professional courses and to open incredibly bright prospects for the future that a College of Tropical Horticulture and Plantation crops is proposed to be established under the Kerala Agricultural University, replacing the College of Horticulture that is currently functioning with relatively limited objectives and facilities.

Fortunately, with the changes now suggested, and as explained later, the cost of establishing and operating the proposed College with much broader objectives, is expected to be less, while the benefits are likely to be considerable, if both the short-term and long-range benefits are considered. Indeed taking a long term view this could be an excellent example of a profitable investment on an institution, which could eventually be not only self-supporting but contributing significantly to the University's resources. Above all, the vocational training programmes that are to be linked with the other important functions of the College, will open out a vista of possibilities to create employment opportunities in a State suffering from the constraints of a high density of population and low cultivable area available.



STATEMENT SHOWING THE AREA, PRODUCTION AND YIELD RATES OF CERTAIN PLANTATION CROPS.

STATE CROP		TAMILNADU		ANDHRA PRADESH		KERALA		MYSORE		INDIA	
		1969-70	1970-71	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71
<u>COCONUT</u>											
Production in terms of million nuts and rate of nuts per hectare.	A	98.0	95.1	36.4	37.3	707.8	719.1	128.0	130.3	1033.3	1045.6
	P	873.2	941.5	158.9	159.6	3956.1	3981.2	610.2	731.8	5858.7	6077.7
	Y	8910	9900	4365	4275	5589	5536	4767	5616	5670	5813
<u>ARECANUT</u>											
Production '000 tonnes of dried nuts without husks.	A	3.8	4.0	0.1	0.2	5.9	6.3	38.6	41.0	160.7	167.3
	P	2.6	2.8	0.1	0.2	3.9	4.2	50.7	50.4	137.7	141.0
Y kg. per '000 bearing palms.	Y	-	-	-	-	792	800	1201	1117	723	713
<u>BANANA</u>											
	A	45.8	48.1	15.7	17.0	51.6	53.5	16.9	17.4	219.9	228.7
	P	828.5	872.9	217.8	195.5	390.5	404.9	127.7	135.5	3125.4	3105.3
	Y	18090	18148	13873	11500	7568	7568	7556	7787	14213	13578
<u>CARDAMOM</u>											
	A	4.8	4.8	-	-	47.0	47.5	22.6	23.1	74.4	75.4
	P	0.5	0.5	-	-	1.1	1.2	1.4	1.4	3.0	3.1
<u>BLACK PEPPER</u>											
	A	0.2	0.2	-	-	118.1	117.6	-	-	120.3	120.0
	P	0.1	0.1	-	-	24.4	25.0	-	-	25.5	26.2
	Y	-	-	-	-	207	213	-	-	212	218
<u>RUBBER</u>											
	A	9.8	10.0	-	-	182.5	187.8	3.7	4.7	196.7	203.0
	P	4.5	N.A	-	-	76.9	N.A	0.5	-	82.0	92.1
	Y	848	-	-	-	605	N.A	372	-	616	653

contd...

(ii)

STATE	TAMILNADU		ANDHRA PRADESH		KERALA		MYSORE		INDIA	
	1968-69	1969-70	1968-69	1969-70	1968-69	1969-70	1968-69	1969-70	1968-69	1969-70
<u>CASHEW</u>										
A	49849	51500	20419	19553	12309	19533	96019	98960	224187	234892
P	23230	27360	13395	12827	10524	16518	107732	111033	185588	196608
Y	466	531	656	656	855	866	1122	1122	828	837

N.B      Area in thousand hectares            : A  
               Production in thousand tonnes        : P  
               Yield per hectare in Kilogram        : Y

Source: Estimates of Area and Production of principal crops in India 1970-71  
 Directorate of Economics and Statistics, New Delhi.

Statement - II:- Details of Expenditure on additional staff for one year proposed for the College of tropical Horticulture and Plantation Crops, Kerala Agricultural University, Mannathy.

Sl. No.	Designation.	Scale of pay Rs.	No.	Pay	D.A.	Ad-hoc increase	House Rent	Total
<b>I. Pay of Technical Staff</b>								
(i)	Associate Professors in Horticulture.	700-1250	3	25,200	4,320	972	..	30,492
(ii)	Assistant Professors in Hort.	400-950	Nil	..	..	..	..	..
(iii)	Instructors	325-575	9	35,100	15,768	2,916	756	54,540
Total for Technical staff			12	60,300	20,088	3,888	756	85,032
<b>II. Pay of Ministerial &amp; other staff.</b>								
(i)	Stenographers	170-385	2	4,080	2,928	552	168	7,728
(ii)	U.D. Typists	130-270	1	1,560	1,176	256	84	3,076
(iii)	U.D. Store Keepers	130-270	2	3,120	2,352	512	168	6,152
(iv)	U.D. Accountants	130-270	1	1,560	1,176	256	84	3,076
(v)	Messengers/Peons	70-115	2	1,680	1,704	432	168	3,984
(vi)	Laboratory Assistant	90-190	1	1,080	852	216	84	2,232
(vii)	Vehicle Drivers	85-175	6	6,120	5,112	1,296	504	13,032
Total for Ministerial & other staff			15	19,200	15,300	3,520	1,260	39,280
GRAND TOTAL			27	79,500	35,388	7,408	2,016	1,24,312

Details of existing staff in Horticultural College, Mannuthy.

1. Associate Professor of Hort.	on Rs. 700-1250	1	5. Laboratory Asst. on Rs. 90-190	1
2. Asst. Professors	on Rs. 400-950	6	6. Laboratory Attender on Rs. 75-130	1
3. L.D. Clerk	on Rs. 90-190	1	7. Peon on Rs. 70-115	1
4. L.D. Typist	on Rs. 90-190	1	8. Watchman on Rs. 70-115	1



205625

