SELF STUDY REPORT FOR ACCREDITATION

Submitted to the Accreditation Board,
Indian Council of Agricultural Research,
New Delhi

COLLEGE OF FORESTRY
KERALA AGRICULTURAL UNIVERSITY
VELLANIKKARA - 680656

2001

FOREWORD

The process of accreditation of colleges under the State Agricultural Universities is a new concept introduced by the Indian Council of Agricultural Research. The accreditation process attempts to identify and set right the deficiencies related to faculty strength, infrastructure and teaching norms, which are essential for maintaining acceptable academic standards and norms in institutions of higher education. It is praise worthy that the ICAR has initiated this exercise under its aegis and included the World Bank aided AHRD project beneficiary Universities in the first phase. As required by the ICAR, College level accreditation report has been prepared at College of Forestry.

In the College of Forestry a taskforce has been constituted for the preparation of the accreditation report. The members of the task force deserve appreciation for their commitment to the task entrusted. In addition to fulfilling the requirements of a report for the purpose of accreditation, the book, serves as a source of valuable information on all academic, extra and co-curricular activities of the College. The information on faculty strength and credentials, resources for learning and student amenities have been collected, edited and presented in this book. The publication, it is hoped, would serve as a very valuable source of information for the future.

Luckins C. Babu

Vellanikkara
17 September 2001

Dr. Luckins C Babu
Associate Dean, College of Forestry &
Chairman, Steering Committee

PREFACE

Accreditation is a process of assuring an acceptable institutional quality and it is a tool for improving educational standards. The process intends to strengthen and sustain the quality and integrity of education and it is for improving transferability and marketability of students nationally and internationally. College of Forestry (COF), Kerala Agricultural University (KAU) is the only institution in Kerala that imparts professional training in Forestry and related fields. The COF has five constituent departments under it, namely Department of Silviculture and Agroforestry (SAFO), Department of Forest Management and Utilisation (FMAU), Department of Tree Physiology and Breeding (TPBR), Department of Wood Science (WOSC) and Department of Wildlife Sciences (WILD).

During this era of globalisation, it has become essential to improve the standards and quality of education. Indian Council of Agriculture Research (ICAR), in line with the National Assessment and Accreditation Council (NAAC) of UGC, took initiatives for Assessment and Accreditation of State Agricultural Universities. The Accreditation Board was constituted in 1996. The COF also joined the process of accreditation as a constituent College of KAU.

At COF the Associate Dean appointed a Steering Committee, the members of the same is given in Annexure I. The job of collection, collation, editing and processing this material for printing is not an easy task. I take this opportunity to place on records my sincere gratitude to all the faculty at COF, who have provided valuable information that was required to prepare the accreditation report, in time. The College level compilation was initially done by Dr. N K Vijayakumar, Professor & head of the Department of TPBR. This has made my job much easier in editing and modifying the document. Mr. E V Anoop, Asst. Professor, Department of WOSC, has provided the required technical support particularly while working with Adobe Photoshop. The preparation of the Self Study report of COF would not have been successfully completed without the wholehearted and unstinted support provided by Dr Luckins C Babu, Associate Dean, COF. He also very meticulously read the entire manuscript and made necessary

corrections and modifications through out the text. Every effort has been made to make the report as complete and authentic as possible. In spite of this, if any inadvertent error has crept in the same may kindly be excused and may be pointed out.

It is hoped that this document in addition to serving as material for accreditation, will also be used as a source of information on the various activities of COF, which has evolved as a leading teaching, research and extension institution in South India. If this serves the purpose thus, the Steering Committee would be more than satisfied and adequately compensated for our effort.

Vellanikkara
17 September 2001

P O NAMEER
Assistant Professor, Department of Wildlife Sciences,
College of Forestry &
Co-ordinator & Member Secretary, Steering Committee

CERTIFICATE OF THE SELF STUDY REPORT

To

The Accreditation Board
Indian Council of Agricultural Research
New Delhi

From

The College of Forestry
Kerala Agricultural University
KAU (PO). 680 656.
Thrissur. Kerala.

The Self-Study Report is submitted for the purpose of assisting in the determination as to whether or not this institution should become accredited by the ICAR – Accreditation Board.

It is certified that there was broad participation by the various constituencies and the Self Study accurately reflects the nature and substance of the Institution.

Prof. (Dr.) Luckins C Babu
Associate Dean
College of Forestry
Kerala Agricultural University
KAU (PO). 680 656.
Thrissur. Kerala.

Date: 17 September 2001

Prof. (Dr.) K V Peter
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Date: 20 September 2001

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1.1 HISTORICAL BACKGROUND

Forests form one of our most important our very existence on earth. Tropical forests, which are the harbingers of biological diversity, are being destroyed at an alarming pace. Declining availability of timber and other forest produce, altered microclimate, soil erosion, floods, droughts and desertification are some of the major consequences of large-scale tropical deforestation. Pressures from sophisticated technology and an ever-increasing human and livestock population will also place greater and greater demands on these resources in future. Furthermore, increased social concerns for environmental values have given foresters the additional task of managing land to protect and enhance other resource values such as wildlife, aesthetics and water quality.

The recent resurgence of the concept of agroforestry also must be viewed in this perspective. Failure of large agriculture and forestry monocultures in the lesser-developed world is attributed as the principal reason for this. Agroforestry, however, is not a new concept. Trees, crops and animals have traditionally been raised together on small farms throughout the world, particularly in the tropics. Many of these land use systems are believed to have the potential to meet the felt needs of the society such as fodder, fuel and timber, which are becoming increasingly scarce. Although agroforestry forms a traditional land use system in most parts of tropical Asia, Africa and Latin America, the scientific underpinnings of this age-old system have not been properly elucidated.

The challenges to natural resource managers for more intensive management and more accurate predictions of environmental impacts are, therefore, unprecedented in the history of mankind. This has lead to changes in forestry and natural resource management curricula, the world-over. In the Indian context, till 1985, forestry

education was primarily the responsibility of the Forest Research Institute and Colleges, Dehra Dun.

Forestry education in India - early history: The establishment of the Ranger's school at Dehra Dun in 1878, which later became the Forest Research Institute in 1906, marked the beginning of forestry education in the country. Traditionally forestry education in India had been a "restricted area of operation" by FRI and the Indian foresters were trained mainly as 'King's estate managers' and the activities of the forest departments were confined to the forest estates. Extension has never been a strong point of Indian forestry. The Indian forestry curricula also remained unchanged over the last several decades.

Shift in forestry education perspectives in the background of the state of forests in India: Although India was one among the early countries to initiate formal forestry education, paradoxically, deforestation of natural forests has been occurring at an alarming rate of 1.3 million ha every year in our country. As forests are destroyed, soil erosion, desertification and changes in microclimate have been occurring at an unprecedented scale. Another significant feature of the forest production dilemma is the increasing dependence on imported pulp, paper, fiber and timber. While dependence on imports may provide short-term answer to increasing timber and pulp shortage, there is an urgent need to develop sustainable forest management in the country's natural forests and expand silviculturally sound plantations in a manner that is ecologically responsible and economically viable. All these warranted a reorientation of the forestry education scenario to make it an effective instrument to perform the greatly expanded natural tasks. There has been a growing shortage of trained personnel in the forestry sector in several parts of the country for the massive afforestation and agroforestry programmes.

One of the most dramatic developments in forestry education in India has been the entry of Indian Council of Agricultural Research in this field. Nineteen eighty-five is a watershed year in this respect. It marked the beginning of forestry education in State

Agricultural Universities. The primary emphasis of this bold new experiment was to produce a new breed of professionally competent natural resource managers of the forested environment, with adequate technical and communication skills. Initially 13 selected state agricultural universities including the Kerala Agricultural University were selected for imparting professional education in forestry. Two salient developments in this connection are mentioned below:

a. The National Commission on Agriculture (1976) report: The National Commission on Agriculture (1976) recommended the commencement of forestry education in the state agricultural universities.

b. The National Forest Policy (1988): The National Forest Policy (1988) highlighted the need to recognise forestry both as a "scientific discipline as well as profession". Further it stated that "Agriculture universities and institutions dedicated to the development of forestry education should formulate curricula and courses for imparting academic education and promoting post-graduate research on professional excellence, keeping in view the manpower needs of the country" (resolution no. 3-1/86/FP dated December 7, 1988 of the Ministry of Environment and Forests, Govt. of India, on National Forest Policy).

1.2 INSTITUTIONAL GROWTH

The state of Kerala is endowed with rich biodiversity. The Western Ghats running along the eastern border of the state is recognised as a 'mega biodiversity' area. Land use systems of Kerala present a complex scenario with a tremendous diversity of trees and field crops. Significantly trees including perennial horticultural crops have been an integral component of this landscape ever since man started settled agriculture. However, only very little emphasis was given to improving the productivity of the man made wood lots and to optimise the productivity levels of different agroforestry systems. Unless efforts are made to improve the productivity of the timber stands of the fast growing indigenous species and manage optimally the State's diverse

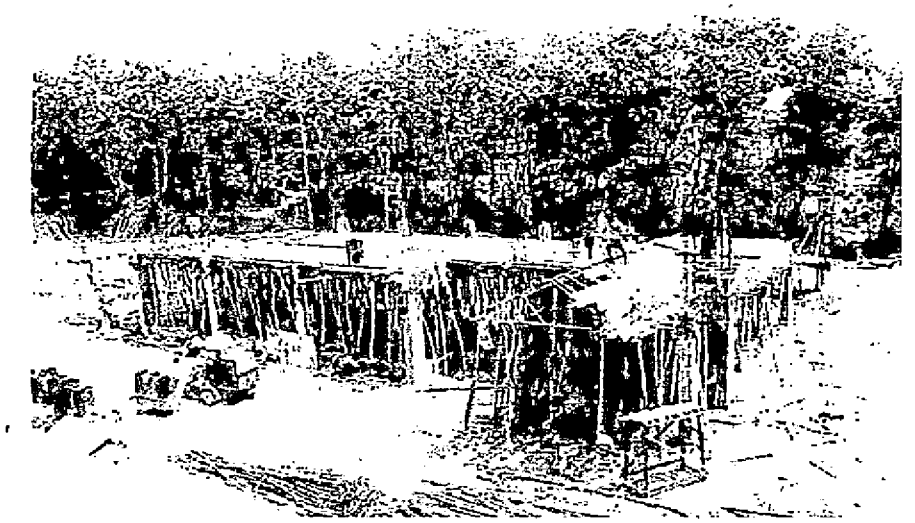
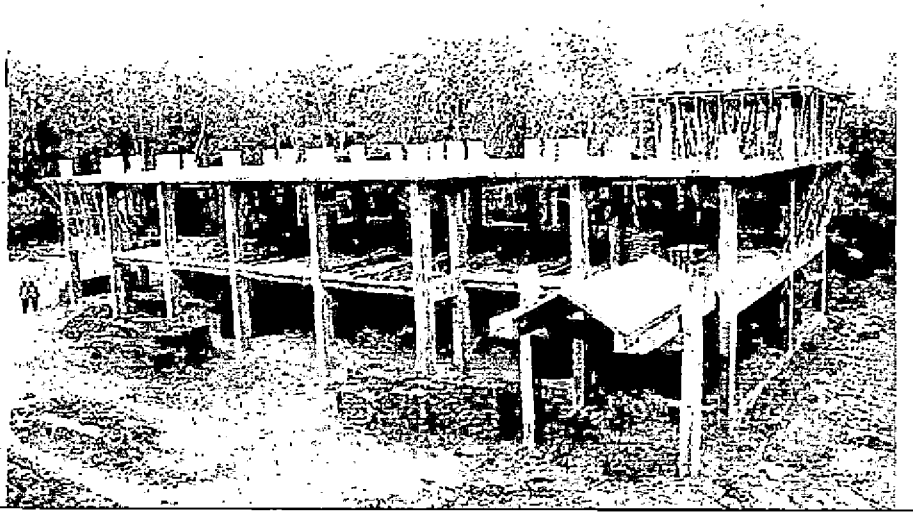
agroforestry systems, the society would face severe shortages in food, fodder, fuel wood and timber requirements in the near future.

1.2.1 College of Forestry - Establishment: The Ministry of Agriculture, Government of India has identified the Kerala Agricultural University as Institutions to start Forestry education programme and accordingly the College of Forestry was established in this University in 1986. It is located in the main campus of the Kerala Agricultural University at Vellanikkara, which is 12 km east of Thrissur along the side of the NH 47. Dr. Luckins C Babu is the Associate Dean of the College.

1.3 ADMINISTRATION OF COLLEGE:

Associate Dean is the head of the faculty and the head of the institution. He heads the teaching, research, extension, administration and policy matters of the College. He is supported by the faculty of the College in the teaching, research and extension activities. The faculty consists of Professors, Associate Professors and Assistant Professors working in five departments of the College. Besides the normal duties of Teaching, Research and Extension, the faculty also serve in other capacities such as Assistant Warden, Advisors to students, Staff Advisors to Student Unions, Arts Club, Quiz Club, Athletic Club, NSS, NCC, Nature Clubs and others. The academic staff also looks after the maintenance of the vehicle, intercom, computer facility and internet. Faculty is also given the additional charge of Instructional Farm. The senior most Professor/Associate Professor in a department is appointed as the Head of the Department by the Executive Committee of the KAU. Heads of department are responsible to the Dean in managing the affairs of the Department and to the Director of Research and Director of Extension on KAU matters of research and extension.

Policy matters are discussed in detail at the Staff Council, which consists of Heads of Departments, Administrative Officer, Academic Officers (UG & PG), Assistant warden of the hostel, Reference Assistant of the Library and Purchase Officer.

	**Plate 1 –** **New academic block being constru-cted** **December 2000**
	**June 2001**
	**August 2001**

Important decisions are taken after discussing the same in the Staff Council of the College.

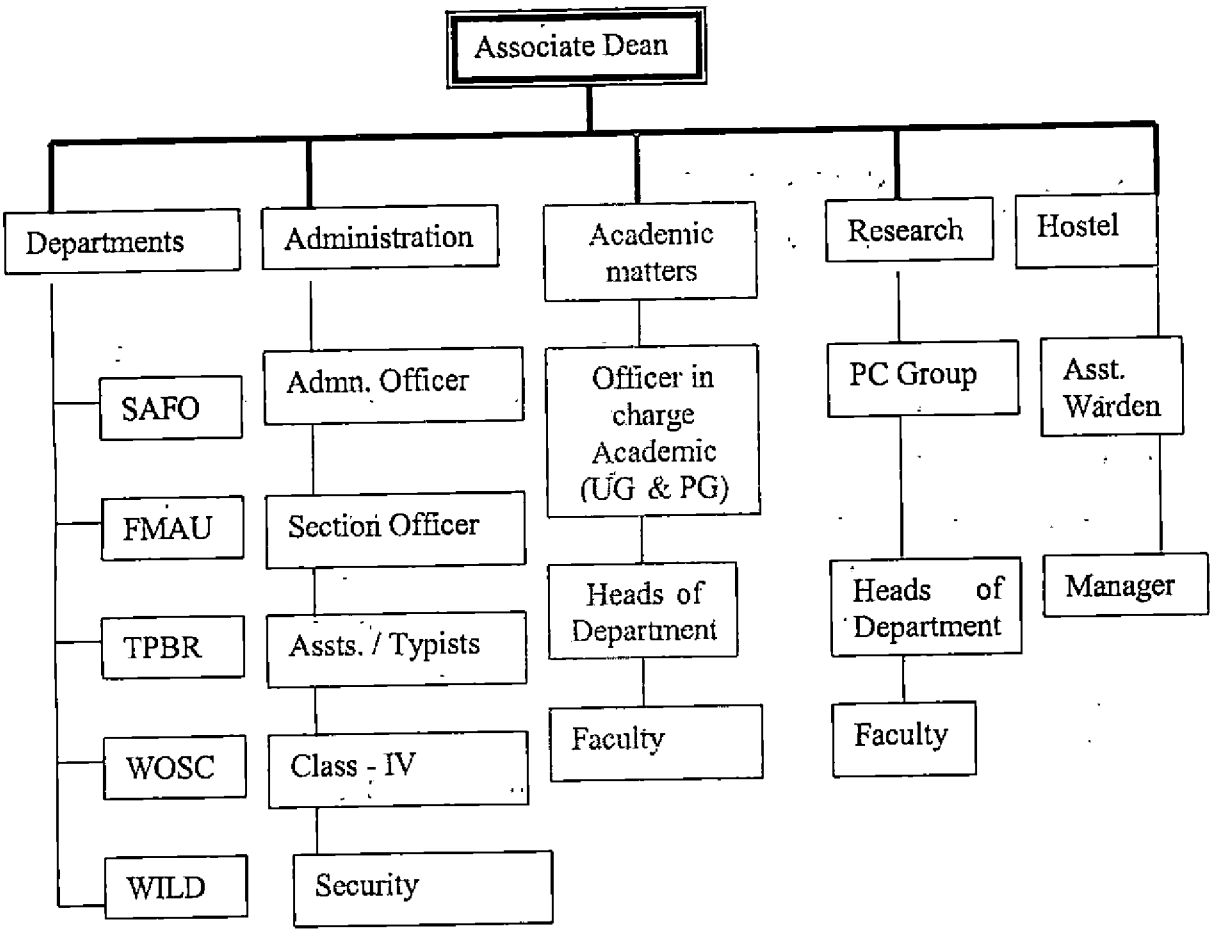


Fig. 1 Administrative setup of the College of Forestry

In the administrative matters the Associate Dean is supported by the supporting staff, headed by the Administrative Officer, Section Officer and Assistant Grades, Typists, Peon, Driver and Labourers.

1.4 STUDENT ENROLMENT:

The College of Forestry was started in 1986. The student enrolment at that time was 16 students per batch for the under graduate programme and 6 students per batch for

the postgraduate programme. Later the student intake for the under graduate was reduced to 10. However, right now the intake capacity of students for the under graduate programme is 20 for the under graduate programme and six for the postgraduate programme.

1.5 INSTITUTIONAL PLANNING PROCESS:

1.5.1 Academic programmes

The College of Forestry offers graduate programme in Forestry and post-graduate programmes at Masters levels in three disciplines such as Silviculture & Agroforestry, Tree Physiology & Breeding and Wildlife Sciences. It is expected to initiate post-graduate programmes in Forest Management & Utilisation and Wood Science disciplines also. The University of Calicut has recently recognised two departments of COF, such as Department of SAFO and Department of FMAU, as their recognised centers for doing Ph.D. Other departments such as WILD, WOSC and TPBR are also in the process of being recognised by University of Calicut as Ph.D. centers. Apart from this COF propose to initiate Doctoral programme in Forestry shortly in all the five disciplines of COF.

The COF train about 15-20 graduates in Forestry annually. On an average the College has around 70 students on its rolls, of which girl students constitute about 10 %. The COF has been providing professional training of such high quality that the Kerala State Forest Department has reserved 25% of the vacancies arising for the post of Range Officers to the B.Sc. (Forestry) graduate of COF since 1999.

The COF supports NCC and NSS programmes as part of its obligation to instill discipline, sense of patriotism and social sensitivity and commitment among the students. NCC is made a compulsory subject for the under graduates of COF. The NCC unit in the University is unique in that it belongs to the Veterinary Corps of the Army. The COF cadets have been performing exceptionally well in the Republic Day parades held in New Delhi every year and has secured prizes many a times. The NSS

unit of the COF is very active and has also been doing commendable social work. Our NSS unit works in very close with the tribals living in remote forest areas. One unique feature of the NSS unit of COF is that all the students are members of the unit.

The planning of curricula of various programmes is a multi-stage process. The planning relating to academic programmes is originated at the College level. At the College the syllabi of various courses and any modifications for the existing courses are suggested by the concerned teachers, which are then scrutinized by the Heads of Departments, the Associate Dean, and then by the Dean of the Faculty. The Dean then places the proposal before the Board of studies of the concerned faculty. The Board accepts, rejects or modifies the proposal. This is then placed before the Academic Council for approval. Once the Academic Council approves the academic programme, it becomes a part of the academic programme of the concerned faculty. At COF, apart from the suggestions from the course teachers and Heads of Departments we also incorporate suggestions from the Forest Department officials.

As part of the post-graduate programme, students have to submit a thesis as partial fulfillment. The research projects for the thesis are prepared by the students and approved by the Advisory Committee consisting of the Major Advisor, the Head of the Department and two members, of which one is from the minor subject. Initially, the projects proposed are placed at the College level Research Committee. After its approval, this is placed before the Faculty Research Committee (FRC). The FRC consists of the Director of Research as Chairman, Director of Extension, Deans, Associate Deans, Associate Directors, Special Officers, Heads of Departments of the faculties and project coordinators. The thesis of the for the M.Sc. programmes are to be finalised by the FRC.

1.5.2 Research Programmes

College of Forestry carries out research on all aspects of forestry, including studies on Silviculture of tree species, Agroforestry studies such as agroforestry systems of

Kerala, its diversity and potential to reduce the pressure on existing natural forests etc., Plantation Forestry research including fertilization, irrigation and thinning regime studies on the plantation forestry species, Biotechnology related studies including the *in vitro* propagation of economically important as well as endangered tree species of Western Ghats, Management of Natural Forests such as studies to understand the floristic richness and diversity, system dynamics, nutrient cycling, phenology etc, Man-forests interaction studies such as finding out the human utilisation on the natural forests of Western Ghats and how that affect the biodiversity, Wood Science studies such as identification of the tree species from the wood samples, finding out the calorific values and anatomical peculiarities of several fast growing, indigenous, multipurpose tree species that are seen in the home gardens of Kerala, Seed Technology studies such as germination studies, storage of recalcitrant seeds etc, Nursery techniques and management studies such as potting media, potting mixture, containers etc and Wildlife studies such as inventory, biology, management and documentation of the wildlife wealth of Western Ghats.

2. MISSION AND GOALS

2.1 ORIGINAL MISSION STATEMENT

The Forestry Colleges started in various State Agricultural Universities of the country to provide the much-needed impetus to forestry education and research in the country. This being the prime aspiration the College of Forestry was established at Kerala Agricultural University (KAU) with the mandate of developing human resource required in the field of forestry and related subjects such as social forestry, agro forestry, silviculture, wildlife management and other related fields.

2.2 GOALS

To train professionals in Forestry so that they can take up the challenges for the conservation and sustainable management of natural resources of the country in an effective manner. The specific goals that are envisaged are detailed below,

- Achieve excellence in teaching at under graduate and post graduate levels in Forestry
- Achieve excellence in research in both basic and applied aspects in the different disciplines of Forestry
- Provide technically qualified and competent forestry personnel to various agencies engaged in the field
- Provide scientific and practical advice to the various end users in forestry with the objective of making forestry an attractive and economic enterprise.
- Create awareness among the public about the importance of forests and scientific forestry.

2.3 OBJECTIVES

Considering the above goals, the specific objectives of the college of forestry are listed below:

- To offer B.Sc. (Forestry) programme
- To offer M.Sc. (Forestry) programme with specialisation in different disciplines of forestry
- To carry out research in basic and applied aspects of forestry to solve the existing problems of the region and also to make forestry a viable commercial enterprise. Also to carry out research that will enable the effective management and conservation of the protected areas and other natural habitats.
- To take up extension activities in forestry and to cater to the needs of the end users and give technical professional support to social forestry, agro-forestry and wildlife management programmes of the State and Central governments.

2.4 STRENGTH AND SCOPE FOR IMPROVEMENT

The College of Forestry has a noble vision of improving the welfare of the population who are dependent on forests and other natural resources. The College has well defined goals to realize the mission.

The College may examine its role to the society from time to time and may modify the goals and programmes.

3. ORGANISATION AND GOVERNANCE

3.1 ADMINISTRATION OF THE COLLEGE

The Associate Dean is the administrative and academic head of the institution. There are five statutory departments in the College. Each headed by the head of the departments. The five statutory departments are,

- Department of Silviculture and Agroforestry
- Department of Forest Management and Utilisation
- Department of Tree physiology and Breeding
- Department of Wood Science
- Department of Wildlife Sciences.

The heads of departments after consultation with the faculty in the concerned departments decides the academic, research and extension activities of each department. In the administrative matters the Administrative Officer (A.O) assist the Associate Dean. The Section officer, office assistants, typists, peon and laborers in turn assist the A. O.

3.2 INSTITUTIONAL PLANNING PROCESS

The Departmental heads hold preliminary discussions with the faculty to chalk out the research and developmental activities of the respective Departments on short term and long-term basis. The proposals are further presented in the staff council of the College. The Institutional planning is finalised at this level and depending on the urgency and relevance of the various proposals from the Heads of the Departments. The priority of the various programmes is fixed in the staff council taking in to consideration of the availability of funds and urgency of the programmes.

3.3 STRENGTH AND SCOPE FOR IMPROVEMENT

The organisation and the governance of the College of Forestry have been exceptionally good so far. The small size of the institution makes it easy for management. The faculty, though very limited in number has been showing commitment to the institution and have good understanding of the mission and goals.

Further improvement in the efficiency of the activities of the College is important, particularly in the context of growing competition for resources from the various sources. This requires decentralization of the financial powers and planning activities.

4. STUDENT DEVELOPMENT

The credibility of an academic institution is evaluated based on the standards of enrollment, academic performance, attrition and retention rate and post-academic performance of the students who are passing out of the Institute.

4.1 STUDENT PROFILE

The intake of the students per year is 15. Apart from this one or two ICAR nominee students also join the programme. The intake capacity has been enhanced to 20 from the 2000 - 2001 academic year onwards. This is done based on the request from the State forest department. The student retention data for the last four years in given in Table 1 and the composition of students given in Table 2.

Table 4.1 Student's retention data for B.Sc. (Forestry) at COF for last three years

Graduating year	Admitted			Dropped		Appeared in final examination		Percentage passed	
		M	F	M	F	M	F	M	F
1994	UG	11	3	3	1	7	2	88	100
1995	UG	11	1	2	-	8	1	89	100
1996	UG	12	1	5	-	2	-	71	100

Table 4.2 Student's retention data for M.Sc. (Forestry) at COF for last three years

Graduating year	Admitted			Dropped		Appeared in final examination		Percentage passed	
		M	F	M	F	M	F	M	F
1996	PG	8	-	-	-	7	-	88	-
1997	PG	4	2	-	-	2	-	50	-
1998	PG	8	-	-	-	6	-	67	-

Table 4.3 Composition of students at COF

Students from	Under-graduate		Post-graduate	
	Year established (1986)	Current year (2000-'01)	Year established (1986)	Current year (2000-'01)
Within the State	15	15	6	4
Out of the State	0	1	0	3
Foreign	0	0	0	0
Total	15	16	6	7

4.2 ADMISSION STANDARDS

College of Forestry (COF) offers B.Sc. (Forestry) and M.Sc. (Forestry) programme. The former has duration of four years, while that of the latter is only two years.

4.2.1 B.Sc. (Forestry)

Right from the beginning the admission for the B.Sc. (Forestry) programme is done through the common entrance examination for the professional degree programmes, which is conducted by the Commissioner for Entrance Examinations, Govt. of Kerala.

The entrance examination will consist of two papers, one in Physics and Chemistry and other in Biology. Candidates seeking admission to B.Sc. (Forestry) should have passed the Pre-degree or plus two examination of any University in Kerala with Physics, Chemistry and Biology as optional subjects. They should have also secured an aggregate of 50% marks or above in the Science subjects. Apart from this the following minimum physical standards are also prescribed for B.Sc. (Forestry), as detailed in Table 3.

Table 4.4 Details of physical standards for the candidates seeking admission to B.Sc. (Forestry) programme

Sex	Height (cm)	Chest girth (cm)		
		Normal	Expanded	Expansion
Male	163	79	84	5
Female	150	74	79	5

Admission to foreign students: The normal procedure for seeking admission is that the foreign student should apply in the prescribed form available with the Indian Missions abroad and the application is to be forwarded to the Government of India by the Embassy / Mission concerned. The Ministry of Education will then arrange admission through ICAR.

Admission to candidates from outside the State: The candidates having the requisite academic qualification seeking admission from outside Kerala State should apply to the Indian Council of Agricultural Research, New Delhi, through the State governments concerned.

4.2.2 M.Sc. (Forestry)

Admission to the M.Sc. (Forestry) programme is done through entrance examination conducted by the Kerala Agricultural University. Master's degree programme leading to M.Sc. (Forestry) degree is offered in three disciplines in COF. The discipline where in M.Sc. (Forestry) is offered is given in Table 4.

Table 4.5 Disciplines where in M.Sc. (Forestry) is offered at COF

Sl.#.	Discipline	Intake capacity
1	Silviculture & Agroforestry	2
2	Tree Physiology and Breeding	2
3	Wildlife Sciences	2
	Total	**6**

A basic degree in Forestry / Agriculture / Horticulture / Veterinary with an OGPA of 7.3 out of 10 or 2.23 out of 4 or an aggregate of 52.8% marks in the traditional system. Degree holders with Higher Grade Certificate from Ranger's College or with Diploma in Forestry from State Forest College / Indian Forest College, Dehra Dun are also eligible. The admission procedure to the foreign students as well as for candidates from out side the State remains the same as that for the B.Sc. (Forestry).

4.3 STUDENT ENROLMENT

Details of student enrolment for Under-Graduate programme at COF are given in Table 5 and the same for Post-Graduate programmes given in Table 6.

Table 4.6 Details of student enrolment for Under-Graduate programme at COF

Degree	Year started	Approved seats	Actual Enrollment	
			Year established	Current year
B.Sc. (Forestry)	1986	15	15	16

Table 4.7 Details of student enrolment for Post-Graduate programme at COF

Degree	Year started	Approved seats	Actual Enrollment	
			Year established	Current year
M.Sc. (Forestry)	1986	6	6	-
M.Sc. (Forestry) in Silviculture and	*1993	4	4	1

	**Plate 2 – Class Room COF, a view**
	**Plate – 3 Computer Room COF**
	**Plate – 4 COF Library**

Agroforestry				
M.Sc. (Forestry) in Tree Physiology and Breeding	*1993	4	2	4
M.Sc. (Forestry) in Wildlife Sciences	*1993	1	1	1

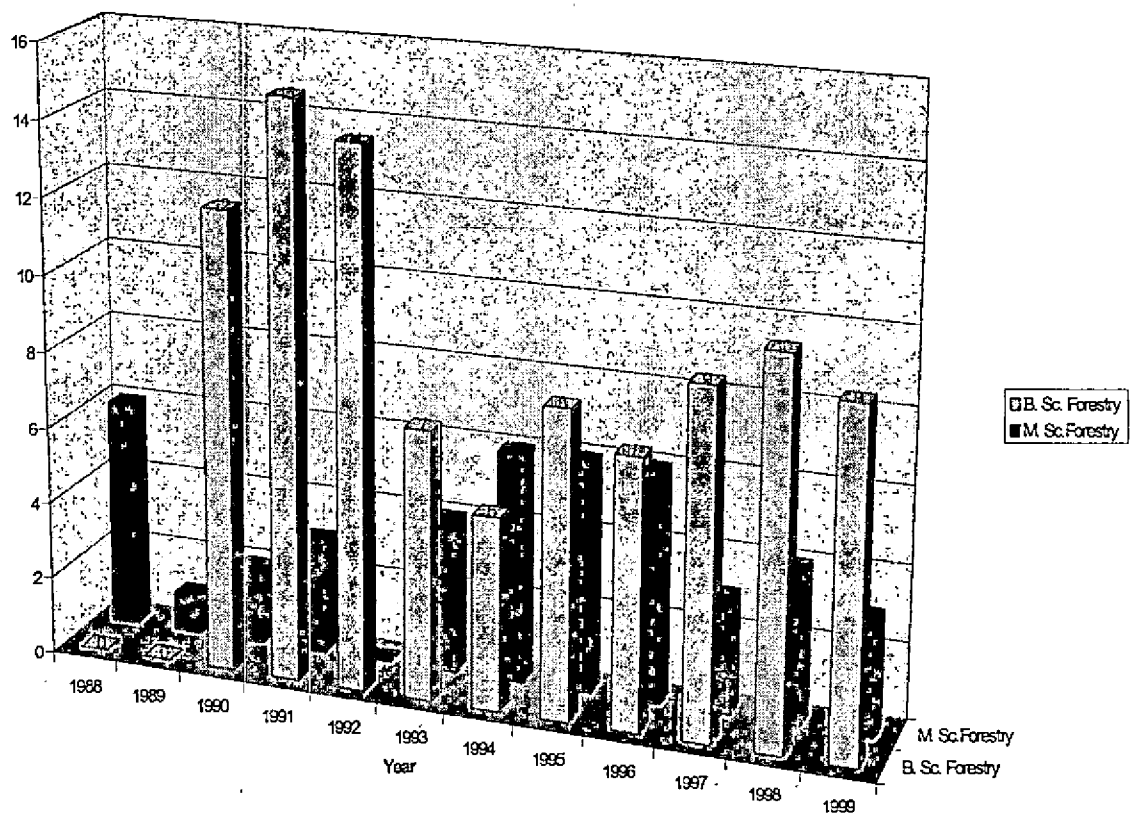
* From 1986 to 1992 M.Sc. (Forestry) degree was awarded and the Department-wise specialization was started in 1993

4.4 STUDENTS WELFARE PROGRAMMES

The students are given all the opportunities for the participating in the co-curricular activities to develop their hidden talents in sports and games as well as in the cultural events, and literary events. The organisational and the leadership qualities of the students are also promoted through the activities of the students union of the COF. The Associate Dean, himself is the Patron of the students Union, apart from this there are staff advisors for various clubs of the Students union such as, Athletic Club, Arts club, Quiz club, Planning Forum, Magazine Committee, etc. All the students of COF are members of the National Service Scheme (N.S.S.). As part of which they undertake various service activities in different parts of the State. N. C. C is compulsory for the first three semesters of the UG programme. The NCC programme apart from being keeping the students physically and mentally healthy, it also give them a chance to learn horse riding. The wholesome personality of the students is being shaped through a variety of co-curricular and extra curricular activities.

Ward counseling system is followed at COF. Each student has a staff advisor, who will invariably be a teaching faculty. The students meet the ward counselor and discuss their matter pertaining to education, personal problems, career guidance etc. provide student counseling at various stages of the academic programme.

Fig. 4.1 Details of students who completed degree programmes in Forestry



The students counseling is provided on career guidance, guiding students for taking up higher studies in the national and international universities, encouraging and training the students to appear for the All India competitive exams etc. Guidance to students who start commercial enterprises and self-employment activities are also provided.

"Fresher's Day" is a yearly event arranged in the College with the participation of all the staff and students. This is the time when the newly admitted students are formally introduced to the students and staff. This also gives an opportunity for informal chat and interaction between the students and staff of the College.

A faculty-students meet is also arranged once in every year to bid farewell to the out going students. This meeting is made use of as an occasion to have free interaction

	**Plate – 5 Central Instrume-ntation lab, COF**
	**Plate – 6 Students Union activity – Onam celebration being inaugurated**
	**Plate – 7 field trip, Kuruva islands, Wayanad**

and communication of ideas between the faculty and the students. The students are given an opportunity to express their comments, criticism and suggestions with regard to the functioning of the college.

The Students Union also conducts regular meetings of the office bearers and the staff advisors. The lacuna, if any, to be rectified in the day-to-day affairs of the students as well as the College at large, are discussed and solved in such meetings. Suggestions for development of the College are also obtained many times during such deliberations.

Table 4.8 The achievements made by the graduates of COF

Year	JRF	SRF	ARS-NET	IFS	IAS	Total	%
1990 to 94	7	4	13	0	0	24	60
1995 to98	1	0	0	1	0	2	8
Current year	1	0	0	1	1	3	30

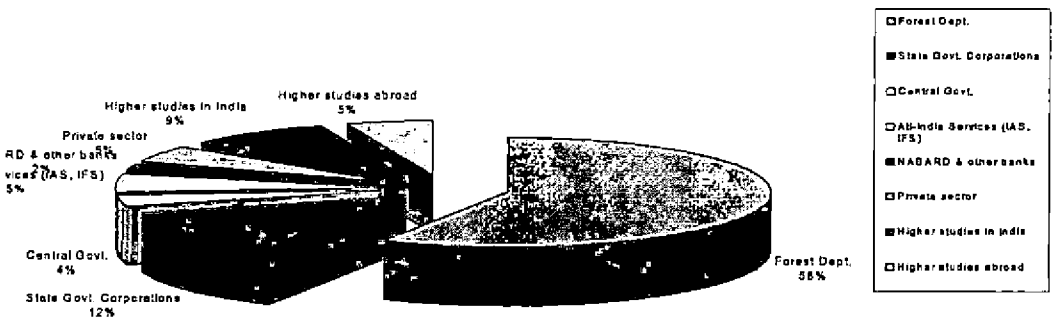


Fig. 4.2 EMPLOYMENT AVENUES OF FORESTRY UNDER GRADUATES

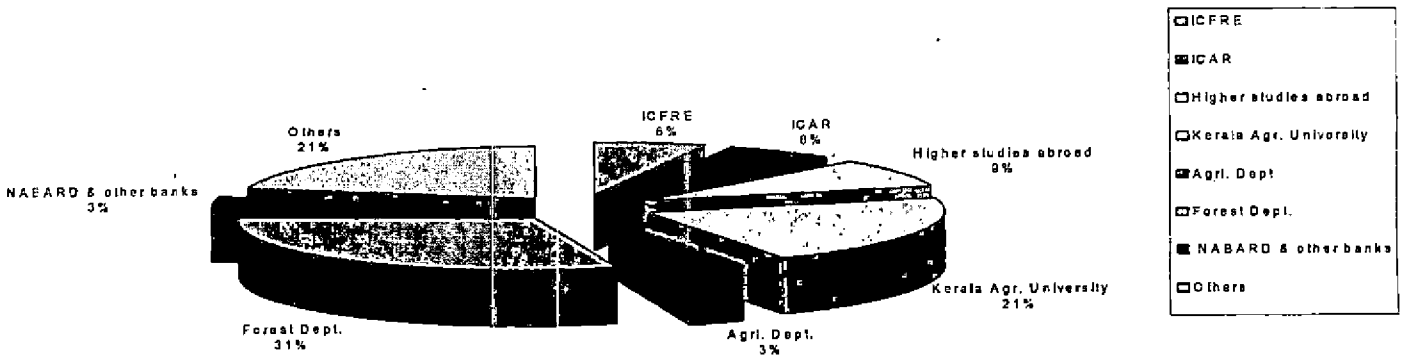


Fig. 4.3 EMPLOYMENT AVENUES OF FORESTRY POST GRADUATES

4.5 INFRASTRUCTURE

There are separate hostels for the boys and girls. There are also sufficient infrastructure facilities available for the sports and games. See appendix for details.

Plate – 8 World Environ-ment Day remembered by tree planting

Plate – 9 Important visitors to COF plant tree seedling at COF premises –

Dr. Dennies Deppenmier, Director, French Institute

Plate – 10 Extension activity – awareness class to farmers and public at Kole wetlands

5 FACULTY

5.1 CLASSIFICATION OF FACULTY

Faculty is the sole of any academic institution. Since the College has the triple function of teaching, research and extension, no clear-cut distinction can be made on the share of resource allocated among the various activities. The scientists mostly do all the three functions. This approach has been followed so that the findings of research help in the teaching and extension activities. The heads of departments are responsible for the administration as well apart from the above listed three functions.

The faculty members in the College of Forestry (list appended) constitute the Core Faculty for the B.Sc. and M.Sc. Forestry programme. All of them have acquired specialised training in forestry at various levels. Some have undergone special training programme in different subject matter areas of Forestry at the post-graduate or post- doctoral level. Some others have specialized in Forestry in their under graduate and post graduate levels. The core faculty handle all the forestry courses of the under graduate and postgraduate programmes. The faculty also guide the post graduate students in their research programmes and also carry out research projects in forestry funded by both the university as well as external agencies.

The faculty members in the constituent Colleges and Research Stations of the University in the campus constitute the supporting faculty who handle courses on basic sciences, agriculture, horticulture and other allied subjects of forestry for both UG and PG programmes. The supporting faculty also serves as members of the advisory committee of the PG students in Forestry and also as Co-Principal Investigators of research projects of the core faculty. Scientists from the Kerala Forest Research Institute, Peechi and officials of the Kerala State Forest Department are also actively involved in teaching and are often invited to deliver special lectures.

5.2 PROFILE OF ACADEMIC STAFF

The COF has 16 faculties in five departments. Three of them are on study leave for higher studies, two in U S A and one in Australia. Out of the 13 faculties eight are Ph.D. holders and others are in the process of obtaining the Ph.D. degree. A brief profile of the faculty is given in Annexure II.

Table 5.1 Academic credentials of the teachers of College of Forestry

Department	Degree		Total
	M.Sc.	Ph.D.	
Silviculture & Agroforestry	1	2	**3**
Tree Physiology & Breeding	-	3	**3**
Forest Management & Utilisation	2	2	**4**
Wood Science	3	-	**3**
Wildlife Sciences	2	-	**2**
Basic Science	-	1	1
Total	8	8	**16**

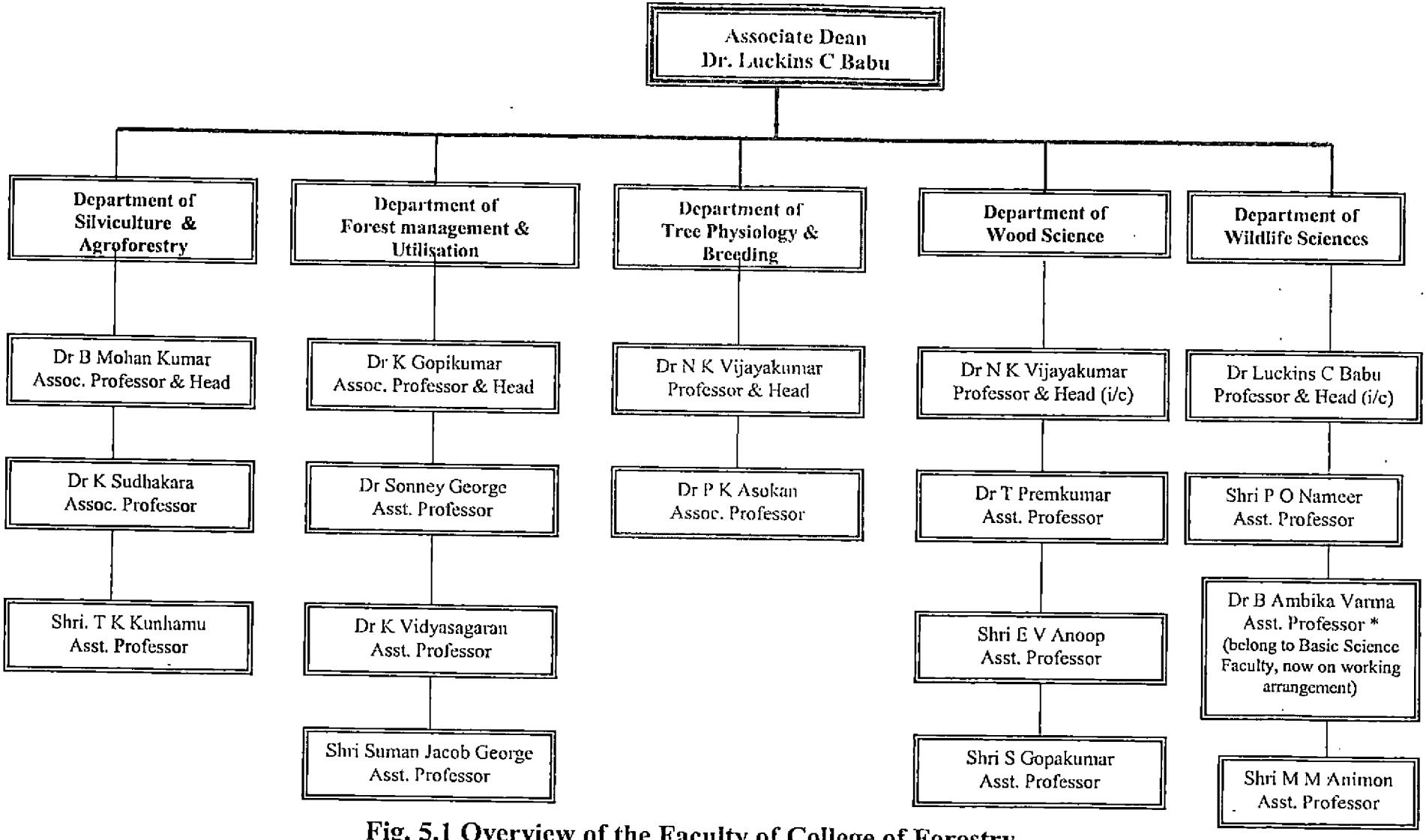


Fig. 5.1 Overview of the Faculty of College of Forestry

Table 5.2 Characteristics of training by teachers in different departments

Highest Degree	Professors	Assoc. Professor	Assistant Professor	% of total
Same University			2	12.5
Other University within State			2	12.5
Out of State			3	18.75
Foreign Country	2	4	3	56.25
	2	**4**	**10**	**100**

The Associate Dean is selected based on direct selection. Advertisement about the selection will be made in all leading national dailies. The Associate Dean, apart from the other duties does teach also. Right now the Associate Dean teaches four courses, which includes 90 lecture hours and 72 practical hours in one semester. The tenure of the Associate Dean is five years.

The head of the department usually will be the senior most faculty member of the Department, not below the rank of Assoc. Professor. The tenure of the head of the department is till superannuation. All the newly created teaching posts are advertised nationally and selections are made by a selection committee, constituted by the University with the Vice- Chancellor as the Chairman. Besides, to avoid stagnation of the faculty, there is an upgradation programme as per UGC/ICAR norms.

The Academic staff that receive state level and national level awards are given recognition by the university in the General Council meetings of the University. At the University level action has been initiated to select the "best teacher" award as per the norms of ICAR. The transfer policy of the University is followed. The faculty after three years is sent to the field and field-experienced faculty is brought back to the College.

5.3 FACULTY DEVELOPMENT

The faculties are given ample opportunity for undergoing refresher courses, summer institutes, workshops, training programmes, short courses etc. in their respective disciplines, which are arranged in other Universities with in the country. Sufficient funds are earmarked for this purpose under Plan allocations. In addition, they have ample opportunity for getting deputed for attending National and International symposia organised with in the country so that their research findings can be presented and exchange of information between scientists of related disciplines are made possible. Provision for study leave as well as leave for study purposes are available for the faculty members (subject to eligibility criteria) for enhancing their educational qualifications and/ or research knowledge.

5.4 PROCEDURE OF RECRUITMENT

The recruitment of scientists / teachers are in accordance with the KAU Act. Statutes and ordinances, which are framed and amended from time to time. Selection Committees are constituted for the specific purpose. The administrative, technical and State government leadership are involved in the selection process to ensure a transparent and fair recruitment system. All the posts of teachers / scientists are advertised and publicized at national level for the recruitment.

5.5 STRENGTHS AND FUTURE NEEDS

The COF has highly qualified, dedicated and self-motivated faculty who are competent enough to take up any tasks. That is the greatest strength of the College.

However, owing to the fact that the faculties are fewer in number, almost all the faculty is overloaded with the works.

6. ACADEMIC PROGR1AMMES AND AMENITIES

The primary emphasis of our academic programme is to produce a new breed of pro1fessionally competent natural resource managers of the forested environment, with1 adequate technical and communication skills.

B.Sc. (Forestry) and M.Sc. (Forestry) are the degree programmes offered at COF. English is the mediūm of instruction. Presently the College of Forestry is following the curricula prepared as per the guidelines laid out in the Faculty of Agriculture, Kerala Agricultural University. The curricula have been approved by the Academic Council of the University. Action is being initiated to revise the curriculum in the line of the recommendation of the Dean' Committee as accepted by the ICAR. The present curriculum is in tune with the proposed curriculum by the Dean's committee.

The course curriculum is prepared by the subject expert/s in the respective departments. This is discussed in a department level meeting and is modified/ revised. This draft is presented in the college council and suggestions are incorporated before finalisaton. This is then sent to at least two external experts for critical evaluation and comments.

Board of Studies: Each faculty has a Board of Studies headed by the Dean of the faculty and all Heads of Departments in the constituent colleges as members. In addition, there are representatives of the students, experts from other universities as well as nominees from out side the university. The syllabus prepared by the Faculty of the College is presented to the Board of Studies along with the comments of the external experts. It may accept the syllabus or suggest for resubmission after appropriate modifications.

Academic Council: The Academic council of the University is headed by the Vice Chancellor and the members include all the directors and deans of the University,

Plate – 11

Students interacting with DDG, ICFRE on his visit to COF

Plate – 12
Students preparing teak nursery as part of Earn While You Learn programme

Plate – 13
NCC – a cadet of COF performing jump on horse back

representatives of students and faculty, and external experts nominated by the Vice Chancellor.

The course curriculum after approval of the Board of Studies will be submitted to the Academic Council. Once it is approved in this apex academic body of the university, the syllabus will be implemented in the college. The U G syllabus currently followed at COF was approved by the Board of studies and Academic council in 1995 and the same was implemented in 1995 itself. While the PG syllabus that is followed was implemented in 1986. This is in the process of being revised. The College Handbook gives the details about the various academic programmes of the COF.

The College of Forestry has had a total credit load of 168 until 1994. However, when the syllabus was revised in 1995, the credit hours were reduced to 156, which include four courses that does not carry any credit points. We have already proposed to the Kerala Agricultural University to increase the credit hours of the RAWE courses such as Ftrg 401 Practical Forestry and Ftrg 402 Forest Range Training by two credits each to make the total credit hours to 160. The courses for B.Sc. (Forestry) programme under various disciplines are given in Annexure III.

The main thrust in our undergraduate programme is on imparting theoretical and practical knowledge in forestry and agroforestry including allied aspects of natural resource management, as people trained in these subject matter areas are best equipped to meet the challenge of solving today's environmental problems and of working for the continual future supply of goods and services from our forest resources. Frontier areas such as Biotechnology, Environmental Sciences and Computers have also received adequate treatment in the syllabus. At COF a combination of most advanced instructional method coupled with the conventional classroom instruction is followed in the academic programme. Forestry being a field oriented course greater emphasis is given to the field trips and associated exercises. All the following types of instructional methods are in vogue at COF, such as,

- **Conventional classroom instructions** – using OHPs, slide projectors, and other audio-visual aids
- **Special lectures** – by experts in the subjects from within and outside the State.
- **Seminars** – the students are given seminars as part of most of the courses. They would prepare a write up about the topic assigned to them and give a talk in the class, which would be attended by most of the faculty as well as students.
- **Home assignments** – home assignment on a topic in each of the course also will be given to the students.
- **Field works** – as mentioned earlier fieldwork forms a major component of the academic programme. The students would be visiting almost all the major types of the forests of the country, with a greater emphasis on the forests of South India.
- **Computer assignments** – by the time the students complete the U G programme they would be made computer literate in software such as MS Office and certain statistical packages. Students have almost 24-hour access to computers and Internet.
- **Practical assignments** – Most of the course also has practical assignments, which apart from involving field exercises would also be having laboratory exercises, like chemical analysis of soil, water and plant samples, slide preparation of wood samples using microtome, seed germination studies, engineering and survey exercises, forest mensuration exercises, mammal and birds census techniques, animal taxonomy etc. The lecture schedules as well as instructional materials are distributed in the beginning of the course.

6.1 THE RURAL AGRICULTURAL WORK EXPERIENCE (RAWE)

RAWE programme was organised at the College of Forestry (COF), in a befitting manner. The directions of the ICAR were strictly adhered to while envisaging the RAWE programme. The entire faculty of the COF was involved in the RAWE. The

Plate – 14 Students studying migratory bird at wetlands

Plate – 15 Trekking through moist deciduous forests at Parambi-kulam Wildlife Sanctuary

Plate – 16 Former Special Officer, COF Shri VRK Nair IFS at Silent Valley, with students. Late Dr. Humayun Abdullai, Scientist of BNHS can also be seen

RAWE is arranged in the last one semester, with a minimum of 105 days of training, completely in the field. The RAWE programme of the COF has six separate components in different organisations such as,

- State Forest Department
- Non Governmental Organisations (NGO)
- Research stations of KAU
- Seminar
- Weapon training
- First Aid training

The State Forest Department training component is further sub divided into training at Territorial range, Wildlife Sanctuary, Forest Training School, Working Plan, Forest Sales Depot and Forest Development Corporation.

The NGO's selected are two leading NGO's of the State working in the Forestry related field such as Attappady Hill Area Development Society (AHADS), who work on the tribal welfare, eco-development and restoration forestry aspects. The other NGO selected for the students training is Integrated Rural Technology Centre (IRTC), who focus mostly on non-conventional energy sector.

Two research stations of KAU are selected where there are forestry-related works are going on. The Cardamom Research Station in Idukki district was one research station chosen where students could learn the plantation operations of Cardamom. While at the other research station, the Livestock Research Station, Thiruvazhamkunnu, Palakkad, the AICRP Agroforestry scheme is being implemented and the students get a chance to learn the various agroforestry research activities.

A one – two day seminar will be organised at the College where in speakers from various public sector and private sector undertakings related to Forestry will be invited.

The Weapon training is arranged at the CRPF training centre of State Police department, while the First Aid Training is arranged at the Medical College.

The entire faculty of the College of forestry was involved in the implementation of the RAWE programme. The faculty visits the various field centers, which are spread across throughout the State, once in a week. They then collect feed back from the students as well as from the organising department officials from the field itself and necessary modifications if any, is incorporated then and there itself. The students are also given an opportunity to give an overall view of the RAWE at the end of the training in the form of a seminar that they gave. Feed back on RAWE is received from the students as well as from the officials of the Kerala State Forest Department, Kerala Forest Development Corporation, various NGOs and scientists of the various Research Stations of the University where the students have been undergoing their off campus training programme. The calendar of activities of RAWE is given in Appendix VII.

A unique feature of our undergraduate programme, however, is the project work, which aims to introduce the forestry students to research. As part of the project work, each student must plan and carry out a research project under the guidance of a faculty member and submit a project report. Apart from Project Work, the graduate students also have courses such as Design & Analysis of experiments; Forest Research Methods and Laboratory Techniques & Instrumentation, all of which adds up come to 2+7 credit hours that is equivalent to 320 hours during the course period.

Plate – 17
Inside the rain forests of Silent Valley in rain

Plate – 18
Study tour to coniferous forests in Himalayas

Plate – 19

Charging elephant at Wayanad Wildlife Sanctuary

	**Plate – 20** **Students of COF playing Volley Ball**
	**Plate – 21** **Students of COF playing Basket Ball**
	**Plate – 22** **COF students are trained on the use of arms & ammunition at CRPF camp, Thrissur**

7. LEARNING RESOURCES

The College of Forestry has a library in addition to the University Central library, which is hardly 200 meters from the College of Forestry. Both the libraries provide a wide range of services to the students and staff of the College of Forestry. There are 2821 books currently available at the College of Forestry library. All the journals from the College of Forestry are transferred to the University central library. Data base creation of all the books and other documents of the College library is done using CDS/ISIS programme of UNESCO. The purpose is to computerize information retrieval and documentation services. Xeroxing facility is also provided to all the users of the College of Forestry library.

The University Central library has about 15,000 books, of which nearly 3000 books are in forestry and related subjects, thus making the total availability of number of books on forestry to 5821. About 300 journals are currently being subscribed at the Central library, of which 50 are in forestry and allied subjects. The students have access to Internet facility, database services, digital library services, documentation services, audio-visual services and multi-media services at the library. The University central library has Internet connectivity, which is accessible to the faculty and students of College of Forestry also. The COF library has the most advanced facilities such as Computer, A/V material, Photocopying machine etc.

One unique feature of COF is that the entire faculty is computer literate and all of them have an individual PC, with highest configuration. Apart from this there is a full-fledged student's computer lab. with 5 machines, with a student-computer ratio of 12:1. The computer lab is in the process of being upgraded to make the student-computer ratio 5:1. The administrative staff also has two computers and most of the office works such as accounting etc are computerised. Apart from this all the departments have computers, UPS and printers the facilities of which is availed by the PG students of the respective departments. COF also has a scanner and CD writer along with the various advanced software.

8. RESEARCH AND COMMUNITY SERVICES

8.1 RESEARCH PROJECTS UNDERTAKEN AT COF

In addition to regular teaching programmes, the faculty members involve in research activities on various fields of forestry and allied areas. A 20 ha Instructional Farm has been established. An Arboretum with more than 150 tree species, tree crop nursery, wood lot planting, blocks for rare and endangered species, asexually propagated plants etc. form the important components of the farm. All India coordinated project on Agroforestry is functioning at Thiruvazhamkunnu. The experiments laid out there serve the purpose of both instruction and teaching. A very good germplasm of various agroforestry species including fodder species is being maintained there.

Currently seven externally aided research projects and 10 KAU research projects are in operation at COF. The scientists of COF have so far completed 21 externally aided research projects and 43 KAU research projects. Apart from this about 75 research projects have also been guided at the under graduate level by the faculty. The list of completed / ongoing / newly sanctioned research schemes handled by faculty members are listed in Annexure V to VIII.

Students of COF are greatly encouraged to undertake research projects at different levels such as, a) The B.Sc. (Forestry) students are to complete a course in which they are to formulate individual research project and execute it in a period of 12 months. This, in addition to training the UG students in research planning and execution, help to generate an aptitude for scientific approach to forestry problems. b). The M.Sc. (Forestry) students of the various Departments are assigned with research projects for the partial fulfillment of their degree programme. They take projects, which have relevance to various fundamental and applied aspects of forestry. The research findings of these students contribute to the over all research activities of the College and benefit the field of forestry at large. c) Students always join hands with the faculty in various extension activities including seminars, exhibitions etc. This is

made possible through the activities of the students union, NSS and other student bodies. d) The UG students undertake production and distribution of good quality tree seedlings under the "Earn while you learn" programme.

8.2 RESEARCH PUBLICATIONS OF THE FACULTY

The scientists of COF have so far brought out 426 scientific publications including 20 books and chapters in book, 171 research articles, 84 popular articles, 92 seminar / conference papers, and 59 technical reports. The details of the same are given in Annexure VIII.

9. PHYSICAL FACILITIES

The academic campus of COF has a total land area of 2 ha, while the Instructional Farm attached to the College has an area of 25 ha. The College of Forestry is currently functioning in a remodeled building, which was trainees & farmers hostel and a semi permanent structure, which was constructed by the University. In the semi permanent structure three classrooms and the library are located. There is a separate hostel for the College, the funding for which was provided by the ICFRE, at a cost of Rs.40 lakhs. This hostel has capacity to accommodate about 50 students. The ICFRE has approved the construction of an academic block for Rs. 175 lakhs in a phased manner and Rs. 25 lakhs have been granted for this financial year. The University is providing a matching grant of Rs. 38 lakhs. The preliminary work of the first phase at a cost of Rs. 68 lakhs has already been started adjacent to the present remodeled building. The new building is expected to be commissioned by the end of 2001.

All the faculty of the college who are not staying in their own houses is provided accommodation in the University quarters. There are University play grounds, stadium and auditorium in the main campus and are shared by the Colleges located in the main campus.

Table 9.1 Physical facilities available in the College of Forestry

Sl. #	Facility	Area
1	Academic building	1500 m^2
2	Students hostel	2225 m^2
3	Housing staff	1000 m^2
4	Play grounds	Common facility
5	Administrative building	200 m^2
6	Gardens & farms	25 ha
7	Health facilities	100 m^2
8	Library	250 m^2

9	Auditorium	Central auditorium
10	Irrigation facility	Common facility
11	Indoor stadium	Common facility
12	Mist chamber	500 m^2
13	Mini bus	One
14	Car	One
15	Trailer	One
16	Motor bike	One

9.1 LABORATORIES

The college laboratories are well equipped. In addition to UG and PG laboratories, separate laboratories for silviculture, tissue culture, tree propagation, wood science, agroforestry, tree physiology, forest management and wildlife were established. The Instrument room, xylarium, general museum, a wildlife museum, entomology museum, and computer room are the additional facilities used for instructional and research purposes. These facilities are extended to the students and staff members of this college and laboratories are also used by students and staff of other colleges of the university. The college laboratories are equipped with some of the most modern instruments. The list of major equipments available in the college is furnished.

Table 9. 2 List of major equipments available at COF

1) Electrophoretic unit
2) Flame Photometer
3) Laminar Air Flow Cabinets
4) Leaf Area Meter
5) Leaf Area Index, 3000
6) Line Quantum Sensor and Point Quantum Sensor with data logger
7) Plant Canopy Analyzer
8) Plant Water Consol

9) Programmable Biofreeezer
10) Projection Microscope
11) Radiation Measuring Device with Data Logger
12) Steady State Porometer
13) U V Spectrophotometer
14) Wood Microtome

In addition to the above instruments, the COF possesses Precision Balances, pH meter, EC Bridge, Hot Air Ovens, Refrigerators, simple and compound Microscopes, Computer and accessories, Camera, binoculars, telescope etc. One Mini bus, Car, Power Tiller and a motorbike are also available for field research activities.

10. FISCAL RESOURCES

The budget estimates are grouped broadly under plan and non-plan heads. In the non-plan group, the estimate for the college is given. Among the plan schemes, apart from the funds allotted for College, ICAR and OEAP (other external aided projects) schemes that are functioning in the College are also included. The budget allocation of the COF has been increased from Rs. 42.247 lakhs in 1996-97 to Rs. 144.795 lakhs in 2000-2001.(see Figure 10.1 to 10.6 for details). There has been a proportional increase in the plan and the non-plan funds during the period, however, the allocation of ICAR and OEAP have been varying over the different years.

Fig. 10.1 Budget figures of COF during the last five years

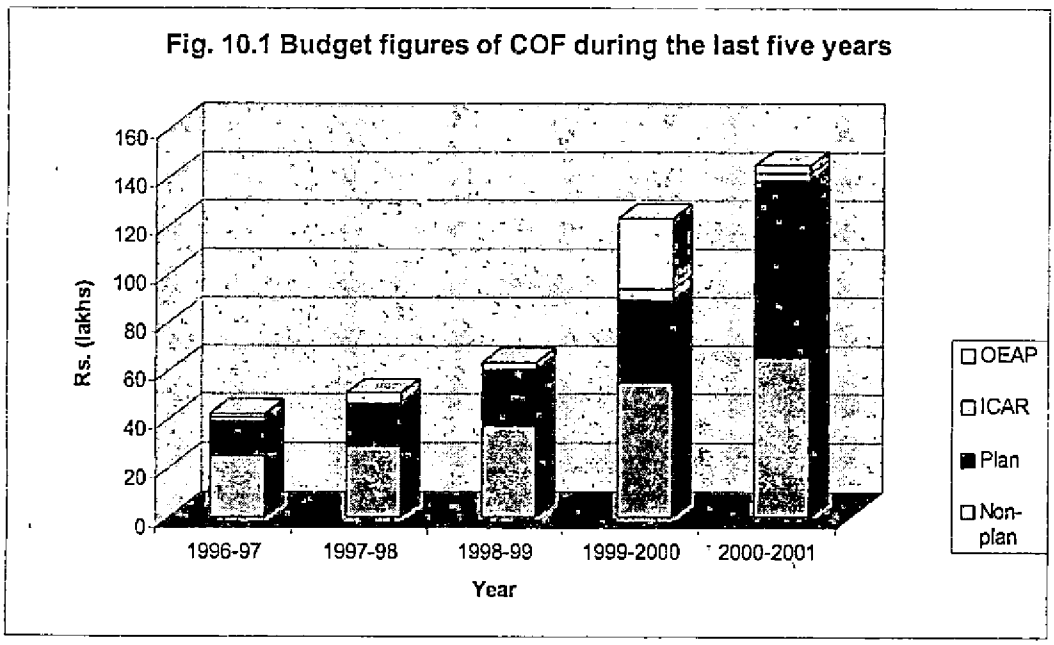


Fig. 10.2 Budget estimate of the College of Forestry (2000-2001)

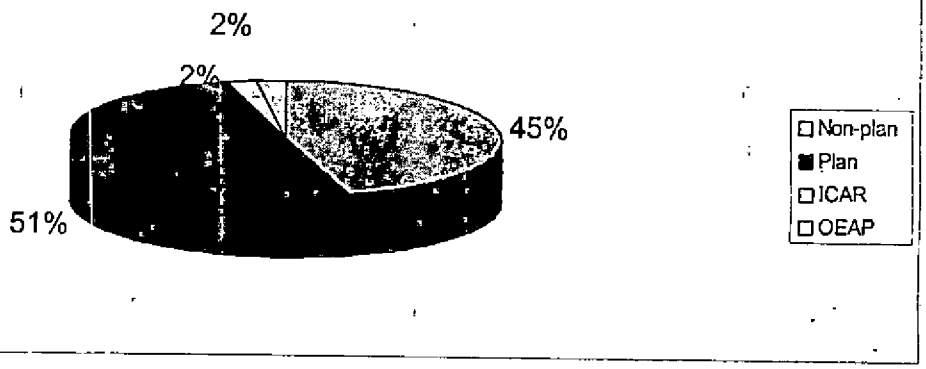


Fig. 10.3 Budget allocation of College of Forestry (1999-2000)

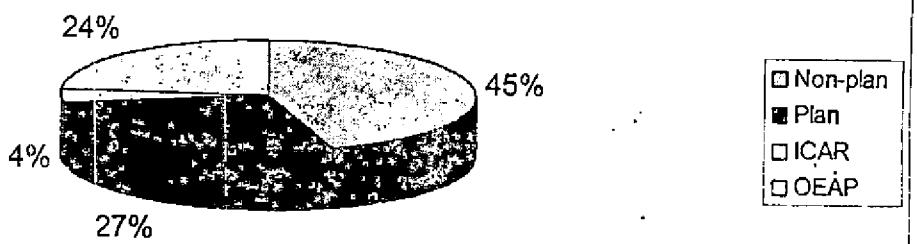


Fig. 10.4 Budget allocation to college of Forestry (1998-'99)

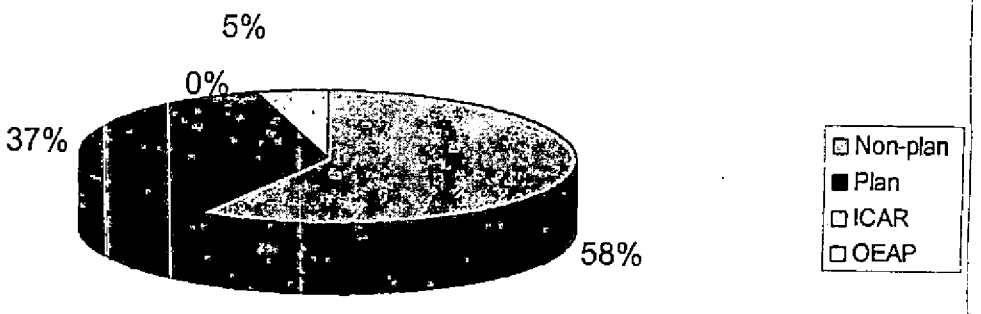


Fig. 10.5 Budget allcation for College of Forestry (1997-'98)

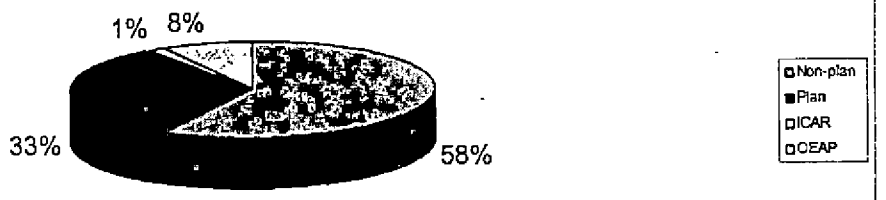
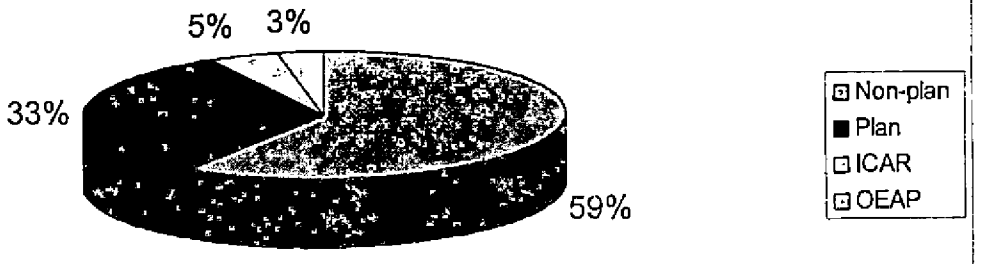


Fig. 10.6 Budget allocation for College of Forestry (1996-97)



Expenditure of COF for the last five years is given in Table 10.1. It may be noted that the COF expenditure comes to less than 1% of the total budget allocation of KAU.

Table 10.1 Expenditure of COF during the last five years

Year	Amount Rs. (lakhs)	% of KAU budget
1997-1998	28.78	0.84
1998-1999	36.24	0.95
1999-2000	42.67	0.58
2000-2001	75.976	1.24
2001-2002	56.075	0.69

Audits: Yearly three types of audits are undertaken namely internal audit, local fund audit and AG's audit. The internal audit performs the verification of registers and

other records, observation of the rules and regulations of the university and accounts. The Local Fund Audit performs verification of grants received from State government and whole account and the AG's audit carries out the verification of grants received from central government and whole accounts.

Presently, administrative and financial powers are vested with the Associate Dean. Realizing the difficulties experienced by the heads of the department, action is being initiated at the University level for the decentralization of administrative and financial powers to the heads of the departments.

Budget allocation to each department is done based on the requirements of each department and availability of fund under each head. If the demand is more than the allotment, priority is fixed after discussion in the staff council.

The Associate Dean, of the College has an office with one Administrative Officer, one Section Officer, and three Office Assistants. Records and accounts are maintained in the office and every year accounts are audited by the University and local fund auditors of the Government. Delegation of financial and administrative powers to the heads of departments is being worked out at the University level.

11. INSTITUTIONAL ACCOMPLISHMENTS

A humble beginning was made in the year 1986 in the form of establishing a Forestry College at Kerala Agricultural University, Thrissur, Kerala, with a modest mandate of developing human resource required in the field of forestry and related subjects such as social forestry, agro forestry, silviculture, wildlife management and other related fields.

Now, looking back after a relatively short span 14 years, we are proud to say that a very good beginning has been made in this regard. Out of the 96 students so far completed the undergraduate programme 38 (40%) have been absorbed in the State Forest Department as Range Forest Officers. Two of our products have qualified Indian Forest Service examination and one of our graduate bagged 2nd rank in Indian Administrative Service examination. Eight of our graduates have obtained fellowships to undergo higher studies abroad (two in Australia, two in Canada and four in U S A). Two of them are employed in U S A, one as Asst. Professor in Forestry, in University of Florida and other as a scientist in a national laboratory. Eight graduates of the College are right now employed as Asst. Professor's at Kerala Agricultural University and three are working as scientists in ICFRE institutes.

The infrastructure facility at the COF is exceptional. A new academic block is getting completed for the College. COF has highly qualified faculty and almost all of them had undergone training programmes abroad and are confident and motivated enough to undertake any tasks related with any of the branches of Forestry. The faculty is capable of imparting training not only for the fresh graduates but for the in-service candidates also. The major accomplishments of the faculty are given in Annexure IX.

12. SWOT ANALYSIS

12.1 STRENGTHS

- Well trained, self motivated and hard working faculty
- Adequate infrastructure facility
- Tremendous job opportunities for the graduates
- Proximity to other institutions like Kerala Forest Research Institute, Veterinary College, Horticulture College, Thrissur Zoological Garden and Peechi -Vazhani Wildlife Sanctuary

12.2 WEAKNESSES

- Shortage of teaching faculty particularly for allied subjects
- Lack of technical and lab assistants
- Lack of conveyance for research purpose
- Centralized administration

12.3 OPPORTUNITIES

- Potential to develop in to a Centre of Excellence in Forestry education, training, research and extension
- Tremendous diversity in species and land use systems many of which are unique to the eco-climatic situations in Kerala.
- The biodiversity wealth of the State is under explored and there is tremendous scope for the institution for the exploration, which would generate invaluable information that could be of immense use for the well being of the society.

12.4 THREATS

- Shortage of funds
- Stiff competition for the employment opportunities for the graduates, because of the fact that traditional universities start courses in Forestry.

13 SUMMARY

- College of Forestry was established in 1986 in the main campus of Kerala Agricultural University at Thrissur, Kerala State.
- The main the mandate of COF is to produce a new breed of professionally competent natural resource managers of the forested environment, with adequate technical and communication skills.
- COF offer B.Sc. (Forestry) programme having four-year duration and the intake capacity is 20.
- M.Sc. (Forestry) programme having two-year duration and the current intake is six, two each in three departments viz. Silviculture and Agroforestry, Tree Physiology and Breeding and Wildlife Sciences.
- The students of COF have made commendable achievements. So far two students have secured IFS and one bagged second rank in IAS. Apart from this nearly 40 % of the graduates passed out from COF have been absorbed in the Kerala State Forest departments as range Forest Officers.
- 56.25% of the faculties have secured their highest degree from foreign countries.
- COF has five statutory departments, such as Silviculture and Agroforestry, Tree Physiology and Breeding, Forest Management and Utilisation, and Wildlife Sciences.
- The faculty of forestry has contributed substantially in the field of forestry research. The faculty has so far published 426 research papers, including books, popular articles, technical bulletins and papers presented in seminars and symposia.
- The major source funds to COF are from Govt. of Kerala and ICAR. Off late we have been receiving financial assistance from ICFRE. The research projects undertaken are mostly funded by external funding agencies such as State Forest Department, ICAR, ICFRE, STEC, DST, USDA and others
- The faculty strength comes to 16, out of which three are on Leave Without Allowances for study purpose.

- The College of Forestry at Kerala Agricultural University during the span of a relatively short period of just 14 years of its existence has made a considerable leap in the fields of forestry education, and research. Within next one decade or so it is hoped that the College of Forestry would establish itself as a Centre of Excellence in Tropical Forestry Training, education and research institute. Apart from seeking doctoral programme in various fields of forestry, our institute also plans to start many short-term training programmes, the clients of which would include international community as well. Our institute also envisages imparting trainings for the in-service foresters of the country. Apart from the basic research projects, the institute would also take up applied research in all subjects of Tropical Forestry. We would also undertake need based research projects suggested by the State forest departments.
- Finally it is hoped that our institute would develop itself into a self-supporting Centre. The financial requirements for the Centre would be generated from our own sources. We have already initiated some programmes on these lines to make our College financially independent.

Annexure I - STEERING COMMITTEE MEMBERS

1. Dr. Luckins C Babu (Associate Dean)	- Chairman
2. Dr N K Vijayakumar	- Member
3. Dr. B Mohankumar	- Member
4. Dr. K Gopikumar	- Member
5. Shri P O Nameer	- Coordinator & Member Secretary

Annexure II. BRIEF PROFILE OF THE FACULTY OF COF

Dr. Luckins C Babu, Professor and Associate Dean

Sl. No.	Degree	Subjects	Institution	Year
1	B.Sc.	Botany	University of Kerala	1965
2	M.Sc.	Botany	University of Kerala	1967
3	Ph.D.	Crop Physiology	Indian Agricultural Research. Institute, New Delhi	1985
4	Post-Doctoral Training	Forest Genetics and Breeding	University of Florida, U S A.	1987-88

Dr. N.K. Vijayakumar, Professor & head, Dept. of Tree Physiology& Breeding

Sl. No.	Degree	Subjects	Institution	Year
I	B.Sc.	Botany and Chemistry	University of Kerala	1967
2	M.Sc.	Genetics and Plant Breeding	University of Kerala	1969
3	Ph.D.	Cytogenetics	Indian Agricultural Research. Institute, New Delhi	1974
4	Post-Doctoral Training	Forest Genetics and Breeding	Virginia Polytech. & State University Blacksburg, USA	One year 1987-88

Dr. P K Asokan, Assoc. Professor, Dept. of Tree Physiology& Breeding

Sl. No.	Degree	Subjects	Institution	Year
1	B. Sc (Ag.)	Agriculture	Kerala Agricultural University	1974
2	M.Sc (Ag.)	Agronomy	Kerala Agricultural University	1977
3	Ph.D.	Agronomy	Kerala Agricultural University	1987
4	Post Doctoral	Tree Physiology	Purdue University, USA	1990

Trainings attended

- Teaching techniques course at Purdue University, U.S.A. (1990)
- Certificate training completed on the use of "Project learning tree materials for instructional use" in U.S.A. (1989)
- A "short course in semi-arid agroforestry" of the Texas A&I University, Kingsville, Texas, U.S.A. (1990)
- Training on use of radioisotopes and radiations in agriculture & biology research, Nuclear Research Laboratory, Indian Agricultural Research Institute, New Delhi, 1987

Dr. B Mohankumar, Assoc. Professor & head, Dept. of Silviculture & Agroforestry

	Degree/Dip	Specialisation	University/Institute	Year
1	BSc (Ag)	Agriculture	Kerala Agriculture University	1975
2	M.Sc (Ag)	Agronomy	Kerala Agriculture University	1978
3	PG Diploma	Seed Technology	Indian Agri. Res. Institute, New Delhi	1980

4	PhD	Soil & Water Mgt.	Indian Agri. Res. Institute, New Delhi.	1983
5	Diploma	Silviculture & Forest Ecology	Utah State University, USA	1987
6	Diploma	Management	Indira Gandhi Nat. Open. Univ.	1996

Trainings attended

- Three week short course on TROPICAL AGROFORESTRY at the Organisation of Tropical Studies, San Jose, Costa Rica (19 July-8 August, 1987)
- Two-week Indo-US short course on TREE NURSERY TECHNOLOGY AND MANAGEMENT (May 6-18, 1991) held at Kerala Agricultural University, Vellanikkara.
- Four-week National Training programme on MODERN METHODS IN PLANT TAXONOMY (March 2-26, 1993) organised by the Department of Science and Technology, Govt. of India at the University of Calicut
- Two week TRAINERS TRAINING PROGRAMME (August 16-27, 1994) at the Institute of Management in Government, Thiruvananthapuram.

Dr. K Sudhakara, Assoc. Professor, Dept. of Silviculture & Agroforestry

.	Degree	Subjects	Institution	Year
1	B. Sc (Ag.)	Agriculture	Kerala Agricultural University	1976
2	M.Sc (Ag.)	Agronomy	G. B. Pant University of Agric. & Tech., Pantnagar	1980
3	Ph.D.	Agronomy	Indian Agri. Res. Institute, New Delhi.	1985
4	Post Doctoral	Tree Seed & Nursery Technology	Mississippi State University, USA	1988
5	Post Doctoral	Nutrient cycling in tree crops	University of Aberdeen U.K. (Commonwealth fellowship)	1990

Trainings attended

- One year training on 'Tree Seed and Nursery Technology' at Mississippi State University from August 1987 to July 1988
- Computation, Teaching and Research Methods Workshop at the University of Florida, Aug 1-21, 1987
- Agroforestry: Management Alternatives for Tropical Ecosystems, Graduate Short Course. Organization for Tropical Studies, Inc., Costa Rica, June 15-July 5, 1988

Shri. T.K. Kunhamu, Asst. Professor, Dept. of Silviculture & Agroforestry

	Degree	Subject	University	Year
1.	B.Sc.	Chemistry	University of Calicut	1986
2.	B.Sc.	Forestry	Kerala Agricultural University	1991
3.	M.Sc.	Silviculture &Agroforestry	Kerala Agricultural University	1995
4.	PhD	Agroforestry	FRI, Deemed University	Currently undergoing

Training attended

- Undergone advanced training on "Agricultural Research Management at National Academy of Agricultural Research Management", Hyderabad (7-01-1998 to 5-5-1998).
- Attended the ICAR sponsored short course on "Biomass conversion Technologies for Agricultural and Allied Industries" held at College of Agricultural engineering, TNAU, Coimbatore (4-14 July, 2000)
- Undergone a training course on the use of "MANGLISH" software at RARS, Pattambi

Dr. K Gopikumar, Assoc. Professor, & head, Dept. of Forest, Management & Utilisation

	Degree	Subjects	Institution	Year
1	B. Sc	Horticulture	Kerala Agricultural University, Trichur	1976
2	M.Sc	Horticulture	Kerala Agricultural University, Trichur	1978
3	Ph.D.	Horticulture	University of Agrl.Sciences, Bangalore	1982
4	Post Doctoral	Forestry	University of Florida, U S A	1989
5	P.G Diploma	Ecology and Environment	Indian Institute of Ecology and Environment, New Delhi	1995

Trainings attended

- Two weeks INDO-US short course on Tree Nursery Technology and management held at Kerala Agricultural University from 6-18 May, 1991.
- Summer school on use of computers for information processing at IASRI. New Delhi from 16/7/98 to 5/8/98.
- Two weeks training on Agroforestry and Nursery management at various Research Institutes of Puerto Rico during 1989 (West Indies)
- One week orchid culture training at IIHR, Bangalore during 1985
- Training cum workshop in Environmental enrichment Organised by Zoo Outreach organization in collaboration with International Academy of Animal welfare Science and University Federation for Animal Welfare, UK at Trichur from 5-12 Sept 1994.
- Training on Internet and E- mail from 12-13th May, 1998 at KAU Head quarters
- Training on Digital Presentation from 27-28th March 2000 at KAU Library and information Centre
- Training on management development programme conducted by National Institute of Agrl. Extension Management, Hyderabad at Communication centre Mannuthy from 11- 15th of December 2000.

Shri. K Vidhyasagaran, Asst. Professor, Dept. of Forest Management & Utilisation

	Degree	Subjects	Institution	Year
1	**B.Sc.**	Botany	Calicut University	1981
2	**M.Sc.**	Botany	Calicut University	1983
3	**PG Diploma**	Forestry	Ministry of Environment & Forests, FRI, Dehra Dun.	1987
4	**Ph.D.**	Forestry	Forest Research Institute (Deemed University) Dehra Dun	Thesis to be submitted

Trainings attended

- Indo-US workshop cum training on Agroforestry system evaluation held at YMS Parmer University of Horticulture and Forestry, Solan from 3/10/91 to 15/10/91.
- Attended a workshop on wasteland in the Deccan with special reference to hill areas at Thiruvananthapuram during 24th and 25th April 1993.
- Attended a core faculty workshop on the preparation of compendium of model projects for Panchayats from 22/3/99 to 25/3/99 at Mannuthy.
- Short course on orientation for plant Genetic resources (PGR) policy and emerging intellectual property rights (IPR) issues conducted by NBPGR, New Delhi form 25/10/99 to 3/11/99.
- Attended core faculty training on Peoples campaign programme from 11/8/99 to 12/8/99

Shri. E V Anoop, Asst. Professor, Dept. of Wood Science

	Degree	Subjects	Institution	Year
1	B. Sc (Forestry)	Forestry	Kerala Agricultural University	1990
2	M.Sc (Forestry)	Forestry	Kerala Agricultural University	1993
3	Ph.D.	Forestry	ICFRE, Dehra Dun	Currently undergoing

Trainings attended

- Certificate in Computing (CIC) from the IGNOU, Kochi
- Certificate course in "Field Identification of important timbers of India: Basic principles and gross structure at FRI, Dehradun from February 12- March 5 1995.
- 6 Months Visual Basic, C ++ and Java at the Don Bosco Institute of Technology from March 1996-August 1996.
- 1 weeks short course on the Usage of GENSTAT and DATAPLUS at the Institute of Forest Genetics and Tree Breeding, ICFRE, Coimbatore, January 12-16, 1999
- Orientation training programme for NSS Programme officers, at Rajagiri College of Social Sciences, Kalamassery, Kochi.
- NNRMS special course on Digital Image Processing and GIS, at the Indian Institute of Remote Sensing (IIRS), NRSA, Dehradun from 3 Jan 2000 to 15th March 2000 (8 weeks).

Shri. S. Gopakumar, Assistant Professor, Dept. of Wood Science

Sl. No.	Degree	Subjects	Institution	Year
1	B.Sc. (Forestry)	Forestry	Kerala Agricultural University	1991
2	M.Sc. (Forestry)	Forestry	Kerala Agricultural University	1995

Training Programmes Attended

- Attended the "Bio-diversity Education Program" organised by the Kerala Forest Research Institute at Peechi, Trichur District, Kerala State from 22nd to 27th April 1999.
- Attended the training programme "Motivation for Development in Horticulture" organised by the Indian Institute of Horticulture Research (ICAR), Bangalore, Karnataka State from 21st to 28th September 1999.
- Attended the Training Programme "Role of Information Technology in Training" organised by the Trainer's Training Center of Avinashilingam Deemed University, Coimbatore, Tamil Nadu State from 4th to 8th December 2000.

Shri. P O Nameer, Asst. Professor, Dept. of Wildlife Sciences

	Degree	Subjects	Institution	Year
1	B. Sc (Forestry)	Forestry	Kerala Agricultural University	1990
2	M.Sc (Forestry)	Forestry	Kerala Agricultural University	1993
3	Ph.D.	Zoology	University of Calicut, Malappuram	Currently undergoing

Trainings attended

- Undergone a training on ***Conservation of Endangered Species*** at Mysore Zoo which was jointly organised by Wildlife Institute of India, Dehra Dun; Central Zoo Authority, New Delhi; and Mysore Zoo, India, during Nov.- Dec., 1995. (One month)
- Undergone a training on ***Tropical Conservation Biology***, **viz.** ***Advanced Training Program in the Conservation of Biological Diversity***, at Chicago, U S A, which was jointly organised by Field Museum of Natural History, Chicago Zoological Society and University of Illinois, Chicago, during Aug.- Dec. 1996. (Four months).
- Attended the "***Hands on Training Workshop in Amphibian Field Identification and Taxonomy***" held in Kukke Subramanya, Karnataka, from 14-18 December 1998.
- Undergone training on "***Scientific management of research data***" as part of the Summer Research Fellowship offered by Indian Academy of Sciences, at Centre for Ecological Sciences, Bangalore during 27th April to 27th June 2000. (Two months).
- Attended the Practical Workshop on "***Field Techniques, Taxonomy & Conservation of Bats of India and South Asia***", held in Madurai, from 6-9 July 2000.

Dr. B Ambika Varma, Asst. Professor, (belongs to Faculty of Basic Science, now on working arrangement at Department of Wildlife Sciences)

	Degree	Subjects	Institution	Year
1	B.Sc.	Zoology	University of Kerala	1968
2	M.Sc.	Zoology	University of Kerala	1970
3	Ph.D.	Zoology	University of Kerala	1977
4	Post Doctoral Training	Pest Management	Kerala Agricultural University	1977-79

Trainings attended

- Refresher course in Environmental Biology organised by Cochin University of Science and Technology (4th January 1999 to 30th January 1999)
- Interactive faculty / trainers training at IMG Barton Hill, Thiruvananthapuram August 1999.

Shri. MM Animon, Asst. Professor, Dept. of Wildlife Sciences

	Degree	Subjects	Institution	Year
1	B. Sc.	Forestry	Kerala Agricultural University	1992
2	M.Sc.	Forestry	Kerala Agricultural University	1996

Trainings attended

- Training program in mushroom cultivation, College of Horticulture, Kerala Agricultural University, 19th to 21st October 1995.
- Training in data analysis and report preparation using suitable IT programs at University of Glasgow, Scotland, United Kingdom, 15 days from 17th October to 31st October 1997.
- Certificate course in animal welfare at Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University, Madras,
- Training on the National Service Scheme, Rajagiri College of Social Sciences, Ernakulam, Kerala, 23–8-2000 to 1-9-2000.

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Annexure III. COURSES FOR B.SC. (FORESTRY) DEGREE PROGRAMME UNDER VARIOUS DISCIPLINES

1. SILVICULTURE AND AGROFORESTRY				
1.	Safo	101	Principles of silviculture	2+0
2.	Safo	102	Practice of silviculture	2+1
3.	Safo	203	Silvicultural systems	1+1
4.	Safo	204	Forest ecology	1+1
5.	Safo	205	Silviculture of trees	1+1
6.	Safo	206	Forest seed technology	2+1
7.	Safo	307	Principles of forest hydrology and watershed management	1+1
8.	Safo	308	Agroforestry	2+1
9.	Safo	409	Wasteland management	1+0
10.	Safo	410	Social forestry	1+0
				14+7 = 21

2. FOREST MANAGEMENT AND UTILIZATION				
1.	Fmau	101	Forest Mensuration	2+1
2.	Fmau	202	Forest tree propagation	1+1
3.	Fmau	203	Fundamentals of forest management	2+0
4.	Fmau	304	Harvesting and utilization	1+1
5.	Fmau	305	Forest protection	1+1
6.	Fmau	306	Environmental management	2+0
7.	Fmau	407	Forest policy and law	2+0
8.	Fmau	408	Forest recreation and urban forestry	1+1
				12+5 = 17

3. TREE PHYSIOLOGY AND BREEDING				
1.	Tpbr	101	Forest botany I	1+1
2.	Tpbr	102	Tree physiology I	1+1
3.	Tpbr	103	Forest botany II	2+1
4.	Tpbr	104	Tree physiology II	1+1
5.	Tpbr	205	Forest genetics	1+1
6.	Tpbr	306	Tree breeding	1+1
7.	Tpbr	307	Laboratory techniques and instrumentation	0+1
				7+7 = 14

4. WOOD SCIENCE				
1.	Wosc	101	Introduction to forestry	2+0
2.	Wosc	202	Wood anatomy	2+1

3.	Wosc	203	Wood science and technology	2+1
4.	Wosc	304	Forest products	1+1
5.	Wosc	305	Forest research methods	1+0
6.	Wosc	406	Wood based industries	2+0
7.	Wosc	407	Global forestry	1+0
				11+3 = 14

			5. WILDLIFE SCIENCES	
1.	Wild	201	Introduction to wildlife sciences	2+0
2.	Wild	202	Wildlife biology	1+1
3.	Wild	203	Ornithology	1+1
4.	Wild	304	Wildlife management and techniques	1+1
5.	Wild	305	Management of captive wildlife	2+1
6.	Wild	406	Wildlife conservation	1+0
				8+4 = 12

			6. AGRONOMY	
1.	Agro	101	Principles of crop production	2+1
*2.	Agro	102	Soil and water conservation	1+0
3.	Agro	203	Grassland and range management	1+0
				4+1 = 5

			7. CHEMISTRY AND SOIL SCIENCE	
*1.	Chem	101	Physical chemistry and biophysics	1+0
*2.	Chem	102	Biochemistry	2+1
*3.	Chem	203	Basic soil science	2+1
*4.	Chem	204	Soil fertility and soil biology	2+1
5.	Chem	305	Fertility management of forest soils	1+0
				8+3 = 11

			8. STATISTICS	
*1.	Stat	101	Mathematics	1+0
*2.	Stat	302	Statistical methods	1+1
*3.	Stat	303	Design and analysis of experiments	1+1
				3+2 = 5

			9. FOREST ECONOMICS	
*1.	Econ	101	Principles of economics	2+0

2.	Econ	302	Forest production economics	1+1
3.	Econ	403	Forest business management	1+0
				4+1 = 5

			10. FOREST ENGINEERING	
1.	Engg	201	Forest surveying	1+1
2.	Engg	302	Forest engineering	2+1
				3+2 = 5

			11. FOREST ENTOMOLOGY	
1.	Ento	101	Principles of forest entomology	2+1
2.	Ento	402	Economic entomology	1+1
				3+2 = 5
			12. FOREST PATHOLOGY	
1.	Path	101	Microbiology	2+1
2.	Path	202	Principles of forest pathology	2+1
				4+2 = 6
			13. FORESTRY EXTENSION	
1.	Extn	101	Psychology and extension education	1+0
2.	Extn	302	Forestry extension	1+1
3.	Extn	403	Forest and tribal welfare	1+0
				3+1 = 4
			14. METEOROLOGY	
1.	Metg	101	Principles of meteorology	1+1
2.	Metg	402	Photo interpretation and remote sensing	1+1
				2+2 = 4
			15. HORTICULTURE	
1.	Hort	201	Plantation crops	1+0
2.	Hort	302	Medicinal and aromatic plants	1+0
3.	Hort	303	Spices and fruit crops	2+0
				4+0 = 4
			16. BIOTECHNOLOGY	
1.	Biot	201	Principles of biotechnology	1+0
2.	Biot	302	Molecular biology	1+0
3.	WEBiot	201	Biotechnology I	0+1
4.	WEBiot	302	Biotechnology II	0+1

				2+2 = 4
			17. COMPUTER SCIENCE	
1.	Comp	101	Introduction to computer applications	1+0
2.	WEComp	101	Computer applications	0+2
				1+2 = 3
			18. PHYSICAL EDUCATION	
1.	*Phed	101	Physical education I	0+1
2.	*Phed	202	Physical education II	0+1
				0+2 = 2
			19. MULTIDISCIPLINARY COURSES	
1.	Stur	201	Study tour I	0+1
2.	Prwk	301	Project work I	0+2
3.	Stur	302	Study tour II	0+1
4.	Prwk	402	Project work II	0+3
5.	Ftrg	401	Practical forestry	0+2
6.	Ftrg	402	Forest range training	0+6
				0+15
			20. OTHER COURSES	
1.	Ftrg	403	Weapon training	S/US
2.	Ftrg	404	First aid training	S/US
3.	NCC	101	National Cadet Corps I	S/US
4.	NCC	102	National Cadet Corps II	S/US
GRAND TOTAL OF CREDITS				**93+63 = 156**

Annexure IV. CALENDAR OF ACTIVITIES OF RAWE OF BSC (FORESTRY) STUDENTS, KAU.

Nature of training	Location	Days
Wildlife Range	Neyyar Wildlife Sanctuary	20
Forest Training School	Forest Training School, Arippa	15
Working Plan	Working Plan Office, Thrissur	6
Territorial Range	Nilambur Range, Nilambur	20
LRS, Thiruvizhamkunnu	Thiruvizhamkunnu	4
AHADS, Attappady	AHADS, Attappady	4
IRTC, Mundur	IRTC, Mundur, Palakkad	4
Forest Depot	Forest Depot, Chalakudy	5
KFDC, Munnar	KFDC, Munnar	5
CRS, Pampadumpara	Pampadumpara	4
Seminar	COF, Vellanikkara	4
Weapon Training	CRPF camp, Ramavarmapuram	8
First Aid Training	Medical College, Thrissur.	7
	Total	**106 days**

Annexure V. EXTERNALLY AIDED RESEARCH PROJECTS COMPLETED AT COF

Sl. #	Title	Principal Investigator	Funding Agency	Amount Rs. lakhs
1	Provenance and species evaluation of certain selected Acacias	Anoop E V	ICFRE	5.89
2	Rain water conservation in coconut based agro-forestry systems by water harvesting techniques	Ashokan P K	ICAR	
3	Nutrient cycling in coconut based intensive multiple cropping system	Ashokan P K	ICAR	
4	Standardisation of Nursery techniques of selected tropical forest tree species	Gopikumar K	KFD	
5	Seed viability and germination studies in selected tropical forest tree species	Gopikumar K	KFD	
6	Nutritional deficiency symptoms and foliar diagnosis in tree crops	Gopikumar K	STEC, Kerala.	
7	Nutrient composition and decomposition of leaf biomass of selected woody species grown under rain fed condition	Gopikumar K	ICAR	
8	Habitat utilization of wild animal & their parasitic burden with special reference to elephants in Vazhachal Forest Division, Kerala.	Jacob V Cheeran	KFD	4.5
9	Light utilization and canopy nitrogen use efficiency of component crops in some selected agroforestry system	Mohankumar B	USDA	9.06
10	Studies on intercropping of forest trees with nitrogen fixing trees	Mohankumar B.	ICFRE	1.45
11	Exploitation of indigenous multipurpose species in selected Agro/ Social forestry systems	Mohankumar B.	KFD	5.35
12	Effect of habitat destruction on the avifauna of Western Ghats a case study at Peechi Vazhani wildlife sanctuary	Nameer P O	KFD	0.98
13	Compilation and preparation of "Checklist of Indian Mammals"	Nameer P O	KFD	0.60
14	Bird species richness at high altitude grassland shola forest of Munnar Forest Division	Nameer P O	KFD	1.69
15	Standersation of bare root nursery techniques of some important tree species used for agroforestry planting in Kerala	Sudhakara K	ICAR	5.22
16	Mineralisation of nitrogen in degraded soils under *Eucalyptus terticornis* and *Acacia auriculiformis*	Sudhakara K	KFD	0.67

17	Taxonomic inventory of higher plants in selected shola forests of Kerala and development of a computerised herbarium	Sudhakara K	KFD	2.12
18	Viability of *Hopea parviflora* seeds with reference to temperature, medium of storage, and micro-encapsulation technique	Sudhakara K	KFD	0.40
19	Phytosociological and litter dynamic studies in the selected shola forests of Nilgiri hills of Kerala	Vidhyasagaran K	KFD	2.15
20	Clonal propagation of rose wood	Vijayakumar NK	KFD	0.45
21	Micropropagation of Matti *Ailanthus triphysa* and bijasal *Pterocarpus marsupium*	Vijayakumar NK	ICAR	12.5

Annexure VI. M.SC. (FORESTRY) PROJECTS COMPLETED AT COF

	Title	Student	Year	Chairman
1.	Ecological studies of a Sacred Grove	Induchoodan, NC	1988	Dr.Luckins, C.Babu
2.	Anatomy and utilization of two cane species of Kerala	Mohan Varghese	1988	Dr. K.V.Satheesan
3.	Regeneration status of some important moist deciduous forest trees in the Trichur forest division.	Narayanan, I.V	1988	Dr. B.Mohankumar
4.	Spatial arrangement and harvesting schedule in a silvipastoral system	Sunil, P.L	1988	Sri. V.R.Krishnan Nair I F S
5.	Investigation on the production of healthy seedlings of teak in the nursery.	Syam, V	1988	Sri. V.R.Krishnan Nair I F S
6.	Comparative performance of three exotic tree species in social forestry strip planting in Trichur Social Forestry division	Nandakumar, G	1990	Dr.B.Mohankumar
7.	Stand density regulation in even aged teak plantations.	Prasoon Kumar	1990	Dr. B.Mohankumar
8.	Social behaviour, dominance hierarchy and reproductive behaviour of Sambar deer in captivity.	Krishna Kumar, R.	1991	Jacob,V. Cheeran
9.	Stand density manipulation and fertilization studies on teak.	Sanjaykumar, R	1991	Dr. B.Mohankumar
10.	Eco-physiological studies in tropical evergreen forest ecosystem of Nelliampathy area in Kerala	Sheik Hyder Hussain, S	1991	Dr.Luckins, C.Babu
11.	Biology of the seedling of sandalwood.	Taide, Y.B.	1991	Dr. Luckins C.Babu
12.	*In vitro* propagation of *Dalbergia latifolia* through tissue culture.	Mahato,K.C	1992	Dr.N.K.Vijayakumar
13.	Nutritional deficiency symptoms of *Ailanthus triphysa.*	Anoop,E.V	1993	Dr. K.Gopikumar
14.	Eco-physiological studies in disturbed forest ecosystem: A case study at Peechi – Vazhani Wildlife Sanctuary.	Nameer, P.O	1993	Dr. P.K.Ashokan
15.	*In vitro* propagation of Bijasal through tissue culture.	Santhoshkumar, A.V.	1993	Dr. N.K.Vijayakumar
16.	Biomass production and resource partitioning in Silvi-pastoral systems.	Suman, J.G	1993	Dr. B.Mohankumar

17.	*In vitro* propagation of Malabar white pine (*Vateria indica*) through tissue culture.	Ashok, B.D	1994	Dr.N.K.Vijayakumar
18.	Pheno - morphological studies of selected tree species in a tropical forest ecosystem.	Gopakumar, S	1994	Dr. Luckins, C.Babu
19.	Biomass production and root distribution pattern of selected fast growing multi-purpose tree species.	Jamaludheen, V	1994	Dr. B.Mohankumar
20.	Nutrient content and decomposition of leaf biomass of selected woody tree species	Kunhamu, T.K	1994	Dr. K.Gopikumar)
21.	Food and feeding habits of Asian elephants (*Elephas* maximus): A case study of Idukki wildlife sanctuary.	Vinod, T.R	1994	Dr. Jacob,V. Cheeran
22.	Clonal propagation of selected plus trees of Indian rosewood (*Dalbergia latifolia Roxb.*) through tissue culture	Kannan, C.S	1995	Dr.N.K.Vijayakumar
23.	Nutrient content and decomposition of leaf litter of *Acacia mangium* as affected by season and field conditions	Ramakrishna Hegde	1995	Dr.K.Gopikumar
24.	Habitat utilization of animals and their parasitic burden with special reference to elephants (*Elephas maximus indicus* Linn.) in Vazhachal Forest division, Kerala, South India	Animon, M.M	1996	Dr.Jacob.V.Cheeran
25.	Nutrient deficiency diagnosis in *Tectona grandis* L.F.	Jayamadhavan, A	1996	Dr.K.Sudhakara
26.	Evaluation of provenances for seedling attributes in teak (*Tectona grandis* Linn.F)	Jayasankar,S	1996	Dr.Luckins C.Babu
27.	Understorey productivity of agri-silvicultural systems as affected by tree population density and fertilizer regimes	Joseph Thomas	1996	Dr.B.Mohankumar
28.	Response of selected forestry and agroforestry tree seedlings to water stress	Rajesh.N	1996	Dr.P.K.Ashokan
29.	Viability of *Hopea parviflora* seeds with reference to temperature, medium of storage and microencapsulation techniques	Sunilkumar, K.K	1996	Dr.K.Sudhakara
30.	Provenance evaluation in the seedling characters of neem (*Azadirachta indica* A.Juss.)	Vinod S	1997	Dr.N.K.Vijayakumar
31.	Parasitic influence of sandal (*Santalum album* linn.) in common agricultural crops from the homesteads	Saju Varghese	1997	Dr.P.K.Ashokan

32.	Nutritional deficiency symptoms of teak (*Tectona grandis* linn. F.) seedlings	Viju Varghese	1997	Dr.K.Gopikumar
33.	Growth and nodulation characteristics of selected indigenous tree species	Harikrishnan Nair, G	1997	Dr.P.K.Ashokan
34.	Functional dynamics of an agri-silvicultural system involving coconut palms, multipurpose trees and kacholam	Sureshkumar S	1997	Dr.B.Mohankumar
35.	Karyomorphology and Isoenzyme variation in certain *Acacia* species	Mohd. Zainul Abideen KA	1998	Dr. N K Vijayakumar
36.	Nodulation behaviour of *Acacia mangium* in response to *Rhizobium* inoculation	Dhaneshkumar P	1998	Dr P K Asokan
37.	Root distribution pattern of bamboo (*Bambusa arundinaceae)* and associated competitive effects	Divakara B N	1999	Dr.B.Mohankumar
38.	In vitro propagation of *Ailanthus triphysa*	Natesha R	1999	Dr. N K Vijayakumar
39.	Soil Plant nutritional status of *Tectona grandis* in relation to age and site quality	Vimal M	1999	Dr. K Sudhakara

Annexure VII. LIST OF ONGOING EXTERNAL AIDED RESEARCH PROJECTS AT COF

Sl .#	Title	Principal Investigator	Funding Agency	Amount Rs. Lakhs
1	Role of macro and micro fauna in litter decomposition and plant production in natural forests and agroforestry system	Ambika Varma B	KFD	
2	Wood Quality studies of *Acacia* provenances	Anoop E V	KFD	4.41
3	Solid waste as a component of potting media for the seedlings of Agroforestry tree species	Gopikumar K	ICAR	
4	AICRP – on Agroforestry	Mohankumar B	ICAR	4 – 5 annually
5	FIST project on "Networking & computation facilities including internet facility in the Department of Silviculture & Agroforestry	Mohankumar B	DST	15
6	Human utilisation on the forests of Western Ghats and its effect on biodiversity	Nameer P O	KFD	2.02
7	Conservation strategies for a Dipterocarp *Hopea parviflora*) species through storage of seeds using different desiccation treatments, synthetic seeds and cryo preservation techniques	Sudhakara K	KFD	2.064

Annexure VIII. RESEARCH PUBLICATIONS OF THE FACULTY OF COF

a. Books and chapters in Book

1 Aravindakshan, M., Gopikumar, K., Dungama,D.B and Ratan,J (1987). *Stone Grafting in Mango*. KAU publication

2 Ashokan, P.K. and Mohan Kumar, B. 1997. Cropping Systems and Their Water Use. Pages 200-206. In: The Natural Resources of Kerala. K.B. Thampi, N.M. Nayar and C.S. Nair (Eds.) World Wide Fund for Nature – India, Kerala State Office, Thiruvananthapuram- 14.

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5 Gopikumar, K Jayasankar, S and Dhaneshkumar, P. (1999). *Forest nursery technology and Management*- KAU Publication

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7 Gopikumar, K., Harikrishnan Nair,K and PramodKrishnan (1995).*Hardwood timber trees -Silviculture and Manegement* -KAU publication

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V.A.Parthasarathy, T.K.Bose, P.C.Deka, P.Das, S.K.Mitra and S.Mohandas (Eds.), Naya Prokash, Calcutta

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Annexure IX. THE MAJOR ACCOMPLISHMENTS OF THE FACULTY OF COF

Dr. B Mohan Kumar

Peer recognitions

- Editorial Board member, Forest Ecology and Management, an international journal (Elsevier Science Publishers, The Netherlands) from 1990 to present. Till now, I have reviewed over 600 manuscripts submitted to this journal, for publication by authors throughout the world.
- Visiting Scientist in Forest Ecology and Silviculture, Utah State University, Logan Utah, USA (USAID postdoctoral fellowship: 1986-87)
- Team Leader for the Development of Tree Crops, Forestry, Arable Crops and Livestock Research Information System for the National Agricultural Research Project, Nigeria on behalf of Agricultural Research Services, London (1998)
- An Occasional reviewer for Agroforestry Systems, an international journal (Kluwer Academic Publishers, The Netherlands)

Other responsibilities handled

- Member, Task Force on Forestry and Wildlife for the preparation of ninth Five Year Plan document, State Planning Board, Trivandrum (1996).
- Member of the core team constituted by the Vice Chancellor, KAU for providing technical support to the Attappady Hill Development Agency. The Integrated Rural Technology Centre (IRTC) also commissioned me to prepare a report on Agroforestry Interventions in Watershed 8 of the project area in 1998.
- Member of the technical committee constituted by the Kerala Agricultural University for the implementation of the National Waste Land Development Board projects at Mancheshwar in Kasaragod district and Anakkayam in Malappuram district.
- Expert for formulating Forestry syllabus for the Tamil Nadu Public Service Commission (1993) (Forest Rangers and State Forest Service tests)

- Expert for screening candidates under MERIT UPGRADATION SCHEME of the University of Agricultural Sciences, Dharwad
- Consultant on Plantation Forestry, Monopolies and Restrictive Trade Practices Commission, New Delhi (1996), Kochi Refineries Ltd., New India Assurance Company and a number of tree growers (1990 onwards)
- Developed a training module on Seed Technology for Kerala Horticulture Development Programme.
- *Served as* external examiner and question paper setter of Tamil Nadu Agricultural University on numerous occasions.
- Selected as UGC Visiting Associate at the Jawaharlal Nehru University (could not join)
- Organised/participated in numerous extension training programmes as a resource person dealing with agroforestry and watershed development.
- Member-Convenor of the sub-committee of the KAU Executive Committee on disposal of trees in KAU farms (1993). I was also involved in a massive programme of afforestation and selective felling of trees in the various KAU farms and research stations. The University Executive Committee has placed on record their appreciation of the good work done by me in this respect.

Membership and service in Professional Organisations

- New York Academy of Sciences (1995)
- The American Biographical Institute Research Association (1995 and 1996)
- Indian National Science Congress (life member)
- Indian Society of Tree Scientists (life member)
- Association of Rice Research Workers (life member)
- Indian Society of Agroforestry (life member)
- International Society of Tropical Foresters (1988-1995)
- Nitrogen Fixing Tree Association (1988-1995)
- Society of American Foresters (1988-1995)
- Indian Society of Ecology (1989-91)

Scholarships and Fellowships

1976-78	Kerala Agricultural University Research Fellowship
1980-83	IARI Senior Research Fellowship
1986-87	USAID Visiting Fellowship
1996	International Cultural Diploma of Honour and Man of the Year award of the American Biographical Institute Inc, USA
1997	Member, Research Board of Advisors of the American Biographical Institute Inc, USA.

Dr. K Sudhakara

Landmark contribution: Developed synthetic seeds of cocoa from zygotic embryos. Standardised the pre-treatment of albizia seeds and found out the presence of an inhibitor in the seed coats of these seeds. Fungicide (Emisan) treatment had palliative effect in preventing the chilling injury of hopea seeds. Synthetic seeds of hopea extracted from zygotic embryo were successfully stored in wet cotton medium up to one month at 10°C.

Membership in professional bodies:

- Life member of the Indian society of tree scientists.
- Life member of the Indian Society of Seed Technology.
- Member of the Society of American Foresters from 1987 to 1991.
- Member of the Mississippi Forestry Association during 1987-88.

Fellowships

- USAID Fellowship under the ICAR/USDA Forestry Faculty Development Programme from 1987 to 1988.
- The Commonwealth Post-Doctoral Fellowship at the University of Aberdeen, Aberdeen, U.K. from May 1989 to April 1990.

Awards and Distinctions

- State Merit Scholarship during Pre-Degree Course (1970-72)

- ICAR Scholarship during B.Sc.(Ag) (1972-76)
- Graduate Research Assistantship during M. Sc.(Agron)(1977-80)
- ICAR Senior Fellowship during Ph. D. (1981-85)
- USAID Fellowship (1987-88)
- Commonwealth Post-Doctoral Fellowship (1989-90)

Mr. T K Kunhamu

Membership in professional bodies:

- Member of Indian Society of Tree Scientists, Dehra Dun
- Member of Indian Society of Agroforestry, NRCAF, Jhansi
- Member of Nature Education Society, Thrissur

Honour /awards /scholarships:

- Selected in Agricultural Research Service and worked as Scientist (Forestry) at Central Arid Zone Research Institute, Jodhpur (27-11-1997 to 12-8-1998)

Dr. N K Vijayakumar

Salient findings in forestry

- A commercially viable protocol for the micropropagatoion of rosewood (*Dalbergia latifolia*) has been standardized.
- In matti (*Ailanthus triphysa*), which is a multipurpose tree species of great importance in agroforestry, clonal propagation through micropropagation has been standardized.
- A karyomorphological study conducted in four species of acacias, namely, *A. mangium, A. auriculiformis, A. ferruginea* and *A. nilotica,* has shown that the former three species have a diploid number of 2n = 26 while the latter (*A. nilotic*) has 2n = 52. This indicates the possible polyploid origin of this species. In an analysis of the isoenzymes estrase and glutamate oxaloacetate transaminase (GOT), altogether seven bands were obtained in the four species with three bands for the former and four for the latter. From the cytological and isoenzyme studies

it is suggested that *A. auriculiformis* and *A. mangium* are strongly related while *A. ferruginea* and *A. nilotica* are distinctly different.

- Evaluation of eight provenances of neem (*Azadirachta indica*) from the peninsular India for their performance at the seedlings stage has revealed that they fell into four genetic groups. The inter-cluster distance varied between the different groups. Based on the banding pattern of the isoenzyme peroxidase, however, the eight provenances were classified in to two groups only. Thus the genetic distance measured by D^2 method and isoenzyme analysis did not correlate with each other probably because only one enzyme was analysed.

- Attempts on the micropropagation of two forest tree species, namely, white pine (*Vateria indica*) and bijasal (*Pterocarpus marsupium*) have been attempted. Success has been achieved in inducing shoot growth from the axillary buds in the *in vitro* cultures of the nodal explants. However, multiple shoot production, root induction from the microshoots etc. is yet to be standardized.
- Micropropagation protocol has been standardized in one of the most important tropical forest tree species, viz., teak (*Tectona grandis*). Shoot induction from the axillary buds is achieved in medium MS supplemented with growth regulators. Hundred percent of the microshoots have been found to produce roots under artificial rooting medium. The plantlets have been subjected to hardening and acclimatization procedures and successfully transferred to the field.

Dr. P K Asokan

Salient Contributions:

- Slow release urea bags suitable for tree fertilization was identified and the urea release pattern studied.
- Varieties of tuber crop- varieties suitable for the Central Kerala were identified
- Rhizobia spp. effective in nodulating indigenous and exotic trees were isolated and their N-fixing efficiency studied and superior isolates identified.
- The water stress tolerance of the important multipurpose tree species were studied and the morphological and physiological factors contributing to the stress

tolerance were reported.

- The water stress tolerance in black pepper was also studied. The morphological, physiological and biochemical mechanisms of water stress tolerance in black pepper varieties were studied and tolerant varieties identified.
- The host – parasite relationships in sandal were studied. The mineral nutrient and carbon translocation in sandal and host were studied. The parasite – nature of sandal on common agricultural crops were also studied and the potential sandal as a component of agroforestry systems were reported.
- The litter fall, litter decomposition and nutrient cycling in coconut-based agroforestry systems were studied its implications in nutrient management in such agroforestry systems reported.
- From field experiments *Casuarina* and *Ailanthus* were identified as fast rotation intercrop trees for seedling plantations of coconut.

Dr. K Gopikumar

Fellowships and scholarships awarded for higher studies:

- US AID Fellowship for undergoing Post Doctoral programme in USA during 1988-89.
- ICAR Senior fellowship for undergoing Ph.D programme in Horticulture during 1979-82 (Secured first rank)
- Kerala Agrl.University research fellowship for undergoing M.Sc programme in Horticulture during 1976-78.

Major achievements

- Established two blocks of arboretum and blocks of asexually propagated tree species and woodlot as apart of the Instructional farm of College of Forestry, where more than 200 forest tree species have been planted and maintained. Growth behaviour of most of these species has been evaluated.
- Established a good nursery in the premises of the college where more than 1,00,000 tree seedlings of various commercial forest tree species have been

produced and distributed to farmers, research stations, colleges etc. through sales counter

- A very good museum and instrumentation lab has been established in college as central facilities
- Conducted more than ten different training programmes for gardeners, unemployed youths, agricultural officers, railway engineers, forest Range officers, foresters, house wives and SC/ST youths on various aspects of forestry, horticulture, tree nursery, propagation, floriculture etc. as course Director
- Stone grafting methods in mango, vegetative propagation techniques in commercial tree species, standardization of potting media, shade, irrigation, containers etc. on tree growth, leaf litter decomposition and nutrient release pattern, nutritional disorders of tree species etc. were thoroughly investigated.
- The curricula of the department of Forest Management and Utilization for B.Sc. and M.Sc. forestry programmes were revised.
- A number of floriculture projects were initiated and completed while working as head of AICFIP from 1982-88
- Associated with establishing university botanical garden, Central Nursery and College of Horticulture orchard
- Detailed plan and estimate for landscaping and tree planting were prepared for Thekkinkadu maidan (Trichur Municipality),Vadakkunnatha temple (Devaswam Board), VilanganKunnu (District Tourism Promotion Council), District Collectorate, Mental Hospital, Central Prison,Civil Station premises, Police Camp,Medical College premises etc (Trichur Agri.Horticultural Society).
- Consultancy services were rendered for various commercial establishments, educational institutions, semi Govt. Organisations and other public on tree planting, landscaping, nursery establishment, plant protection etc.
- Acted as Associate patron of students union (1993-95), Staff advisor of Social service league (1989,91) Planning Forum (1990,96) and Arts club (1992)

Membership in professional bodies and organisations

- Life member of Indian Society of Tree scientists (currently Zonal councellor for South India)
- Life member of South Indian Horticultural Society
- Life member of Kerala Society for Horticultural Science
- Life member of Trichur Agrl. Horticultural Society (currently Joint Secretary)
- Life member of Trichur Cut Flower Society
- Life Member of Zoological and Environmental Society (Currently the Treasurer)
- Member of Lions club

Dr. K Vidhyasagaran

Membership

- Core Faculty member of People's campaign cell, Kerala Agricultural University under the control planning board.
- State level academic committee member of Environment centre of Kerala Sastra sahythya parishat, an NGO for popularization of science.

Mr. E V Anoop

Memberships in professional societies:

- Indian Society of Remote Sensing, Dehradun
- GIS @development - CSDMS, New Delhi
- Indian Society of Wood Science, IWST, Bangalore

Honour /awards /scholarships:

- Qualified the written exam of Indian Forest Service Examination (IFS), 1998
- Qualified the National Eligibility Test for recruitment of Assistant Professors and lecturers in state Agrl. Universities, conducted by ASRB, ICAR, New Delhi.
- Kerala Agrl. University merit scholarships 1991-93.
- IInd Rank M Sc Forestry 1991-93.
- Kerala Gazetted Officer's Co-operative Society merit scholarships (1984-85).

Membership in University Committees and Task Force:

- Centre for land Resources Research & Management (CLRR&M)
- Gender studies in Agriculture
- Biodiversity & Botanical gardens
- Centre for research in Tropical Agriculture, KAU
- Exhibition committee

Salient achievements in the field of forestry:

- Screened provenances of *Acacia mangium*, *A. auriculiformis*, *A. aulacocarpa* and *A. crassicarpa* suitable for planting under Kerala conditions, based on growth, adaptivity and wood quality parameters and a seed production area of the best performisng provenance is being developed.
- Developed a 3D campus GIS for the IIRS campus.
- Nutrient deficiency symptoms of Ailanthus (*Ailanthus triphysa*) were induced under sand culture conditions , based on which visual identification of nutrient deficiencies can be identified for suggesting remedial measures.

Mr. P O Nameer

Brief note on the professional attainments

- The "Checklist of Indian Mammals" prepared by him is the only existing checklist on the Indian mammals.
- There are 422 species of Mammals in the country (as against the earlier Checklist as per which there were only 350 species).
- Forty one species of mammals are endemic to India of which 16 are Western Ghats endemic
- Bats (Chiroptera) constitutes the largest mammalian group in the country, followed by rodents (rats, mice, squirrels etc)
- Insectivores, bats and rodents constitute about 60% on Indian mammals
- 75% of mammals endemic to the country belong to the groups such as Insectivores, bats and rodents

- Prepared checklists of the birds of most of the protected areas of Kerala, which is an important baseline data on the fauna of the State.
- Habitat destruction has been found to adversely affecting the bird fauna in Western Ghats. The species of birds that affected the worse were Accipitridae, Strigidae, Podargidae, Muscicapidae etc
- Total of 76 species in 12 orders and 30 families have been reported from the Mannavan Shola and the surrounding area. This includes 52 species of resident birds, out of which 9 are endemic to Western Ghats, and 15 species that are long distance migrants
- The ten most abundant species at both these study sites were Grey-breasted Laughingthrush (White-breasted Laughingthrush), Grey-headed Flycatcher, Greenish Leaf Warbler, White Eye, Velvet-fronted Nuthatch, Black and Orange Flycatcher, Brown-cheeked Fulvetta (Quaker Babbler), Nilgiri Flycatcher, Malabar Whistling Thrush and Yellow-browed Bulbul
- Added fourteen new species of birds to the existing checklist of Kerala birds (Ali, 1969) that was not recorded by Dr. Salim Ali. The contribution has been acknowledged in the latest publication on Kerala Birds viz. "A Book of Kerala birds" by K K Neelakantan *et. al.* (1995).
- Thorough field knowledge on the southern Western Ghats
- Associated in the preparation of the modified syllabus for the undergraduate courses of Department of Wildlife Sciences, College of Forestry, KAU.
- Prepared the practical manual for the courses Ornithology (1+1), Wildlife Biology (1+1) and RAWE for the BSc (Forestry).

Professional Societies and Honour

- Kerala State coordinator of "Indian Bird Conservation Network" since 2000, which is a network of the birdwatchers of the country. IBCN is a collaborative project of Birdlife International, U K, Royal Society for the Protection of Birds, U K and Bombay Natural History Society

- International Waterfowl Census (IWC) Kerala State coordinator, since 1992. The IWC is organised by Wetlands International, U K and Asian Wetlands Bureau, Malaysia.
- Member of Oriental Bird Club, U K.
- Member of World Conservation Union (IUCN), Gland, Switzerland.
- Coordinator of bird projects of Nature Education Society, Trichur (NEST), Kerala and the Secretary of NEST
- Member of Ornithological Society of India
- Member Conservation Breeding Specialist Group, India
- Member Zoo Outreach Organisation, Coimbatore
- Member Bombay Natural History Society, Mumbai.
- Member Chiroptera Conservation and Information Network, South Asia
- Member Rodents, Insectivores and Scandentia Conservation and Information Network, South Asia
- Member of the "State Committee for the revision of Management Plans of Wildlife Sanctuaries, Kerala"

Additional responsibilities held at COF & KAU

- Officer in charge of Sports and Games, since 1995
- Officer in charge earn while you learn programme, since 1998
- Course co-ordinator of Rural Agricultural Work Experience (RAWE) programme of College of Forestry, since 1999
- Course coordinator of Forest Range Training programme from 1995-1999
- Student advisor of Quiz Club, College of Forestry
- Resource person for GALASA (Group Approach for Locally Adapted Sustainable Agriculture) of Kerala Agricultural University
- Member Research and Analysis Cell (RAC) of Kerala Agricultural University
- Member Elephant Study Centre, KAU
- Member Centre for Agrobiodiversity, KAU
- Member Itty-Achuthan memorial Botanical Garden, KAU

Annexure X. ICAR PROFORMA ON "ACCREDITATION FOR QUALITY ASSURANCE IN AGRICULTURAL EDUCATION, THE SELF STUDY REPORT" OF COLLEGE OF FORESTRY, KERALA AGRICULTURAL UNIVERSITY

1. **State** : Kerala
2. **Name of the University to which college belongs** : Kerala Agricultural University
3. **Name of the College with address** : College of Forestry
   Vellanikkara
   Kerala Agricultural University P.O.
   Thrissur – 680 656

   Telephone : 0487-370 050
   Fax : 0487-370 019
   E-mail : kauhqr@ren.nic.in

4. **Name of the Associate Dean** : Dr.Luckins C. Babu
5. **Date of establishment** : March, 1986
6. **Goals and objectives:** To train professionals in Forestry so that they can take up the challenges for the conservation and management of natural resources of the country in an effective manner.

Goals:

(a) Achieve excellence in teaching at under graduate and post graduate levels in Forestry

(b) Achieve excellence in research in both basic and applied aspects in the different disciplines of Forestry

(c) Provide technically qualified and competent forestry personnel to various agencies engaged in the field

(e) Create awareness among the public about the importance of forests and scientific forestry.

Objectives:

Considering the above goals, the specific objectives of the college of forestry are listed below:

(a) To offer B.Sc. (Forestry) programme

(b) To offer M.Sc. (Forestry) programme with specialisation in different disciplines of forestry

(c) To carry out research in basic and applied aspects of forestry to solve the existing problems of the region and also to make forestry a viable commercial enterprise

(d) To take up extension activities in forestry and to cater to the needs of the end users and give technical professional support to social forestry and agro-forestry programmes of the State and Central governments.

7. Programmes offered with duration

	Programme	Duration
UG	B.Sc. (Forestry)	4 years
PG	1)M.Sc. (Forestry) in Silviculture and Agroforestry	2 years
	2)M.Sc (Forestry) in Tree Physiology and Breeding	2 years
	3)M.Sc. (Forestry) in Wildlife Sciences	2 years

7.1 Are the programmes implemented on schedule as prescribed in the prospectus? Yes

8. Total Staff Position

Category of Staff	Number
Faculty	16 (three on study leave)
Technical	Nil
Administrative	7
Supporting	7

8.1 Whether all faculty including Research and Extension participate in teaching? Yes

9. Administrative structure of the College

<table>
<tr><td colspan="8">Associate Dean</td></tr>
<tr><td colspan="5">Teaching, Research, Extension</td><td colspan="3">Administration</td></tr>
<tr><td rowspan="2">Dept. of Silviculture and Agroforestry</td><td rowspan="2">Dept. of Tree Physiology and Breeding</td><td rowspan="2">Dept. of Forest Management and Utilization</td><td rowspan="2">Dept. of Wildlife Sciences</td><td rowspan="2">Dept. of Wood Science</td><td colspan="3">Administrative Officer</td></tr>
<tr><td colspan="3">Section Officer</td></tr>
<tr><td>Head of the Dept.</td><td>Head of the Dept.</td><td>Head of the Dept.</td><td>Head of the Dept.</td><td>Head of the Dept.</td><td rowspan="4">Office Assts.</td><td rowspan="4">Typists</td><td rowspan="4">Peons</td></tr>
<tr><td>Faculty</td><td>Faculty</td><td>Faculty</td><td>Faculty</td><td>Faculty</td></tr>
<tr><td>Supporting staff and labourers</td><td>Supporting staff and labourers</td><td>Supporting staff and labourers</td><td>Supporting staff and labourers</td><td>Supporting staff and labourers</td></tr>
</table>

10. Planning process (Institutional planning and priority setting process)

The Departmental heads hold preliminary discussions with the faculty to chalk out the research and developmental activities of the respective Departments on short term and long-term basis. The proposals are further presented in the staff council of the College. The Institutional planning is finalised at this level and depending on the urgency and relevance of the various proposals from the Heads of the Departments.

The priority of the various programmes is fixed in the staff council taking in to consideration of the availability of funds and urgency of the programmes.

11. Faculty

11.1. Core Faculty:

Is there a core faculty concept existing: Yes

11.2. Department-wise Faculty Positions

Department	Number of faculty positions sanctioned			Faculty position filled		
	Profe - ssor	Assoc. Professor	Asst. Professo r	Profe-ssor	Assoc. Profe-ssor	Asst. Profe-ssor
Dept. of Silviculture and Agroforestry	Nil	2	Nil	Nil	2	Nil
Dept. of Tree Physiology and Breeding	2	1	Nil	2	1	Nil
Dept. of Forest Management and Utilization	Nil	1	3	Nil	1	3
Dept. of Wood Science	Nil	Nil	2	Nil	Nil	2
Dept. of Wildlife Sciences	Nil	Nil	3	Nil	Nil	3
Total	**2**	**4**	**8**	**2**	**4**	**8**

11.3. Faculty Credentials

Department	Ph.D.	M.Sc.	Post Doc.
Dept. of Silviculture and Agroforestry	2	Nil	2

Dept. of Tree Physiology and Breeding	3	Nil	3
Dept. of Forest Management and Utilization	2	2	1
Dept. of Wood Science	Nil	2	Nil
Dept. of Wildlife Science	1	2	1
	8	6	7

11.4. How is the appointment of Associate Dean done: Direct selection

11.5 Does the Associate Dean teach? If yes, how many classes in a year

Yes, 4 courses: 90 lectures & 72 practicals

11.6 How is the Head of the Department appointed?

Normally the senior most faculty member of the Department, not below the rank of Assoc. Professor, is declared as the Head of the Department by the University.

11.7. Tenure of the Head of the College: 5 years

11.8 Tenure of the Heads of the Departments: Till superannuation

11.9 Promotional policies for faculty. Please give detailed criteria:

All the newly created posts are advertised nationally and selections are made by a selection committee, constituted by the University with the Vice- Chancellor as the Chairman. Besides, to avoid stagnation of the faculty, there is an upgradation programme as per UGC/ICAR norms:

11.10 Incentives and rewards for good performance. Please give examples

1. Academic staff: The Academic staff who receive state level and national level awards are given recognition by the university in the General Council meetings of the University. At the University level action has been initiated to select the "best teacher" award as per the norms of ICAR. 2. Management staff: As it is, there is no programme for the motivation of the management staff. But the Vice-chancellor of the University has taken some steps to motivate the management staff. The administrative staff at various

levels is given advanced management trainings, including computer training. The Administrative Officer, the Section Assistant and the Steno to the Associate Dean were sent for the management training conducted by the Directorate of Extension, KAU.

11.11 Faculty Recruitment and Transfer Policy:

a) Recruitment

Advertised nationally	Yes
ICAR prescribed norm including NET followed	Yes

b) Transfer policy

The transfer policy of the University is followed. The faculty after three years is sent to the field and field-experienced faculty is brought back to the College.

11.12 Faculty composition for the last 4 years

Number of faculty positions						
Year	Professor		Assoc. Professor		Asst. Professor	
	From within the State	From out of the State	From within the State	From out of the State	From within the State	From out of the State
1997-98	2	0	4	0	7	0
1998-99	2	0	4	0	8	0
1999-2000	2	0	4	0	8	0
2000-2001	2	0	4	0	8	0

11.13 Faculty Development: Give brief description of the policy

The faculties are given ample opportunity for undergoing refresher courses, summer institutes, workshops, training programmes, short courses etc. in their respective disciplines, which are arranged in other Universities with in the country. Sufficient funds are earmarked for this purpose under Plan allocations. In addition, they

have ample opportunity for getting deputed for attending National and International symposia organised with in the country so that their research findings can be presented and exchange of information between scientists of related disciplines are made possible. Provision for study leave as well as leave for study purposes are available for the faculty members (subject to eligibility criteria) for enhancing their educational qualifications and/ or research knowledge.

a) Indicate percentage of faculty who attended various development programmes during last 4 years

Department	Faculty Development Programmes									
	Refresher course/ summer & winter courses		Study leave		Sabbatical leave		Workshop/ seminar/ National Symposium		International symposium attended or foreign visits	
	No. of faculty	%	No. of faculty	%	No. of faculty	%	No. of faculty	%	No. of faculty	%
Dept. of Silviculture and Agroforestry	2	100	Ni	0	Ni	0	2	100	1	50
Dept. of Tree Physiology and Breeding	1	33	Nil	0	Nil	0	3	100	1	33
Dept. of Forest Management and Utilization	4	100	2	50	Nil	0	4	100	1	25
Dept. of Wood Science	1	50	1	50	Nil	0	1	50	0	0
Dept. of Wildlife Science	3	100	Nil	0	Nil	0	3	100	1	33

b) Is the faculty development experience used in the area of training: Yes

11.14 Faculty achievements: Number of faculty members who received recognition for the last 4 years

College level	University level	National level	International level

Nil	1 (Good service entry)	2 (Editorial board member)	1 (Editorial board member)

11.15 Faculty Training

Number of faculty with the highest degree received locally, Nationally and Internationally

Highest Degree	Professors	Assoc. Professor	Assistant Professor	% of total
Same University			2	12.5
Other University within State			2	12.5
Out of State			3	18.75
Foreign Country	2	4	3	56.25
	2	**4**	**10**	**100**

11.16 Faculty strengths

a) National and International conferences organized

Type of Conference	Number of Conference	
	National	International
Symposia	Nil	Nil
Seminars	1	One
Workshops	1	One
Summer Institutes	Nil	Nil
Special Lectures	Aprox. 25	Nil
Others: Training for Forest Dept. officials	2	Nil

b) Does your faculty possess competence to conduct international training Programmes. Indicate the departments, which have competence to conduct international training programmes : Yes

Department of Silviculture and Agroforestry

Department of Tree Physiology and Breeding

Department of Forest Management and Utilization

Department of Wildlife Sciences

Department of Wood Science

12. Students and Student Development

12.1 Details of Under-Graduate and Post-Graduate Programmes in the College

UNDER-GRADUATE PROGRAMME

Degree	Year started	Approved seats	Actual Enrollment	
			Year established	Current year
B.Sc. (Forestry)	1986	20	15	17

POST-GRADUATE PROGRAMME

Degree	Year started	Approved seats	Actual Enrollment	
			Year established	Current year
M.Sc. (Forestry)	1986	6	6	-
M.Sc. (Forestry) in Silviculture and Agroforestry	*1993	4	4	1
M.Sc. (Forestry) in Tree Physiology and Breeding	*1993	4	2	4
M.Sc. (Forestry) in Wildlife Sciences	*1993	1	1	1

* From 1986 to 1992 M.Sc. (Forestry) degree was awarded and the Department-wise specialization was started in 1993

12.2 Students retention data for last 4 years

Graduating year	Admitted			Dropped		Appeared in final examination		Percentage passed	
		M	F	M	F	M	F	M	F
1996	UG	8	0	0	0	8	0	100	-
	PG	9	0	2	0	7	0	100	-
1997	UG	9	0	2	0	7	0	100	-
	PG	5	0	3	0	2	0	100	-
1998	UG	9	2	0	0	9	2	100	100
	PG	8	0	1	0	2	0	100	-
1999	UG	8	2	0	0	7	2	100	100
	PG	4	0	2	0	0	0	0	-

12.3 Composition of Students

Students from	Under-graduate		Post-graduate	
	Year established	Current year	Year established	Current year
Within the State	15	10	6	5
Out of the State	0	0	0	1
Foreign	0	0	0	0
Total	15	10	6	6

12.4 Admission Policy

a) Are student admission policies clearly defined and conforms to the ICAR norms: Yes

b) Basis for Admission

UG: Through common Entrance Examination conducted by the Board of Entrance Examinations of the State.

PG: Through the Qualifying Examination conducted by the University

12.5 Student Reservation

Category	UG	PG
General	8	
SC	1	
ST	Nil	
OBC (SEBC)	4	
Farmer's ward	Nil	
Others (Regional)		
TC merit	1	
Malabar merit	1	
ICAR nominee	2	2

12.6 Student Evaluation

Examination	UG		PG	
	Theory	Practical	Theory	Practical
Internal (percentage)	40	100	100	100
External (percentage)	60	Nil	Nil	Nil
Other (specify) (percentage)	Nil	Nil	Nil	Nil

12.7 Frequency of Student Evaluation

	UG	PG
Monthly		
Quarterly		
Semester-wise	X	X
Others		

12.8 Mode of Student Evaluation

Mode	UG	PG
Quiz/Test	X	X
Assignment	X	X
Term Papers	X	X
Seminars		X
Others (specify)	Practical exams	

12.9 Student involvement in RAWE/ equivalent programme

Is there a separate coordinator for the programme: Yes

Is there s student feedback mechanism established. If yes, provide examples of feedback received:

Feed back on RAWE is received from the students as well as from the officials of the Kerala State Forest Department, Kerala Forest Development Corporation, various NGOs, scientists of the various Research Stations of the University etc. where the students has been undergoing their off campus training programme.

12.10 Students achievements in national competitions

Year	JRF	SRF	ARS-NET	IFS	IAS
1990 to 94	7	4	13	0	0
1995 to98	1	0	0	1	0
Current year	1	0	0	1	1

12.11 Sports and Physical Education

Facilities available		Infrastructure
Games	Cricket	Mat, balls, bats, pads, gloves etc.
	Football	Balls, boots
	Basket ball	Balls
	Volley ball	Balls
	Shuttle badminton	Rackets, balls etc
	Table tennis	Table, racks, balls etc.
	Hockey	Sticks, balls etc.
	Ball badminton	Rackets, balls etc
Athletics		Spikes, Javelin, shots, hammer, poles etc.
Gymnasium		12 station multigymn

12.12 Participation of students in sports

Level of participation	Name of sport	Award/recognition
College	Cricket Football, Basketball, Volley ball, Shuttle badminton	Trophy for cricket in 1988,89,90,92,98 Trophy for shuttle in 1987,88,89,90,91, 96,97 Basketball: 89,90,91,92,93 Volley ball: 92,93
University	Cricket, Foot ball, Basketball, Volley ball, Shuttle badminton	Nil
State	Nil	Nil
National	Power lifting	Secured second position at national level
International	Nil	Nil

12.13 Does the college have a Physical Education Instructor: The Physical education courses of the B.Sc. (Forestry) courses are being offered by the Physical Education Instructor of the College of Horticulture, which is in the very same campus.

12.14 Student involvement in NCC

Is the NCC compulsory?	UG:	Yes
	PG:	No
If yes, percentage of students participating	UG:	100
	PG:	0

12.15 Does the college have cultural activities programme: Yes

If yes, please give a brief description:

Students Union of the college is a body in which all the students and teachers are members. The Associate Dean is the Patron, one of the teachers is nominated as the Associate Patron. The other office bearers of the Union are elected from among the students. The Student's Union has various clubs under the guidance of staff advisors and is functioning to promote extra-curricular activities of the students. Various cultural activities at the College level as well as at the University level are also organised to cultivate interest among the students.

12.16 Student Financial Aid

Indicate the number of students who received financial aid during last year

Source	Under graduate Students No.	Post graduate Students No.	Research Scholars No.
Central Govt.	Nil	Nil	Nil
ICAR	2	1	Nil
State Govt.	Nil	1(JRF)	Nil
University	6	3	Nil
College	Nil	Nil	Nil
Others	Nil	Nil	Nil
Total	8	5	Nil

12.17 Student Counseling and Placement Services

Does the college maintain a student counseling and placement services:

There is career guidance and counseling centre at the University level.

Year-wise data of student placement for last 4 years

Category	Number
Total number of graduates	
UG	35
PG	17
a) Joined Government service	
UG	11
PG	17
b) Joined Industry	
UG	1
PG	0
c) Self employment	
Farming	
UG	1
PG	0
Business	
UG	2
PG	0
d) Further Education	
UG	20
PG	0
e) Other (specify)	

12.18 Alumni affairs

a) Alumni association

Is there an Alumni association in the college?: Though right now there is no Alumni association, an Alumni association is in the offing.

b) Alumni achievements: Alumni holding top national and international positions

The Alumni of the College of Forestry have performed exceptionally well and are holding coveted positions in the national and international level. Some of the key positions held by the Alumni of the College are listed below,

1. Rajeev G R – is scientist in national laboratory, U S A
2. Shibu Jose - is Asst. Professor in University of Florida, U S A
3. Suman Jacob George and Suresh P B - received a fellowship for higher education in Australia.
4. Syam Parameswaran and Satchith P V – received a fellowship for higher education in Canada.
5. Anilkumar R - received a fellowship for higher education in U S A.
6. Suresh Kumar S – bagged 2nd rank in IAS exam.
7. Pramod G Krishnan and Rajesh S – have qualified the IFS exam.
8. Minood C R – Manager in NABARD
9. Tino Thomas – is the only student from the Kerala State to have secured admission to the prestigious National Institute, "Manage", at Hydrabad, for Agribusiness Management during '99-2000
10. Nearly 60% of the graduates passed out have been absorbed in the Kerala Forest Departments as Range Officers.
11. Eight postgraduates of the College are right now working as Assistant Professors in the College and two are working as scientists at National Institutes.

13. Academic Programmes and Curricula

13.1 Medium for Instruction: English

13.2.1 Does your institution follow academic regulations, course curricula and courses recommended by Dean' committee as accepted by ICAR.

No

Presently the College of Forestry is following the curricula prepared as per the guidelines laid out in the Faculty of Agriculture, Kerala Agricultural University. The curricula have been approved by the Academic Council of the University. Action is being initiated to revise the curriculum in the line of the recommendation of the Dean' Committee as accepted by the ICAR. The present curriculum is in tune with the proposed curriculum by the Dean's committee.

13.3 (a) Mechanism/Bodies for course curriculum development at college level

The course curriculum is prepared by the subject expert/s in the respective departments. This is discussed in a department level meeting and is modified/ revised. This draft is presented in the college council and suggestions are incorporated before its finalisaton. This is then sent to at least two external experts for critical evaluation and comments.

(b) Mechanism/Bodies for course curriculum development at university level.

Board of Studies: Each faculty has a Board of Studies headed by the Dean of the faculty and all Heads of Departments in the constituent colleges as members. In addition, there are representatives of the students, experts from other universities as well as nominees from out side the university.

The syllabus prepared by the Faculty of the College is presented to the Board of Studies along with the comments of the external experts. It may accept the syllabus or suggest for resubmission after appropriate modifications.

Academic Council: The Academic council of the University is headed by the Vice Chancellor and the members include all the directors and deans of the University, representatives of students and faculty, and external experts nominated by the Vice Chancellor.

The course curriculum after approval of the Board of Studies will be submitted to the Academic Council. Once it is approved in this apex academic body of the university, the syllabus will be implemented in the college.

(c) PG thesis evaluation system

M.Sc. External

13.4 Course/ curricula approval process

Name of the course/ curricula	Date of initiation of the course	Date of approval by the Board of Studies	Date of approval by the Academic Council	Date of implementation of the programme
B.Sc. (Forestry)	1986	1986 1995 (Revised)	1986 1995	1986 1995
M.Sc. (Forestry)	1986	1986	1986	1986

13.5 The courses/ curricula communicated through: College handbook

13.6 Indicate the College uses to encourage teaching-learning process

a) Instructional methods

Forestry being a filed oriented course a combination of most advanced instructional method coupled with the conventional classroom instruction is followed in the academic programme. Greater emphasis is given to the field trips and associated exercises. All the following types of instructional methods are in vogue in the College, such as,

1. Conventional classroom instructions
2. Special lectures – by experts in the subjects from within and outside the State.

3. Seminars – the students are given seminars as part of most of the courses. They would prepare a write up about the topic assigned to them and give a talk in the class, which would be attended by most of the faculty as well as students.
4. Home assignments – home assignment on a topic in each of the course also will be given to the students.
5. Field works – as mentioned earlier fieldwork forms a major component of the academic programme. The students would be visiting almost all the major types of the forests of the country, with a greater emphasis on the forests of South India.
6. Computer assignments – by the time the students complete the U G programme they would be made computer literate in software such as MS Office and certain statistical packages. Students have almost 24-hour access to computers and Internet.
7. Practical assignments – Most of the course also has practical assignments, which apart from involving field exercises would also be having laboratory exercises, like chemical analysis of soil, water and plant samples etc.

b) Instructional material

i) The lecture schedules are distributed in the beginning of the course

ii) The instructional materials are distributed in the beginning of the course

13.7 Number of required students seminar: M.Sc. - One seminar is compulsory. Then as part of various courses the students may be asked to give seminars.

13.8 Teacher: student ratio

College/ Department	Under-graduate	Post-graduate
College of Forestry	11:44	11:9
Dept. of Silviculture and Agroforestry	2:44	2:4
Dept. of Tree Physiology and Breeding	3:44	3:4
Dept of Forest Management and Utilization	4:44	No PG course
Dept. of Wood Science	2:44	No PG course

Micro-films A/V material Photocopying Fax E-mail	has all the other facilities. And is being utilized not only by the faculty and students of the University but also by the students and scientists from other Universities within the State and outside.

14.9 Computer centre

Is there a central computer facility in the college? Yes

Details of the computers in the central computer lab

No. of terminals	Configuration
Students Computer Lab: 5 Nos.	3 Pentium II PCs with multimedia, 1 Celeron PC and 1 Cyrix PC

Apart from this all the departments have computers, UPS and printers the facilities of which is availed by the PG students of the respective departments.

14.10 Retreat and other faculty /student interaction forums: "Fresher's Day" is a yearly event arranged in the College with the participation of all the staff and students. This is the time when the newly admitted students are formally introduced to the students and staff. This also gives an opportunity for informal chat and interaction between the students and staff of the College.

A faculty-students meet is arranged once in every year to bid farewell to the out going students. This meeting is made use of as an occasion to have free interaction and communication of ideas between the faculty and the students. The students are given an opportunity to express their comments, criticism and suggestions with regard to the functioning of the college.

The Students Union also conducts regular meetings of the office bearers and the staff advisors. The lacuna, if any, to be rectified in the day-to-day affairs of the students as well as the College at large, are discussed and solved in such meetings. Suggestions for development of the College are also obtained many times during such deliberations.

15. Fiscal Resources

15.1 Total college budget (Rs. in lakhs for 2000-2001)

a)	Non-plan	:	65.678
b)	Plan	:	72.750
c)	Internal resources	:	
d)	Others (OEAP)	:	3.008 (by ICAR)
			3.359

15.2 Source of financial support

Source	Amount (Rs. In lakhs)	Percentage
State		
ICAR		
Others (ICFRE, KFD)		

15.3 Internal resources

Source	Amount (Rs.)
Farm (Tree nursery)	17401
Dairy	Nil
Student fees	171113
Consultancy	Nil
Recreational aspect	
Funds raised by Alumni Group	Nil

Dept. of Wildlife Sciences	3:44	2:1

13.9 Has the teaching programme been evaluated before? No

13.10 Does the Associate Dean get feedback from Alumni about teaching programmes? Yes.

14. Library and Learning Centers

14.1 Does the college have a central library? Yes, The College of Forestry has a library in addition to the University Central library, which is hardly 200 meters from the College of Forestry. Both the libraries provide a wide range of services to the students and staff of the College of Forestry.

The University Central library has about 15,000 books, of which nearly 1000 books are in forestry and related areas. About 300 journals are currently being subscribed at the Central library, of which 50 are in forestry and allied subjects. The students have access to Internet facility, database services, digital library services, documentation services, audio-visual services, multi-media services etc.

Details of books/periodicals etc	Number
Books	2821
Periodicals	6
Professional journals National	40
International	10

14.2 Does the library have internet connectivity: The University central library has Internet connectivity, which is accessible to the faculty and students of College of Forestry also.

14.3 List the various educational material available in the library

Type of material	Description of material	Application
Maps	Forest maps of Kerala	For education and extension activities
Video cassettes	Cassette on environment and forestry	- do -
35 mm film	On Indian wildlife	- do -

14.4 Does the library/media centre maintain a record for utilization of various materials: Yes

14.5 List training programmes encouraging faculty, staff and student for the use of library and media centre

Five faculty members had attended the University level training programme on the use of multimedia for presentations held at the Central library, KAU during April 2000.

14.6 Indicate library holdings at department level: No departmental library exists in the college

14.7 Percentage of the library functions computerized

Purchase of books	75
Lending of books	0
Lending of A/V material	No A/V materials maintained
Inventory	100

14.8 Extent of library use by various clients during last year

Facilities	Utilization
Computer	Except microfilms and fax the College library

Others	13522

15.4 Library budget (Rs. in lakhs)

a) Non-plan : -
b) Plan :
c) Internal source :
d) Others (ICFRE) : 4.000 lakhs

15.5 Departmental breakdown of annual budget (Rs in lakhs):

Presently, administrative and financial powers are vested with the Associate Dean. Realizing the difficulties experienced by the heads of the departments action is being initiated at the University level for the decentralization of administrative and financial powers to the heads of the departments.

15.6 Basis of budget allocation to each department:

This is done based on the requirements of each department and availability of fund under each head. If the demand is more than the allotment, priority is fixed after discussion in the staff council.

15.7 Budget allocation under the following heads

Sub-heads	Amount (in lakhs) (1999-2000)
Establishment (Salary etc.)	
Non-plan	33.400
Plan	1.312
TA	

Non-plan	0.350
Plan	0.181
Recurring contingency	
Non-plan	10.030
Plan	7.984
Non-recurring contingency	
Non-plan	Nil
Plan	9.725
Works	50.00
Maintenance	
Others: Externally aided projects	2.852

15.8 College fees and other charges

Category of fees and charges	UG	PG
Tuition fees	83634	
Hostel charges	15620	
Laboratory fees	-	
Library fee	14815	
Others	20333	

15.9 Indicate the year of the last revision of fees and other charges: 1999

15.10 Accounting and record-keeping: Briefly describe accounting, record-keeping and auditing system followed

The Associate Dean, of the College has an office with one Administrative Officer, one Section Officer, and three Office Assistants. Records and accounts are maintained in

the office and every year accounts are audited by the University and local fund auditors of the Government.

15.11 Powers of the head of the college for sanctioning expenditure

Item	Details
Equipment	
TA for staff	
Recurring contingency	
Others	

15.12 Powers of Head of the Department for sanctioning expenditure

Delegation of financial and administrative powers to the heads of departments is being worked out at the University level.

16. Physical Facilities

16.1 Total land area

Academic campus : 2 ha

Farm : 25 ha

The College of Forestry is currently functioning in a remodeled building, which was trainees & farmers hostel and a semi permanent structure, which was constructed by the University. In the semi permanent structure three classrooms and the library are located. There is a separate hostel for the College, the funding for which was provided by the ICFRE, at a cost of Rs.40 lakhs. This hostel has capacity to accommodate about 50 students. The ICFRE has approved the construction of an academic block for Rs. 175 lakhs in a phased manner and Rs. 25 lakhs have been granted for this financial year. The University is providing a matching grant of Rs. 38 lakhs. The preliminary work of the

first phase at a cost of Rs. 68 lakhs has already been started adjacent to the present remodeled building.

All the faculty of the college who are not staying in their own houses are provided accommodation in the University quarters. There are University play grounds, stadium and auditorium in the main campus and are shared by the Colleges located in the main campus.

16.2 Does the college have an estate office: No

16.3 Enclose the site plan of the college indicating the existing buildings and other planned for future

Facility	Hectares/ Sq.m
Academic buildings	
Students hostels	
Housing for staff	
Playgrounds	
Administrative buildings	
Open spaces	
Gardens and farms	
Cattle sheds	
Health facilities	
Library	
Irrigation infrastructure	
Mist chamber	
Others	

16.4 Give the following infrastructure information

Infrastructure	No. of units available and percentage/ capacity wherever applicable
Administrative offices	One (200 m^2)
Class room and laboratory	Class rooms – 5 (500 m^2) Laboratory - 12 (750 m^2)
Library	One (250 m^2)
Housing for faculty	Quarters (1000 m^2)
Boy's hostel	One
Girl's hostel	Since there are only one or two girl students admitted to the BSc (Forestry) programme per year they are accommodated in the Horticulture College ladies hostel, which is located in the main campus.
Sports complex	A common facility is available in the University main campus.
Guest house	University guesthouse facility is available to the College also.
Canteen	There is a canteen in the main campus.
Health clinics	There is a Primary Health Centre, immediately outside the main campus of the University.
Workshops	12 station Multigymn is attached to the College for maintaining the physical fitness of the students (100 m^2)
Faculty club	There is a faculty club attached to the University, which is being used by our faculty also.
Auditorium	The university has an auditorium, with all the modern facilities including centralized air conditioner, which is located in the main campus.
Others (Seminar Hall)	1 (250 m^2)

17. Research and Extension Education

17.1 Is there a separate Department of,

a) Research

b) Extension education

Research and extension activities are coordinated at the University level by the Director of Research and Director of Extension respectively, of the University.

17.2 Annual budget for education, research and extension (Rs in lakhs for 1999-2000)

Budget	Resident instruction	Research	Extension
Non-Plan	10.030	-	-
Plan	5.893	11.380	1.629
Internal sources	Nil	Nil	Nil
Others (OEAP)	Nil	2.852	Nil

17.3 Faculty involvement in research and extension education

Department	No. of faculty with joint responsibility for teaching and research	No. of faculty with joint responsibility for teaching and extension

Dept. of Silviculture and Agroforestry	2	2
Dept. of Tree Physiology and Breeding	3	3
Dept. of Forest Management and Utilization	4	4
Dept. of Wood Science	2	2
Dept. of Wildlife Science	3	3

17.4 Name of the externally funded research schemes presently in operation in the college

17.4.a) I.C.A.R. Adhoc schemes

No.	Title	Principal Investigator	Funding agency
1	Solid waste as a component of potting media for the seedlings of Agroforestry tree species	K Gopikumar	ICAR
2	AICRP – on Agroforestry	B Mohankumar	ICAR

17.4.b) Kerala State Forest Department Schemes

3	Conservation strategies for a Dipterocarp *Hopea parviflora*) species through storage of seeds using different desiccation treatments, synthetic seeds and cryo-preservation techniques	K Sudhakara	State Forest Department

4	Role of macro and microfauna in litter decomposition and plant production in natural forests and agroforestry system	B Ambika Varma	State Forest Department
5	Wood Quality studies of *Acacia* provenances	E V Anoop	State Forest Department
6	Human utilisation on the forests of Western Ghats and its effect on biodiversity	Nameer P O	State Forest Department
7	FIST project on "Networking & computation facilities including internet facility in the Department of Silviculture & Agroforestry	Mohankumar B	Dept. of Science & Technology

17.5 Publications during the last 4 years

Department	Total publications	Books	Res. Paper	Popular article	Technical reports	Seminar papers
Dept. of Silviculture and Agroforestry	160	7	79	30	9	35
Dept. of Tree Physiology and Breeding	48	4	23	3	0	18
Dept. of Forest Management and Utilization	111	5	17	32	30	27
Dept. of Wood Science	30	0	12	9	4	5
Dept. of Wildlife Science	50	3	15	2	20	10
	399	19	146	76	63	95

17.6 Research symposia, extension programmes and other activities held during the last 4 years

Research workshops and symposia	1
Extension fairs	4
Training programmes organized	Nil
Other important activities	The faculty had participated as trainers and resource persons in a number of training programmes conducted by the University, State governments and other agencies.

17.7 Mechanisms for student involvement in research and extension programmes.

Examples:

1. B.Sc. (Forestry) students are to complete a course in which they are to formulate individual research project and execute it in a period of 12 months. This, in addition to training the UG students in research planning and execution, help to generate an aptitude for scientific approach to forestry problems.
2. M.Sc. (Forestry) students of the various Departments are assigned with research projects for the partial fulfillment of their degree programme. Projects, which have relevance to various fundamental and applied aspects of forestry, are taken by them. The research findings of these students contribute to the over all research activities of the College and benefit the field of forestry at large.
3. Students always join hands with the faculty in various extension activities including seminars, exhibitions etc. This is made possible through the activities of the students union, NSS and other student bodies.
4. The UG students undertake production and distribution of good quality tree seedlings under the "Earn while you learn" programme.

17.8 Public information

i) Public forums

Does the college hold open house to receive community input

No

ii) List of publications of the college that impart information on:

a) Educational programs : Brochure of the College

b) Admission policies :

c) Learning resources : Academic handbook provided by the

d) Student policies : University

e) Fees and other charges :

f) College calendar :

g) Personnel manual : Brochure of the College

h) Other :

18. Accomplishments

1. Teaching

UNDER GRADUATE PROGRAMME

B.Sc. (Forestry), the four-year degree programme, was started in the year 1996 with an intake capacity of 15 students. The first batch of forestry graduates came out of this College in the year 1991 and the number of students completed the degree programme in subsequent years is as given below:

Course	Year of passing									Total
	1991	1992	1993	1994	1995	1996	1997	1998	1999	
B.Sc. (Forestry)	14	14	14	7	5	9	7	10	9	89

Out of the total graduates, the maximum number (40 %) has entered into forestry related government service (forest range officers in the Kerala State Forest Department). About 52 % have gone for higher studies of which 7 are in countries outside India. Three of the graduates have been selected in All India Civil Services including IAS and IFS. Of

the rest, most are engaged in government, quasi government or non-government organisations. Only a few have entered into private or own enterprises.

The performance of the graduates from this College as forest range officers has been rated as exceptionally good by the senior officers of the Forest Department.

POST GRADUATE PROGRAMME

The two-year M.Sc. (Forestry) programme was started in the College during 1986 with an intake capacity of 6 students. Subsequently the number of seats was enhanced to 9 with specializations in three disciplines namely, Silviculture and Agroforestry, Tree Physiology and Breeding and Wildlife Science with seat distribution of 4, 4 and 1, respectively. The number of students completed the programme so far is given below:

Course	Year of passing												
	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	Total
M.Sc. (Forestry)	6	1	2	3	0	4	6	6	7	2	2	0	39

The postgraduates from this college include a good number of students from out side the state including Maharashtra, Bihar, Himachal Pradesh; Karnataka etc. either by through direct selection or through ICAR. Eight postgraduates have joined the University itself in teaching positions. The rest are serving either as scientists in ICFRE institutions or other government organisations.

2. Research

The faculty members are carrying out research projects in the different disciplines of forestry. These projects aim at tackling various fundamental and applied aspects of forestry.

From the inception of the College of Forestry, a total of 21 externally funded projects have been either completed or are in different stages of implementation. This is in

addition to the postgraduate research projects as well as other personal projects funded by the Kerala Agricultural University. The faculty members of this College are also acting as co-investigators in the research projects carried out in some of the constituent colleges in the campus.

Major research findings

- Seeds of Thambakam (*Hopea parviflora*) soon loose their viability on storage due to reduction in moisture content and increase in leachate conductivity
- Different storage conditions including variation in temperature, media etc. did not enhance germination during storage
- Treatment of the seeds with fungicide Emisan (1 % ai) followed by storage under 10^0 C has resulted in 87 per cent germination after 40 days
- In an evaluation of four species of acacia for their performance under Thrissur conditions, it was found that *A. mangium and A. auriculiformis* performed better than *A. crassicarpa and A. aulacocarpa.*
- Among the *A. mangium* provenances tested, the provenances from Papua New Guinea were generally better than the Queensland provenances.
- Anatomy of 10 important timber species of Kerala including teak, rosewood, venga etc. have been analysed and compared. Work is underway to develop a computer aided dichotomous key for field identification of the species based on the information generated.
- A survey carried out in 13 districts of Kerala has shown that *Acacia mangium* is nodulated by fast growing (*Rhizobium* spp) as well as slow growing (*Bradyrhizobium* spp.) rhizobia. This is contrary to the earlier reports that nodulation in *A. mangium* is possible only by slow growing type of *Rhizobium.*
- Pot culture experiments revealed that the effectiveness of rhizobial isolates collected from different agroclimatic regions vary. The 13 isolates from Kerala were adapted to the acidic (pH 4.9 – 6.2) soil conditions, whereas the culture from Hawaii (commercial culture "Agroforester – Group A") responded to higher soil pH.

- Addition of N and P fertilizers has been found to improve the nodulation and growth characteristics of mangium seedlings.
- Among the various rhizobial isolates, isolate MRh-6 (Vellanikkaara) which was a poor performer in unfertilized soil, proved to be best in fertilized soil. The isolates MRh-3 (Mananthavadi), MRh-10 (Mavelikkara) and MRh-13 (Thiruvananthapuram) performed well even when N and P were not applied. So these isolates may be suited to poor fertility soils also.
- The requirement of a starter dose of N for early establishment and N_2 fixation of mangium seedlings is indicated.
- Micropropagation protocol for Indian rosewood (*Dalbergia latifolia*) has been standardised using axillary bud explants from saplings. Maximum shoot regeneration was obtained in MS medium supplemented with BA 1.00 ppm and kinetin 0.1 ppm. Rooting was very successful in vermiculate medium under *ex vitro* conditions.
- *In vitro* propagation of tree species including *Vateria indica, Pterocarpus marsupium, Acacia mangium* etc. has been carried out and are at different stages of success. The protocol has not been perfected to the commericial level
- In matti (*Ailanthus triphysa*), shoot regeneration has been perfected under *in vitro* conditions using nodal explants. The most fabourable medium is MS supplemented with 3.0 mg $^{-1}$ BA and 1.0 mg l^{-1} kinetin. Rooting is best achieved in half MS with IAA, IBA and activated charcoal.
- In an evaluation of eight provenances of neem (*Azadirachta indica*) from the peninsular India, their relative performance has been evaluated.
- The eight provenances could be grouped into two genetic groups based on their isozyme pattern for peroxidases.
- The above provenances fell into four genetic clusters based on their D^2 analysis.
- In a study of the phylogenetic relationship between four species of *Acacia*, it is suggested that *A. auriculiformis* and *A. magium* are strongly related where as *A. ferruginea* and *A. nilotica* are distinctly different species. This is indicated by their karyomorphological attributes as well as isozyme patterns.

- The two isozymes, namely, estrase and glutamate oxaloacetate transminase (GOT) together produced 7 bands. Presence of similar type of monomorphic gene loci for enzyme systems in A. mangium as well as in A. auriculiformis is indicated.
- In a ten-year-old plantation of *Tectona grandis*, leaves taken from the bottom position of the crown during the time interval 9 a.m. to 11 a.m. were found to be the standard for nutrient analysis. Similarly, the second leaf rank from the trees belonging to the largest diameter class was ideal for sampling.
- Standardization of pre-treatment of albizia seeds has been carried out and found out the presence of an inhibitor in the seed coats of these seeds. The most effective and practical method of pre-treatment to obtain quicker and higher germination in Albizia was physical scarification followed by soaking in flowing water for 24 hours. Grubs of *Bruchidius bilineatopygus* Pic. cause heavy damage to developing pods and seeds of *Albizia odoratissima*, *A. procera* and *Paraserianthes falcatoria.*
- In the case of *Ceiba pentandra*, seeds collected at later stages of harvest gave better germination than earlier ones. Seed size did not have any influence on germination. Soaking these seeds in boiling water and allowing to cool for 24 hours and acid scarification (treating with conc. sulphuric acid for 10 minutes were the best pre-treatments to get better germination. Farmyard manure had the most dominant effect over seed size or fertilizers to produce good quality seedlings. Large sized seeds weighing more than 0.055 g have to be sown in rooting medium containing soil, sand and FYM, in proportion of 1:1:1 to obtain better seedlings.
- Out of the seven forest tree species raised in the nursery, *Tectona grandis*, *Albizia falcataria*, *Swietenia macrophylla* and *Ailanthus triphysa* suffered greater pest damage. Most damage was caused by leaf feeding and root feeding insects. Chemical control methods were effective in containing the pests.
- Local extermination of species is aggravated due to human interference in the sacred groves, which come under tropical evergreen forests.
- Seeds of flowering trees like *Lagerstroemia, Cassia , Bauhinia* etc. when treated with IAA 100- 200 ppm resulted in more germination and vigour in the nursery.

- Seeds of *Terminalia* and *Tectona* species retained longer viability of 8-10 months when stored under cold conditions compared to open storage.
- Tip cuttings were the best planting materials for asexual propagation of *Ficus* and *Cassia* species. In *Phyllanthus emblica* air layering was found to be the best method.
- For most of the tropical forest tree species, potting media consisting of soil, sand, cow dung and vermiculite (2:2:2:1 ratio) was found better in terms of germination and seedling vigour. In most of the species heavy seeds germinated faster compared to small and medium sized.
- In leaf litter decomposition studies, initial nitrogen and lignin were found to exert a profound influence on the rate of decomposition. Rate of decomposition was found to be a function of temperature, soil moisture and soil temperature. Nutrient release pattern followed a bi phasic model with an initial rapid phase followed by a slow later phase. Decomposition of potassium was faster compared to other elements.
- Nutrient deficiency symptoms particularly of N, P and K in forest tree seedlings were standardized.
- In a study on the Soil-Plant nutritional status of *Tectona grandis* L.f. (teak) in relation to age and site quality, it was found that relation between leaf nutrient status and tree volume growth was feeble. The models obtained through stepwise regression were all linear in nature and no quadratic terms were present in the models. The volume of tree could be increased further by adequate supply of the appropriate nutrient elements. The analysis also showed that leaf nutrient content influence the soil fertility attributes to a greater extent as the age of the plantation increases.
- The "Checklist of Indian Mammals" prepared by the Department of Wildlife Sciences, of the College is the only existing checklist on the Indian mammals.
- The department of Wildlife Sciences has also prepared checklists of the birds of most of the protected areas of Kerala, which is an important baseline data on the fauna of the State.

3. Extension Education

As such no forestry extension education programme is carried out in the College of Forestry. However, the faculty members are involved in various extension activities. Some of the major forestry extension activities accomplished are listed:

- Consultancy services provided to the farmers specifically on selection of suitable forest tree species, nursery production, management, field planting etc.
- Village adoption programme to create awareness of forests and forestry and provide planting materials, demonstration of planting and management etc.
- Conducting seminars and also delivering guest lectures in educational institutions as well as training programmes organised by various agencies.
- Organising training programmes to officers of various cadres of the Kerala State Forest Department.
- Publication of books and literature in the vernacular for the benefit of the common public.
- Production and distribution of good quality planting materials of different forest tree species suitable for pure plantations or agro/social forestry programmes.
- The faculties serve as resource persons for the preparation of the Management Plans of the Wildlife Sanctuaries of the State.

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