

**UNIVERSITY OF HORTICULTURAL SCIENCES,  
BAGALKOT, KARNATAKA**



**SELF STUDY REPORT FOR THE  
M. Sc. HORTICULTURE IN ENTOMOLOGY  
COH, BAGALKOT, 2014-15 to 2018-19**

**SUBMITTED TO**  
**Indian Council of Agricultural Research,  
Krishi Bhavan, New Delhi.**

**SUBMITTED BY**  
**University of Horticultural Sciences,  
Udyanagiri, Bagalkot – 587 104  
Karnataka**

## **PREFACE**

The growth of Indian agriculture sector has had its moments of glory. The green revolution has been major success story of free India to achieve surplus today, nonetheless frequently plagued by famines and chronic food shortage. From food grain production around 55 million tons at the time of independence, now boast the production of 284.83 million tons of food grains (2017-18). Indian agriculture has witnessed wide variations in growth performance after independence in India. The record horticulture production (306.8 million tonnes estimated) during 2017-18 will mark the sixth straight year of horticulture production outstripping that of food grains. Further, the percentage share of horticulture in agriculture GDP is 33 per cent which is quite impressive. The horticulture sector plays vital role in nutritional security, economic sustainability and employment generation. It was realized only in mid-80s about the importance of horticulture and thus the Government of India recognized Horticulture as a prominent sector. Horticulture appears to be a viable means of diversification for making agriculture more profitable through efficient land use, optimum utilization of natural resources while creating skilled employment for the rural masses. Horticulture has invariably enhanced the economic status of farming community besides, without disturbing invaluable natural resources. In general the growth of horticulture sector has created ripples which consequently resulted in a wide spectrum of processing industries. In this context, quality seed and planting material supply, surge for hi-tech horticulture, better prospects for contract farming as well as cooperative farming, participatory approach in production and marketing have attained magnanimous stature. The higher growth rate in horticulture sector suggests a structural change in Indian agriculture where farmers are increasingly growing perishable commercial crops due to a growing market and a quicker cash flow as these crops require less time from sowing to marketing. Thus, there is a growing awareness about the advantages of the horticultural crop production and this is bound to go up with the improvement in socio-economic status of the people.

In the recent past R & D programmes in horticulture received an impressive support from the government. As a result, the research infrastructure has increased many-fold with the setting up of a number of new institutes, national research centres for several crops, important both from domestic as well as export point of view. The establishment of educational institutions in the field of horticulture play a pivotal role in developing


human infrastructure, which would cater to the needs of the emerging horticulture industry.

To develop the quality human infrastructure in the field of horticulture in general and to cater to the needs of the farmers of Northern Karnataka in particular, the College of Horticulture was established at Bagalkot on 07.07.2008 under the University of Agricultural Sciences, Dharwad. With the establishment of the University of Horticultural Sciences at Bagalkot the college of Horticulture came under the administrative control of the said university from 2009-10. The college offers undergraduate, postgraduate and Ph.D. courses. The college has the admission capacity of about 120 students annually for undergraduate, about 55 students for Master' degree programme and 25 students for Ph.D. programme. The students of this college have excelled not only in studies but also in extra-curricular activities and National level competitive examinations. The college has been making efforts to improve the quality of education offered in this direction. Since the college is due for accreditation, the present self study report provides all the necessary information about the college activities performed during last five years (01-01-2014 to 31-12-2018).

The University Level Task Force and Steering Committee have also been gratefully acknowledged for their help, guidance and suggestions given in preparing the report.

The college level Steering Committee and Task Force have done a great job in compiling information and bringing out this report to be submitted to Accreditation Board of ICAR. My heartfelt thanks to all for providing valuable suggestions to improve the quality of presentation.

**College of Horticulture, Bagalkot  
March, 2019.**

  
**Dean  
(H.B.Patil)**

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## 6.4.1. BRIEF HISTORY OF THE DEGREE PROGRAMME

### Evolution of the P.G. programme:

The Bagalkot and surrounding districts such as Vijayapura, Koppal and Belgaum have high potential to grow various fruits, vegetables and spices viz., grapes, pomegranate, lime, banana, sapota, guava, brinjal, onion, chilli, Tomato, Gourds and Turmeric. The pest's scenario in above mentioned crops has been changed because of increase in area and advanced management practices. As consequences, several insects and mite pests are attaining major pest's status. The yield loss caused due to insect pests is enormous and this leads to need conducting area specific research to develop effective, economical and ecologically sound pest management practice. With this background, the Department of Entomology started M.Sc. (Hort.) in Horticulture Entomology during the year 2012-13 at Haweli campus, College of Horticulture, Bagalkot, with an intake of 06 students initially and gradually raised to 10 students in subsequent years. Later the Department was shifted from its original place of Haweli farm to its present location Udyanagiri campus in the year 2013-14.

### Mandates

- Systematic documentation of insect-pest and their economic importance on the horticultural crops.
- Development of pest forecast models, IPM (Integrated Pest Management) modules, low cost plant protection technologies.
- Research, production and popularization of bio-control agents.
- Human resource development at master's and doctoral levels.
- Training and entrepreneurial development, advisory consultancy to farmers, extension functionaries.

### Objectives

- Timely prediction and forecasting of important pests of Horticultural crops.
- Promotion of ecofriendly and sustainable pest management technologies.
- Promotion of beekeeping for enhancing production and productivity of Horticultural crops.
- Validation and promotion of low cost, ITK (Indigenous technology knowledge), bio-rationales and botanical insecticides.
- Evaluation of newer molecules of insecticides.
- Skill oriented hands on training programme to masters and doctoral students.
- Consultancy services to farmers in person, phone and field visits.

**P.G. student's research outcomes which are helpful for the farming community:**

<b>M.Sc. (Hort.) in Entomology</b>				
<b>Sl. No.</b>	<b>Student name I.D. No. and Chairman</b>	<b>Thesis Title</b>	<b>Year of passing</b>	<b>Outcome</b>
1.	SHWETA S. HALINGALI UHS16PGM747 Dr.GANGADHAR NARABENCHI	Integrated Management of Onion Thrips, Thrips Tabaci Lindeman (Thysanoptera: Thripidae)	2019	In her experiment she revealed that, three sprays of thiamethoxam 25 WG @ 25 g a.i./ha and imidacloprid 17.8 SL @ 22.25 g a.i./ ha at ten days interval were found to be superior in managing thrips on onion crop.
2.	MADHUSUDHAN K. T. UHS16PGM743 Dr.J. B. GOPALI	Integrated Management of Root Grubs in Onion Ecosystem	2018	Among the new molecules tested against root grubs in onion ecosystem, chlorantraniliprole 18.5 SC at 0.4 ml per litre showed maximum control against root grub.
3.	RASHMI S. HAGARAGUND UHS16PGM745 Dr.RAMANAGOUDA S. H.	Development and Evaluation of Formulations of Nomuraea Rileyi (Farlow) Samson AGAINST Spodoptera litura (Fabricius) On Cabbage	2018	Among the different formulations of N. rileyi, the maximum mean per cent mortality was recorded in the groundnut oil (31.73 %) followed by combination of groundnut oil + rice grain (29.07%), mustard oil + rice grain (27.20%) and mustard oil + wheat grain (27.47%) formulations.
4.	SAVITHA N. UHS16PGM746 Dr.GANGADHAR NARABENCHI	Development and Evaluation of Pest Management Modules Against Major Insect Pests of Watermelon	2018	Evaluated new molecules of insecticides against major insect pests of watermelon and found that, three sprays of cyantraniliprole 10.26 OD @ 1.5ml/l at seven days interval showed superiority in managing pest's viz., thrips, leaf miner, whitefly and fruit fly infesting watermelon.
5.	MIRALA SRUTHI UHS16PGM744 Dr. J. B. GOPALI	Integrated Management of Sucking Pests of Capsicum Under Protected Cultivation	2018	Thiamethoxam 25 WG at 0.20 g per litre found best against capsicum thrips, and got maximum yield (47.80 t ha <sup>-1</sup> ). Similarly vertimec 1.9 EC at 0.5 ml per litre has found superior in managing mites and got highest yield

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				(47.76 t ha <sup>-1</sup> ).
6.	SUNIL S. G. UHS15PGM597 Dr. Y. K. KOTIKAL	Studies on Insect-Pests of Wild Melon, Cucumis melo subsp. agrestis (Naudin) Pangalo	2018	In this experiment they screened and found some leaf miner resistant wild melon genotypes HUB-2, HUB-3, HUB-14 and HUB-13.
7.	VARUN Y. B. UHS16PGM749 Dr. RAMANAGOUDA S. H.	Development and Evaluation of Formulations of Lecanicillium lecanii (Zimm.) Zare AND Games AGAINST Myzus persicae (Sulzer)	2018	The virulence of four selected formulations of L. lecanii were highest in the sesamum and groundnut oil based formulations followed by groundnut oil in combination with rice grain based formulation at different storage condition and storage period.
8.	AKSHATA KURBETT UHS 15 PGM 589 Dr. J. B. GOPALI	Studies on Elite Genotypes of Chilli (cv. byadgi dabbi) against pest complex and their management	2017	Adaptable module comprising of (i) growing one row of marigold (1:16) as a trap crop and two rows of maize as barrier crop, (ii) application of neem cake @ 2.5 q ha <sup>-1</sup> , (iii) root dip with imidacloprid 17.8 SL @ 0.5 ml/l for 30 minutes at the time of transplanting, (iv) azadirachtin 10,000 ppm @ 1.0 ml/l + <i>Lecanicillium lecanii</i> (1x10 <sup>8</sup> CFU/g) @ 5 g/l, (v) thiamethoxam 25 WG @ 0.20 g/l (vi) diafenthiuron 50 WP @ 1.0 g/l and (vii) Chlorantraniliprole 18.5 SC @ 0.2 ml/l proved to be quite effective against Chilli pest complex.
9.	CHETHAN, G.B. UHS15 PGM 590 Dr. M. H. TATAGAR	Studies on gall formers and their management in chilli cv. Byadgi dabbi	2017	Neem cake @ 2.5 q/ha + Azadirachtin 10000 ppm @ 1 ml in 1 liter of water was found more effective in management of Chilli gall former pest.
10.	MANTU CHOUDHURY UHS 15 PGM 592	Biophysical and Biochemical Basis of Resistance	2017	Grape genotypes like Red Globe, Manjari Naveen, Sharad Seedless and Krishna

<b>M.Sc. (Hort.) in Entomology</b>				
<b>Sl. No.</b>	<b>Student name I.D. No. and Chairman</b>	<b>Thesis Title</b>	<b>Year of passing</b>	<b>Outcome</b>
	Dr. A. M. NADAF	against Thrips and Mites in Grapes		Sharad were found to be superior by recording significantly lesser thrips incidence (3.28, 3.52, 3.72 and 3.98 thrips/shoot) respectively and found to be resistant against the thrips infestation.
11.	VANITHA K. UHS15 PGM 598 Dr. VENKATESHALU	Studies on Seasonal Incidence and Management of Pomegranate Fruit Borer, Deudorix (= Virachola) isocrates (Fab.) DURINGHasta Bahar	2017	Formulated and evaluated five IPM modules against fruit borer on pomegranate, among them M <sub>4</sub> -Emamectin benzoate 5% SG @ 0.25 g/l – cyazypyr 10.26% OD @ 1.5 ml/l – spinosad 45 SC @ 0.25 ml/l – collection and destruction of affected fruits recorded significantly highest fruit yield (15.50 t/ha) and lowest fruit borer damage (1.07 %).
12.	MUDDASAR UHS14PGM461 Dr. VENKATESHALU	Faunistic Studies on Economically Important Noctuids Associated with Major Vegetable Crops	2016	Choice test under laboratory to standardize food bait using larvae of <i>S. litura</i> revealed the combination of rice bran + 4iggery 20% + yeast 0.1% and rice bran + molasses 10% proved best in attracting more larval populations.
13.	PRAVEENKUMAR V. Dr. VENKATESHALU	Studies on Seasonal Incidence, Loss Estimation And Management Of Pomegranate Thrips	2016	Insecticides like cyazypyr 10 OD @ 1.5 ml/lit followed by imidacloprid 17.8 SL @ 0.3 ml were shown superiority in managing the thrips in pomegranate crop.
14.	VINUTHA, B. UHS14PGM 463 Dr. Y. K. KOTIKAL	Studies on Insect Pests of Oriental Pickling Melon, [Cucumis melo (L.) var. conomon]	2016	The insecticides like deltamethrin, azadirachtin, Neem seed kernel extract (NSKE), indoxacarb and spinosad were effective against the major pests of oriental pickling melon.
15.	CHETAN NANDI UHS13PGM356 Dr.GANGADHAR NARABENCHI	Seasonal Incidence of Brinjal Shoot and Fruit Borer, Leucinodes	2015	Developed Integrated pest management module against Brinjal shoot and fruit borer pest.



<b>M.Sc. (Hort.) in Entomology</b>				
<b>Sl. No.</b>	<b>Student name I.D. No. and Chairman</b>	<b>Thesis Title</b>	<b>Year of passing</b>	<b>Outcome</b>
		orbonalis Guene, (Lepidoptera: Crambidae) and Evaluation of Pest Management Modules		
16.	NIRMALA H. R. UHS13PGM358 Dr.GANGADHAR NARABENCHI	Screening of Rose Genotypes against Thrips, Scirtothrips Dorsalis Hood (Thysanoptera: Thripidae) and its Management	2015	In this experiment they found two effective insecticides like Imidacloprid 30.50 SC (0.3 ml/L) and Diafenthiuron 50 WP (1 ml/L) for the management of rose thrips in open field condition.
17.	NAGARAJ R. PATIL UHS12PGM248 Dr. A. M.NADAF	Studies on thrips species complex in grapes, vitis vinifera l. (cv. Thompson seedless) and their management	2014	In experiment they found that Fipronil 5%SC @ 1.0 ml/l and Imidacloprid 17.8%SL @ 0.3 ml/l were most effective chemicals against thrips infestation in grape crop.

### 6.4.2. FACULTY STRENGTH

#### Faculty strength

<b>Sl. No.</b>	<b>Cadre</b>	<b>Faculty in place</b>	<b>Vacant position</b>	<b>Faculty recom. by ICAR</b>	<b>Deviations from ICAR recom.</b>
1.	Professor	2	-	-	-
2.	Assoc. Professor	-	1	-	-
3.	Asst. Professor	2	-	-	-
<b>Faculty from UHS directorates and other stations</b>					
4.	Professor Director of Extension, UHSB	01	-	-	-
5.	Assoc. Professor- KRCCH, Arabhavi	01	-	-	-
6.	Asst. Professor -DE office, UHSB	01	-	-	-
7.	Asst. Professor -HRS, Tidagundi	01	-	-	-
8.	Asst. Professor -HRS, Kumbapur	01	-	-	-

### 6.4.3. TECHNICAL AND SUPPORTING STAFF

<b>Sl.No.</b>	<b>Designation</b>	<b>Faculty in place</b>	<b>Vacant position</b>	<b>Faculty recom. by ICAR</b>	<b>Deviations from ICAR recom.</b>
1	Lab Assistant	01	-	-	-
2	Field Assistant	-	-	-	-

### 6.4.4. CLASS ROOMS AND LABORATORIES

#### Class rooms

Sl. No.	Class room No.	Area	Seating capacity	Other facilities (LED projector, Computer etc.)
1.	P.G. Class room 01	13.5 x8m	50	LCD projector, Computer and smart board facility

#### Laboratories

Sl.No.	Name of the laboratory	Area	Seating capacity (No.)
1.	P.G. Lab	11.0 x 8.0 m	30
2.	Insect Culture room/ Insectary	7.5x 5.0 m	10
3.	Inoculation chamber	5.0 x 5.0 m	03
4.	Insect catalogue room	11.0 x 8.0 m	15
5.	Honey testing lab	8.0 x 5.0 m	04
6.	Corcyra rearing room	5.0x 2.5 m	02

#### Major equipment

Sl.No.	Name of the equipment	Quantity	Cost (In lakhs)
1.	Motic stereo zoom microscope	01	0.86
2.	MSZ Bi microscope Std. set	02	0.47
3.	Spectroscopic binocular	04	0.22
4.	Olympus trinocular Stereo zoom microscope (model SZx7)	01	0.48
5.	Trinocular Compound Microscope	01	0.87
6.	Binocular Research Microscope Having battery backup	01	0.95
7.	3D trinocular stereo zoom digital USB microscope with 6MP HDMI camera	01	7.39
8.	LCGC Electronic weighing balance cap 600 g read	01	0.22
9.	LCGC Electronic weighing balance cap 300 g read	01	0.22
10.	Analytical balance (Readability 0.001gm)	03	0.26
11.	Canon Digital camera 80D 18-55	01	0.79
12.	DSLR camera, D5500 (18-15m) compatible SB.900 flash	01	2.33
13.	Motic Multi output camera with adapter	01	0.76
14.	Spectrophotometer double beam wavelength 190-1100nm 8"	01	3.98
15.	LCD projector (sealing mount kit)	01	0.85
16.	Centrifuge	01	2.24
17.	Laminar air flow (Horizontal) Size 4x2x2	01	2.20
18.	Hot air oven make symbiont Chamber (10x4)	01	0.88
19.	Hot air oven	01	0.96
20.	Hot plate cum magnetic stirrer	01	0.45

<b>Sl.No.</b>	<b>Name of the equipment</b>	<b>Quantity</b>	<b>Cost (In lakhs)</b>
21.	Interactive Model board GMB85 minimum diagonal size 1950 mm	01	0.75
22.	Make bio techniques (ISO 90012008) model BTI-06 Incubator) Size HxWxD (50x50x50)	01	2.50
23.	Refrigerator Videocon V.C.P 314 IBH 310 lit double door	01	0.49
24.	Insect rearing cages	20	1.20
25.	All bee Appliances	01 Set	0.90

(**Miscellaneous:** Insect cages, Mixer Philips, Insect rearing cage, Filing cabinet steel 4 drawer, Lab stools, Office table, Office executive chairs, Insect cabinets rack, Insect dissection trays Aluminum, Solar insect light trap, Riker mounts teak wood, Assistant table t8, Electronic lab table, Pigeon hole steel Almeria, Almeria steel prier, Glass door Almeria, Slotted angle rack steel, Wooden stools teak wood, Computer, HCL, Printer 2 h p 1020 LESER, Notice board, Steel class room bench, Insect dissection box with, Hand lens 10ximported counting box, Lab table modern fixed with reagent racks , Glass block board(6X4)(8x4, Wooden key board with 12 locks, Air cooler kemstar 60 liter, Air cooler kemstar 40 liter , Acrylic display stand (steel), Dell all in one computer 4GB Ram)

### **Farm facilities**

<b>Sl. No.</b>	<b>Farm Area</b>	<b>Irrigated/ Non-Irrigated</b>	<b>Crops grown</b>
1.	2 Acre	Irrigated	Pigeon pea, cabbage, Tomato, Onion, Bhendi, Brinjal, Cucumber, Capsicum, Chilly, Water melon etc.

**Workshops if any: Nil**

### **6.4.5. CONDUCT OF PRACTICAL AND HANDS ON TRAINING**

<b>Sl.No.</b>	<b>Course</b>	<b>Skills / Method of Hands on training</b>
1.	Applied apiculture, HET-525 (1+1)	Handling of the colony, Honey and Wax extraction. Queen multiplication techniques.
2.	Insect Anatomy and Physiology, HET-501 (1+1)	Dissection of various anatomical systems under stereo zoom microscope to understand various internal systems.
3.	Insect systematics, HET-503 (1+1)	Development of taxonomic skills for keying out of insect specimens, drawing and dissection of genital organs etc.
4.	Toxicology of insecticides,	Bioassay of insecticides, Safe handling of insecticides.

	HET-504 (1+1)	
5.	Insect Ecology, HET-508 (1+1)	Understanding of insect-plant relationships Insect sampling devices, insect loss estimation technique and pheromone studies.
6.	Application of biotechnology in pest management, HET-516	DNA isolation PCR techniques Transformation and cloning.

#### 6.4.6. SUPERVISION OF STUDENTS IN M.SC. PROGRAMME

Every student shall have Advisory Committee with a Major Advisor and at least four members among whom two members shall be from outside the major field of specialization. Programme of Research proposed by the Advisory Committee and approved by the Dean (Post Graduate Studies) will be carried out by the student under the supervision of Advisory Committee. Totally 30 M.Sc. students have passed out from the Department of Entomology, College of Horticulture, Bagalkot from 2013 to 2018. Research work was carried out by students on the major crops which are grown in this area viz., grapes, pomegranate, onion, sapota, lime, drumstick etc and Research related to insect taxonomy, integrated pest management modules, biological control, pesticide residue analysis, bee pollination etc. are being carried out.

With respect to the allotment of the students to the PG teacher the major advisor shall not have more than 6 PG students (not more than 04 Ph.D. students) and also the PG teacher shall not be a member of the advisory committee for more than 15 PG students.

Sl. No.	Academic year	No. of PG recognized teachers	Intake of Students	Students : Teachers
			M.Sc.	
1.	2013-14	4+4*	04	1:2
2.	2014-15	4+4*	04	1:2
3.	2015-16	4+4*	08	1:1
4.	2016-17	4+4*	10	1:0.8
5.	2017-18	4+4*	08	1:1

\*Faculty working in nearest stations

Short Note on Sufficiency of staff and how the shortage of faculty is taken care

For post-graduation degree programme every semester five M.Sc. courses are being offered. The faculty present in Department (02 Professors and 02 Asst. Professors) are handling courses along with under graduate and diploma courses. If any shortage of faculty for handling

the courses the PG recognized teachers from nearest stations will be deputed for the handling the courses.

### 6.4.7. FEEDBACK FEEDBACK OF STAKEHOLDERS (STUDENTS, PARENTS, INDUSTRIES, EMPLOYERS, FARMERS ETC.)

(Students, parents, industries, employers, farmers etc.)

Feedback by the students

Sl. No.	Name	Year of completion	Important remarks/feed back
<b>M.Sc. Passed out students</b>			
1.	Mr. Madhusudhan K.T	2017	Teaching facility is good Lab facility is also good but kindly provide the lab facility for molecular study's
2.	Mr.Mudasir	2015	A good platform for practical studies where more importance is given for research with well-equipped lab facilities for bio control studies and taxonomic studies. A department with very good collection of insects that help to identify the insects.
3.	Mr.Sanjiv Duradundi	2015	Teaching facility as well as faculty was very good for recent studies. Good quality of research conducted and given more importance to the research work. Excellent in guiding the irrespective students.
4.	Mr.Chethan G. B.	2017	Everything is good here, but give attention in giving research under project works it helps student lot, also in insect collection
5.	Ms.Manjula, K.N.	2015	Excellent teaching faculty was there here, but still more research facilities need to give for good and quantitative research work.

### 6.4.8. STUDENT INTAKE AND ATTRITION IN THE PROGRAMME FOR LAST FIVE YEARS

Academic year	Sanctioned seats	Actual intake	Attrition (No)	Attrition (%)
		M.Sc.		
2013-14	04	04	01	25
2014-15	04	04	00	00
2015-16	08	08	02	25
2016-17	10	10	00	00
2017-18	08	08	00	00

### 6.4.9. ICT APPLICATION AND CURRICULA

In the college the students were paid the fees and registered through Academic Management System (AMS). All PG correspondences like Plan of Work, Programme of

Research and Submission of all PG forms by the students were through AMS. All approvals by the Head of the Department, Chairman and members of the Advisory Committee, Dean (PGS) and Registrar approval through on line by using AMS in order to make paperless transactions. Teaching will be done by using PPT and smart boards.

The Koha (library management) open wear software is implemented to automate the library activities. The charging and discharging of documents is automated and e-mail reminder facility has been introduced.

### **CeRA and other online e-resources:**

CeRA is the ICAR Consortium of e-resources in Agriculture. This covers more than 3000 scholarly journals pertaining to the Agriculture and allied sciences which are available in full text.

### **E-books:**

Library is having access to Springer e-books for the copy right years 2014-16, which covers nearly 1900 books in virtual format with full text availability and at a time 25 users can open an e-book. In addition library has access to 200 Indian e-books.

### **Krishikosh:**

Krishikosh is database of theses submitted to the Agriculture universities and ICAR institutions, The UHS Library is member for Krishikosh and all the theses submitted to the UHS are being uploaded regularly.

### **Internet:**

The library is provided with separate internet link line with speed of 100mbps. There is a separate digital library section made in the library which is equipped with 25 computers with facility of internet connected to all computers. Web OPAC of the main campus library is available in the net. EZ-proxy remote access server is installed in the library through which one can access e-resources, CeRA, and Agristat in distant places also.

### **Wi-fi facility:**


Wi-fi is available in the library premises. One can have net facility in the main campus through IP based network. Through which students and faculty members can browse CeRA and e-resources of the library in hostels and Departments, respectively.

## 6.4.12.

### CERTIFICATE

I the Dean, College of Horticulture, Bagalkot hereby certify that the information contained in the Section 6.4.1 to 6.4.9 are furnished as per the records available in the college and degree awarding university.

Date: March, 2019



DEAN (HORT.)  
College of Horticulture,  
BAGALKOT.