UNIVERSITY OF HORTICULTURAL SCIENCES, BAGALKOT, KARNATAKA

SELF STUDY REPORT FOR THE M. Sc. HORTICULTURE IN FRUIT SCIENCE KRCCH, ARABHAVI, 2014-15 to 2018-19

SUBMITTED TO

Indian Council of Agricultural Research,
Krishi Bhavan, New Delhi.

SUBMITTED BY

University of Horticultural Sciences,
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PREFACE

India faced the challenge of providing food security to millions of its people soon after independence. The Research and Development initiatives taken by the Government of India resulted in the 'Green revolution' in the late 60s and early 70s. As a result of 'Green revolution', India has made significant achievement through production of 228 million tonnes of food grains and gained self-sufficiency. But considering the nutritional security, economic sustainability and high generation of employment, Horticulture sector plays an important role. Hence, it was only in mid-80s that the Government of India recognized the importance of Horticulture sector and thus greater emphasis was given on this. It is a means of diversification for making agriculture more profitable through efficient land use, optimum utilization of natural resources and creating skilled employment for rural masses. Horticulture has invariably improved the economic status of our farmers. It has also played a significant role in improving floriculture, plantation, spices, medicinal, aromatic industry, fruit and vegetable production and processing, production of quality seed and planting materials, encouraging hi-tech horticulture, contract farming, cooperative farming, participatory approach of production and marketing, etc. Thus, there is a growing awareness about the advantages of the horticultural crop production and this is bound to go up with the increase in socio-economic status of the people.

The R & D programmes in horticulture have received an impressive support from the Eighth Five Year Plan onwards. As a result, the research infrastructure has increased manifold with the setting up of a number of new institutes, national research centres in several crops, important both from domestic as well as export point of view. The establishment of educational institutions in the field of horticulture plays a pivotal role in developing human resource, which would cater to the needs of horticulture industry.

To cater the horticulture needs of the farmers of northern Karnataka and to develop the quality human resource in the field of horticulture, the **Kittur Rani Channamma College of Horticulture, Arabhavi** was established at Arabhavi **on 31.08.1994** under the University of Agricultural Sciences, Dharwad, and is presently functioning under the University of Horticultural Sciences, Bagalkot. The college offers undergraduate, postgraduate and Ph.D. courses and has the admission capacity of 50 students for undergraduate, 30 students for Masters and 8 students for Ph.D. degree programme annually excluding ICAR quota students. Students of this college

have excelled not only in curriculum but also in extracurricular activities and national level competitive examinations and the college is making continuous efforts to improve the quality of education offered here. The ICAR has introduced the procedure of accreditation, which help in assessing facilities available to impart the quality education offered by the college. The college was accreditated by ICAR Peer Review committee for a period of **five years**. After accreditation, the financial support of ICAR and State Government has greatly facilitated the growth and developmental activities of the college to a greater extent, as a result the quality of education has improved. Since the college is due for further accreditation, the present report provides all the necessary information about the college activities performed during **last eight years**.

The University Level Task Force and Steering Committee has 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 those who are involved in preparation of this report.

K.R.C. College of Horticulture, Arabhavi
September-2018

Dean
(Nagesh H. Naik)

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6.4. SELF STUDY REPORT FOR M.Sc. HORTICULTURE IN FRUIT SCIENCE AT KRCCH, ARABHAVI

6.4.1 Brief History of the Fruit Science Department

Master of Science in Fruit Science department was initiated in the year 1998, the curriculum has been developed by designing various courses in the discipline which was approved by the Board of Studies and Academic Council of the University of Horticultural Sciences, Bagalkot. Adequate facilities have been established in the department for imparting quality education.

Objectives\ Mandate of the department

- Serves as a center of excellence in the area of post graduation and human resource development in fruit science
- Collection, conservation, evaluation and utilization of elite genotypes of fruit crops
- Standardization of production technologies in fruit crops through management practices including crop geometry and canopy management.
- Production and supply of genuine planting materials of elite varieties to the farming community
- Dissemination of advanced technologies to the farming community and other stake holders in the field including developmental agencies, nurserymen, entrepreneur etc.
- Updating the research scholars in attaining self confidence to achieve the task of developing entrepreneurship

Statistics of M. Sc. students in Fruit Science department at KRCCH, Arabhavi from 2013-14 to 2017-18

Year of Admission	Admitted			Dropped			Passed			Degree awarded during the year	Remarks
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
2013-14	4	2	6	-	-	-	4	2	6	2014-15	
2014-15	6	2	8	-	-	-	6	2	8	2015-16	
2015-16	2	3	5	-	-	-	2	3	5	2016-17	
2016-17	2	3	5	-	-	-	2	3	5	2017-18	
2017-18	2	4	6	-	-	-	-	-	-	2018-19	Yet to complete
Grand Total	16	14	30	-	-	-	14	10	24		

Gold Medals received by the Post Graduate students

Department	No. of Gold Medals				
	2013-14	2014-15	2015-16	2016-17	2017-18
Fruit Science	1	-	3	3	-
TOTAL	3	11	10	4	6

Award of UHS, Bagalkot, GOI & BCM authorities' Scholarships for the academic year 2017-18

Scholarship Type	M.Sc.(Fruit Science.)				
	2013-14	2014-15	2015-16	2016-17	2017-18
Merit Scholarship	3	2	3	2	2
Students Aid fund	1	1	-	-	-
Category I EBLScholarship	-	-	-	-	-
SC/ST Fellow Ship	4	-	-	3	1
GOI Scholarship (SC+ST)	3	-	-	2	1
Vidyasiri food & Accommodation	1	7	7	1	1
Muslim Minority	-	-	-	-	1
TOTAL	12	10	10	8	6

6.4.2 FACULTY STRENGTH

Faculty Strength (Cadre-wise)

Designation / Cadre	2014			2015			2016			2017			2018		
	S	F	V	S	F	V	S	F	V	S	F	V	S	F	V
Professor	1	2	0	1	1	0	1	1	0	1	1	0	1	1	0
Associate Professor	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1
Assistant Professor	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0
Total															

S-Sanctioned, F-Filled, V-Vacant

Faculty Strength (2017-18)

Department	Sanctioned Faculty			Faculty in place			Vacant position			Recommended by ICAR			Diversion from ICAR recommendation		
	Prof	Assoc. Prof.	Asst. Prof.	Prof	Assoc. Prof.	Asst. Prof.	Prof	Assoc. Prof.	AsstProf.	Prof	Assoc. Prof.	Asst. Prof.	Prof	Assoc. Prof.	Asst. Prof.
Fruit Science	1	1	2	1	0	2	0	1	0	1	1	2	0	1	0
Faculty from AICRP (F)	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0
Total	**1**	**2**	**3**	**1**	**0**	**4**	**0**	**1**	**0**	**1**	**1**	**2**	**0**	**1**	**0**

6.4.3. TECHNICAL AND SUPPORTING STAFF

SL NO	Post	2017-18				
		Sanctioned	Filled	Vacant	Recommended by UHS	Diversion from recommendation (Sanctioned)
1.	Field Assistants	01	00	01	01	01
2.	Lab. Assistants	01	01	00	01	00
3.	Messenger	01	01	00	01	00
4.	Farm Labour	01	01	00	01	00
	Gross total	**04**	**03**	**01**	**04**	**01**

6.4.4 CLASSROOMS AND LABORATORIES

Classrooms

Sl. No.	Class room No.	Area ($M^{2)}$	Seating capacity	Other facilities (LED, Projectors, Computers, Smart board etc.)
1.	Fruit Science	58.40	30	LCD, Projectors, Computers
2.	Seminar Hall*	120.00	80	LCD, Projectors, Computers

* Common Seminar Hall for all the departments in the college

Laboratory

Sl. No.	Name of the laboratory	Area ($M^{2)}$	Seating capacity
1.	Fruit Science	50	30
2	Central Lab*	80	15

* Common Central laboratory for all the departments in the college

Major functional equipments

Sl. No.	Name of the equipment	Quantity
1.	Digital conductivity meter	1
2.	Digital Balance keroy	1
3.	Sony Handy Camera	1
4.	Godrej Refrigerator single Door	1
5.	Godrej Refrigerator Double Door	1
6.	Aqua sure water purifier	1
7.	Self – propelled rotary weeder	1
8.	Refractometer	1
9.	Thermometer	1
10	Chain saw	1
11.	Digital Hygrometer	1
12.	Light meter Digital	1
13.	Seed scrapper	1
14.	Pro-tray dribbler	1
15.	HTP Power sprayer	1
16.	Honda weed cutter	1
17.	Earth Augar	1
18.	Chaff Cutter	1

Farm facilities

The college has total area of 50.40 hectares, out of which 5.10 hectares area is available for cultivation in fruit science department. All the fields are well connected with approach roads and internal roads. Entire farm is irrigated by Ghataprabha left bank canal apart from number of open wells. The perennial crops are irrigated through drip irrigation.

Farm area of the department

Sl. No.	Name of the Department	Farm Area (ha)	Irrigated / Non-irrigated (ha)	Crops grown
1.	Fruit Science	5.10	5.10	Mango, Guava, Sapota, Jamun, Amla etc.,

Poly house and Shade nets

Sl. No	Particulars	No.	Area (M^2)	Details	Remarks
1.	Poly houses	4	960.00	Plant multiplication of Mango, Guava, Sapota Jamun, lime etc.. and ELP activities	
2.	Shade nets	5	2616.00		

Instructional farms

Sl. No	Particulars	Area (ha)	Details	Remarks
1.	Fruit Science	2.18	Mango, Guava, Sapota	
2.	AICRP	1.00	Banana and Sapota	
3.	Nurseries	1.00	Guava, Jamun , Mango, Lime West Indian cherry etc..	

Diary Plant, water storage ponds, Farm equipments and meteorological units

Sl. No.	Particulars	Details	Area/No	Remark
1.	Diary plant	6 cow + 4 calves 6 buffalos + 5 calf Bullocks 5 pair + 1	32 No	
2.		Vermicompost unit	10 unit	5 ton per month
3.	IFS	Cow – 01, Calf – 02, Goat – 04,	7 No	
		Vermicompost Unit	04	2 ton /month
		Fish Pond	01	9m x 4.5 m x 2.4m
4.	Farm equipment	Tractor (45 hp)	1	
		Tractor (18hp)	1	
		Trailer	2	
		Rotavator	2	
		Double mould board reversible plough	2	
		Single mould board reversible plough	3	
		Rigid tyne cultivator	1	
		Flexible tyne cultivator	2	
		Blade harrow	3	
		Disc plough	1	
		Plough	2	
		Blade harrow cum leveller	2	
		Farward and reverse blade	1	
		Boomer	1	
		Weed cutter	5	
		Telescopic tree pruner	1	
		Chain saw	2	
		Battery operated knapsack sprayer	5	
		Milking machine	1	
		Pressure washer	1	
		Papaya/vegetable seed drillers	1	
		Water lifting device	1	

Sl. No.	Particulars	Details	Area/No	Remark
5.	Fruit Science	Open well	2	50ft x 45 ft
6.	Meteorological units	Sun shine Recorder Wind vane Wet bulb thermometer Dry bulb thermometer Rain Gauge Soil thermometer Hygrometer Anemometer Thermometer Digital Observatory	1 each 2 unit	

Farm Workshop cum Vehicle shed

Sl. No.	Name of the workshop	Area	Major equipments (> 1 lakh)
1.	Farm work shop cum vehicle shed	300 m^2	-

Adequate number of class rooms, laboratories and farm/field facilities have been established in the college that are facilitating to carry out Postgraduate degree programme most effectively.

Average Number of Students in Theory and Practical Classes

Postgraduate students as they are less in number are grouped into one theory batch and one practical batch.

Sl. No.	Name of the department	Theory Batch	Practical Batch
1.	Fruit Science	Full strength	Full strength

6.4.5 CONDUCT OF PRACTICAL AND HANDS-ON-TRAINING

Glimpses of Practical and hands-on training

Sl. No.	Department	Hands on Training and Methodology
1.	**Fruit Science**	Knowledge on germplasm biodiversity and geographical indicator/prominent fruit crops and improvement Growth and yield dynamics of prominent fruit crops pertaining to agro-climatic condition Training, pruning techniques, crop geometry and canopy management Diagnostic techniques for different nutrient status of fruit crops, nutrients supplements through fertigation and foliar applications High density planting, canopy management and precision farming techniques Visit to commercial, precision and protected cultivation orchards, research centers. Visit to the entrepreneur and “Awarded” farmers

- The courses in PG of Fruit Science disciplines have been framed to include more of research oriented lab and field experiments.
- PG students are thoroughly exposed to specific and need based hands-on trainings and they are trained to review, plan and formulate the research programmes under the guidance of advisory committee.
- Course curriculum for PG has been designed with special emphasis on specialized Horticultural techniques.
- Further as a part of their course curriculum, the PG students are taken to exposure visits to different research institutes, progressive farmers' field and private industries.
- A study tour of seven days to different research institutes and commercial hubs specifically engaged in Fruit crops research field is organized by the department which is contributing for better understanding of the subject and to enrich their practical knowledge.

6.4.6 SUPERVISION OF STUDENTS IN PG 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. Research work was carried out by students on the major crops which are grown in this area.

Sl. No.	Year	No. of PG recognized teachers			Intake of students	teacher to Student ratio
		KRCCH, Arabhavi	Off Campus	Total	M.Sc.	
1.	2013-14	2	2	4	6	1: 1.5
2.	2014-15	3	1	4	8	1 : 2
3.	2015-16	3	0	3	5	1 : 1.66
4.	2016-17	4	0	4	5	1 : 1.25
5.	2017-18	4	0	4	6	1 : 1.5

6.4.7 FEEDBACK OF STAKEHOLDERS

(STUDENTS, PARENTS, INDUSTRIES, EMPLOYERS, FARMERS ETC.)

Sl No.	Feedback	Action Taken/Attended
1.	Students' request for provision of financial support through PG grants for their research activities	Provision has been made
2.	Farmers' opinioned for HDP demonstration block	Established in Guava and Mango crop
3.	Nurserymen request for supply of	Established mother block of mango,

Sl No.	Feedback	Action Taken/Attended
	genuine scion materials	sapota, jamun fruit crops and supplying the scion materials on request
4.	Farmers' opinion for supply of genuine planting materials	Being attended regularly

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

Year	Sanctioned seats	Actual intake	Attrition	Attrition Percentage
2014-15	4	8	0	0
2015-16	4	5	0	0
2016-17	4	5	0	0
2017-18	4	6	0	0
2018-19	5	5	0	0

6.4.9 ICT APPLICATION IN CURRICULA DELIVERY

- ICT enabled teaching-learning encompasses a variety of techniques, tools, content and resources aimed at improving the quality and efficiency of the teaching-learning process.
- At KRCCH Arabhavi for effective teaching and learning, teachers participate in selection and critical evaluation of digital content and resources. For this each individual staff allotted with high configured computer system and connected with high speed Internet facilities for sharing digital contents.

Below mentioned ICT facilities established in the college are being utilized for PG programme

SI. No.	Name of Lab	Equipment	Usage
1	ICT Enabled Class Room	1 PG Class room with Computer System and LCD Projector	For educational video, PPT, conferencing, teaching and learning
2	PG -Computer Lab	16 HP Computers Systems	Statistical software programmes for research data analysis
3	ICT Enabled Smart Boards	One Smart Board installed in PG class room	Teaching, Learning
4	ICT Enabled Conference Hall	High Definition CISCO Camera System with High Speed Internet of 4 Mbps lease Line connectivity	For online interaction with University key officials by students and staff, online interaction with different subject experts in different streams

Library:- Digitalized college library

KOHA, CeRA, e- books, e-Journals, Krishikosh

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 3500 scholarly journals pertaining to the Agriculture and allied sciences which are available in full text.

e - books & e - journals

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 and also library having excess to e-journals for Hortsci and Journal of American society for Horticulture Science.

Krishikosh

Krishikosh is database of thesis submitted to the Agriculture universities and ICAR institutions. The UHS Library is a member for Krishikosh and all the thesis 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 05 computers with facility of internet connected to all computers. Web OPAC of Kittur Rani Channamma College of Horticulture, Arabhavi library is available in the net. EZ-proxy remote access server is installed in main campus library through which we are accessing the e-resources, CeRA, and Agristat.

Wi-Fi facility

Wi-Fi is available in the library premises. One can have net facility in the campus through IP based network. Through which students and faculty members can browse CeRA and e-resources of the library and college premises.

Different ICT Softwares used by PG students

SL. No	ICT Application	Usage
1.	Academic Management System Software	Online PG Student Admission, POW, POR, Thesis Submission, Qualifying Examination etc. Complete activities of Student, Staff, Academic section activities, automated in this software
2.	Horti App	Provide information about the horticulture trends, technologies and methods being used. HortiApp is a useful app in cultivation of all kinds of crops, where it gives detailed information of each crop.

SL. No	ICT Application	Usage
3.	SYSTAT	Statistical Software for analysis of Statistical Data
4.	Window STAT	Statistical Software for analysis of Statistical Data
5.	HERBIQ	Windows Form Application that stores data in encrypted XML files to track the progress of plants, nutrient levels, environment, smoke effects, strain characteristics for breeding, etc. Output to single file with embedded images like a pdf file or some open format to show others
6.	English Digital Laboratory	16 HP P-IV Computer Systems for English Learning

6.4.12.

CERTIFICATE

I the Dean, Kitturu Rani Channamma College of Horticulture, Arabhavi 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