

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



**SELF STUDY REPORT FOR THE  
Ph.D. IN VEGETABLE SCIENCE  
COH, BENGALURU, 2014-15 to 2018-19**

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

**SUBMITTED BY**  
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## PREFACE

Horticulture - a science of production and management of plants for food, comfort, feed, recreation, and beauty – is potentially vital in raising agricultural production, value addition, farm income and employment in the country. In the context of hazards like climate change, scarcity of water, labour problem etc., Horticulture is contributing incessantly in planning sustainable development goals. After UN General Assembly Summit held on January 1st of 2016, India has adopted 17 SDGs and 169 targets to strengthen health and economy of the nation. Modern era of digitalization has introduced new perspectives like digital horticulture, precision farming, climate smart farming, and nutritional security into the prospectus of horticulture.

Karnataka was the first state in the country to recognize the potential of horticulture sector to bring prosperity to the farmers. To increase the focus on the sector, the state took the lead and created the country's first Horticulture Department and other states followed the example of Karnataka. Presently Karnataka is placed second in horticulture performance in the entire country and the state received 'Best State in Horticulture' award in 2015. Karnataka is the highest exporter of cashew, roses, gherkins, rose onions, spices and condiments. The state has achieved remarkable progress in many fronts from production to storage, packaging and marketing of fruits, vegetables, flowers and plantation crops.

The horticulture sector, which includes a wide variety of crops such as fruits, vegetables, spices, plantation crops, floriculture, medicinal and aromatic plants etc., is recognized as an important sector for potential diversification and value addition for the sustainability of the farmers. It has been recognized that growing horticulture crops is now an ideal option to improve livelihood security; enhance employment generation; attain income and food security; and increase income through value addition.

After its establishment in 2008, University of Horticultural Sciences, Bagalkot established RHREC in a newly transferred land of 125 acres at its campus in Bengaluru in the year 2010 and in the year 2011 Post Graduation Centre was established. Initially the campus was called as Post Graduation Centre but with the commencement of Bachelor's degree programme and two year diploma course in the year 2014, it was re-christened as College of Horticulture.

The college is striving hard to impart quality education in terms of theory, research and extension. The college is gathering laurels through the performance of teachers as well as the students. The college has an excellent track record in both academics and co-curricular activities.

ICAR, through an accreditation procedure of its own is assessing facilities available and to improve the quality of education rendered by the college. After accreditation, by the financial support of ICAR and State Government, the growth and developmental activities of the college will be

improved further to a greater extent. Since the college is due for accreditation by ICAR the present report provides all the necessary information about the college activities performed during last five years.

The University level task force and steering committee is gratefully acknowledged for the 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. I gratefully thank all those who have helped in preparing this report.



**DEAN**

**(VISHNUVARDHANA)**

**College of Horticulture, Bengaluru**

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## 6.4.1. BRIEF HISTORY OF THE PH.D. IN VEGETABLE SCIENCE DEGREE PROGRAMME

Vegetables play major role in the nutritional security of the world, since these are rich in vitamins and minerals. In and around Bengaluru, the vegetables are grown in larger area intensively. Vegetable production, breeding, seed production and protected cultivation have immense scope in this area. In this background, Department of Vegetable Science was started during the year 2010-11, to develop human resources and to train the students to be specialised in breeding, crop production and seed production of vegetables and also to acquire skill and knowledge in precision farming, post harvest handling of vegetables *etc.* The department is also aimed to create research facilities to conduct student research for their masters (started in 2010-11) and Doctoral programme started on 29-08-2016. The problem oriented research programmes will also be carried out by staff. Extension activities are also undertaken by the department to transfer technologies by training the needy farmers, line department officials, NGO's, women self help group *etc.*

### Objectives:

- ✓ To develop human resources and to train the students to be specialised in breeding, crop production and seed production of vegetables
- ✓ To acquire skill and knowledge in precision farming and post harvest handling of vegetables
- ✓ To undertake need based strategic and applied research.
- ✓ To develop technologies for immediate needs of the farmers
- ✓ To produce quality plant material and seeds to supply to the needy farmers.
- ✓ Training and entrepreneurial development, advisory consultancy to farmers in person, phone and field visits, extension functionaries.

### Statistics of Ph.D.s in Vegetable Science from 2016-17 to 2017-18

Year of Admission	Admitted			Dropped			Passed			Degree award during the year
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
2016-17	1		1	-	-	-	-	-	-	
2017-18		2	2	-	1	1	-	-	-	
2018-19	4	2	6	-	-	-	-	-	-	
<b>Total</b>	<b>5</b>	<b>4</b>	<b>9</b>	-	-	-	-	-	-	

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

Scholarship Type	Ph.D.		
	2016-17	2017-18	2018-19
Merit Scholarship	1	1	1
Students Aid fund	-	-	-
Category I EBL Scholarship	-	-	-
SC/ST Fellow Ship	-	-	-
GOI Scholarship (SC+ST)	-	-	1
Vidyasiri food & Accommodation	-	-	2
Muslim Minority	-	-	-
Inspire fellowship	-	-	1
SRF	-	-	2
<b>TOTAL</b>	<b>1</b>	<b>1</b>	<b>8</b>

### 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		3	-		1	-		1	-		1	-		1	-
Associate Professor		-			-			-			-			-	
Assistant Professor		1	-		3	-		3	-		3	-		2	-
<b>Total</b>		<b>4</b>			<b>4</b>			<b>4</b>			<b>4</b>			<b>3</b>	
Contractual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

#### Faculty strength of Vegetable Science Department at COH, Bengaluru

Department	Sanctioned Faculty			Faculty in place			Vacant position			Recommended by ICAR			Deviation from ICAR recommendation		
	Pr of.	Ass oc. Prof .	Ass t. Pr of.	Pr of.	Ass oc. Prof .	Ass t. Pr of.	Pr of.	Ass oc. Prof .	Ass t. Pr of.	Pr of.	Ass oc. Prof .	Ass t. Pr of.	Pr of.	Ass oc. Prof .	Ass t. Pr of.
Vegetable Science				1		2				1	2	3			

### 6.4.3. TECHNICAL AND SUPPORTING STAFF

SL NO	POST	2018						Remarks
		S	F	V	Contractual service	Recommended by UHS	Deviation from recommendation (Sanctioned)	
1.	Field Assistant	-	1	-	-	-	-	Field assistant looks after the lab work
2.	Lab Assistant	-	-	-	-	-	-	
3.	Messenger	-	-	-	-	-	-	-
4.	Farm Labour	-	-	-	-	-	-	-
	<b>Total</b>		<b>1</b>	-	-	-	-	-

### 6.4.4 CLASSROOMS AND LABORATORIES:

Vegetable science department has sufficient number of classrooms and laboratories as detailed below.

#### Classrooms

Sl. No.	Class room	Area (m <sup>2</sup> )	Seating capacity	Other facilities (LED, Projectors, Computers, Smart board etc.)
1.	Vegetable Science	80	50	Projector
2.	Seminar Hall*	120	80	LED, Projectors, Computers

\* Common Seminar hall for all PG Departments

#### PG Laboratory

Sl. No.	Name of the laboratory	Area (m <sup>2</sup> )	Seating capacity
1	Vegetable Science	102.00	30

#### Major equipments

Sl. No.	Name of the equipment	Quantity
1.	pH meter	1
2.	EC meter	1
3.	Spectrophotometer	1
4.	Electronic microscope	1
5.	Horizontal Refrigerator	1
6.	Vertical Refrigerator	1
7.	Digital Balances	2

8.	Lux meter	1
9.	Hygrothermometer	1
10.	Varnier caliper	1
11.	Hand refractrometer	1

### Farm facilities

The college has total area of 50.40 hectares, out of which 2.40 hectares area is available for cultivation and research for vegetable science department. All the fields are well connected with approach roads and internal roads. Entire farm is irrigated by water harvesting structure and borewells. The details of farm facilities in Vegetable Science Department are given below.

Sl. No.	Name of the Department	Farm Area (ha)	Irrigated / Non-irrigated (ha)	Crops grown
1.	Vegetable Science	2.4	1.0	Tomato, brinjal, grafted brinjal and tomato, chow chow, yard long bean, chilli, broccoli, cabbage, curryleaf, drumstick.

### Poly house and Shade nets

Sl. No	Particulars	No.	Area (m <sup>2</sup> )	Details	Remarks
1	Poly houses	2	100.00	Tomato Capsicum, cucumber	
2	Shade nets	1	400.00	Onion	

### Ponds/open well

Sl. No.	Details	Area/No	Remark
1	Farm pond	2	

### Average number of students in Theory and Practical Classes

At present course work for Ph.D in Vegetable Science is being carried out at College of Horticulture, Bangalore.

Sl. No.	Name of the department	Theory Batch	Practical Batch
1.	Vegetable Science	Full strength	Full strength
		13	13



## 6.4.5 CONDUCT OF PRACTICAL AND HANDS ON TRAINING

Ph.D degree in vegetable science aimed to develop skilled and professionally sound human resource to serve the booming horticulture sector of India. As the quote says, “I hear I forget, I see I remember and I do I understand”, the students who are practicing what they learnt in class room through hands on training, are more likely to have retention of the learnt skills, which is helping them to graduate with a better understanding and better field knowledge and skills.

### Practical Credit details

Sl. No.	Discipline	Number of credits for practical	Per cent of time spent	
			In laboratory	In field*
1.	Vegetable science	06	30	70

### Field/Nursery/Protected structures

Out of total 15 credit hours, 06 credit hours are prescribed for practical's. Regular practical for the students are conducted in the lab/field in respective courses. Lab and field assistants take care of practical's in lab/field under the guidance of course teachers. Practical knowledge gained by the student is assessed through a practical exam at the end of each course.

### Glimpses of Practical's and exposure visits

Sl.No.	Department	Methodology
1.	Vegetable Science	<ul style="list-style-type: none"> <li>- Varietal and hybrids development techniques</li> <li>- Precision and high-tech vegetable farming</li> <li>- Visit to R &amp; D units involved in vegetable breeding and seed production.</li> <li>- Visit to research stations working on vegetable crops and model vegetable crop fields.</li> </ul>

### Post-Graduate Programme.

This college is offering **Ph.D** programme in vegetable science where the students are specifically guided in relevant fields of knowledge. The courses for vegetable science discipline have been framed to include more of research oriented lab and field experiments. **Ph.D** 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 **Ph.D** 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 particular research field is organized by each department which is contributing for better understanding of the subject and to enrich their practical knowledge.

#### 6.4.6. SUPERVISION OF STUDENTS IN PG

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	Department	No. of PG recognized teachers			Intake of students		Student to teacher ratio
			COH, Bengaluru	Off Campus	Total	Ph.D	Total (Ph.D students)	
1	2013-14	Vegetable Science	02					
2	2014-15	Vegetable Science	03					
3	2015-16	Vegetable Science	04					
4	2016-17	Vegetable Science	04	01		1		
5	2017-18	Vegetable Science	02	02		2		
6	2018-19	Vegetable Science	02	04		06	06	7:1

#### 6.4.7. FEEDBACK OF STUDENTS

Sl. No.	Name	Year of completion	Important remarks/feed back
<b>M.Sc. Passed out students</b>			
1.	Basavaraj, T	UHS16PGM835	Overall teaching is good and we need teaching faculty. Lack of facilities for conducting research trails.
2.	Chaithra, C	UHS16PGM836	Teaching is very good, but lack of faculty and more equipments should

			be provided for labs.
3.	Keerthana, K.G	UHS16PGM837	Good guidelines are available for students to conduct research. Lack of teaching faculty and there is more scarcity of water and other resources.
4.	Priyadarshini	UHS16PGM838	Good teaching , Lack of facilities for conducting research.
5.	Sahana , K.P	UHS16PGM839	Teaching is good , Facilities should be provided for conducting PG research

#### 6.4.8. STUDENT INTAKE AND ATTRITION IN THE PROGRAMME PH.D IN VEGETABLE SCIENCE

One of the Ph.D students discontinued her degree programme due to appointment in central govt. job (NSC).

Year	Departments	Sanctioned seats	Actual intake	Attrition	Attrition Percentage
2016-17	Ph.D		1	0	0
2017-18	Ph.D		2	0	0
2018-19	Ph.D		6	0	0

#### 6.4.9 ICT Application in Curricula Delivery

The department uses various ICT methods for teaching PG students. The department has wi-fi connection. The classroom is fitted with LCD projector where videos, pictures related to the syllabus, recent developments will be played to enrich the student's knowledge.

**6.4.12.**

**CERTIFICATE**

I the Dean, College of Horticulture, Bengaluru 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



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