UNIVERSITY OF HORTICULTURAL SCIENCES
BAGALKOT, KARNATAKA

SELF STUDY REPORT FOR THE
M. Sc. HORTICULTURE IN POST HARVEST TECHNOLOGY, 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.

Dean
(H.B.Patil)

College of Horticulture, Bagalkot
March, 2019.

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6.4.1. BRIEF HISTORY OF THE DEGREE PROGRAMME:

The Department of Post Harvest Technology was established on 22.11.2008, since beginning of the University of Horticultural Sciences, Bagalkot. The Department was shifted from its original place of Haveli farm to its present location Udyanagiri campus in the year 2013-14.

The Post Graduate Programme leading to M.Sc. was started in the discipline of Post Harvest Technology during the year 2013-14. This was accomplished in its third phase of up gradation of Departments to post graduation level.

Objectives

1. Integrated post harvest management of fruits and vegetables
2. Development of export protocol for fruits and vegetables
3. Development of fruit and vegetable based functional foods
4. Development of convenience and bakery foods based on horticulture products
5. To provide technological base and trained manpower for supporting processing and post harvest management of horticulture produce and related activities in the state.
6. To create an intellectually stimulating campus environment.
7. To plan and implement the strategies and programmes to achieve excellence in horticultural education, research and extension and intern reinforcing one another.

Achievements:

1) Out of the 37 students admitted, 27 students have acquired M.Sc. (Horticulture) degree in Post Harvest Technology since 2013-14. The details are as given below.

Year	Male	Female	Total	Remarks
2013-14	0	4	4	Completed
2014-15	2	6	8	Completed
2015-16	1	5	6	Completed
2016-17	1	8	9	Completed
2017-18	5	5	10	On-going
Total	**09**	**28**	**37**	

2) Ms. Madhushree M. (2017) and Ms. Anusree Anand (2018) have received University Gold medal for having stood first in PHT among 3 different PG campuses of UHS, Bagalkot.

3) A student Ms. Anusree Anand has received ‘Best Poster Award’ during PG Conference – 2017 (organized by UHS, Bagalkot) for her research work.

4) A PG student's research work has been developed as University technology (ready-to-use sapota powder mixture)

5) A Jackfruit variety by name 'Maharaja' has been released as a farmer's variety under the project funded to the Department by Karnataka State Forest Department.

6) The Department has established 'Incubation Centre' under the RKVY project entitled 'Establishment of Centre for Post Harvest Technology of Horticultural Crops'

7) The Department has trained 269 beneficiaries (coming from different taluk of Bagalkot and Vijayapura Districts) under RKVY project entitled 'Establishment of Centre for Post Harvest Technology of Horticultural Crops'

Student thesis and outcome

Sl. No.	Name of the student	Title of the thesis	Year of completion	Outcome
1	Laxmi Hanamant Kadapatti	Studies on improvement of shelf life and dehydration in lime (*Citrus aurantifolia*, Swingle.) variety kagzi	September 2015	The best quality dehydrated whole lime fruits were obtained by blanching the fresh lime fruits in water containing 12% NaCl for 8 minutes at 95^0 C followed by drying them in an electric tray drier at 60^0 C with maximum score for flavour (8.50), taste (6.50) and overall acceptability (7.50) at 6 months after storage.
2	Manya H. M.	Studies on preparation and preservation of ready to use sapota powder mixture	June 2015	Ready to use sapota powder packed in laminated aluminum foil pouch was found to be better with minimum changes in sensory and nutritional qualities compared to other packages used in the study.
3	Mrunalini B. Naganagoudar	Development of nutri-enriched pomegranate beverages	July 2015	90% pomegranate juice+ 10% drumstick leaf extract (T_2) RTS and 68.50% pomegranate juice+30% drumstick leaf extract+1.5% ginger juice(T_{13}) squash had the highest nutrient content with acceptable sensory quality.
4	Supriya A. T.	Studies on influence of Pre-harvest Foliar sprays on storage Life and Quality of Onion *var.* Arka Kalyan	July 2015	Azoxystrobin (0.05%) and Salicylic acid (2 and 4 mM) were found to be effective in maintaining the quality and shelf life of onion.
5	Chandana	"Studies on	June 2016	Wood apple nectar prepared from 20

Sl. No.	Name of the student	Title of the thesis	Year of completion	Outcome
	C.S.	extraction of wood apple (*Feronia limonia Swingle*) pulp for value addition"		% pulp + 20^0 B found superior with respect to overall acceptability and nutritional qualities.
6	Deepa Konti	"Standardization of protocol for preparation and storage of sapota burfi."	June 2016	Sapota burfi prepared from sapota pulp 450 g + cashew nut 50 g recipe and packed in polypropylene box sealed in aluminum foil pouch followed by aluminum foil pouch in paper board carton performed better with minimum changes in sensory and nutritional qualities stored for 15 days.
7	Divya B.C.	"Studies on post-harvest processing and shelf life of drumstick pods"	July 2016	Drumstick pod (rib filing stage) minimally processed in to pod cut pieces size of 2 inches treated with garlic extract (5%) and packed in LDPE bags (0.5 % vent) for 30 days and stored under refrigerated condition (4 ^{0} C) was found best with respect to physico-chemical, sensory and microbial qualities.
8	Kavya M.V	"Hepatoprotective activity against ethanol induced oxidative stress and in-vitro antioxidant activities of functional grape wines."	June 2016	Wines of cabernet sauvignon and Tempranillo fortified with 30 % concentration of ginger or pepper extract performed significantly better to non fortified wines in hepatoprotection against the ethanol induces toxicity in Sprague dawley (SD) rats.
9	Madhukara	"Studies on Studies development of drumstick leaves green tea powder"	July 2016	Drumstick leaves dried under cabinet tray drier (60^0 C), powdered and blended with lemon grass powder (6%) and packed in aluminum pouch could be stored under ambient condition for 6 months with better sensorial qualities.
10	Madhushree M.	"Studies on preservation in syrup and osmotic dehydration of pomegranate arils"	June 2016	Osmotically treated pomegranate arils dried by tray dryer showed better physic-chemical properties and can be stored for 6 months under ambient condition.
11	Rigzen Tsewang	"Effect of seedling dip and pre-harvest spray of chemicals on storage behavior of onion var. Arka	June 2016	Azoxystrobin 0.1% at 60 + 90 DAT and SA 2mM seedling dip + pre-harvest spray at 60 +90 DAT were found effective in maintaining quality and shelf life of onions.

Sl. No.	Name of the student	Title of the thesis	Year of completion	Outcome
		Kalyan"		
12	Sumanajani Bhosale	"Studies on physico-chemical composition and improvement of shelf life in kagzi lime (*Citrus aurantifolia, Swingle*)"	August 2016	Post harvest treatment wax emulsion @ 6 % and calcium chloride @2% extend the shelf life of Kagzi lime fruits up to 21 days (each) in ambe bahar, 25 and 21 days, respectively in mrig bahar.
13	Ayeesha Hasansab Kolhar	"Studies on field application of Salicylic acid azonxytrobin and cycocel on storage behavior of Onion Cv Arka Kalyan"	June 2017	Foliar application of salicylic acid (2Mm), azoxystrobin (0.1%) at 60 + 90 days after treatment and cycocel (2500 ppm) at 90 days after treatment was effective in maintaining quality and shelf life of onion.
14	Anusree Anand	"Comparative studies on dehydration of fig (*Ficul carica* L.) fruits cv. Bellary under different pre-treatments and dryers"	June 2017	Dehydrated figs (cv. Bellary) obtained by pretreatment with blanching for 4 min + 0.2 % KMS for 5 min.+ steeping in 40^0 brix sugar solution containing 0.5 % citric acid for 24 hrs. and drying them in solar tunnel drier and packed in aluminum foil pouch were superior for nutritional and sensory attributes.
15	Ranjitha J.	"Study on development of nutri-enriched cookies fortified with pomegranate peel powder and defatted soybean flour"	June 2017	65 % Refined wheat flour + 5% Pomegranate peel powder + 30 % Defatted Soybean Flour was found best for nutritional properties and when packed in aluminum foil stored for 3 months under ambient condition.
16	Shubhada N	"Studies on fermentation of pomegranate juice by lactic acid bacteria."	June 2017	*Lactobacillus plantarum* fermented beverage, prepared by blending of 85% pomegranate juice + 15% kokum juice with 5% honey (pre-biotic) showed superior biochemical and sensory properties up to 45 days at 4^0C. the blended beverage also supported the survival of lactic acid bacteria up to 30 days under refrigerated condition.
17	Ummesee ma N.	Effect of chemicals and packing materials on shelf life of sapota fruits	June 2017	Sapota fruits kept in CFB boxes with $KMnO_4$ treatment stored at 8^0 C could prolong the shelf life of sapota (cv. Cricket ball) for 6 days

Sl. No.	Name of the student	Title of the thesis	Year of completion	Outcome
				compared to control fruits.
18	Vittal Kamble	"Development and evaluation of nutri dense noodles incorporated with drumstick leaf powder and defatted soybean flour"	June 2017	Acceptable noodles in terms of cooking properties, organoleptic evaluation and higher nutritional contents could be produced by incorporating 5% drum stick leaf powder and 10% defatted soybean flour into refined wheat flour.
19	Bharathkumar A	Standardization of pre-treatment for quality improvement in raisins and dehydrated fig	July 2018	Better quality raisins can be obtained by pretreatment with 1.5 % ethyl oleate and 2.5 % potassium carbonate as dipping solution at 45^0 C whereas moderately acceptable dehydrated figs were obtained by blanching for 4 min. cut in to longitudinal quarters followed by steeping in 40^0 brix sugar syrup containing 0.2 % KMS + 0.25 % citric acid for 24 hrs.
20	Bindu H.	Standardization of weaning food enriched with banana, sweet potato and drumstick leaf powder	July 2018	Incorporation of 30 % banana powder+ 10 % sweet potato powder +5 % drumstick leaf powders to infant weaning mix was affordable for low income groups with good nutrient composition and serum biochemical parameters.
21	Darshini J. R.	Nutritional enrichment studies in biscuits and bread by incorporationg pineapple pomace powder	July 2018	90 % All Purpose Flour+5% Pineapple Pomace Powder+ 5% Defatted Soya flour was found to be the best treatment for preparation of nutritionally enriched biscuits and bread by incorporating pineapple pomace powder.
22	Kavya K.	Studies on use of elicitor and bio formulation s on shelf life and quality of papaya fruits	July 2018	Pre-harvest application of salicylic acid at 300ppm and pre and post harvest application of chitosan enhanced the quality and shelf life of papaya fruits
23	Keerthana L.	"Standardization of process protocol for honey based aonla preserve"	July 2018	Whole pricked aonla fruit pre treated (blanching for 5 min +steeping in 4% potash alum for 1 hr. + steeping in honey) gave good aonla preserve with better sensory qualities and stored for 90 d under ambient condition.
24	Pooja B K	Studies on	July 2018	Pretreatment of 0.5 % $Na_2 S_2O_5$ for

Sl. No.	Name of the student	Title of the thesis	Year of completion	Outcome
		dehydration of onion and tomato using solar tunnel dryer		20 min. of onion slices and tomato without any pre treatment cut in to longitudinal quarters were found best for dehydration under solar tunnel dryer.
25	Reethu G. R.	Effect of different post harvest treatments and packing materials to extend the shelf life of tube rose florets	July 2018	Pre cooling tuberose florets at 4^0 C and treating with 4% boric acid + GA_3 at 100 ppm followed by packing in thermocol box lined with aluminum foil padded with gel ice pack was found to be the best protocol for transport.
26	Reshma N. Yadravi	Studies on management of post harvest anthracnose disease of papaya using biological control agents	July 2018	Fruits treated with Bio Control Agent isolate no. 9 showed lowest disease index with more shelf life of 10 days with minimum PLW, higher firmness and higher TSS, ascorbic acid and carotene content.
27	Supritha S N	Studies on optimization of nutri-enriched fruit leather	July 2018	Nutri-enriched fruit leather prepared from papaya pulp (60%) + guava pulp (20%) + sweet potato flour (10%) +soya flour (10%) was found to be superior in physical and nutritional quality parameters.

Services

The department has full-fledged infrastructure facilities like post harvest physiology laboratory, Food quality laboratory, Microbiological laboratory, Horticulture Produce Processing Centre, Processing laboratory. PG laboratories are equipped with high end instruments like Texture analyzer, Spray Drier, Freeze drier, ICT Facility, Package testing facility, Conference room, Ripening chamber, Cold storage facility and Divisional library.

6.4.2. FACULTY STRENGTH:

The Department has 5 teachers

Sl. No.	Sanctioned Faculty	Faculty in place	Faculty recommended by the ICAR	Deviations from ICAR recommendations
1.	Professor	1	1	Nil
2.	Associate Professor	0	2	-2
3.	Assistant Professor	4	2	+4

4.	Assistant Professor of PHT*	1	-	-
5.	Assistant Professor of Crop Physiology*	1	-	-
6.	Associate Professor of Microbiology*	1	-	-
7.	Assistant Professor of Microbiology*	1	-	-

*Services of one Assistant Professor of PHT and one Assistant Professor of Crop Physiology working in Directorate of PG studies as well as two faculties from Department of Microbiology respectively are availed to successfully run the PG programme.

6.4.3. TECHNICAL AND SUPPORTING STAFF:

The Department has 2 technical (non-teaching) staff.

Supporting staff position of the department

Sl. No.	Sanctioned Faculty	Faculty in place	Vacant position	Faculty recommended by the ICAR/UGC/VCI/ other regulatory bodies	Deviations from ICAR recommendations
1.	Laboratory Assistant	2	-	1	+1

Farm and field workers are not sanctioned to the Department. Required number of workers for will be provided to the Department on indent basis.

6.4.4. CLASSROOMS AND LABORATORIES:

Class rooms

Sl. No.	Class room No.	Area (ft.)	Seating capacity	Other facilities (LED, projector, computer, etc.)
1	Class room No. 1	39X19	15	LED: 1, Projector: 1, Computer: 1
2	Class room No. 2	39X19	30	LED: 1, Projector: 1, Computer: 1

Laboratories

Sl. No.	Name of the laboratory	Area (ft.)	Seating capacity
1	Lab No. 1	39X19	25
2	Lab No. 2	44X19	25
3	Lab No. 3	39X19	25
4	Lab No. 4	39X19	25
5	Quality control lab	45X19	25

Major equipments

Sl. No.	Name of the equipment	Quantity	Cost
1	Automatic ethylene generator	1	77000=00
2	B.O.D Incubator	1	96000=00
3	Bakery bread slicer	1	161900=00
4	Bakery double deck oven	1	128710=00
5	Bakery food warmers	1	25876=00
6	Bakery kneading machine	1	49669=00
7	Bakery spiral mixer	1	42180=00
8	Bench top pH cum conductivity meter	1	44655=00
9	Centrifuge Make: Remy Model R24 Max speed 1500rpm	1	77985=00
10	Colorimeter (Hunter Colour lab)	1	1500000=00
11	Deep freezer(-60^{o}C) horizontal	1	36500=00
12	Dehydrator	1	50000=00
13	Digital hand held refractometer	1	21916=00
14	Electronic lab table	3	13000=00
15	Electronic weighing machine DS 25.75-150 capacity	1	10264=00
16	Lab. Freeze drier	1	794200=00
17	Lab. Spray drier	1	549100=00
18	Laboratory incubator	1	36000=00
19	NIR spectrophotometer	1	2750000=00
20	pH Meter	1	32060=00
21	Portable analyzer for O_2 and CO_2 measurement	1	285000=00
22	Portable Humidifier	1	29933=00
23	Ripening chamber	1	1145000=25
24	Sartorias Electrical balance Model- BSA2245	1	98470=00
25	Scientek make Deep freezer (-20^{o} C)	1	131675=00
26	Shimadzu Prominence Binary gradient HPLC with accessories	1	1020000=00
27	Spectrophotometer (micro controller) based systronics (169)	1	46434=00
28	Texture analyzer and accessories	1	1649693=00
29	Titrette	1	88960=00
30	Trinocular research microscope	2	96180=00
31	UPS for single phase	1	119843=00
32	Vertical Laminar Air Flow Unit Lab Model	1	84501=00
33	Walk in Cold Chamber	1	1145000=25
34	Water Activity Meter	1	526625=00
35	Nitrogen digestion and distillation unit	1	282159=00
36	Automatic fibre extraction system	1	227949=00
37	Muffle furnace	1	65813=00
38	Atomic Absorption Spectrophotometer	1	1734163=00
39	Automatic solvent extraction system	1	237442=00
40	Hot air oven	1	30000=00
41	Autoclave (portable) 12’’x 12’’	1	7000=00
42	Autoclave (portable) 12’’x 15’’	1	8000=00
43	Rotary shaker 45x45 cm, 0-60 rpm	1	11500=00
44	Water bath incubator shaker	1	25000=00

Sl. No.	Name of the equipment	Quantity	Cost
45	Fumehood Make: Biobase with accessories	1	98470=00
46	Vertical deep freezer (-80^{o} C)	1	400000=00
47	Millipore ultrapure water purification with accessories	1	293014=00

Farm facilities

Sl. No.	Name of the Department	Farm area	Irrigated / Non-irrigated	Crops grown
1	Post Harvest Technology	1 ha.	Irrigated	Onion, Methi, Coriander, cluster beans etc

Workshops if any

Name of the laboratory	Area	Major equipments (above 1 lakh)
Horticulture Produce Processing Centre (HPPC)	380 Sq.m	**Fruit and vegetable processing research unit**
		Multi-Purpose Fruit & Vegetable Washer
		Fruit / Vegetable Crusher
		Fruit Mill
		Pulper
		Helicoidal Juice Expunger
		Collection Tank
		Screw Pump
		Collection / Holding Tank along with transfer pump
		Vacuum Kettle
		Cooking Kettle
		Screw Pump
		Rotary Flat Can Body Reformer
		Can Body Beader
		Flanger
		Treadle Lid Embossing Machine
		Double Seamer
		Straight Line Exhaust Box
		Canning Retort
		Vacuum Filler
		GCB Filler
		Crown Corking Machine
		PP Cap Sealer
		LUG Cap Sealer
		Sugar Syrup Preparation System (cold type)
		Sugar Syrup Filtration Unit
		Sugar Syrup Holding Tank
		Centrifugal Pump
		Blending Tank
		Centrifugal Pump
		Homogeniser
		Pasteuriser (Tube Type)
		Automatic Monobloc Rinser/ Filler /Capper

Name of the laboratory	Area	Major equipments (above 1 lakh)
		Interconnecting Conveyor
		Shower Cooler
		End Processing Table with Inkjet Printer
		Interconnecting SS Pipelines & Fittings
		Boiler
		Interconnecting MS Pipelines & Fittings
		RO Plant
		Multifunction Vegetable Slicer / Chopper
		Collection Tank
		Blancher
		Vacuum Dehydrator
		Pouch filling & sealing machine
		Mixer grinder
		Bakery kneading machine
		Bakery spiral mixture
		Bakery bread slicer
		Bakery double deck oven
		Water bath digital
		LED display board
		Ozonator

6.4.5. CONDUCT OF PRACTICAL AND HANDS-ON-TRAINING

Provide the brief information as per the guidelines

Sl. No.	Department	Method of hands-on-training
1	Post Harvest Technology	Students learnt to analyze the physical, nutritional and sensory parameters, handling of laboratory equipments: CO_2 analyzer, Moisture meter, Water activity meter, Spectrophotometer, Colorimeter (Hunter colour lab), Texture analyzer, fibraplus instrument, socsplus apparatus, nitrogen digestion and distillation unit etc. (PHT-501, PHT-502, PHT-506)
2		Food processing and preservation techniques, different methods of drying and dehydration techniques: Solar tunnel drying, Tray drying, Spray drying, freeze drying, vacuum drying, solar drying, method of packaging and labeling etc. (PHT-503, PHT-504, PHT-505, PHT-508)
3		Handling of bakery equipments and preparation of bakery products by incorporating fruits and vegetables viz., carrot cake, dried fruit cake, vegetable puff, vegetable sandwich, biscuits etc. (PHT-503)

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. Totally 27 M.Sc. (22 female and 05 male) students have passed out from the Department of Post Harvest Technology, College of Horticulture, Bagalkot during 2014 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 also on minor underutilized fruit and vegetable crops. Research related to storage, value addition, nutrient enrichment, development of new products, packaging materials, enhancing the shelf life through the use of bioformulations, preservatives, rat experiments etc. are being carried out.

Sl. No	Name of the Department	No. of PG recognized teachers	Intake of students	Student to teacher ratio
2013-14	Department of Post Harvest Technology	4	4	1:1
2014-15		4	8	2:1
2015-16		4	6	1.5:1
2016-17		4	9	2.2:1
2017-18		4	10	2.5:1

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

Feed back by the students:

Sl. No.	Name	Year of completion	Important remarks
1.	Ms. Bindu H.	2018	I got an opportunity to conduct rat studies in my research. The Department is well equipped. Exposure trips exposed us to different aspects of learning. I am happy with the knowledge and experience gained.
2.	Ms. Anusree Anand	2017	The Department has very good faculty, laboratories, teaching and research environment
3.	Ms. Sumananjani Bhosale	2016	Well equipped laboratory facilities. Teachers are skillful. It was privilege to be in PHT.
4.	Mr. Rigzen Tsewang	2016	The Department has qualified teachers and unique method of teaching. Learnt more aspects through hands on learning.
5.	Ms. Madhushree M.	2016	Facilities in the Department are very useful to carry out the PG practical. The faculty is versatile. The Department stands committed.
6.	Ms. Chandana C.S.	2016	The environment and professors made me get interest in Post Harvest Technology. Learnt lot of things in M.Sc.

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

Year	Sanctioned seats	Actual intake	Attrition	% Attrition
2013-14	4	4	0	0
2014-15	8	8	0	0
2015-16	6	6	0	0
2016-17	9	9	1	15.66
2017-18	10	10	0	0
2018-19	10	10	0	0

None of the admitted students left in the middle of the degree programme indicating that skills and knowledge imparted / provided by the department are of high quality.

6.4.9. ICT APPLICATION

In the college the students pay the fees and register 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