

VISION – 2030

DIRECTORATE OF PG STUDIES, UAHS, SHIVAMOGGA

I. Vision & Mission statement

‘Education, in its true sense, is to develop in the minds of students, a love for sustained thinking and adherence to truth’ Said by Dr. Radhakrishnan. The vision of the directorate is to build quality human resource with higher education for sustained development

The mission is to develop UAHS, Shivamogga as centre of excellence for Post Graduate Education and research and generate quality human resource in the area agriculture and allied disciplines.

II. Mandate

The mandate of the University of Agricultural & Horticultural Sciences, Shivamogga (UAHS, S) as specified in the University Act with respect to higher education is

- Making provision for imparting education towards development of quality human resource in different branches of agriculture and allied sciences.
- Furthering the advancement of learning and conducting research at the post graduate level in agriculture and other allied sciences.
- Promoting partnership and linkages with national and international educational research and other institutions in both public & private sector.

III. Historical background

Post graduate education in the University commenced from 2002 with the starting of M.Sc. (Agri.) Programmes in soil science and Agril. Chemistry and Agri. Entomology at CoA, Shivamogga. Over the years the PG activities of the campus got fillip both in respect of the diversity of PG programme and PG student’s intake. M.Sc. (Agri.) programmes in Genetics & Plant breeding, Agronomy and Plant Pathology were started in the year 2012. In the year 2013 Ph.D. programme in five disciplines namely Agril. Entomology, Agronomy, Genetics & Plant Breeding, Plant Pathology and Soil sciences were started along with addition of Agril. Extension to the master’s degree programme.

Post graduate programs at College of Horticulture, Mudigere commenced from 2010 with the starting of M.Sc. (Hort.) in Floriculture and Landscape Architecture and Fruit Sciences. In the year 2011 M.Sc. (Hort.) in Entomology and Plantation, spices, Medicinal and Aromatic crops were added. Further M.Sc. (Hort.) in crop improvement and Biotechnology was started in the year 2012 and M.Sc. (Hort.) in Vegetable sciences was started in the year 2013.

Post graduate commenced at College of Forestry, Ponnampet started from 2010 with the starting of M.Sc. (Forestry) in Plantation Technology. Further M.Sc. (Forestry) in Forest Genetic Resources was started in the year 2015.

Presently M.Sc. Programs are running in 14 various disciplines and Ph.D. in 5 different disciplines. During the 13 years period 230 M.Sc. theses have been brought out on various aspects.

IV. Goals & Objectives

In keeping with the spirit of the mission and mandate of the university, the following goals and objectives have been projected for the directorate.

Goals

- ✓ To ensure quality in post graduate education by providing leadership and establishing strong partnerships in the total educational system.
- ✓ To make agricultural education responsive to the changing needs of the society in general and aspirations of the farming community in particular.
- ✓ Quality human resource development through capacity building of the faculty and talent hunt.

Objectives

- ✓ Furthering the advancement of learning and starting of new PG programmes in Agriculture, Horticulture & Forestry.
- ✓ Elevate and extend the standards of excellence in PG research by reorienting the thrust areas of PG research to meet changing demands.
- ✓ Promoting partnership and linkages with national and international educational, research institutions and industries both in public & private sector.
- ✓ To modernise and update in functioning of PG directorate at the university through digitalization, web based e-services, *etc.*

V. Status of PG Directorate: an overview

A) Academic Programmes

The Masters degree programmes are offered in 14 disciplines in the faculty of Agriculture, Horticulture and Forestry and Doctoral degree in 5 specialized areas in the faculty of Agriculture. These are offered in three different campuses of the university, *i.e.*, College of Agriculture, Shivamogga, College of Horticulture, Mudigere and College of Forestry, Ponnampet campuses. The residential requirement is two academic years for Masters degree programmes and three years for Doctoral degree programmes.

Ph.D. degree programmes

Post graduate degree programmes offered by the university at different campuses.

i) AGRICULTURE: Ph.D. programmes (College of Agriculture, Shivamogga)

Sl. No.	Subject	Started during the year
1.	Agricultural Entomology	2012
2.	Agronomy	2012
3.	Genetic & Plant Breeding	2012
4.	Soil Science & Agricultural Chemistry	2012
5.	Plant Pathology	2012

M.Sc. degree programmes

i) AGRICULTURE (College of Agriculture, Shivamogga)

Sl. No.	Subject	Started during the year
1.	M.Sc.(Agri.) Agricultural Entomology	2002
2.	M.Sc.(Agri.) Agronomy	2011
3.	M.Sc.(Agri.) Genetic & Plant Breeding	2012
4.	M.Sc.(Agri.) Soil Science & Agricultural Chemistry	2002
5.	M.Sc.(Agri.) Plant Pathology	2012
6.	M.Sc.(Agri.) in Agricultural Extension	2012

ii) HORTICULTURE (College of Horticulture, Mudigere in Chikmagalur district)

Sl. No.	Subject	Started during the year
1.	M.Sc.(Hort.) in Floriculture and Landscape Architecture	2010
2.	M.Sc.(Hort.) in Fruit Science	2010
3.	M.Sc.(Hort.) in Vegetable Sciences	2013
4.	M.Sc.(Hort.) in Horticultural Entomology	2011
5.	M.Sc.(Hort.) in Crop Improvement & Biotechnology	2012
6.	M.Sc.(Hort.) in Plantation, Spices, Medicinal & Aromatic crops	2011

iii) FORESTRY (College of forestry, Ponnampet in Kodagu district)

Sl. No.	Subject	Started during the year
1.	M.Sc.(Forestry) in Plantation Technology	2010
2.	M.Sc.(Forestry) in Forest Genetic resource	2015



College of Agriculture, Shivamogga



College of Horticulture, Mudigere



College of Forestry, Ponnampet

B) Academic Regulations

The Academic Council of the University develops the academic regulations after it has been passed through the Board of Studies. The academic calendars are printed periodically after incorporating the amendments / changes in course structure, credit requirements and any other guidelines from time to time and are issued to the students and faculty members. The academic regulations are developed and modified looking into the changes, needs and also to fall online with changes that have taken place at different universities and in tune with guidelines of ICAR, New Delhi from time to time.



Academic Council Meeting



Board of Studies (PG) Meeting

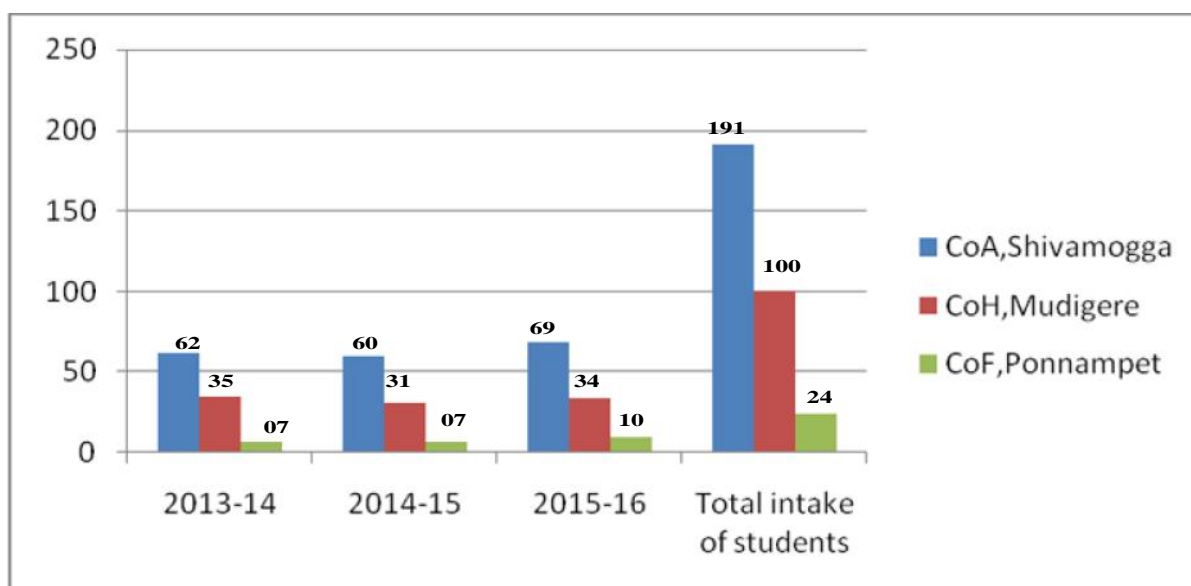
C) Course Curricula

The course curricula prescribed by fourth Deans Committee is being adopted from time to time for PG programmes offered in the University. Uniformity is being maintained in all the constituent colleges. Overall Masters degree students will complete subjects accounting for 55 credits and Doctoral degree students 75 credits including the weightage for seminars, qualifying examination and research programme. Recommendations of the fifth Deans committee are being discussed and will be implemented soon.

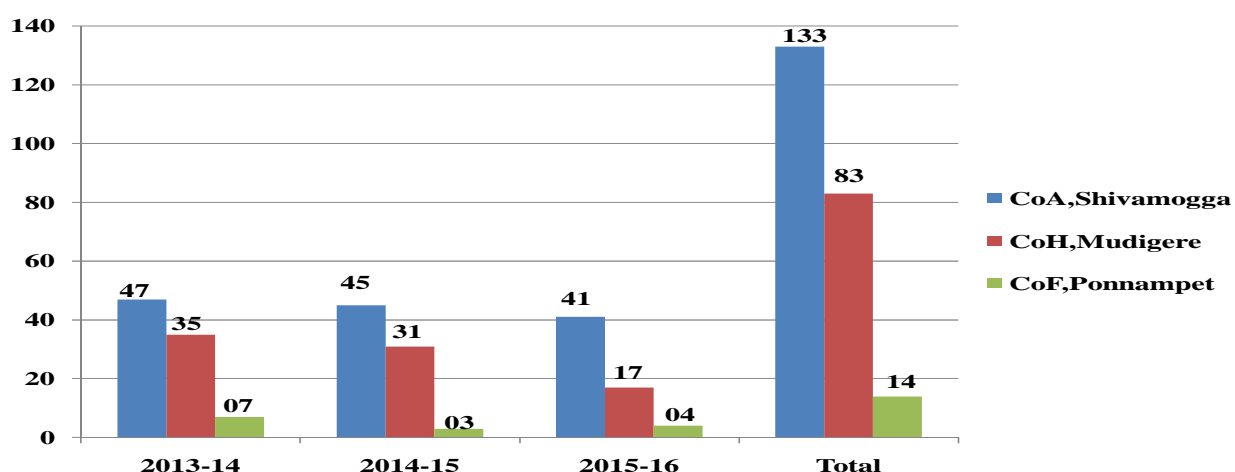
The curriculum developed by Board of Studies, is placed before the Academic Council the highest policy making body. It includes officers of university who are vested with the duties of teaching, research and extension education. The curricula are periodically revised following a systematic and methodical approach keeping in view the development in different fields of agricultural sciences and available resources in the university.

The curricula are reviewed periodically and revised to meet the requirement of the users viz., UAHS graduates in various frontline departments / organizations viz., Govt. Departments, Banks, Agro-based industries, Pesticide companies, Fertilizer companies *etc.* While revising the curse curricula, emphasis is given to skill oriented instruction and practical component in the various courses.

D) PG students enrolled and graduated in different colleges



PG students enrolled in different colleges



The total no of students graduated since starting of the colleges

E) Inter institutional collaboration

The University has attracted several national and International collaborations over the years to complement the education and research program. The collaboration has improved the competence of faculty and student's research program resulting in building a robust base and strategic research program of mutual interest between the collaborating universities and institutions. The university has envisioned initiating proactive steps to build innovative educational and students exchange programs at postgraduate level.

Collaboration with International Institutions:

1. University of Oxford, UK
2. University of Claude Barne Lyon, France,
3. Swiss Federal institute of Technology, Zurich, Switzerland,
4. University of California,
5. Universitat Autònoma de Barcelona, Spain,
6. University of Cambridge, UK,
7. AGROPARISTECH Montpellier, France,
8. Université Toulouse III-INRA DYNAFOR, France,
9. Universitat Autònoma de Barcelona, Spain,
10. AgroParisTech-ENGREF, France,
11. Centre National d'Études Agronomiques des Régions Chauds (CNEARC), France

Collaboration with National Institutions:

1. University of Horticultural Sciences, Bagalkot
2. University of Agricultural Sciences, Bangalore
3. University of Agricultural Sciences, Dharwad
4. University of Agricultural Sciences, Raichur
5. Indian Institute of Horticultural Sciences, Hesaraghatta, Bangalore
6. ICRISAT, NIT's/ NBSS&LUP., NBAIR (2016)
7. ITC-ILTD, Monsanto, Mahyco, etc. (Scholarships for PG students/ sponsored PG research) - (2016)
8. ICFRE, Dheradun
9. NCBS, Bangalore
10. Centre for Ecological Science, IISC, Bangalore.

F) Recent Accomplishments

i) Accomplishments with respect to new PG programs/admission process

- Started five new Ph.D. Programmes in Agril. Entomology, Agronomy, Genetics & Plant Breeding, Soil Science and Agril. Chemistry, Plant Pathology after starting of the new university. (2012)
- Started three new M.Sc. programmes in Agril. Extension, Vegetable sciences & Forest Genetic Resources (2014, 2015)
- Common PG admission system for M Sc was introduced across the farm universities in Karnataka (2015) and transparency in admission through OMR sheets and online admission process.
- Common PG admission system for Ph.D. was introduced across the farm universities in Karnataka (2016) and transparency in admission through OMR sheets and online admission process.



Common Entrance Examination for PG Admissions

- Web page of school of Post Graduate studies on UAHS website – preparation and regular updating of the contents.
- Strengthening of PG departments by improving research capabilities & Strengthening of laboratories.
- PG Academic regulations of the new University developed and published in 2014 and Addendum to regulations developed and published subsequently.

With an intention of improving quality of Post Graduate education with respect to PG thesis write up and submission, conduct of seminar/ colloquia, educational tours for PG students, *etc.* the following far reaching changes have been approved by the Academic Council of the university during last year.

- Modifications to Academic Information & Regulations on Seminars and Colloquia
- Guidelines for write-up and submission of M.Sc. and Ph.D. Thesis
- Study tour for PG students – Proposal for starting a new course
- Modifications to Academic Information & Regulations on Evaluation of Thesis Research Credits
- Modifications to the Academic Regulations pertaining to conduct of PG qualifying examination.

ii) PG Theses Produced: Subject wise profile

Soil Science occupied the prime place recording 19 per cent and Crop pest and management occupied 17 per cent of the total theses produced. Agril. Extension recorded the least number of theses (2 per cent). The major areas of PG research in different subjects were broadly as follows:

1. Genetics and Crop Improvement

- Genetic variability and diversity analysis in different crops
- Genetic variability studies for drought tolerance and quality traits.
- Genetic variability and diversity analysis in different crops.
- Analysis of yield and quality traits in different vegetable crops.

2. Crop Production

- Integrated nutrient management in aerobic rice, ragi, *etc.*
- Evaluation of new weedicides in maize
- Standardization of Agro-techniques for cultivation of Guar
- Micronutrient usage in different crops

3. Soil Science

- NPK use efficiency in rain fed crops
- Micro nutrients status in different soils and their management
- Soil salinity and its influence on crop productivity
- Protocols for compost preparation and evaluation of composts as soil amendments
- Comparative evaluation of different liming materials
- Characterization of soils under different land use systems



PG students research work

4. Crop Pest Management

- Evaluation of Bio-pesticides against major pests
- Studies on Bio-ecology and management of Pests in various crops
- Field evaluation of new molecules of insecticides
- Bio-control and eco-friendly management of insect pests
- Population dynamics of pest complex in major crops
- Comparative evaluation of organic, chemical and integrated crop management practices

5. Crop Disease Management

- Epidemiology and management of major diseases in crops
- Investigations on root-knot nematode and wilt complex

6. Agricultural Extension

- Adoption level of improved technologies
- Entrepreneurial behavior of Mango growers, women self-help groups, etc.

7. Floriculture and Landscape Architecture

- Evaluation of different genotypes under protected cultivation
- Spacing and nutrition trial in various crops
- Standardization of drying techniques in flowering crops for value addition

8. Fruit science

- Evaluation of growth regulators on yield and quality parameters of in different fruit crops.
- Standardization of grafting techniques in fruit crops.
- Integrated nutrient management studies in different crops.

9. Vegetable sciences

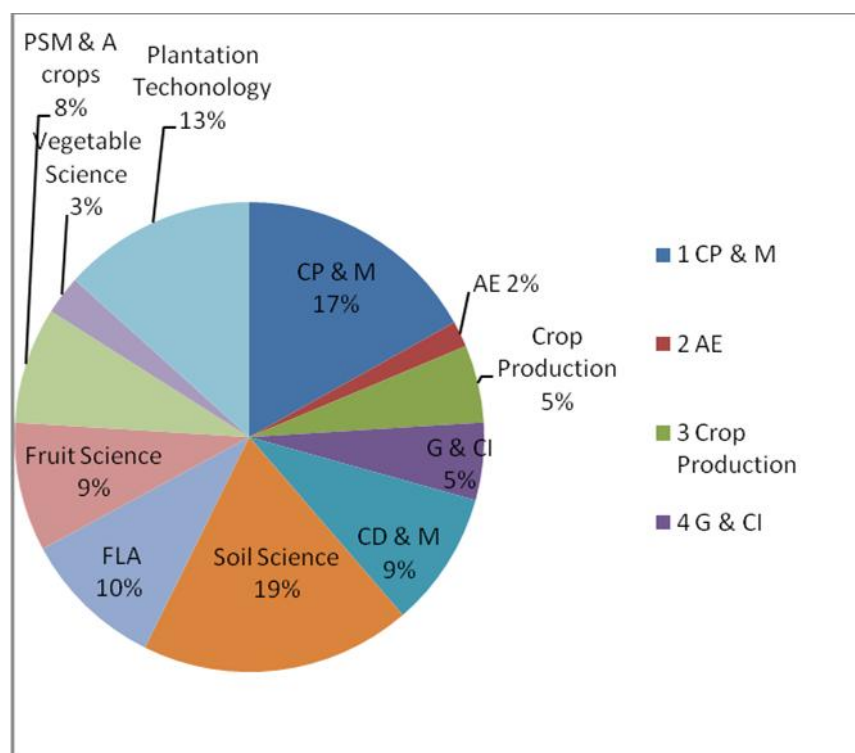
- Genetic Variability Studies in vegetable crops.
- Evaluation of leafy vegetables Genotypes for yield and quality traits.

10. Plantation, Spices, Medicinal & Aromatic Crops

- Propagation Studies in various Medicinal Plant
- Performance of different Spices crop Cultivation in Hill Zone of Karnataka.

11. Plantation Technology

- Moisture status and shade tree management on performance of different agro forestry based cropping system.
- Assessment of growth performance of different forest trees.
- Assessment of variability for seed and oil traits different timber crops.



PG theses produced: subject wise profile

iii) National Conference on PG research

A National conference on PG research in State Agricultural Universities was organized by the directorate on 5th & 6th May, 2016 at UAHS, Shivamogga and one of the objectives was to provide an opportunity for the PG students of the university to involve themselves in scientific workshops and to prepare them for a bigger role in Agriculture research for future.

The conference agenda included invited lectures by experts in higher education on PG research: status & future challenges and Brain Storming sessions on identification of thrust areas for PG research in Agriculture, Horticulture & Forestry. Forty eight M.Sc. & Ph.D. students participated in the first conference held at UAHS, Shivamogga and presented their research papers in the field of Agriculture, Horticulture & Forestry. The research papers covered a range of current topics on Bio-technology and Crop Improvement, Nutrient Management and Crop Production techniques for sustainable agriculture / horticulture, Eco-friendly management of pests and diseases, constraints in technology dissemination, Silviculture and Agro-forestry, etc. Best research paper awards were also presented to the PG students during the conference.



Inauguration of National PG Conference



Paper presentation by PG students

Another highlight of the PG conference was an interaction meeting of UAHS Scientists with industry experts. UAHS experts had detailed interactions with R&D chiefs of various industries connected to agriculture and allied sciences with an objective of strengthening the collaboration for R&D of the university in general and PG Research in specific. MoUs with the following industries are under process.

1. MAHYCO, Bengaluru
2. Indo American Hybrid Seeds India Pvt. Ltd., Bengaluru
3. Monsanto India Ltd., Mumbai
4. OmniActive Health Technologies Ltd., Bengaluru
5. J K Paper Mills, Orissa
6. ITC R & D Centre, Bengaluru
7. IFFCO, Hassan



An interaction meeting with industry experts

iv) Important Visitors

- On the foundation day of UAHS, Shivamogga held on 21st September 2014, a technical interaction meeting of PG students was arranged with Dr. S. Ayyappan, Director General (ICAR)
- Dr. R.R. Hanchinal, chairperson of the Protection of Plant Varieties and Farmers' Rights Authority, delivered the convocation address during the first convocation of the University of Agricultural and Horticultural Sciences (UAHS), Shivamogga, held on October 19.
- Hon'ble Krishna Byre Gowda, Minister of State for Agriculture, who is also the pro-Chancellor of the university, distributed the gold medals to the students during the convocation held on October 19.



Dr. S. Ayyappan, Director General, ICAR: Interaction meeting of PG students



Dr. R. R. Hanchinal, delivered the convocation address



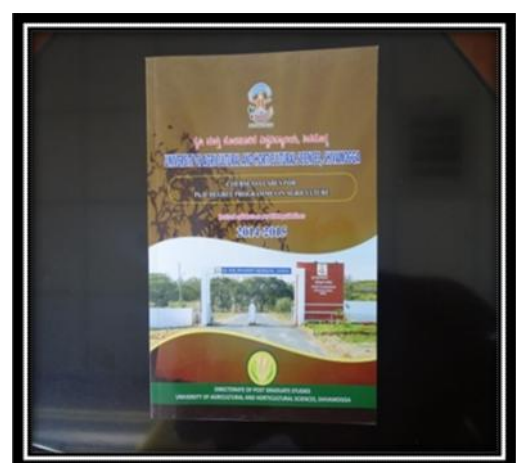
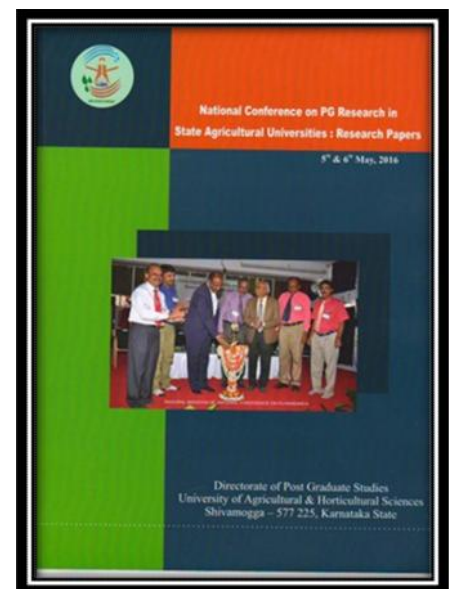
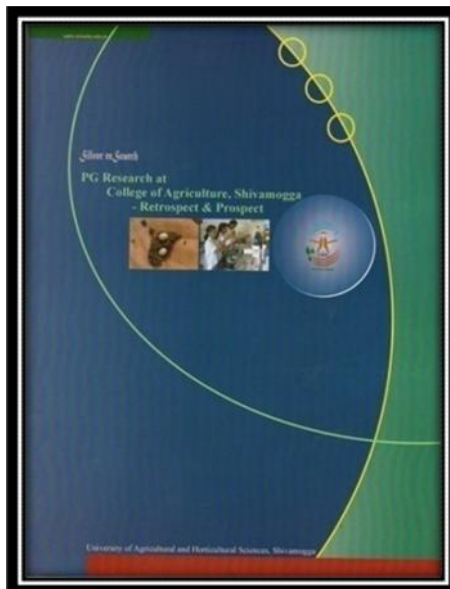
Distribution of gold medals to the students

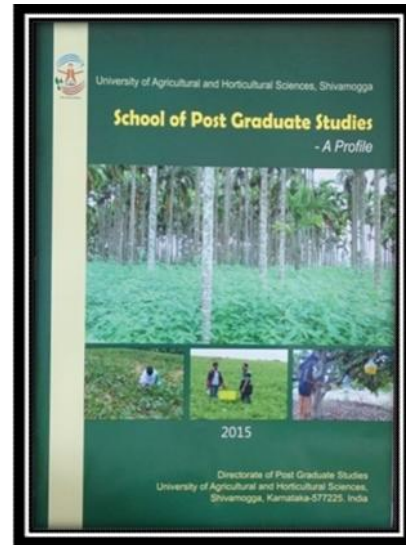
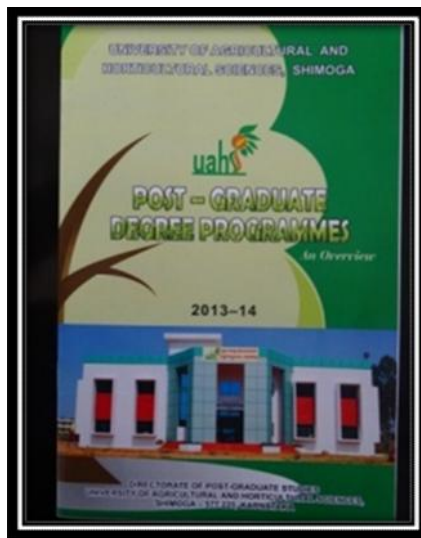
v) *Publications*

Following publications are brought out by the directorate of PG studies

- School of Post Graduate studies : a Profile (2015)
- PG research at College of Agriculture, Shivamogga-Retrospect & Prospect
- National conference on PG research in SAU's: Research Papers (2016)
- Post graduate programs – an overview (2014)
- Post graduate degree programmes Academic information and regulations

- Course syllabus of master degree programs for Agriculture/ Horticulture/forestry: Vol-I and Vol-II.
- Course syllabus of Ph.D. degree programs in Agriculture





VI. Strategies for development of the Directorate of PG studies

i) Starting of new PG programmes in the University

- Starting of new MSc and Ph.D. programmes in Horticulture and Forestry faculties
 - M.Sc. – Agricultural Economics (College of Agriculture, Shivamogga)
 - Crop Physiology (College of Agriculture, Shivamogga)
 - Post-harvest Technology (College of Horticulture, Mudigere)
 - Ph.D. – Fruit Science (College of Horticulture, Mudigere)
 - Vegetable Science (College of Horticulture, Mudigere)
 - Silviculture (College of Forestry, Ponnampet)
- Starting of new PG Diploma programmes in Biodiversity conservation in Western Ghats, Agricultural Information Technology, etc.
- Introduction of self-financed certificate courses in private employment driven areas to increase employability and facilitate mobilization of internal resources of the university.
 - e.g., High- tech Horticulture and protected cultivation.
- Implementation of V Deans committee recommendations of ICAR for PG education including revised nomenclature of PG degree programmes.

ii) Re-defining thrust areas of PG research

- Prioritization of PG research areas to address region specific needs.

Following broad topics are identified as some of the thrust areas for PG research in various disciplines in the coming years.

- Climate resilient agro-techniques in rain fed crops.
- Crop residue recycling and carbon sequestration potential in different cropping systems.
- Pollution of soil environment & bio-remediation.
- Precision farming to improve production efficiency.

- Genetic resources improvement through marker-aided selection and customized Genetic engineering and Crop improvement through transgenic research.
- Application of frontier sciences like nano-technology, bio-informatics, ICT and remote sensing, GIS and GPS for improving resource use efficiency and crop productivity.
- Application of solar energy in agriculture.
- Mechanization of harvesting and planting in crops like maize, jowar, sugarcane, etc.
- Development of sensors for detecting biotic and abiotic crop stresses.
- Development of decision support systems and expert systems for precision Agriculture.
- Plant protection through organics and bio-control agents.
- Strengthening the coordination between BOS(PG), Research council and Academic council of the University - Core committee involving HoD's and ADR's to ensure continuity in PG research to translate research findings into technologies for the farming community/ scientific community.
- Prioritization based on industry needs and new developments in frontier areas of science. MoU's for PG research to be executed with institutions in public and private sector.
- High-Tech Incubator facility for research in biotechnology, Environmental Sciences to attract other organizations in the first phase.

iii) e-management of PG Education:

- Student Management system software in line with IARI model
- Interactive portal for PG students on UAHS website.
- Cloud computing and paperless offices in the PG Directorate
- Web based on-line admission system for both Ph.D. and M.Sc.
- Digital library and smart class rooms at PG centres of the university.
- Digitization of M.Sc. and Ph.D. theses, Establishment of theses repository and anti-plagiarism cell.

iv) Performance linked budget to PG Heads of Departments:

- Introduce self assessment and internal accreditation system of PG depts. in the university budget linked to performance and quality of the department

v) Quality Human Resource Development:

- Talent hunt and appointment of Professors of eminence
- Honorary and visiting Professorships in the University
- Deputation of Teachers to higher training in new frontiers areas like climate resilient agriculture, nanotechnology, etc.

- Movement of faculty under sabbatical leave facility, exchange of Teachers/ Scientists between SAU's
- Guest lecture series by industry pioneers and management experts.
- Short term courses during semester breaks for PG students on soft skills and personality development involving outside experts
- Coaching classes for PG students to prepare them for All India competitive examinations of ICAR, *etc.*
- Financial support from the university/ sponsorship from industries for participation of students in National and International symposia/ workshops
- Encouraging patenting of the break through research findings at Ph.D. level

VII. SWOT analysis

Strengths

- UAHS is an integrated university with provision to offer degree programmes in both Agricultural & Horticultural faculties.
- Experienced faculty in agriculture, horticulture and forestry at PG level: Forestry faculty with strong international linkages
- All major areas Agriculture, Horticulture & Forestry under one umbrella and effective integration
- Well established academic system for higher education
- The directorate has good financial resources since UAHS is a newly established university.

Weaknesses

- Inadequate physical infrastructure for PG education/research
- Lack of state-of-the-art High-tech laboratory facilities
- Reverse pyramid of Teachers/ Scientists cadres and hence very less technical support to Deans / HoDs
- Location of the new head quarters is remote & hence connectivity is poor.

Opportunities

- Diverse agro-ecological situations for PG research:
 - Monocropping systems to Westernghats , the biodiversity hot spot
 - Diverse crops/land use systems
 - Diverse soils ranging from marginal to highly productive soils and strongly acidic to saline-alkali soils
- Good linkages with industries and research institutes in both public and private sector

- Favourable government policies with respect to higher education in Agriculture and allied sciences.
- Elite student and farming community in the jurisdiction of the university
- Presence of many national research institutes/ general universities working on allied fields in the jurisdiction of the university.

Threats

- Well established agricultural universities effectively running similar post graduate programmes
- Starting of many new agricultural educational institutions in private sector.
- Possible reduction in the public investment in agricultural education in the long run

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