



Confidential

National Agriculture Education Accreditation Council

4

Report of the Accreditation Inspection Committee (AIC)

Prof. Dr. Nadeem Akhter Abbasi

Prof. Dr. Muhammad Maqbool

Mr. Muhammad Hashim Laghari

**Degree Programs of Institute of Horticultural Sciences,
University of Agriculture Faisalabad.**

NAEAC Secretariat, Room # B-022, Crop Sciences Institute, NARC, Chak Shahzad, Islamabad
Ph # 051-9255746, 051-9255012-20, ext 3522, Fax # 051-9255746
Website: www.naeac.org, Email: infonaeac@yahoo.com

Acknowledgments

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The AIC also acknowledges with thanks the guidance and facilities provided by the Chairman, NAEAC. The committee records its gratitude to Mr. Naseer Alam Khan, Secretary NAEAC Secretariat for the excellent arrangements made for undertaking the visit to the Institute of Horticulture Sciences of the University of Agriculture, Faisalabad and their valuable contributions during the preparation of the report.

Accreditation Inspection Committee (AIC) of NAEAC

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1. General:

1.1 Introduction:

Accreditation is a mandatory process for all academic degree programs offered by public and private sector institutions to enhance their recognition. To accomplish this assignment, the National Agriculture Education Accreditation Council (NAEAC) was established by Higher Education Commission (HEC) to arrange external review by Accreditation Inspection Committees (AICs) comprising of senior scientists in respective fields listed in the Council's roster developed for the purpose.

1.2 Accreditation of Agriculture Education Institutions in Pakistan

In pursuance to its mandate given by the HEC under clause 10 subsections (d) and (1) of the byelaws of NAEAC, an Accreditation Inspection Committee (AIC) was constituted comprising of the following scientists to undertake external evaluation of the degree awarding academic programs of the Institute of Horticultural Sciences (IHS) at the University of Agriculture Faisalabad (UAF) for the purpose of accreditation and rating of its degree programs.

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|------|--|----------|
| i) | Prof. Dr Nadeem Akhtar Abbasi
Chairman, Department of Horticulture,
PMAS - Arid Agriculture University, Rawalpindi | Convener |
| ii) | Prof. Dr. Muhammad Maqbool
Professor HEC, Faculty of Agriculture,
University College of Agriculture, Sargodha. | Member |
| iii) | Mr. Mohammad Hashim Laghari
CSO/Sr. Director (Retd.) PARC, Islamabad. | Member |

The main terms of reference (TORs) of the committee were as follows:

- To validate self-assessment report and to carry out an external evaluation of the academic programs of the Institute of Horticultural Sciences of UAF for assessing and accreditation of its degree programs.
- To synthesize the critical observations recorded on the basis of discussion with the Director of the Institute and interaction with the Dean, the teaching faculty and students alumni and support staff besides the actual

visits to the infrastructure of available laboratories, class rooms and field facilities into a consolidated report.

- To submit accreditation recommendations to Chairman NAEAC.

The itinerary of accreditation visit schedule is given at Annexure-I.

1.3 The University

The Director of the Institute briefed the Committee comprehensively on the background of setting up the UAF, its setup and policies besides the facilities and infrastructure, including the Institute of Horticultural Sciences.

Historical background

University of Agriculture, Faisalabad (UAF), formerly the Punjab Agriculture College and Research Institute, Lyallpur was established in 1906. It was the premier seat of teaching, research and extension in agriculture and made tremendous contributions to promote agriculture in the country.

The college was upgraded to the status of Agriculture University in 1961 upon the recommendations of National Commission on Food and Education. The University has six faculties, 53 teaching departments, and a number of directorates and institutes. The Institute of Horticultural Sciences (IHS) is affiliated with the faculty of Agriculture which has an academic faculty of 126 PhD's and 58 non-PhD teachers.

The Faculty of Agriculture

The faculty of Agriculture comprises six departments (Agronomy, Plant Breeding and Genetics, Plant Pathology, Entomology, Forestry- Range management & Wild Life and Crop Physiology) and two institutes (Institute of Horticultural Sciences and Institute of Soil & Environment Sciences). This is the largest faculty of the university having maximum faculty staff and student enrolment.

1.4 The Institute of Horticultural Sciences (IHS):

Initially, with the establishment of Punjab Agriculture College & Research Institute in 1906, horticulture was part of Botany department. The college was upgraded to West Pakistan Agriculture University in 1961 and an independent Horticulture Department came into existence with this up gradation. The Horticulture Department was later upgraded to Institute of Horticultural Sciences in 2003 and has four major sections/ disciplines which include (i) Pomology, (ii) Olericulture, (iii) Floriculture & Landscape and (iv) Postharvest Management, Medicinal & Aromatic Plants. The institute is headed by the Director and has the

faculty strength of 26 members. Among the faculty 18 hold PhD degree out of which 10 are foreign qualified. The list of faculty members with qualifications, experience and publications is attached at Annexure-II. The faculty members continue to produce a reasonable number of research publications regularly based on the research work conducted by the teaching staff and the postgraduate students. The Institute offers degree programs for B.Sc Hons Agriculture, M.Sc Hons. Agri. (Major in Horticulture) and Ph.D in Horticulture. It has facilities of research and teaching laboratories, computer, internet and multimedia, class rooms and library besides field experimental area and green houses / glass houses. Currently, about 35 students are enrolled for PhD and 200 for M.Sc. (Hons.) besides 170 students for B.Sc. (Hons.) Agri. (Major in Horticulture). The Institute has produced so far about 16 PhD and 710 M.Sc (Hons.) graduates.

1.5 Program Mission and Objectives

Program Mission

To impart quality education and research - oriented training. Extending the agricultural knowledge for self- sufficiency in quality food and develop a sustainable system of profitable production which is environment friendly to make the future of Pakistan prosperous.

Program Objectives

- To develop Horticulture discipline on modern and innovative lines for teaching and research for the graduate and postgraduate students.
- To impart basic and applied high quality knowledge and skills in the field of Horticulture applying highly advance analytical techniques for crop management
- To guide students and conduct research on scientific lines in the field of Horticulture.
- To strengthen the discipline with integration of knowledge and approach of related fields such as Biotechnology, Hydroponics, Plant Physiology and Landscape Horticulture.
- To anticipate new problems in Horticulture.
- To train the teaching faculty and students on the basis of scientific and technological lines.

2. Evaluation criteria, observations & analysis

2.1 Criteria-I. Strength and quality of faculty

Out of 26, there are ten faculty members holding Ph. D degree from abroad and eight faculty members with local PhD degree and other eight faculty members with MSc. degree from local institutions (Annexure-II). Most of the faculty members possess 20+ years of teaching and research experience and some have more than 30 years of teaching and research experience. However, junior faculty had 2 to 11 years of teaching and research experience. Out of this faculty, 13 are of the cadre of Professor and Associate Professor and rest of the faculty is in the cadre of Lecturer or Assistant Professor. Two Associate Professors and one lecturer are on long leave and 2 Lecturers are abroad for pursuing their Ph. D degree program. Teaching load for the professor and Associate Professor should be 3 to 6 credit hours and for Lecturer and Assistant Professor 9 credit hours. Keeping this in view it seems that **Student: Faculty ratio is poorly maintained which can be visualized with the students present in the institute.**

Undergraduate (1-4 semesters):	1800
Undergraduate with major in Horticulture:	170
Graduate (M.Sc. + Ph. D):	235

The faculty members are well qualified and possess adequate teaching experience in their respective disciplines. The institute has remained fortunate to have committed leadership who developed the sector to a highly prestigious institution of the university. It is worth mention that the current Vice Chancellor of the University remained prominent leader of the horticulture department. The committee felt that the faculty staff was adequate commensurate with the current needs. However, the number of students and their choice for various horticulture disciplines is also on the increase which necessitates considering addition to the faculty staff. The pomology and tissue culture areas were quite strong in terms of faculty and facilities and hence students are more attracted to these disciplines. The vegetable sector although equally or more important for the region, seem to be less attractive for the students hence need to be improved in future. The floriculture section is also an important section of the institute that has produced some renowned researchers in the field and is performing satisfactorily with the qualified and committed staff. The Postharvest Physiology and Medicinal Plants is a new addition to the institute and has made significant improvements in recent past and is expected to pick up the pace with the passage of time as the importance has been realized at higher forum. Faculty meets criteria of HEC for qualification and experience. However, combination of medicinal plants can be more appropriate with floriculture than post-harvest physiology.

There is no visiting faculty although there is a need and opportunity to engage scientists from sister institutions located in the city. The post-harvest technology is the latest addition to the Institute and was coming up forcefully as it has received more importance in current technological development scenario. The teaching

load is manageable for the faculty but the staff is also engaged in extra administrative and management activities which may result in low concentration to teaching and research work.

Various course assessment tools are used effectively; however, there is scope for further improvement. Performance of the students is also evaluated and feed back is collected for improving teaching strategies and methods keeping in view the student demands and available resources. A sample of students was interviewed for their feed back which was satisfying.

The course review reports by the faculty members at the time of completion of the course are submitted regularly and the Program monitoring system was in place. However, the monitoring system needs further improvements.

Training of faculty is inadequate as there is hardly any established system. There is an urgent need to establish such a system on regular basis. Training abroad for teachers may also be arranged on priority basis. Currently, such training is being arranged on personal level.

The University must plan for faculty development and career planning as a policy measure. The welfare and the up-gradation of teachers both in their competence and career should be close to the heart of the management if the long term goals of higher education are to be achieved.

Standard salaries pay scales and facilities as in other universities in Pakistan are admissible but there is no remuneration for the extra work done by the teaching staff to extend guidance and undertake specialized research Programs. It is needless to add that the government current pay scales are hardly attractive compared to the private sector.

Recruitment procedures are well documented. University authorities are following HEC criteria for faculty hiring. The stability of faculty index seems good. However, the mechanism of evaluation is poor and there exists only insufficient opportunities for academic progress.

It was satisfying to note that the Institute has organized conferences, symposia and training courses regularly and about 15 events were organized during past four years. A list of such courses is attached at Annexure III. These events provided a good opportunity to the students to widen their knowledge base and open new vistas both for teachers and the taught about the prospects and problems of horticulture sector.

Majority of faculty members are satisfied with their job, however, some are only partially satisfied. Job satisfaction is a function of both internal working atmosphere in the department as well as in the university besides the financial benefits and freedom of professional activity. Obviously there is a lot room for improvement. The faculty felt serious financial constraints in conducting research and teaching activities. The Committee noticed that senior faculty members

should spare due time for research particularly in the field to provide required guidance to students. All the faculty members are satisfied with their salaries but have a **consistent complaint for ever increasing living costs**. All the faculty members holding PhD degrees were happy to receive Rs. 10,000/- per month as PhD allowance.

2.2 Criteria-II. Curriculum design and development

At present three degree Programs are pursued:

1. B.Sc (Hons) Agri: 4 Academic years.
2. M.Sc (Hons) Agri: 6 Academic Years.
3. Ph.D. Horticulture: 3 Academic Years after MSc. Horticulture.

There are a definite number of credit hours for each course. Internship is an essential pre-requisite and the undergraduate student has to complete it successfully before the award of the degree. Discussion with the teachers and students revealed that all the rules and conditions are being properly fulfilled.

It was observed that the curriculum was designed in line with the mission statement and the HEC guidelines. The courses reflect the needs of the society and cater for the latest trends in horticulture both for local consumption and export. Necessary amendments or additions in the curriculum were also made by the Board of Studies, with final approval by the Dean of the faculty and the university academic council. However, the mission objectives need be made more focused on concrete achievable goals. Course registration, withdrawal and admission policy is well laid out with adequate details for the benefit of the students.

Feedback from stakeholders is occasional. However, the curriculum is sufficiently flexible to accommodate any changes arising out of the latest trends and the changing objectives beside the market orientation. The curriculum seems to adequately meet the changing trends and demand of the market.

The committee had gone through the course contents and found that objectives of all the courses for BSc, MSc. and PhD were well defined and according to the HEC guidelines. The courses were revised and some new courses were developed during the year 2003-04 and then in 2006-07. Even during the current year, the whole scheme of studies for B. Sc. (Hons.) has been revised with the addition of some new innovations. The courses and credit hours are designed in such a way that all the contents should be covered in a stipulated time period (16 to 18 weeks/ Semester). It has been observed that in certain courses, **books of old editions are still recommended as text books** which need to be reviewed to add new books so as to update the knowledge of students with new trends and technologies. While interviewing some of the faculty, it was noted that all the faculty members maintain their course files and provide lecture wise course detail, time of mid-test, assignments, quizzes and final test to the students in their first meeting at the beginning of a semester. Evaluation system of each course is in place and very effective.

2.3 Criteria-III. Students support and progression

There was strong admission response and the intake was more than the requirements. The yield index was good and the dropouts minimal. Financial support to students was inadequate and more avenues should be explored to help students in financing their studies.

There are enough facilities for the students in terms of class rooms, practical training, convocation and auditorium halls besides the transport. However, more class rooms and medical facilities should be provided. Due to increase in admission, the existing hostel facility is overburdened and needs immediate attention. It was also observed that there was no parent - teacher association.

It has been told that more than 75 percent of the students admitted graduate every year. **With the increase in admission every year, existing class rooms are becoming overcrowded and need more classroom facilities.**

The students receive scholarships on merit basis from different sources. The university also advertises scholarships for those students who cannot pull on their studies because of financial constraints. Some interest free loans are also offered by the commercial banks to needy students.

Agriculture is well known as residential profession but under the prevailing circumstances, **inadequate hostel accommodation is available or more than capacity students are placed in one room.** However, students are provided indoor and outdoor facilities for entertainment and sports. University also provides transport for commuting and study tours as and when required. University has also setup medical dispensary for faculty and students and hired Medical Doctors to look after the students and faculty. However, **because of funding constraint, medicines are seldom available especially to students.**

All the students majoring in Horticulture are essentially advised to visit different types of industry working with horticultural crops for their internship in 8th semester before graduating for practical training.

2.4 Criteria-IV. Infrastructure and learning resources

Infrastructure in terms of building space was adequate. The equipment required for laboratories was adequate with technical staff provision. The equipment was properly utilized. The faculty / students computer ratio was, however, inadequate and the website needs to be updated regularly. Competent technical guidance to students was available.

The budget provision, however, was in-adequate for the maintenance of equipment and purchase of chemicals. The provision for purchase of latest books and journals, especially from abroad need to be considered for the up-gradation of facilities. There was adequate library space available. The experimental farm area facilities including green houses were adequate and functional.

Overall, there were six postgraduate labs, one landscape studio and one undergraduate lab. Committee visited departmental library as well. The students were using most of the equipment lying in each lab. However, **all the labs were overcrowded. The graduate students were not assigned any specific desk to sit and work for data entry, review of articles or other writing assignments when not working in the lab.** It was observed that a lab technician or lab attendant was responsible to maintain the lab equipment. Some of the lab staff was having more than 20 years of experience and other with 4 to 7 years experience. With all this experience, **most of the lab technician were not able to repair the available lab equipment properly. In our opinion, there must be a trained electrical/mechanical engineer who understand the working of all equipment running in the labs and should be able to maintain and repair them immediately when become out of order.** Budget allocations with the institute are also negligible and are in-sufficient to meet any major repair of lab equipment. **Allocations of annual budget for the purchase of new equipment are so small and ever increasing cost of lab equipment due to inflation make such purchases very difficult. It is also evident that it was not possible for the main library to purchase new publications (Books & Journals) with this meager amount to meet requirements of all disciplines.** Institute of Horticulture also established departmental library to facilitate the students and faculty. It is worth to note that main library and departmental library are air-conditioned with enough space to facilitate the students. Students had the facilities to get printed material photocopied.

2.5 Criteria-V. Research and consultancy activities

There seem adequate research and consultancy activities at the institute as reflected by the ongoing research projects and those submitted for funding (Annexure-IV). It is noted that the senior staff of different sections of HIS is actively engaged in research work and is contributing significantly for finding solution to major problems of horticulture crops. The committee feels that the university management and institute Director must ensure that senior faculty may plan and formulate research projects on sectoral problems to seek funding from different sources. It is learnt that Punjab Agricultural Research Board (PARB) was eagerly looking for viable projects for funding and the faculty must avail the chance to get required funding. The research projects are helpful for solving financial problems of the Institute as well as provide learning opportunities for students and solving major issues faced by the sector. A significant number of research publications have been made through the research conducted by the faculty members as is evident from the publications made. The committee also felt that the post harvest lab, although a younger section of the Institute, was providing required guidance to exporters and hort-business.

The faculty has developed commendable research culture and the staff is motivated to contribute to research journals. However, more encouragement should be provided to faculty staff to carry forward the spirit and implementation of research Programs.

The above mentioned projects indicate that faculty is very well engaged in research along with teaching and other management assignments. Overall, the faculty published 76 research papers in International Journals, 408 in National Journals and 110 papers in proceedings. The Institute also published some proceedings of locally conducted workshops and about 22 brochures. Student thesis and dissertations are in addition to above mentioned publications.

The Institute of Horticulture Science has established collaboration with the following agencies to conduct joint research endeavors and exchange of scholars for training or higher education.

- Wageningen University, The Netherland
- College of Agriculture and Marine Sciences, Sultan Qaboos University, Musqat. Oman
- Jiangeu Academy of Agriculture Sciences, China
- Pakistan Horticulture Development and Export Board
- Guava Growers Association of Pakistan

2.6 Criteria-VI. Governance and leadership

The UAF is an autonomous body having its own charter of functions as per University Ordinance 1979. The highest governance authority is the Vice Chancellor assisted by the Registrar, Treasurer, Controller of Examinations, Director Advance Studies and Director Quality Enhancement Cell. There are six faculties of Agricultural sciences/ subjects and a competent/experienced scientist is the Dean of each faculty. There are various departments in each faculty headed by a senior professor and assisted by a number of teaching staff.

Vice Chancellor is the overall controlling authority of the University. He performs his functions through bodies including the Syndicate, the Senate, Academic Council, Advance Studies & Research Board, Finance & Planning Unit, and directorates of Student Affairs, Quality Control & Placement Bureau. All these bodies function within the frame work of rules & regulations and guidance defined by HEC. Funds are provided by HEC for regular activities and specific research & special programs. There is a good working relationship between faculty members and the management; however, some operational constraints have been experienced. This is attributed to the governance system prevailing in the country. The budget allocation for operational expenses and research is reasonable but looking to the qualified faculty staff and ever increasing number of students, the budget is not enough and need to be increased significantly to meet increasing demands. Efforts are also underway for generating finances through research projects and other sources which may ease out problems for operating expenses.

There is a useful exchange of knowledge and experiences with related institutions through periodical seminars, workshops and field visits. The team observed that good leadership has emerged at university level which shall improve / up-grade

the status of the University. Contacts are also maintained with senior Alumni to benefit from their experience. The students are encouraged to become members of professional and scientific bodies to have interaction with the senior members and benefit from their experiences. The committee was satisfied to know that the institute has established “Pakistan Society of Horticultural Sciences” which has become an important forum for organizing different technical, social and cultural events and provides opportunity for interaction among the alumni, parents, employers and other stakeholders.

2.7 Criteria-VII. Innovative practices

Some innovative practices adopted by IHS are highlighted as under:

- Teacher and student assessment system has been implemented that has created sense of responsibility and all time attentiveness.
- Assessment of individual courses and teachers based on feed back from students also deserves appreciation.
- Students are allowed to check their answer books and resolve anomalies if any for their satisfaction which is a good sign for confidence of both student and teacher to ensure transparency in the assessment system.
- Regularly organizing seminars, workshops and training courses provides enough opportunities to the students to upgrade their knowledge and interact with prominent scientists and researchers.
- The Institute is considering introduction of inter-disciplinary courses and research projects that shall bring a real change as most of the problems of the sector are inter-related.

3. Overall analysis

Major strengths

- The majority of teaching faculty is highly qualified (70% PhDs) and experienced with vision and capacity to impart quality education and training.
- There is appreciation of and enthusiasm for conducting problem – oriented research. Teachers provide guidance and help to graduate students to identify problems and in the formulation as well as conduct of research.
- Prescribed rules, procedures and standards are being properly followed for admission and assessment of performance of students and teachers with feed back from stakeholders.
- Necessary infrastructure and facilities are available for teaching and research including laboratories, experimental farm, plastic tunnels, green houses/ glass houses, oil extraction unit for flowers and cold chamber/ CA Store.
- The faculty has been active in submission of research projects and has won enough research grants from national and international donor agencies.
- The students have full access to digital library, research journals and text books for updating their knowledge. Also the institute has close collaboration with sister institutions, business and industry.
- Holding of seminars and workshops for exchange of knowledge and experience is a positive development that helps teachers and the taught in updating their knowledge.

Major weaknesses

- Space for classrooms, labs and faculty offices is inadequate to meet the needs of increasing number of students.
- Shortage of qualified and trained supporting staff for labs and Research farm.
- More lab equipment, farm machinery, computers and transport are required.
- Well planned development program for training of faculty and support staff is hardly in place.
- Limited university grant for research and operational expenses.

3.3. Major opportunities

- Government of Pakistan has accorded high priority to Horticulture sector and investing huge resources for research and development activities. The senior faculty may avail this opportunity by implementing a GoP funded priority research project.
- There is visible trend of an increase in the job opportunities for horticultural graduate which may result in an increase in the intake of students in the horticulture discipline.
- Opportunities exist for initiating Teaching and research activities in the areas of high-value and off-season crop production.
- Innovative horticultural initiatives are needed in the peculiar soil and climatic conditions of the area.
- As floriculture is gaining popularity world over, the opportunities for floriculture and landscape specialists may increase in near future.

3.4. Major challenges

- In future, High demand of trained/ skilled manpower is expected for fruit, vegetable and flower production and processing. Institute may organize and conduct short -course to produce trained manpower.
- Demand for certified nursery plants, vegetable hybrids, cut flowers and flower extracts is also on the increase. These areas may be incorporated in the Curricula.
- International and domestic trade of horticultural commodities calls for demand of quality products with improved shelf life. Value addition and processing of horticulture products activities are progressing in local and export markets.
- Retaining the experienced staff is another challenge which can be met by providing better incentives, conducive atmosphere and research facilities to the teaching faculty.
- Dissemination of information is another weak area and a major challenge which need be tackled with collaborative effort.

3.5. Stakeholders feed back

- A system should be evolved that should provide feedback to all stakeholders' on the performance of the graduates'.
- Computer and analytical skills of the graduates may be improved to enable them to match market demands and face technological advancements.

- Communication and presentation skills with leadership qualities in graduates.
- Most of the graduates lack business orientation to face market challenges.

4. Recommendations

4.1. General recommendations

Curriculum- is the basic component in the structure of any academic program and had direct impact on the learning skills of students. It should be periodically updated to encompass the contemporary topics and future needs to prepare the students face global challenges. It should be problem-oriented and market-driven to serve the society and the industry. Presently the curriculum revision does not seem to be regular activity. It should be made a regular exercise with continuous feedback from all stakeholders. Meetings of concerned bodies should be held regularly and recommendations submitted to concerned authorities for approval and implementation.

Training programs – Although the institute has highly qualified faculty yet there is a need for regular training and qualification improvement programs particularly for young and newly recruited teaching and support staff. For this purpose long and short term programs may be developed for capacity building of teaching and non-teaching staff. Organization of seminars, conferences and workshops at the campus is appreciated; however, the committee feels that participation of faculty members in such events at other institutions may also be encouraged to improve exposure and interaction with experts in the field.

Collaboration with national and international institutions may be strengthened to up-grade teaching and research efforts. It is suggested that joint research projects may also be undertaken to learn from each others experiences. The faculty members may also be encouraged to deliver lectures on specific topics at other universities. Simultaneously teaching staff of other universities and sister organization may be invited for special topics.

Infrastructure & Space – The institute has adequate facilities in-terms of infrastructure and space for laboratories, class rooms and offices but the increasing numbers of students show that the facilities may not be enough in near future. Hostels are already over-crowded and new accommodation facility is the urgent need. It is felt that these facilities be improved to cope up with the increasing number of students. Proper maintenance of lab equipment and safety arrangements may also be ensured.

Computer and inter-net facilities are insufficient for the increasing number of students which need immediate attention of the management.

Student counseling – Students have good interaction with the faculty and seem to be satisfied with the assistance received from the teachers for solving their problems. The teaching methodology adopted by the faculty members is also satisfactory but there is a need for diversification in the system so that the students do not lose interest. The committee felt that some of the faculty members were over loaded with MSc. and PhD students and thus, is not in a position to make justice with students as well as themselves. The management must review the situation to distribute workload among all teachers according to their capacities. The students may also be provided necessary support and guidance for career planning.

Library – The departmental library should be up-graded in respect of space, equipment and staff to accommodate the increasing number of students. Latest edition of text books and journals of international repute for respective subjects be added every year. Computer and internet facility for the library also need to be upgraded.

Operational budget – The operational budget provided to the Institute is grossly inadequate as compared to the faculty members and students enrolled. It needs to be increased significantly to meet the genuine needs for quality research and teaching. Different stake holders and national/ international institutions may be approached for necessary grants and technical support.

Linkages – The Institute has maintained linkages with stakeholders, industry and respective institutions but these were not enough because of financial limitations. The committee feels that such linkages must be strengthened further for significant contribution in socio-economic development.

Outreach activities – The committee felt that the Institute has completed some useful projects and generated important information/ technologies for the farming community. The Institute has made efforts to publish the information in the form of research papers, reports, monographs, brochures and articles for the benefit of the end users but it does not seem enough. The University and Institute management must look for proper dissemination of the technologies developed with the participation of stakeholders. The committee appreciated the work in hand for production of certified citrus nursery plants but felt that it was handicapped for want of required resources to produce the plants on large scale. This program must be supported generously for the improvement of the most important fruit crop of the country. Similarly the Post-harvest program is also working on important problems of the industry and deserves full support.

4.2. Final recommendations

The degree awarding Programs of Institute of Horticultural Sciences (IHS) are well established and an oldest seat of learning in the country. Teaching faculty is strong, highly qualified and experienced. Considerable infrastructure and learning resources are in place and curriculum is updated regularly. Teaching and research collaboration with International and National Organizations is effective and functional.

In view of the significant and impressive achievements by the graduate Programs of IHS in terms of output (more 800 MSc.(Hons), 25 research projects, 15 conferences and 600 research papers). The AIC agrees that degree awarding Programs of IHS may be graded as 'W' category with the hope that the standard and quality of the graduate programs shall not only be maintained but further improved.

4.3 Consent of the Director:

I agree with the observations and recommendations made by the Accreditation Inspection Committee in this report which is based on the validation of self-assessment report and discussions and visit to different facilities.

Signatures

4.4 Name and signatures of the AIC Members

Signatures

Prof. Dr Nadeem Akhtar Abbasi (Convener)
Chairman, Department of Horticulture,
PMAS-Arid Agriculture University,
Rawalpindi

Prof. Dr. Muhammad Maqbool (Member)
Professor HEC, Faculty of Agriculture,
University College of Agriculture,
Sargodha

Mr. Mohammad Hashim Laghari (Member)
CSO/ Sr. Director (Retd.) PARC,
Islamabad.

Dated:

Itinerary of Accreditation Visit Schedule

Host Institution: University of Agriculture, Faisalabad.
Department/ Program: Institute of Horticulture Sciences,
 B.Sc (Hons) Agric. & M.Sc (Hons)

Review Team:

1. Prof. Dr. Nadeem Akhtar Abbasi (Convener)
 Chairman, Department of Horticulture,
 Arid Agriculture University, Rawalpindi
2. Prof. Dr. Muhammad Maqbool,
 Professor HEC, Faculty of Agriculture,
 University College of Agriculture, Sargodha.
3. Mr. Muhammad Hashim Laghari
 CSO/ Senior Director (Retd), PARC Islamabad.

Deptt. Resource Person: Prof. Dr. Muhammad Aslam Pervaiz.

NAEAC Resource Person: Mr. Naseer Alam Khan.

Schedule of Visit: June 22-23, 2009 (Two Days)

Day 1	Time	Activity	Remarks
	09:00-12:30	Meeting with Vice Chancellor of University. Discuss University activities <ul style="list-style-type: none"> • Explain purpose of the visit • Describe the Program review process 	Chairman NAEAC Convener/ Members of AIC
	12:30-13:00	Meeting with Dean of the Faculty and Director of the institute.	All AIC Members
	13:00-15:00 15:30-18:30	Visit to field area, laboratories, library and facilities available. Presentation: Chairman of Horticulture Department <ul style="list-style-type: none"> • History of department / academic programs • Mission statement • Program goals and objectives • Annual operational budget (08-09) & human resources (Total) • Curricula summary, revision/update • Admission and withdrawal policy • Faculty summary, qualification/ experience • Students' feed back • Grading system • Infrastructure summary, labs, greenhouse, library 	All AIC Members

Day 2	Time	Activity	Remarks
	09:00-10:00	Curriculum Review: Department Resource Person <ul style="list-style-type: none"> • Course files maintenance • Attendance requirements • Examination record • Session / semester record • Evaluation instruments • Research projects by faculty / students 	All AIC Members
	10:00-11:00	Infrastructure Visit: Department Resource Person Research & teaching labs Greenhouses & experimental facilities Departmental and main library Computer labs, internet and multimedia facilities Classrooms number & size with multimedia Faculty offices & facilities	All AIC Members
	11:00-11:30	Meeting with Dean of the Faculty <ul style="list-style-type: none"> • Briefing on yesterday's activities of the visit • Seek guidance/help if required 	All AIC Members
	11:30-12:30	Faculty Meetings: 10-15 minutes per faculty member Graduation and higher studies Personal background Area of interest vs teaching –learning environment Perception about the academic programs, students and peers Opportunities for professional growth Research opportunities Salary perception and other incentives Teaching load, student- teacher ratio	Individual AIC members
	12:30-13:30	Classroom Visit: Two classrooms with 30 min. each Students interviews (B.Sc Hons final & M.Sc Hons) Students assessment (Department resource person) Students perception Students feedback Senior students views and suggestions to improve teaching-learning environment and facilities	All AIC Members
	13:30-14:30	SWOC Analysis: faculty /students point of view Major strengths of academic programs Major weaknesses of academic programs Major opportunities for academic programs Major challenges for academic programs	All AIC Members
	14:30-15:30	Prayers and Lunch	
	15:30-16:30	Detailed discussions among the Evaluation Team	
	16:30-18:00	Concluding Meeting with Dean, Director & Faculty/Exit Meeting <ul style="list-style-type: none"> • Salient findings of the visit • Formulation of recommendations 	All AIC Members
	18:30	End of Review Visit	

Annexure-II

Summary Profile of Teaching Faculty

Sr#	Name & Designation	Highest degree & Instt. attended	Teaching Experience (yrs)	Funded Research Projects		Res. Papers in HEC Approved Journals
				Complete	On-going	
1	Prof. Dr. Muhammad Aslam Pervez	PhD, Post-Doc (UK)	26	1	3	50
2	Prof. Dr. Iqrar Ahmad Khan	PhD, Post-Doc (USA)	32	4	3	75
3	Prof. Dr. Muhammad Amjad	PhD, Post-Doc (UK)	26	Nil	1	41
4	Prof. (R) Dr. Muhammad Aslam Khan	PhD (UK)	40	2	1	50
5	Prof. Dr. Muhammad Mumtaz Khan	PhD, Post-Doc (UK)	25	1	1	30
6	Prof. Dr. Aman Ullah Malik	PhD (AUS)	20	1	4	20
7	Prof. Dr. F. M. Tahir	PhD (UAF)	21	Nil	Nil	24
8	Dr. Muhammad Qasim	PhD (UK)	24	Nil	1	24
9	Dr. Muhammad Jafar Jaskani	PhD, Post-Doc (Kor)	15	2	2	32
10	Dr. Asif ali Khan	PhD (UK)	30	Nil	Nil	13
11	Dr. C. M. Ayyub	PhD, Post-Doc (UK)	20	Nil	Nil	20
12	Dr. Waqar Ahmad	PhD (UAF)	20	On Study leave		
13	Dr. Saeed Ahmed	PhD (UK)	20	On Study leave		
14	Dr. Ahmad Sattar Khan	PhD (AUS)	9	Nil	Nil	14
15	Dr. Fatima Usman	PhD (UAF)	11	Nil	Nil	17
16	Dr. Muhammad Usman	PhD (UAF)	10	Nil	Nil	20
17	Dr. Adnan Younis	PhD, Post-Doc (USA)	7	Nil	Nil	10
18	Dr. Atif Riaz	PhD (UAF)	6	Nil	Nil	10
19	Mr. Iftikhar Ahmad	M.Sc. (Hons.)	7	Nil	Nil	20
20	Mr. Karim yar Abbasi	M.Sc. (Hons.) (UAF)	4			
21	Miss Nazila Azhar	M.Sc. (Hons.) (UAF)	2	Nil	Nil	4
22	Mr. Irfan Ashraf	M.Sc. (Hons.) (UAF)	2	Nil	Nil	Nil
23	Mr. Shoaib ur Rehman	M.Sc. (Hons.) (UAF)	4	Nil	Nil	Nil
24	Mr. Khurram Ziaf	M.Sc. (Hons.) (UAF)	4	On Study leave		
25	Mr. Raheel Anwar	M.Sc. (Hons.) (UAF)	4	On Study leave		
26	Mr. Muhammad Asif	M.Sc. (Hons.) (UAF)	15	On leave (Deputation)		

Major Courses offered

Course Category	B.Sc (Hons)		MSc (Hons)	
	No. of Courses	Credit Hours	No. of Courses	Credit Hours
Core Courses	19	32		-
Major Courses	15	64	7-8	20
Support Courses	2	6	3-4	10
Other Courses (Comp., Elective, Support., deficiency)	13-16	48	2-3	6
Total	50-52	150	12-15	36

Major Courses B.Sc (Hons)-Agric. Major Horticulture

Course Code	Course Title	Credit Hours	Prerequisite
Hort-301	Principles of Fruit Production	4(3-1)	F.Sc. (Pre
Hort-302	Production of Fruits	4(3-1)	F.Sc. (Pre
Hort-303	Principles of Vegetable Production	3(2-1)	F.Sc. (Pre
Hort-304	Production of Vegetables	3(2-1)	F.Sc. (Pre
Hort-305	Ornamental Horticulture	3(2-1)	F.Sc. (Pre
Hort-306	Landscape Plants	3(2-1)	F.Sc. (Pre
Hort-307	Medicinal and Aromatic Plants	2(1-1)	F.Sc. (Pre
Hort-308	Basics of Plant Tissue Culture	2(1-1)	F.Sc. (Pre
Hort-309	Nutrient Management of Horticultural Crops	3(1-2)	F.Sc. (Pre
Hort-311	Greenhouse Crops	3(2-1)	F.Sc. (Pre
Hort-312	Minor Fruit Crops	3(2-1)	F.Sc. (Pre
Hort-313	House Plants	2(1-1)	F.Sc. (Pre
Hort-314	Organic Horticulture Production	3(2-1)	F.Sc. (Pre
Hort-315	Innovative Technologies for Vegetable Production	2(1-1)	F.Sc. (Pre
Hort-316	GAP in Horticulture	2(1-1)	F.Sc. (Pre
Hort-318	Business Management in Horticulture	2(1-1)	F.Sc. (Pre
Hort-403	Breeding of Horticultural Crops	3(2-1)	F.Sc. (Pre
Hort-405	Research Methods in Horticulture	3(2-1)	F.Sc. (Pre
Hort-407	Propagation and Nursery Management	4(2-2)	F.Sc. (Pre
Hort-409	Commercial Flower Production	3(2-1)	F.Sc. (Pre
Hort-411	Preparation of Research Project and Scientific Writing	2(1-1)	F.Sc. (Pre
Hort-413	Harvest and Handling of Horticultural Crops	3(2-1)	F.Sc. (Pre
Hort-415	Temperate Fruits	2(1-1)	F.Sc. (Pre
Hort-417	Vegetable and Flower Seed Production	2(1-1)	F.Sc. (Pre
Total			

Major Courses M.Sc (Hons) - Major Horticulture

Course Code	Course Title	Credit Hours	Prerequisite
Hort-701	Rootstock for Fruit Crops	3(2-2)	B.Sc. (Hons)
Hort-702	Citriculture I	3(2-2)	B.Sc. (Hons)
Hort-703	Advanced Fruit Production	3(3-0)	B.Sc. (Hons)
Hort-704	Mango and Date palm Culture	3(2-2)	B.Sc. (Hons)
Hort-705	Citriculture II	3(2-2)	B.Sc. (Hons)
Hort-706	Fruit Breeding	3(2-2)	B.Sc. (Hons)
Hort-707	Mineral Nutrition of Horticultural Plants	3(3-0)	B.Sc. (Hons)
Hort-708	Plant Molecular Techniques	3(2-2)	B.Sc. (Hons)
Hort-709	Plant Growth Regulators	3(3-0)	B.Sc. (Hons)
Hort-710	Plant Tissue Culture	3(1-4)	B.Sc. (Hons)
Hort-711	Micro propagation	3(1-4)	B.Sc. (Hons)
Hort-712	Horticulture Seed Science	3(2-2)	B.Sc. (Hons)
Hort-713	Postharvest Physiology	3(3-0)	B.Sc. (Hons)
Hort-714	Export Management in Horticulture	3(3-0)	B.Sc. (Hons)
Hort-715	Vegetable Breeding	3(2-2)	B.Sc. (Hons)
Hort-716	Onions and Relatives	3(2-2)	B.Sc. (Hons)
Hort-717	Potato Culture	3(2-2)	B.Sc. (Hons)
Hort-718	Advanced Vegetable Production	3(3-0)	B.Sc. (Hons)
Hort-719	Special Problem	1(0-2)	B.Sc. (Hons)
Hort-720	Seminar	1(1-0)	B.Sc. (Hons)
Hort-721	Vegetable Seed Production	3(2-2)	B.Sc. (Hons)
Hort-722	Solanaceous Fruits	3(2-2)	B.Sc. (Hons)
Hort-723	Mushroom Biology and Technology	3(2-2)	B.Sc. (Hons)
Hort-724	Green House Vegetable Production	3(2-2)	B.Sc. (Hons)
Hort-725	Turfgrasses	3(2-2)	B.Sc. (Hons)
Hort-726	Environmental Horticulture	3(2-2)	B.Sc. (Hons)
Hort-727	Landscape Design	3(2-2)	B.Sc. (Hons)
Hort-728	Landscape Ecology	3(3-0)	B.Sc. (Hons)
Hort-729	Advance Landscape Designing Techniques	3(2-2)	B.Sc. (Hons)
Hort-730	Urban Environment Planning and Management	3(3-0)	B.Sc. (Hons)
Hort-731	Interior Plant Scaping	3(2-2)	B.Sc. (Hons)
Hort-732	Propagation and Nursery Management of Ornamental Plants	3(2-2)	B.Sc. (Hons)
Hort-733	Medicinal Plants I	3(2-2)	B.Sc. (Hons)
Hort-734	Medicinal Plants II	3(2-2)	B.Sc. (Hons)
Hort-735	Medicinal Herbs	3(2-2)	B.Sc. (Hons)
Hort-736	Aromatic Plants	3(2-2)	B.Sc. (Hons)
Hort-737	Spices and Condiments	3(2-2)	B.Sc. (Hons)
Hort-738	Pharmacology of Indigenous Medicinal Plants	3(2-2)	B.Sc. (Hons)
Hort-739	Conservation and Sustainable Management of Medicinal Plants	3(3-0)	B.Sc. (Hons)
Hort-740	Post harvest processes of Medicinal and Aromatic Plants	3(2-2)	B.Sc. (Hons)
Hort-741	Drugs of Medicinal and Aromatic Plants	3(3-0)	B.Sc. (Hons)
Hort-742	Historical, Cultural and Therapeutic uses of Medicinal Plants	3(3-0)	B.Sc. (Hons)

Ongoing & Proposed Projects/ Conferences Organized

A. Ongoing Projects:

1. Establishment of modern Citrus nursery of certified plants through sanitation techniques.
2. Export quality cit flower production and essential oil extraction of Rosa.
3. Development of tetraploid breeding parents of seedless watermelon production.
4. Establishment of Gladiolus corm production.
5. Management of Citrus Greening by producing healthy plants, monitoring vectors and identification of tolerance.
6. Characterization of native mango germplasm in relation to resistance to Ceratocystis , cause of sudden death of mango in Pakistan.
7. Establishment of demonstration orchard for transfer of technology to growers at PARS.
8. Pak-Australia ASLP mango supply chain management project.
9. Control Atmosphere Technology for storage and export of horticulture crops.
10. Kinnow quality improvement for export to global markets.
11. Citrus germplasm maintenance.
12. Collection and establishment of germplasm unit (GPU) of fruit plants.
13. Spring and winter flower exhibition/ demonstration for transfer of technology.
14. Multiplication of imported citrus germplasm under sanitation program (ASLP).

B. Projects submitted for funding:

1. Documentation, analysis, conservation and clonal propagation of Guava genetic resources in Pakistan.
2. Identification of clonal varieties in Kinnow mandarin through DNA finger printing.
3. Export quality cut flower production and essential oil extraction of Rosa-II.
4. Date palm nursery establishment through root induction in un-rooted/ aerial off-shoots by using hormones under different environments.
5. Optimizing production and essential oil extraction technology using super-critical fluid extraction from non-traditional high value horticulture crops.
6. Off-season vegetable production and hydroponics culture under protected agriculture.
7. Hybrid seed production in Cucumber.
8. Optimization of pre and post harvest technology of promising bulbous cultivars.
9. Certified seed production of vegetables.
10. Documentation of traditional agricultural knowledge and technologies in Punjab.

C. Conferences, Symposia, Shows organized:

1. International Conference on Mango and Date palm (June 20-23, 2005).
2. Short course on Kitchen Gardening for FAO participants from Balochistan (Nov. 22 – Dec. 02, 2005).
3. International Symposium on Prospects of Horticulture Industry in Pakistan (March 28-30, 2007).
4. National workshop on floriculture and landscape management (April 12, 2008).
5. Workshop on Role of Medicinal plants and poverty alleviation (May 27, 2008).

6. Workshop on “TOT” Training program for Agriculture Experts Network of SMEDA (July 18-20, 2008).
7. Productivity enhancement in protected agriculture through high efficiency irrigation system (Oct. 22, 2008).
8. Workshop on Super critical fluid extraction technology for high value non-traditional crops (Oct. 21, 2008).
9. Premier course on Nursery Management (Nov. 04, 2008).
10. Premier course on Mushroom Cultivation (Dec. 17, 2008).
11. Annual Chrysanthemum and Autumn Flower show (March 17-18, 2009).
12. Seminar on medicinal Mushroom by DXN Company Malaysia (Dec. 19, 2008).
13. Training course on Poly Tunnel farming in collaboration with ASF (March 02-07, 2009)
14. Spring Flower show (March 27-31, 2009).
15. Workshop on CA Storage for fruits and vegetables (June 16-18,2009)