



AIC Report

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Gomal University, D.I. Khan**

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1. EXECUTIVE SUMMARY

Department of Horticulture was established in 1982 in Faculty of Agriculture, Gomal University Dera Ismail Khan. The department started offering B.Sc. (Hons) Agriculture program in 1982 and M.Sc. (Hons) Horticulture from 1988. The department also initiated Ph.D. program in 1999. Presently, the department has eight regular faculty members; one professor, one Associate professor, four Assistant professors and two lecturers. The faculty is highly qualified. Out of eight faculty members, five of them are Ph.D. and other three are M.Sc. (Hons.)/M.Phil. The faculty is adequately using teaching and evaluation instruments such as frequent use of multimedia, seminars/presentations, projects, quizzes, assignments, mid and final examinations. Curriculum is well defined; however, objectives are clear in recently revised courses of HEC than the previous one. Courses at postgraduate levels (M.Sc. (Hons.) and Ph.D.) have not been revised so frequently by the department as done at undergraduate level. The required text books are available but their number is limited. However, there is no book bank. A limited budget for books is available for main library. No separate departmental budget for books and research journals is available. Supporting staff is insufficient and not fully trained. No laboratory Assistant and/or laboratory Attendant are available to help the students in laboratory during conducting practical and research work. Only one laboratory Superintendent with B.Sc./L.L.B. qualification was available to look after the laboratory. The department has a date palm orchard of 32 kanals, mango orchard of 16 kanals, guava orchard of 12 kanals, citrus orchard of 16 kanals, horticultural plants nursery of 12 kanals, one lath house of $22 \times 140 \text{ ft}^2$ and a botanical garden of 13 kanals that provide good opportunities for practical work of undergraduate and postgraduate students. The above mentioned area also provides good room for students to conduct research and trials on various aspects of horticultural crops. During last three years, the faculty members have published 52 publications in national and international journals and proceedings; and out of these, 18 were published in the journals with Impact factor. The university does not have a well defined organizational set up for administration and governance at the departmental level. There is need that the chairman should be given administrative powers to implement rules and regulations. Resources (budget) given to the department are extremely limited; however, given funds have been well utilized. The faculty is highly qualified and well experienced with vision and capacity to impart quality education. The faculty has enthusiasm to guide the students for problem oriented research. There is dire need for Hi-tech laboratory (for postgraduate students) and class rooms especially equipped with multimedia facility. KPK government must provide funds to this university at par with other provincial universities to cope with the alarming financial crisis.

2. INTRODUCTION

Brief History and Background

Department of Horticulture was established in 1982 in Faculty of Agriculture, Gomal University Dera Ismail Khan. The department started offering B.Sc. (Hons) Agriculture program in 1982 and M.Sc. (Hons) Horticulture from 1988. The department also initiated Ph.D. program in 1999. In September 2007, the Faculty of Agriculture including Department of Horticulture was shifted from City Campus to New Campus of the Gomal University, whereas, in 2011 it was once again shifted in the present premises.

Degree Programs Offered

- B.Sc. (Hons.) Agriculture with major Horticulture
- M.Sc. (Hons.) Horticulture
- Ph.D. Horticulture

Mission Statement

- Promoting education and research on sustaining and enhancing agricultural productivity and natural resources under changing environmental scenario.

Program Goals and Objectives

- To provide academic training in fruit production, vegetable production and physiology, seed technology and landscape management.
- To conduct problem oriented research and provide educational and research linkages for uplifting the living standard of the agricultural community.
- To develop linkages with national and international organizations regarding agricultural research.

Present Enrollment and Graduate Produced

The department has produced a total of 154 graduates so far. The detail of current enrollment and pass out graduates for last three years is given below.

Year	B.Sc. (Hons.)		M.Sc. (Hons.)		Ph.D.	
	Intake	Pass out	Intake	Pass out	Intake	Pass out
2010	07	07	04	04	02	02
2011	10	10	10	10	01	01
2012	11	11	07	07	02	02

3. CRITERION-WISE ANALYSIS

Criterion I: Strength and Quality of Faculty

The faculty is well trained and equipped with the determination plus skill to train and teach

the students to enable them for facing the problems/challenges in the field of horticulture. The department has highly qualified faculty members, which include one professor, one Associate professor, four Assistant professors and two lecturers. Out of eight faculty members, five of them are Ph.D. and other three are M.Sc. (Hons.)/M.Phil. Range of experience of faculty members vary from 4-22 years. The department is offering undergraduate and postgraduate programs and conducted many short trainings. The faculty members of the department also are rendering their services to the farmer community. One senior Professor is also performing important additional duties. The faculty is adequately using teaching and evaluation instruments such as frequent use of multimedia, seminars/presentations, projects, quizzes, assignments, mid and final examinations. A committee is present for monitoring the existing system of student evaluation at the Departmental level. Participation of students in seminars and conferences is limited only up to the university only. There are no funds and facilities available at the department for participation of students in seminars/conferences at other institutions locally or internationally. The faculty participation in the seminars and conferences is encouraging but it is limited and dependent upon the support of HEC or any other organization like PSF. Faculty contribution toward research publications in national and international journals is adequate. However, contribution toward publication of books, chapters and proceedings is inadequate and needs improvement. Faculty perception about degree program is clear. The student teacher ratio is quite good.

Criterion II: Curriculum Design and Development

The department is contributing more to the teaching of 4 years B.Sc. (Hons.) degree program. The curriculum has been revised frequently by the department/faculty as well as HEC. Curriculum is well defined; however, objectives are clear in recently revised courses of HEC than the previous one. Courses at postgraduate levels have not been revised so frequently by HEC and the department as done for undergraduate program. There is need of continuous revision of the curricula for M.Sc. (Hons.) and Ph.D.

Required text books are available but their number is limited. However, there is no book bank. A limited budget for books is available for main library. No separate departmental budget for books and research journals is available. Budget given to the Faculty of Agriculture is extremely low to fulfill the needs of all the departments. A separate budget for books and journals can provide better learning opportunities. On line access is available but inter-link library system does not exist. Credit hours and contact hours are fine. Faculty is able and tried their best for completion of course with in the given limits of the semester.

All students are aware but the postgraduate students are well known about course program, admission policy, enrollment, withdrawal and course break up. Course files verified by the

AIC are well maintained by the faculty members. There is proper Board of Studies (BOS) of the department that holds meetings regularly and the record has been verified by AIC. QEC of the university has evaluated teachers, conducted course satisfaction and teacher evaluation by the students.

Criterion III: Infrastructure and Learning Resources

There are two laboratories and two lecture rooms in the department. Sizes of the laboratories and class rooms are enough to accommodate the students. However, there is dire need for Hi-tech laboratory (for postgraduate students) and class rooms for increasing strength of students especially equipped with multimedia facility. Equipment available are insufficient and need more budget or research grants for purchase of required items. Supporting staff is insufficient and not fully trained. No laboratory Assistant and / or Attendant were available to help the students in laboratory during conducting practical and research work. Only one laboratory superintendent with B.Sc./L.L.B. qualification was available to look after the laboratories. Provision of better equipment and well trained supporting staff can boost up the quality of higher education. Whatever, the equipment available in the laboratories are properly utilized. The share of the department, in annual budget of the Faculty of Agriculture for books, chemicals and glassware is very meager than their needs. Conduct of practical work, its write up and evaluation of practical note books was quite good.

Number of subscribed local journals was only 4 while none of the international journals has been subscribed by the department due to unavailability of funds. However, few international journals have been subscribed by the faculty members through their personal memberships. The main library has insufficient equipment and seating capacity.

The department has also been entrusted the responsibility to develop land at new campus which was lying barren since the inception of the university and now has been converted to citrus orchard, mango orchard, botanical garden and nursery for future experimentation and a source of income generation.

Apart from this, the department has a date palm orchard of 32 kanals, mango orchard of 16 kanals, guava orchard of 12 kanals, citrus orchard of 16 kanals, horticultural plants nursery of 12 kanals, one lath house of $22 \times 140 \text{ ft}^2$ and a botanical garden of 13 kanals, which provide good facilities for practical work of undergraduate and postgraduate students.

Criterion IV: Students Support and Progression

Admission to postgraduate programs (M.Sc. (Hons.) and Ph.D.) in the department is normal. Students are taken on merit and keeping in view capacity of the department (faculty strength and research facilities). The average yield index of the department is 100 % and drop out rate is 0%. Average CGPA at B.Sc. (Hons.) is 3.78, at M.Sc. (Hons.) 3.84 and at Ph.D. 4.00.

Scholarships to the students are available on merit and need basis from different organizations; however, their number is insufficient. Students are also getting scholarships from the organizations like Army Welfare Board, MORA, FATA and respective district councils etc. Loans without interest from banks are also available. Presently, the university is not providing any merit scholarship due to lack of funds. KPK government is not providing any funds or grants to the university. Convocation and sports facilities are insufficient. There is a good atmosphere for co-curricular activities. Students' attendance has been taken regularly and there is restriction for presence of 70 %. Record of attendance has been verified by the AIC as course files. Medical and transport facilities are adequate. However, there is need in improvement of transport and computing facilities, research funds, internship allowances etc. to motivate the students and equip with modern knowledge and practical education.

Criterion V: Research and Consultancy Activities

No research project has yet been completed at the Department of Horticulture. The university and the department are facing acute shortage of funds. Despite limitation of institutional budget, the department has continued research activities and publication work on the basis of projects grant. During last three years, the department has published 52 publications in national and international journals and proceedings and 18 out of these are published in the journals with Impact factor. The quality of research is good. Department has developed collaboration with Agricultural Research Institute Tarnab, Peshawar, NARC Islamabad, Agricultural Research Institute Rata Kulachi and various NGOs. Budget for holding seminars has not given to the department for last few years. There is need of more funds to raise the quality of the research work. The faculty members have submitted five project proposals and waiting for approval. There is only budget of Rs. 7,000/- allocated to the department for research work that seems extremely low to cope with the requirements. The faculty members are arranging plants for botanical garden on personal contact basis. Contribution by the faculty members in writing of the books is low.

Criterion VI: Governance and Leadership

University does not have a well defined organization set up for administration and governance at the department level. The university authorities should strengthen the chairman's office and the chairman should be given administrative powers to implement rules and regulations. Resources (budget) given to the department is extremely limited; however, given funds have been well utilized.

Students' record of the department is well maintained. Graduates of the department are rendering their services in public and private sectors both nationally and internationally.

Annual academic calendar of the activities is well formed at the department.

Criterion VII: Recent Innovations and Best Practices

Department of Horticulture has higher positions in number of research publications in HEC recognized journals and the journals with impact factor. Department has developed fruit and ornamental plant nurseries and also provides guidelines in landscape installation and maintenance of public places/parks. Department has also organized various trainings.

**STANDARDS/CRITERIA FOR AGRICULTURE DEGREE PROGRAM EVALUATION,
DEPARTMENT OF HORTICULTURE, GOMAL UNIVERSITY, DERA ISMAIL KHAN**

S. No.	Criteria	Points Assigned	Points Awarded
a) Major Criteria			
1.	Strength and Quality of Faculty	250	188
2.	Curriculum Design and Development	150	135
3.	Infrastructure and Learning Resources	200	129
4.	Student Support and Progression.	100	59
Sub-Total (a)		700	511
b) Minor Criteria			
5.	Research and Consultancy Activities	150	53
6.	Governance and Leadership	100	61
7.	Innovative/ Best Practices	50	30
Sub-Total (b)		300	144
Grand Total (a+b)		1000	655

Prof. Dr. Muhammad Akbar Anjum

Convener of AIC

Signature of Program Evaluator

4. SWOT ANALYSIS

i. Major Strengths

- Highly qualified and well experienced faculty with vision and capacity to impart quality education.
- The faculty has enthusiasm to guide the students for problem oriented research.
- The university management is adequately supportive for the uplift of the department.
- Prescribed rules and procedures are followed for admission and conduct of teaching programs.

ii. Major Weaknesses

- Non-availability of facilities for Floriculture, Biotechnology and Post-Harvest research.
- Inadequate space for class rooms, laboratories and offices.
- Inadequate laboratory equipments particularly for Post-Harvest Management, Physiology, Tissue Culture, etc.
- Insufficient farm area, plastic tunnels, lath house, growth chambers, cold store etc.
- Shortage / non-availability of trained support staff for laboratory to operate and maintain the equipment.
- Insufficient funds for research and maintenance of laboratory equipment and farm.
- Weak linkages with institutions and stakeholders.

iii. Major Opportunities

- Horticulture declared as high priority area at national level and has vast opportunity in the state because of highly suitable soil, topography and climate.
- Vast potential of horticultural crops including Dhakki date palm
- Large potential for export of different fruits and vegetables exist and needs to be exploited.
- Diversity in horticulture production attracted private sector entrepreneurs thus creating more job opportunities.
- National and International agencies are looking for cooperation for research and development in horticulture sector.
- High demand for trained and skilled manpower locally and internationally for fruits, vegetables and flower production and processing.
- Increasing demand for certified / hybrid vegetable seed, fruit nursery plants, cut flowers, flower extracts and processed products etc.

iv. Major Threats / Challenges

- High post-harvest losses for horticultural crops.
- No system for transfer of technology for horticultural crops.
- Value addition and processing is in high demand but not available in the country.
- Safety standards and WTO requirements becoming mandatory for exports to high end markets.
- Location at a long distance from main markets of the country.
- Law and order situation is not good and a fearful situation is prevailing there.

5. ACTIONABLE RECOMENDATIONS

- KPK government must provide funds to the university at par with other provincial universities to cope with the alarming financial crisis.
- More area for trials on horticultural crops should be made available as existing research farm is small in size.
- A book bank should be established in the University.
- A reading room / library for students in the department is also required.
- The students and faculty members should be facilitated and encouraged to attend seminars and workshops at national and international levels by providing necessary funds for the purpose.
- Faculty members may be encouraged for writing project proposals to get research grants.
- Contribution by faculty in writing of the books is low and needs improvement.
- Need of more opportunities, scholarships and financial aids. University may grant merit scholarships for five students of B.Sc. (Hons.) Agriculture at top positions in merit.
- In the laboratories fire alarms and fire extinguishers may be installed and training should be given to the new entrants in the laboratories.

6. LIST OF ANNEXURES

- a. TORs
- b. Faculty and Support Staff Profiles
- c. Inventory of Apparatus/Equipment and Textbooks
- d. List of Completed and On-going Research Projects (Last Three Years)

TORs

Faculty Profile (Qualification, Experience, Publications etc.)

S. #	Name	Highest Degree	Highest Degree Obtained from	Year of Highest Degree Awarded	Specialization	Teaching Experience	Publications
01	Dr. Muhammad Saleem Jilani	Ph.D.	Gomal University, D.I.Khan	2006	Olericulture (Horticulture)	22 Years	48
02	Dr. Muhammad Iqbal	Ph.D.	Gomal University, D.I.Khan	2007	Pomology (Horticulture)	23 Years	33
03	Dr. Jalal-ud-Din Baloch	Ph.D.	Gomal University, D.I.Khan	2010	Floriculture (Horticulture)	26 Years	40
04	Dr. Habib-ur Rahman	Ph.D.	Reading University, UK	2002	Environmental Horticulture	04 Years	21
05	Dr. Kashif Waseem	Ph.D.	Gomal University, D.I.Khan	2008	Plant Tissue Culture (Horticulture)	13 Years	61
06	Khalid Rahman Khattak	M.Sc. (Hons)	Gomal University, D.I.Khan	1993	Olericulture (Horticulture)	09 Years	08
07	Miss Mehwish Kiran	M.Sc. (Hons)	Gomal University, D.I.Khan	2006	Olericulture (Horticulture)	05 Years	09
08	Asif Latif	M.Sc. (Hons)	Gomal University, D.I.Khan	2000	Pomology (Horticulture)	02 Years	00

Support Staff (Technical and Non-technical) Profile (Qualification and Experience)

S. #	Name	Designation	Qualification	Experience
01	Moin-ud-Din	Lab. Superintendent:	L.L.B	34 Years
02	Malik Khuda Baksh	Peon	Nil	26 Years
03	Muhammad Javed	Peon	Matric	15 Years
04	Shah Jehan	Budder	Budder Course	26 Years
05	Amanullah	Mali	Nursery Experience	26 Years
06	Muhammad Ramzan	Mali	Nursery Experience	22 Years
07	Muhammad Sajjad	Mali	Nursery Experience	08 Years
08	Muhammad Safdar	Mali	Nursery Experience	03 Years
09	Allah Baksh	Mali	Nursery Experience	03 Years

Inventory of Apparatus/Equipment

List of Books Available

A. List of text Books and Reference Books of the subject available in the Departmental Library

S. #	Name of the Books	Quantity
01	A Text Book of Pomology (Chottopadhyay, T.K. 2003)	1
02	A Text Book of Vegetable Production	1
03	Basic Horticulture	1
04	Basic of Agriculture	1
05	Citrus 1001 Questions and Answers (Singh <i>et al.</i> , 2002)	1
06	Citriculture. (Rajput, C.B.S and R. S. Haribalu; 1985)	1
07	Citrus germplasm. Cultivars and Root stock (Singh <i>et al.</i> , 2002)	1
08	Commercial Fruit. (Singh, S.P. 2005)	1
09	Cropping Technology. (Khalil, I.A and A. U.Jan. 2000)	1
10	Cultivation of Minor Fruit. (Das, D.C and S.N. Das, 2006)	1
11	Dictionary of Plant Tissue Culture. (Singh, B.D. 1998)	1
12	Essentials of Plant Breeding	1
13	Fruit Crops. (Philips, R.S. 2002)	1
14	Fruit Growing. (Bali, J.S. 2003)	1
15	Fruit Physiology and Production	1
16	Gardeners Guide	1
17	Ginger Production Technology	1
18	Glossary of Horticulture. (Singh, A. 2003)	1
19	Hamray Phool (Khan, M.A. and M. Asif. 2007)	5
20	Hand book of Plant Protection	1
21	How to care for your Cactus	1
22	Insect Pest Management of Horticulture and Fruit crops	1
23	Litchi, Botany, Production and utilization (Chauhan, K.S. 2001)	1
24	Medicinal and Aromatic Plants	1
25	Methods of Teaching Environmental Sciences	1
26	Modern Fruit Culture. (Barooah, S. 2004)	1

27	Modern Strawberry Cultivation. (Sharma, R.M and R. Yamdagin, 2000)	1
28	Mushroom Cultivation, Processing and Packaging	1
29	Mushroom for Lively hood	1
30	Nutrition of Fruit Trees	1
31	Pakistan Manual of Plant Ecology	1
32	Plant Propagation at a Glance. (R.G. Maiti. 2004)	1
33	Plant Propagation its Art and Science. (Sher Mohammad. 1998)	25
34	Plant Tissue Culture Practices. (Khanna, V.K. 2003)	1
35	Preservation of Fruit and Vegetable. (Khader)	1
36	Propagation of Horticulture Principles and practices. (Hartman <i>et al.</i> , 2009)	1
37	Raising Fruit Nursery	1
38	Scientific Cultivation of Vegetable.(M.K Rana)	1
39	The Pruning of Fruit Trees and Vines	1
40	Vegetable Crops Breeding and Seed	1
41	Vegetable Seed Production Principles. (Arya, P.S.)	1

B. List of text Books and Reference Books of the subject available in the Main Library

S. #	Name of the Books	Quantity
01	Commercial fruit processing / wood roof	43
02	Small fruit culture / shoemaker	10
03	Tree fruit production / Teskey	26
04	Fruit and vegetable / Nelson	4
05	Tree nuts / Woodroof	3
06	Vegetable crops / Thompson	44
07	Principal of horticulture / Densen	55
08	Commercial fruit and vegetables / Cruess	5
09	Plant propagation and Nursery Management/	1
10	The classification of flowering plants vol-I / rendle	8
11	Disease of vegetable crops / walker	8
12	Growing fruits and vegetable crops / Talbert	1
13	World crops books / Polonium	1
14	Horticulture sciences / Janick / (P.C)	3

15	Secretory tissues in plants / Fahn	3
16	Vegetable corps / McCollum (photocopy)	2
17	Deciduous Orchards / Chandler (photocopy)	1
18	Virus Receptors Pt-I / Randall	1
19	Modern fruit science / Children	1
20	Nutrition of fruit trees / Nigger	1
21	Horticulture review , vol-2 / Janick	1
22	Root system of fruit plants / Kolesnikov	1
23	Plant virology / Carbett etc	1
24	Sunflower sciences and technology / Carter	2
25	Micro propagation of Horticultural crops / Chandra	1
26	Modern fruit production	3
27	Vegetable productivity / Speeding	1
28	Commercial vegetable production/ Luh	3
29	Manual of tropical of sub tropical Fruits/ propenoe	4
30	World vegetable / Yomaguchi	1
31	Vegetable Seed production/ Ryden	2
32	Leafy salad vegetables / Riyder	1
33	Vegetable crops/ Kelley 8 th	1
34	Plantation forestry /Even	1
35	The technology of food preservation: 3 rd / Deorosien	1
36	Horticulture sciences and soil/Coker	4
37	Fruits trees, bush etc / Black Moor Nunasnis	1
38	New Genetical approaches to crop improvement / M.Faruqui	1
39	Horticulture / Malik	7
40	Flowering plants / Slebbins	1
41	Manipulation of flowering / Atherton	1
42	Plants of west Pak /Kitamma	1
43	Approved practices in Fruit Breeding / Mohr	1
44	Watermelon breeding / Mohr:	1
45	Plant propagation / Hartmann	1
46	The flora of Karachi / Jafri	1
47	Tropical subtropical fruits of flowers cultivation / Board	1
48	Temperature fruits / Bose etc	1
49	Growth and differentiate in plants / Loomis	1

50	Principal of sericulture / Aruga	1
51	Postharvest biology and handling of fruits and vegetables/Hoard	1
52	The grafting A hard book / Garner	1
53	Vegetable growing handbook 2 nd / Splitstoeer	1
54	Growing Chrysanthemums / Randall	1
55	Onion and vegetable: Alliums / Brewster	1
56	Commercial Flower Forcing / Lauric	2
57	Vegetable growing 5 th / Knott	1
58	Soil pollution and soil organs: / Mishra	1
59	Tomatoes in the tropics / Villareal	1
60	Principal of plant Nutrition/ Kirkby (photocopy)	1
61	Sweet peas / Unwin	1
62	Flora of West Pakistan / Nasir etc	1
63	Temperature Zone Pomology / Westwood	1
64	The nature and property of soil / Nyle	1
65	Mushroom for livelihood / Khader	2
66	Uptake of ions by plant roots / bowling	1
67	Fundamental of horticulture / Edmond	5
68	Analytical method for pesticides /Zwerg	1
69	Plant propagation / kester	8
70	Horticulture hand book	1
71	Vegetable and crops production / Kamat	1
72	Lipids in plants and microbes / Russell	1
73	Vegetable crops of India / Das	2
74	Foliage plant production / Joiner	1
75	Better gardening / Meaning	2
76	Drying and storing comb: crops / McMillan	1
77	Dry land Agriculture / Somani	1
78	Plant tissue culture / Islam	1
79	The techniues of food Preservation	1
80	Shrubs and their cultivation / mans filed	1
81	The pruning manual / Christopher	10

82	Plant Disease handbook / Westcott	1
83	Plant Disease control / Sharvells	1
84	The Gardeners ABC / Cooper	1
85	Fruits biology / Kolehikov	1
86	Vegetable production / MacGillray	1
87	Identification of vegetable / calling etc	1
88	Plant Biosystematics / Grant	1
89	Commercial fruits / Singh	1
90	Postharvest biotechnology vol: II/ Desi etc	1
91	Vegetable farming system In china / pluck net	1
92	Theory and dynamics of Grassland agriculture/Harlan	1
93	In vitro culture and its application in horticulture/ vidalie	1
94	Plant tissue culture Pract/ Khanna	3
95	Horticulture technology vol-I / Aza	1
96	Agro forestry 301 / Qurashi	1
97	Encyclopedia of Horticulture / coats etc	1
98	Modern agriculture Management: 2 nd / Schneeberger	1
99	The good gardener encyclopedia / whitehead	1
100	An introduction to plant taxonomy / lowrence	1
101	Grown your own fruit and vegetables/ hills	1

List of Completed and On-going Research Projects (Last Three Years)

- a. Completed Research Projects = Nil
- b. On-going Research Projects = Nil