



NEWS LETTER

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Pakistan Society of Horticultural Sciences®

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WORDS ARE NOT ENOUGH Message from the Vice Chancellor Prof. Dr. Iqrar Ahmad Khan



Agriculture is the main stay of Pakistan's economy, be that for food security or export earnings. As a result of emphasis on field crops, the economic base has become extremely narrow and valuable. The issues of poverty and unemployment particularly in rural areas a shortening the social fabric. Horticulture has the potential and comparative advantages.

The competitive advantage lines in the production of cost effective crops and application of technologies for their value addition. Horticulture in Pakistan is as diversified as are its climate and topography. There is a rich endowment of indigenous and exotic fruit, vegetable and flower cultivars. There is also a unique resource of irrigation water supply that is available to a very few countries in the world. Horticulture enterprises have strong potential to diversify and boost our export economy and to alleviate poverty among small farmers.

Value addition has potential provided the processors are backed by granted production. Greenhouse production can meet the demands of increasing food supply to get higher returns as compared with conventional cropping system. Use of modern hi-tech irrigation systems and optimization of inputs not only will save water but also will have an impact on produce quality. Global markets are sensitive to sanitary and phyto-sanitary issues. Growers and stakeholders should be trained for good agricultural practices to meet the international standards. Germplasm and plant materials are the foundation of high yield and quality production, which needs to be regulated. There is need for certification of seeds and nursery plants.

I hope the young professionals can play their role in efficient utilization of country's resources. Working with diligence can help achieving cherished goal of rural prosperity. I wish all the success to Pakistan Society of Horticultural Sciences in its future endeavors.



Institute of Horticultural Sciences
University of Agriculture, Faisalabad



THOUGHTS AND VISION OF DIRECTOR IHS

Press and Publication Committee (P & P), Pakistan Society of Horticultural Sciences feels great pleasure and honor to get some time from newly joined Director of Institute of Horticultural Sciences Prof. Dr. Muhammad Amjad for his interview for Society on 06.03.2010. Dr. Amjad assumed the charge of Director on 23rd December 2009 from his predecessor Prof. Dr. M. Aslam Pervez. The panel of P&P Committee under the supervision of Dr. M. Usman, Advisor Committee were warmly welcomed by the Director. Dr. Usman formally congratulated and paid his gratitude on behalf of PSHS to Prof. Dr. M. Amjad on assuming the charge of Director, IHS and for sparing some time to share with Society about his personal life, Academic career and vision about the future of this Institute. Muhammad Umair Javid, Press

Secretary and other members of the panel also congratulated him on holding the charge of Director, IHS. Following are some glimpses of the interview and discussion with Prof. Dr. M. Amjad. He took his basic education from a village near Gujranwala. In 1973 he passed his matriculation exam. Dr. Amjad and Dr. M. Aslam Pervez (Ex. Director

IHS) joined UAF on the same day and has been class fellows. In 1979 he did his B.Sc. (Hons.) Agriculture-Horticulture and finished his Masters in 1981 from the same university and joined as a teacher in 1983. In 1994, he got his Ph.D from University of Salford, Salford, UK. Dr. Amjad said that he has been an average student throughout his academic career and have been involved very actively in extra curricular activities, played Football, Badminton, Squash and has been a Swimmer as well. He took part in Syndicate Election as a lecturer and Associate Professor two times and was elected with heavy margin. During his Ph. D education in UK he remained member of many societies and was elected an International Secretary of Salford University UK taking a heavy mandate showing his popularity that as quiet surprising for the concerned authorities. In 1988 he visited Egypt and China to take vegetable courses/training. According to Dr. Amjad, despite being an average student, his hard work, consistency, determination, extra curricular activities and public relationing has paid him a lot throughout his career. In his tenure as Hall Warden, Dr. Muhammad Amjad had provided Internet facility to all Hostels, improved mosque areas and upgraded bathrooms of some hostels. Construction of Female Sports Complex is fruit of his While sharing his ambitions about Institute of Horticultural Sciences, Prof. Dr. Amjad told us that he wants to build a good relationship among Teachers and Students. He wants to make student friendly environment in Institute. He is ensuring availability of books to every student. He



donated Daily English Newspaper to library for students and the faculty to get updates. He further emphasized student to be friendly with books and journals and get desired information in the Institute's library well equipped with recent books and literature in various disciplines of horticulture. He has generated a database of thesis and research done in the institute in the past decades to help students and the faculty to avoid repetition and "reinvention of the wheel", Director, IHS wish to enhance the productivity of the IHS for farmers as well. Currently Institute is providing disease free citrus plant material produced by the Citrus sanitation project supervised by the Worthy Vice Chancellor and Professor of Horticulture, Dr. Iqrar A. Khan, Dr. Jaskani and team. Fruit plant productivity and quality has been enhanced 3-4 times in fruit plant nursery of the institute under supervision of Dr. Usman and about 11000-12000 plants of Kinnow,

other citrus cultivars, guava, grapes, pomegranate and falsa will be available for the fruit growers in Sept. 2010. IHS is pioneer to enhance awareness of floriculture and landscape industry in the growers by conducting different types of exhibitions and festivals for public and society throughout the year. Now many farmers and amateurs are taking interest in Floriculture industry. Oil extraction plant for roses and other crops is one of the superior technologies introduced by the Prof. Dr. Aslam Khan in the Institute in this discipline and Institute feels honor to have this technology. CA Storage Lab (Controlled Atmospheric Storage) is just a revolution in

the Post Harvest Management of Horticultural Commodities and Dr. Malik and Dr. A. S. Khan are actively involved in this area of horticulture. IHS has been first in initiating Medicinal Plants as a subject in horticulture in the country. In short Institute of Horticultural Sciences, University of Agriculture Faisalabad is ranked at the top among all the Horticultural R & D institutes particularly in Punjab and in Pakistan. While talking about

Pakistan Society of Horticultural Sciences, Dr. Muhammad Amjad said, that he has started PSHS first of all. He told that in next All Pakistan Horticulturists meeting, he will keep Pakistan Society of Horticultural Sciences under consideration, to extend the loop of this society to all the Universities of Pakistan where Horticulture exists. He ensured that he will support PSHS at every forum. At the end, while giving a message to all students, Dr. Muhammad Amjad said, "Think and do positive and don't be negative in your thinking and attitude to any body in this world, Allah Almighty will definitely give you reward of your positive attempts." At the end of interview, Dr. Muhammad Usman, Advisor P&P Committee, Muhammad Umair Javid, Press Secretary and whole P&P Committee thanked to Prof. Dr. Muhammad Amjad, Director Institute of Horticultural Sciences for giving such a wonderful informative moments from his precious time.

ACTIVITIES OF PSHS

Annual Chrysanthemum and Autumn Flower Show, 2009

Annual Chrysanthemum and Autumn Flower Show were organized by Floriculture and Landscape section, IHS, UAF from 14th to 16th Dec., 2009 in collaboration with Endowment Fund Secretariat, UAF. This



show was a part and demonstration of regular activities being run by the institute. The main objective of this show were: to impart awareness among general public about the importance of flowers in human life, to introduce modern concepts about planting material and equipments available, to enable the participants collaborate with other organizations concerned with Floriculture and Landscape, to transfer latest and



management committee) accompanied the honorable guests for briefing. Prize distribution ceremony was organized on 16th Dec. and prizes were distributed among different participants for their distinct performance in this memorable flower show. Worthy Vice chancellor Prof. Dr. Iqrar Ahmed Khan was the chief guest of this ceremony. At the end of this mega event, a peace procession was arranged by all university members



advanced technologies for growing Chrysanthemum, rose and other annual flowers to growers through practical demonstration, to share the advancements in post harvest management of floricultural products and dissemination as well as demonstration of new technologies developed by various research organizations.



(faculty and students) and guests under the great leadership of honorable Vice chancellor at night. Candles were lit to demonstrate the need for peace and to acknowledge the sacrifices of whole Pakistani nation against terrorism.

PSHS ANNUAL SPORTS FESTIVAL 2009

Sports are very healthy activities for students and should continue along with academic life of students. PSHS is well aware of this fact and have been arranging such activities at regular intervals. In December 2009 society conducted a sports festival named "PSHS Annual Sports Festival 2009" for the students of Faculty of Agriculture. Students from whole faculty participated in this event actively. In Dec., 2009, this event was inaugurated by Prof. Dr. Rana M. Aslam Khan. These games



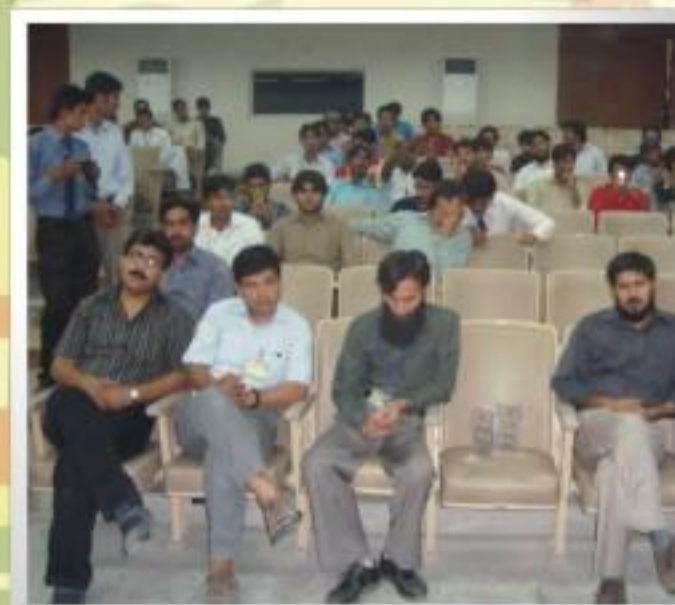
Prize Distribution Ceremony was held on 19-05-2010 at Old Senate Hall. Prof. Dr. M. Ashfaq (T.I), Dean Faculty of Agriculture was the chief guest of this ceremony. Prof. Dr. Aslam Pervez (Chairman PSHS) and Prof. Dr. M. Amjad (Director IHS/Patron PSHS) distributed prizes among winners. Prof. Dr. M. Ashfaq (T.I., Dean Faculty of Agriculture) distributed shields among PSHS advisors and certificates among organizers of this event and executive cabinet of PSHS. In his address Prof. Dr. M. Ashfaq highly appreciated that PSHS has done a great job by conducting such a wonderful event in such a fearful and tense environment. At the end, Prof. Dr. M. Aslam Pervez



were conducted under the supervision of Mr. Kareem Yar Abbasi and Mr. Irfan Ashraf (Advisors Sports Committee, PSHS). All other teachers from IHS were also there at inauguration ceremony. Both boys and girls participated in all the games very actively. Games for boys were conducted at Cricket Stadium, Foot Ball Ground and Sports Complex of



(Chairman PSHS) presented vote of thanks to Prof. Dr. M. Ashfaq (T.I) Dean, Faculty of Agriculture and all the participants for sparing time for this event and to PSHS organizers for holding such a beautiful event.



University of Agriculture Faisalabad including cricket, foot ball, tug of war, badminton, table tennis and Fris-B. Athletics included Sac Race and race of 100, 200 and 400 m. Different games for girls included cricket, tug of war, badminton and table tennis. In Athletics there was sac race, cycle race, candle race, chaati race, high and long jump, hurdle race, 100 m race, relay race and three leg race. Games of girls were conducted under the supervision of Dr. Nazila Azhar (Asst. Professor IHS). All the games were conducted very successfully.

NEW CABINET OF PSHS HAS BEEN ANNOUNCED

Executive Council of the society has welcomed the selection of new cabinet of Pakistan Society of Horticultural Sciences for the year 2010-2011 and also hope that they will carry on the mandate of the society diligently and will play a vital role in boosting up this forum.

SHORT COURSE ON ADVANCE LANDSCAPE TECHNIQUES

As we all are well aware that PSHS is working for the benefits of farmers and students and facilitating them by organizing different short term



courses, seminars, workshops and international symposiums since last 4 to 5 years. Recently PSHS has organized one week short term course named as "Advance landscape techniques". Honorable ceremony was organized in this regard.

Prof. Dr. Aslam Pervez director IHS was the chief guest of this ceremony. Chairman PSHS Prof. Dr. Mumtaz Khan all the professor from IHS also graced this ceremony. First of all Mr. Mueen Iqbal (President PSHS) delivered a welcome speech. At the end worthy chief guest delivered the words of wisdom and extended cooperation for such healthy and academics activity of the society.



More than 40 students participated, not only students but also employees & progressive farmers, landscapers also participated in this course. Dr Adnan Younas (Assistant

Professor IHS), Dr. Atif Riaz (Assistant Professor), Mr. Nadeem Ahmad played a vital role in the successful completion of this course and trained the participants theoretically as well as practically with full devotion at the end of this course written exam was taken



for evaluation. Then at the successful completion of this course prize distribution ceremony was organized to distribute shields and certificates to the successful candidates. Prof. Dr. Iftikhar Ahmad Khan Dean Faculty of Agriculture was the Chief guest of this ceremony.

Worthy chief guest, Chairman PSHS and Director IHS distributed the prizes and certificates among the successful candidates. At the end of this ceremony Chief guest addressed to the participants and appreciated the endless efforts of Chairman PSHS and Cabinet of PSHS.



HONOR FOR THE INSTITUTE

"Heartiest Congratulations to the Awardees"

Award of Competitive Post-Doctoral Fellowships, 2010

- Endeavour Post-Doc Fellowship in Australia to Dr. Ahmad Sattar Khan
- HEC funded Post-doc Fellowship in Australia to Dr. Atif Riaz
- Common Wealth Post-Doc Fellowship in UK to Dr. M. Usman
- Endeavour executive award in Australia to Prof. Dr. M. Aslam Pervez

Successful completion of International Trainings

- AusAID Training by Dr. Fatima Usman in Australia.
- Endowment Funded Training by Dr. Iftikhar Ahmad in (NCSU) USA.

Completion of HEC funded Post Doctoral Fellowships

- Endeavour Post Doctoral Fellowship in Australia by Prof. Dr. A.U. Malik
- Dr. C.M. Ayub from Uni. of Nottingham, UK
- Dr. Adnan Younis from University of Minnesota, USA

Completion of Ph.D Degrees

- Dr. Iftikhar Ahmad
- Dr. Nazila Azhar

Spring Flower Show 2009

Flowers are the sign of friendship, peace explain feelings and give message silently. Grand event celebrations were held in University of Agriculture Faisalabad from 27th to 29th March 2009. PSHS fully participated in this event and made united efforts to make this event successful and colorful.



Continuing the traditions, PSHS organized the flower show in the university mega event. Thailand delegation as the chief guest inaugurated this beautiful spring flower exhibition.

Cut flower arrangement, fresh and dry flower arrangement and special display were the salient feathers of this event. Government, semi government, private nurseries and organizations, private institutes and a large no. of students from UAF, different collages and schools have



actively participated in this exhibition to made it a success story. Among the major competitors, NIAB, NIBGE, AARI, Sitara Chemicals, IHS, UAF Estate management dept. were prominent ones.

NIAB were declared as the winner of this flower show. PSHS become eligible to organize this show with the endless efforts of Prof. Dr. Aslam Pervez (Ex. Director IHS), Prof. Dr. Mumtaz Khan (Ex. Chairman PSHS) and Prof. Dr. Aslam Khan (Project Director IHS), Dr. Ahmad Sattar



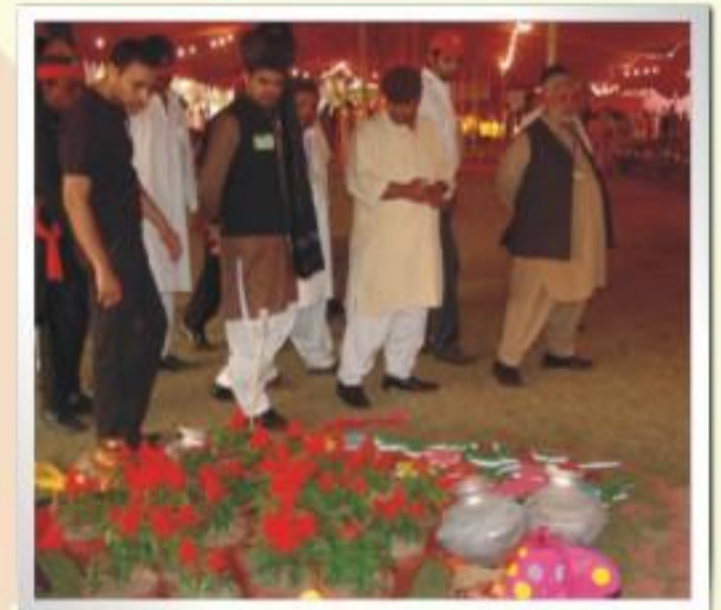
khan (Convener PSHS), Dr. Iftikhar Ahmad (Coordinator PSHS) and all the cabinet of PSHS. Prof. Dr. Nadeem Akhtar Abbasi Chairman Dept. of Horticulture, PMAS Arid Agriculture University Rawal Pindi, Mrs. Tehmina Afzal Chairperson Dept. of Fine Arts, GC University Faisalabad,

Dr. Muhammad Qasim Associate Professor IHS and other eminent persons served the duties as members of evaluation committee. Prizes, shields and certificates were distributed among the winners and participants of this flower show in the closing ceremony. At this memorable occasion



Prof. Dr. Iqrar Ahmad Khan Vice Chancellor University of Agriculture Faisalabad, Prof. Dr. Iftikhar Ahmad Khan Dean Faculty of Agriculture, Mr. Muhammad Shafique, President Floor Mills Association also graced this ceremony. Prof. Dr. Mumtaz Khan (Ex. Chairman PSHS) Mr. Mueen Iqbal (Ex. President

PSHS) also spoke on this occasion and highlighted the main feathers of this event and presented a vote of thanks to participants and competitors. A large number of city dwellers students from various schools, colleges and university employees visited this show along with their families and this flower show proved to be a



heart and eye catching spot of this grand university festival. This show remained for four day. At the end all the participants and visitors were served with Hi-Tea.

PSHS Warmly Congratulate to Prof. Dr. Aman Ullah Malik and Dr. Ahmad Sattar Khan on offering Hajj-e-Baitullah



ANNUAL FUNCTION 2009



Executive cabinet of PSHS have decided to held annual function of society at the end of tenure of cabinet 2008-2009. Mr. Mueen Iqbal, President PSHS has contributed a lot to arrange this colorful function. Chief Guest of function was Prof. Dr. Iftikhar Ahmad Khan acting vice chancellor UAF. With recitation of Holly Quran and Naat, function was started. All the staff and students of IHS were invited. Prof. Dr. M N Malik specially participated in this function. Different skits, funny conversations and songs were performed. Shields were presented to staff and executive cabinet of PSHS. At the end of function, dinner was served to guests. This function was sponsored by PEPSI International.



STUDENTS ACTIVITIES



Muhammad Adnan Badar
Group Secretary ASG
Besthiker in 17 National Rover Hike 5-14 Aug 2009
2nd Position in National Speech Contest on 25 May 2009
1st Position in Husn e Naat 17 aug 2009
2nd Position in Husn e Qirat 17 aug 2009
2nd Position in Speech Contest at 27 All Punjab Rover Moot
President Rover Scout Award 2009
Wood badge 2009
1st Position Intersivity Roverig Championship 2010

Muhammad Umair Javid
Member Agriversity Scouts Group
Participated in one Night Camping at Changa Manga 2009 and get
2nd Prize of Best Rover in camping



Mr. M. Toheed while taking Shield from Dean Faculty of Agriculture

Mr. M. Toheed Student IHS while taking Certificate

Mr. M. Toheed while taking Shield at Annual Chrysanthemum Show 2009

Certification by VC of Raffeh International University Islamabad taken by Muhammad Tayyab

GLIMPSES



WELCOME FUNCTION 2009 GIVEN TO 5th SEMESTER BY 7th SEMESTER



EXPERTS CORNER

NURSERY RAISING FOR VEGETABLE CROPS

C.M. Ayub, M.A. Pervez and M. Amjad

Institute of Horticultural Sciences, University of Agriculture, Faisalabad.

Nursery raising is also known as in direct planting. In this case first vegetable seeds are sown in small nursery beds and later on small/young plants called seedlings are shifted to field. This shifting is known as transplanting. Objectives of nursery raising include: to get better higher yield, early cropping, to avoid gaps in field, to get uniform stand in field, to get healthier and better quality produce, to get disease insect/attack free plants, to avoid weakened/injured/broken plants, to maintain plant to plant distance right from beginning, to save expensive/precious/small amount of seeds, to handle very small sized seeds properly, to use seeds economically and to reduce cost of production and earn better return. Its drawbacks are extra labour involvement for uprooting and transplanting and plants are stressed at the time of transplanting, although they recover later on through their natural potential.

CULTURAL PRACTICES:

1-Nursery bed operations: Small bed/beds are prepared through digging, silt, leaf manure, organic matter (well rotten) is mixed properly and flattened, raised beds are prepared finally. This way rain water/extra water will be drained out naturally from sides.

2- Seed Sowing: Seed are sown by broadcast or line sowing methods in nursery beds and gently mixed in soil or covered by organic matter/silt/sand/soil to avoid disturbance/floating.

3. Media Used: Well rotten FYM, leaf manure, sand, silt, saw dust can be used in nursery beds for better germination and easier uprooting of seedlings.

4. Nursery Bed Preparation: In case of severe summer nursery bed should be covered/shaded by green net, prali or by any local material/mat etc to save against high temperature. In winter season pole there can be used for this purpose against chilly winds/frost and to raise temperature.

5. Irrigation: Immediately after sowing water is provided/applied gently with sprinkler to avoid disturbance or floating of seeds. After emergence pipe can be used carefully or flooding can be done.

6. Plant Protection and Weed Control: Nursery bed should be examined regularly and weeds are removed carefully with hands. If any insect/attack/disease symptoms appears, nursery bed is sprayed with suitable recommended chemicals to save the seedlings. Spray should be repeated after 7-10 days for better control against identified problems.

VEGETABLES GROWN THROUGH NURSERY:

a) Winter Vegetables: Onion, lettuce, cabbage, khol khol, cauliflower, celery, leek and broccoli are grown through this practice.

b) Summer Vegetables: Brinjal, hot pepper (chilies), sweet pepper and tomato are grown through nursery practice.

Time of Planting: Winter vegetables are sown in October-November (except early cultivation). Summer vegetables are sown from mid Jan-Feb (then for late planting).

Nursery Duration: Seedlings will be ready for transplanting with in 20 days to 1 month in case of summer vegetables. Seedlings will be ready after 1.5-2 months in case of winter vegetables.

Transplanting Time: In winter vegetables-late January to February and in case of summer vegetables-March to onward according to planting time. Seedling can be transplanted at a height of 3-4-6 inches or according to their age.

Care at transplanting: Nursery bed should be in vatar condition or water should be applied before uprooting seedlings. Seedlings should be uprooted manually with care as root/plants should not be damaged/broken. Seedling should be transplanted in early morning or evening so that they may be established until next noon to avoid mortality. Affected, diseased, insect attacked, very small/large sized and weakened seedlings should be discarded/separated. Seedlings can be graded for uniform stand. Seedlings should be transplanted on sides/tops of beds/ridges. If seedlings are to be transplanted in dry conditions then water is applied immediately afterwards. If field was already watered before transplanting (vatar conditions) then no need to apply water immediately after transplanting.



HELP THE HELPLESS

PSHS also stands along the nation in this critical time of deep grief and sorrow. It's a plea to the the horticulturists and other professionals to help these flood effected people living in miserable conditions by all available means to support them in this time of trial.



DOUBLE HAPLOIDIZATION

A SHORTCUT TECHNOLOGY TO DEVELOP PURELINES FOR HYBRIDIZATION AND OTHER CROP IMPROVEMENT PROGRAMS

M. Usman, W. A. Samad and B. Fatima

Institute of Horticultural Sciences, University of Agriculture, Faisalabad.

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Horticultural crops particularly fruits and vegetables hold major share in agriculture based economy of Pakistan and are currently produced at 254 and 854 thousand hectares with 3136 and 7178 thousand tons of production per annum (Agri. Stat. Pak., 2009). Our share in the world production and exports is negligible despite fact that during 2009 exports of fruits and vegetables have increased upto 11% and 23%, respectively. Currently Pak. is ranked 18th and 16th in fresh fruit and vegetable production in the world, respectively. The increase seems mainly due to gradual rise in area under cultivation and is supported by prevalence of significant yield gaps in fruits e.g., 6-7 tons per hectare in citrus, 3 tons/hectare in guava and on average 5-6 tons/hectare in case of all major vegetable crops compared to Brazil and our neighbor countries like India and China (www.phdeb.org.pk; www.faostat.fao.org). One of the major reasons of this scenario is lack of hybridization and crop improvement programs in fruit and vegetable crops.

Homozygous parents generally called as pure lines are essential to start a fruitful hybridization program. Conventionally, pure lines are developed after several generations (7-8) of selfing and still the progeny may not be 100% homozygous. It gets further difficult if one is dealing with woody plants having long reproductive cycle, high heterozygosity and self-incompatibility making breeding and genetic studies difficult to conduct. Development of superior cultivars via gametic embryogenesis like androgenesis and gynogenesis have been reported in several crops like citrus, loquat, grapes, apple, banana, pepper, cucumber, melons, squashes and Brassicas. Androgenesis has been reported in 250 species of 100 families. Doubled haploidization (DH) is being routinely used in breeding programs for new cultivar development and fixation of heterosis in F1 hybrids.

Haploids are plants with half number or only one set of chromosomes

originating from a single gamete. All dominant or recessive genes have chance to express themselves making haploidy an important tool in genetic studies, enabling to observe direct expression of both dominant and recessive mutations. Haploids are very important to plant breeders because homozygous diploids can be obtained by directly doubling the haploid genome. Chromosome doubling occurs when a cell fails to divide into two cells during mitosis and doubled number of chromosomes remains in the same daughter cell. Doubled haploidization (DH) techniques include anther and microspore cultures (Androgenesis) from diploid or F1 hybrids resulting from wide hybridization, ovary and ovule cultures (Gynogenesis). Breeders are interested owing to the possibility of shortening the breeding cycle and to produce pure lines in a single step compared to conventional breeding methods. Haploidy also enhances effectiveness of selection of desired recombinants, especially when quantitative traits are evaluated. Similar benefits are evident for conventional breeding when DH systems are employed in the process of mutant induction and selection. Supplementing mutation breeding with DH systems enhances efficiency provided a highly regenerable protocol for doubled haploid production is available for a particular crop or genotype.

Gametoclonal variations occur in plants regenerated from cultured gametic cells and result from both meiotic and mitotic divisions. These plants may show differences in their morphology, biochemical characteristics and genetics and such variations can also be used in crop improvement. Sources of variation to explain gametoclonal variation include genetic variation induced by cell culture procedures, from segregation and independent assortment, variation induced by chromosome doubling and at diploid level. Doubled haploids also provide an excellent material to obtain reliable information to localize major genes for economically important agronomic traits.

Keeping in view the significance of doubled haploidization and its effectiveness to generate homozygous lines, we initiated a program to induce androgenesis in major vegetable crops in 2007-08 in Plant Tissue Culture Cell of the institute and have obtained success in inducing calli in bitter melon, sweet pepper, brinjal and rose anthers and further studies are in process in these vegetable crops. It is suggested to further explore this technology to enrich our germplasm resources and to initiate crop improvement programs effectively.

**Institute of Horticultural
Sciences, UAF.**

C O N S O L A T I O N

PSHS CONSOLES

Prof. Dr. Aman Ullah Malik, on sad demise of his affectionate father.

Prof. Dr. F. M. Tahir on sad demise of his affectionate mother.

Unfortunate accident of Dr. Iftikhar's family

STUDENTS CORNER

COVER CROP BENEFITS FOR COMMERCIAL VEGETABLE PRODUCERS

Muhammad Azam - M.Sc. Horticulture

Vegetable growers can improve farm productivity and profitability by using cover crops. Cover crops are basic, sustainable tools used to manage soil fertility, soil quality, water, weeds, pests, diseases, diversity and wildlife in agro ecosystems. Cover crops are considered the backbone of any annual cropping system that seeks to be sustainable. It is important to identify and having know-how about cover crops which contribute to nutrient conservation and improve soil organic matter by incorporation of cover crop biomass. Cover crops are produced with minimal inputs. No irrigation or fertilizer is added to any of the crops described below. Additionally, no pesticides or herbicides are used to protect the cover crops. Typically, vegetable growers are facing low organic matter (<2%) in other course-textured soils, which contributes to low nutrient and water-holding capacity within these soils. Both gravel and sand soils pose wind erosion problems for seedlings and transplants. Selected cover crops can address this problem by acting as wind breaks, or just by providing additional organic matter to hold soil particles in place, which can reduce the number of loose particles available for wind erosion. It is very important for vegetable and other agriculture producers whose land remain idle for several months each year. A cover crop is planted for the purpose of covering and protecting the soil and in some cases for harvesting residual nutrients that were not used by the previous crop. Cover crops can either be crops grown between cash-crop cycles, such as vegetables or intercropped with the cash crops, e.g. to cover the bare ground in orchards, groves and other perennial crops.

Table 1. Nitrogen percentage in crop parts

Cover Crops	Tops (N%)	Roots (N%)
Soybeans	93	7
Vetch	89	11
Cowpeas	84	16
Red Clover	68	32
Alfalfa	58	42

A major benefit obtained from cover crop is the addition of organic matter to the soil. During the breakdown of organic matter by microorganisms, compounds are formed that are resistant to decomposition. Cover crops may also be grown as green manure. A cover crop used as green manure is usually incorporated into the soil while still green or just before it sets seed. This practice recycles nutrients that are contained within the green manure crop and contributes organic matter to the soil. Weeds flourish on bare soil. Cover crops take up space and light, provide shading to the soil and reduce the opportunity for weeds to establish themselves. The soil-loosening effect of deep rooted green manures also reduce weed populations that thrive in compact soils. The extensive root systems of some cover crops are highly effective in loosening and aerating the soil. Cover crops that release natural insecticidal chemicals from their residues are called bio-fumigants. As the cell walls in these plants rupture, isothiocyanate escapes into the soil which has shown activity on many plant pests, especially nematodes. The Brassica species of cover crops are recognized as the best source of bio-fumigation. This includes oilseed radish, oriental mustard, yellow mustard, brown mustard, turnip, and rape. In this case cover crop is allowed to grow up to flowering stage, but not to set seeds. Then chop and incorporate the residue for maximum bio-fumigation output. As a result, harmful soil nematode population may be reduced. Growers need to determine the primary purpose of the cover crop being planted. Is it to add nutrients, recycle nutrients, improve soil structure or reduce pest problems? The last thing a vegetable grower needs is to take care while selecting and managing cover crops so as not to allow viable seeds to be produced from a crop that may become a weed in future.

Table: 2 Average biomass yield and nitrogen yield of cover crops

Cover Crops	Biomass (tons/acre)	Nitrogen (lbs/acre)
Sweet Clover	1.75	120
Berseem Clover	1.10	70
Crimson Clover	1.40	100
Hairy Vetch	1.75	110

PSHS WELCOMES THE YOUNG HORTICULTURISTS

PSHS has welcomed the young Horticulturists of 5th semester for their selection in major subject Horticulture as future profession. Executive hope that "Young Horticulturists" will follow committed to make Pakistan a nation of conservers, to inspire all Pakistani to Environment, to conserve Pakistan's Horticulture to lead this effort by sharing Pakistanis.



Council of society has also welcomed and and continue our mission. PSHS is professional Horticulturists and nature become caretakers of Land and biodiversity through art and science of the society's unique resources with all

FARMER'S CORNER

HAJI SONS (CHINIOT)

A PROGRESSIVE HORTICULTURE AND COMMERCIAL VEGETABLE SEED PRODUCING ORGANIZATION

In this issue PSHS is presenting views of Hafiz Muhammad Naeem (MD, HAJI SONS, Chiniot) about vegetable seed production business and share his experiences. Dr. M. Usman (Advisor, P&P) and Mr. M. Umair Javid (Press Secretary PSHS) on behalf of the P&P committee and PSHS is highly grateful to him for sparing time on the request of Patron PSHS/Director IHS, Prof. Dr. M. Amjad.



Mr. Hafiz Muhammad Naeem told us that Haji Sons is a commercial farming company which deals in hybrid seeds and fertilizers. My father came to Pakistan after Indo/Pak partition and took 14 acres of land on lease and started farming there. Slowly the area was increased and in 1979 we started business of insecticides, fertilizer and seed import to meet the local requirements of seed and fertilizer. We started agriculture on scientific basis as a business. We installed "Drip Irrigation System" in our lands and started using Green House Technology when it was not known commonly. Now we have 600 acres of land under cultivation out of which we have installed green houses on 50 acres. Potato, Maize and Rice are the main crops in which we are dealing for research through crop rotation. We have consultants from Soil and Environmental Sciences (SES) and Plant Breeding and Genetics (PBG), UAF. In response to a question about problems in

availability and multiplication of good and healthy seed, Hafiz Naeem told many reasons. There is no separate seed production done by farmers. Grains are separated and used as seed.. Most of the farmers are not well educated so they are not well aware about a good seed and new varieties of seed available in the market. Lack of communication between agricultural experts and farmers is a very important factor in this failure. Hybrid seed is not common in Pakistan due to lack of awareness. Hybrid seed production is very poor in the country. Actually it's a time consuming process so a common farmer can't put all his efforts and resources to produce seed for years. They don't make a separate plot for open pollinated seed production, so production of hybrid seed is still far away. Haji Sons has initiated recently to produce hybrid seeds locally. Currently we are importing and multiplying seeds to meet the local requirements.

"Agriculture as a business" is very profitable. Commercial farming is highly profitable business if done with intensive care. Haji Sons is being managed by a management board of 6 people namely Mr. Haji M. Saleem, Mr. Hafiz M. Naeem, Mr. M. Tahir, Mr. M. Zulfiqar, Mr. Hafiz M. Abubakar and Mr. M. Nadeem. There is need to make our farmers well aware of modern technology. Communication should be very strong between farmers and agriculture scientist. Research should be at field level. Agri graduate should spend their time and knowledge with farmers in field. They should make their relation with soil more strong. Govt. should give subsidy to agriculture sector. Hafiz Naeem conveyed his

message for horticulturists that they should put all the efforts in their area of specialization practically, in horticultural growth and prosperity and should develop close interaction with the grower and other stakeholders rather than joining private sales or banking sector. Finally Hafiz Naeem thanked Press and Publication Committee, PSHS for giving him an opportunity to talk about the activities and achievements. Further he wished to develop a strong collaboration with the IHS and PSHS in future as well.



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Message from Chairman PSHS Prof. Dr. M. Aslam Pervez



It is indeed a matter of immense pleasure for me that the current issue of the PSHS Newsletter is in your hands. All the members of the Editorial board and P&P committee deserve deepest appreciation for working hard to bring this issue in time. It is encouraging to see that "Horticulture" is now being widely recognized as a potential area of interest by both the Government and the private sector. It is my conviction that the realization of the significance of this profession would be of great value for the country at large. In this context, the efforts of PSHS are commendable in organizing various programs in the past like training courses, workshops, exhibitions etc and many more still in the pipeline. I hope PSHS will progress further and would invite many professional horticulturists to become its members in future. In the end I would extend my heartiest congratulations to all the executive members and members of P&P committee for this great achievement.

Message from Advisor P&P Committee PSHS Dr. Muhammad Usman



Press and Publication Committee, PSHS has explored new avenues and additionally included extension articles in the current issue from students, progressive farmers and horticulturists working in different areas to enhance their participation and involvement. I, being Advisor P&P, appreciate their interest and response on our call and encourage them to own their Newsletter by maximum participation for coming issues.

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