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Pakistan Society of Horticultural Sciences®
Institute of Horticultural Sciences
University of Agriculture, Faisalabad

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Message by Dean, Faculty of Agriculture (Patron PSHS)

Pakistan, being a developing country is facing many problems. In such odd circumstances, where unemployment has reached to its brink, only Agriculture can rescue the country. Adoption of new agricultural technologies and agricultural entrepreneurship can create a way out of all odds. Different NGO's and non-profit organizations are working to address the problems of the nation. I am proud to say that Pakistan Society of Horticultural Sciences® is also among them and is working actively to create a difference in society by arranging different seminars, workshops, training courses, conferences and equipping the youth with latest knowledge and techniques in horticulture. PSHS keep up the good work!



Message by Director, IHS (Chairman PSHS)

Being Science as well as an Art, Horticulture offers a great variety of interesting fields of study. No doubt that this art is learnt by diligent practice. For practicing this art, Pakistan Society for Horticultural Sciences provides a platform to the individuals to learn the basics of horticulture, which lead them not to seek jobs rather plot out their own entrepreneurship programs. Thereby, PSHS takes the great responsibility of importing horticultural training to the society and dutifully serves the community.



PSHS Congratulates

- Prof. Dr. Muhammad Amjad, Former Director IHS, on assuming the charge of Dean, Faculty of Agriculture, UAF.
- Prof. Dr. Amanullah Malik, for taking up the charge of Director, Institute of Horticultural Sciences, UAF.
- Prof. Dr. M. Jafar Jaskani, on assuming charge as Executive Director, Endowment Fund Secretariat, UAF.



Green Fingers

Tree plantation is Sunnah of Holy Prophet(PBUH). Following the Sunnah, on the pleasant morning of September 21, 2016, Prof. Dr. M. Amjad (Dean, Faculty of Agriculture) planted a Gold Mohr tree in the court yard of Dean office followed by tree plantation by Director IHS, Dr. Amanullah Malik and Prof. Dr. M. Jafar Jaskani, Executive Director, EFS, in IHS lawn. All the plants were courteously sponsored by Commercial Floriculture (Rose Project) nursery, IHS. Prayers for the well-being of the country and group photo of faculty members and students terminated the event. This mini event was reflection of positive thoughts which will definitely spread in the city, country and the wider world making the Earth greener pollution free, more peaceful and comfortable place to live.



Seminar On Establishment of Date Palm Germplasm

Institute of horticultural sciences organized a seminar on establishment of date germplasm in Pakistan. The seminar which addressed potential problems in establishment of date germplasm also introduced strategies for the effective germplasm establishment. Students and faculty members participated in the event actively which was held at

Landscape Studio on December 28, 2016. Prof. Dr. A. U. Malik (Director IHS) and Prof. Dr. Jafar Jaskani (Director EFS) highly appreciated the event and motivated for more such events. The success of the event was result of efforts by Dr. Summar Abbas Naqvi.



International Seminar on Prospects of Bulbous Flower Production in Pakistan

August 17, 2016 was pinned by the International Seminar on Prospects of Bulbous Flower Production in Pakistan. Seminar was organized by Institute of Horticultural Sciences in Collaboration with Greenworks under the lead of Dr. Iftikhar Ahmad. Honorable Vice Chancellor, Prof. Dr. Iqrar Ahmad Khan

Mr. Kees Van Der Plas, Mr. Saleem Ahmad, Mr. Usman Shaukat Qureshi (Lecturer, Department of Horticulture, PMAS Arid Agriculture University, Rawalpindi), Mr. M. Abdul Salam Khan (Directorate of Floriculture (T&R), Lahore), Dr. Atif Riaz (Assoc. Prof., IHS, UAF), Dr. Adnan Younis (Asstt. Prof., IHS, UAF), Dr. Iftikhar Ahmad (Asstt.



(S.I.) was the chief guest who inaugurated the seminar by his welcome address highlighting the importance of producing our own germplasm of bulbous flowers. Prof. Dr. Riaz Ahmad, Dean, Faculty of Agriculture, Prof. Dr. Muhammad Amjad, Director IHS, Mr. Kees van der Plas (Managing Director, Stoop Flower Bulbs, Holland) and Mr. Saleem Ahmad (CEO, Greenworks, Lahore) were the guests of honour of the day. The seminar began undoubtedly by the recitation from Holy Quran. Then worthy chief guest Prof. Dr. Iqrar Ahmad Khan welcomed the audience and specially Mr. Kees van der Plas to the seminar. In his address, he appreciated the initiative to work on new bulbous flower crops in Pakistan and stated that organizing such seminars and collaborative academia-industry workshops would help flourish this emerging segment of Horticultural industry in the country. After his address, series of presentations by the researchers, private and government sector involved in production of bulbous flowers, were started. Speakers of the seminar included

Prof., IHS, UAF), Mr. Mohsin Bashir (Lecturer, IHS, UAF) and Mr. Abdul Wahid (Asstt. Horticulturist, Floriculture Research Station, AARI, Faisalabad). The seminar was very informative as per feedback of over 50 participants including faculty members from all over the university, floriculture students and commercial flower growers as well. The seminar revealed new perspectives for bulbous flower production in Pakistan. At the end, certificates were distributed among the participants by Mr. Kees van der Plas and souvenirs were given to the presenters by Dr. M. Qasim (Assoc. Prof., IHS, UAF) and Mr. Saleem Ahmad. A vote of thanks by Dr. Iftikhar Ahmad followed by refreshments for all terminated the seminar with great applause.



Hands on training workshop on exotic flower arrangement

Perfectly in time, Pakistan Society of Horticultural Sciences, IHS organized a training workshop on exotic flower arrangement just before the arrival of Annual chrysanthemum and autumn flower festival, 2016. The timely planning of the event by Irslan Ali (Vice president, PSHS) was a golden chance for students, to get hands-on training of exotic flower arrangements before the actual competition in flower festival. Certainly the students responded positively for registration and over 100 students were the participants in the workshop. The workshop was conducted by Mr. Behzad Rafique (Landscape at Chief Minister House, Lhr & Ex- president, PSHS) accompanied by Irslan Ali. Participants were trained about the basics of flower handling by Dr. Iftikhar Ahmad (Coordinator, PSHS) followed by handy tips and their practical demonstrations by the trainers. After demonstration, flowers were distributed among participants so that they can practice and make their own creations by applying the principles learnt during workshop. At the end of workshop, Prof. Dr. Aman Ullah Malik (Director IHS and Chairman PSHS) expressed his remarks by appreciating the efforts of the society. Certificates were also awarded to the participants. The event was a success for the society all due to team work of cabinet PSHS. Wasi, Mursleen, Taqdees, Tazkia, Mubashar, Liaquat and Usman worked devotedly to make the workshop successful.



Flora Rendezvous (Community Service)

Serving the community, PSHS arranged flower arrangement workshops in different schools and colleges in order to groom up the young talent for the competition in flower festival and to create awareness among school kids. The schools where the event took place include Angels International College and Little Angels School. Workshops were conducted by Irslan Ali (Vice President, PSHS) and Mr. Behzad Rafique (Landscape at Chief Minister House, Lhr & Ex- president, PSHS). Both the trainers manifested their diverse experience by demonstrations of exuberant floral displays. Their keen interest in training young individuals reflected their love for floral art. Definitely this worked and students learnt at a faster pace in the conducive environment of the workshops. Host schools

acknowledged the efforts of young men and awarded them with shields.





In-house Review Workshop on Improving Academics, Research and Outreach Activities

After assumption of charge, Prof. Dr. Amanullah Malik (Director, Institute of Horticultural Sciences) took all the faculty members on board and conducted in-house review workshop on improving academics, research and outreach activities. The workshop consisted of three distinct sessions, viz. academics, research

and outreach activities. In first session, teachers were given instructions about how to effectively conduct theory and practical classes as well as diploma courses. While second session, included maintenance and development of labs' facilities and infrastructure. In last session it was

advised that all possible steps should be taken to improve industry linkages.



Upgradation of IHS Lawns Landscape

In the course of interiorscaping, postgraduate students steered by Dr. Adnan Younis executed their class project entitled biodiversity hotel which turned out in amazing displays and complete renovation of the area assigned to students. Dr. Adnan Younis not only guided the students about execution of their project but also refined their ideas facilitating the students for successful completion of the project. Insertion of bamboo frames with attractive colored imageries of honeybees

presenting the importance of their existence in the ecosystem adorned the lawn beautifully. Moreover, the bird houses and vibrant painted hanging baskets hung across and painting the benches and planters according to theme intensified the overall look of the entire area. Learning and academic based landscaping project appealed everyone. PSHS also appreciate the innovation of the young students and their efforts which added vibrant colors to the institute.



Sad Demise

❖ Ch. Muhammad Sadiq, former subject specialist, Institute of horticultural sciences, breathed his last. May Allah rest his soul in peace (Ameen). He was a dedicated horticulturist, who served as former principal, Barani Agricultural College, Rawalpindi also as well as Director, Vegetable Research Institute, Ayub Agriculture Research

Institute, Faisalabad. His work and contribution to horticulture is remarkable, which will always be remembered.

❖ Prof. (Rtd) M. Saddique Goraya also expired. PSHS expresses condolence on sad demise of both renowned horticulture faculty.

Let's Dine Together & Celebrate

Faculty members of Institute of horticultural Sciences enjoyed a get together dining at The Chenab Club in order to celebrate promotions of senior faculty members, viz. Prof. Dr. M. Amjad (Dean, Faculty of Agriculture), Prof. Dr. A.U. Malik (Director, IHS) and Prof. Dr. M. Jafar Jaskani (Executive Director, Endowment Fund Secretariat). Delicious food and quality time spent in a refreshed everyone fueling them up for more work in the upcoming semester.



Annual Chrysanthemum and Autumn Flower Festival 2016

On a misty morning of December 13, 2016, registration desk was placed on the festival venue. Preparations of the festival were almost complete. Invitation cards of the event were delivered and registration of participants had begun. Participants started arriving with their arrangement materials on the flower festival venue. The beautifully adorned Agri. Faculty lawns and the roads across them proved the devotion of decoration committee to their work. Decoration committee, which had been working since several days before the event was still working for the final touches in decoration and fresh roses were being inserted in the magnificent floral gate. Gigantic entrance which took more than a week to get ready was giving a remarkable sight to the entire festival.

At last the time came when the wait was over and the festival was to be inaugurated. Faculty IHS including Prof. Dr. Amanullah Malik (Director, IHS), Prof. Dr. Jafar Jaskani (Executive Director, EFS), Prof. Dr. Ahmad Sattar Khan (Convener, PSHS) and Dr. Iftikhar Ahmad (Coordinator, PSHS and organizer of the festival) were present there to welcome chief guests at the festival. As Prof Dr. Iqar Ahmad Khan along with foreign delegates arrived, Dr. Iftikhar Ahmad along with the faculty members welcomed them. Bouquets were also presented to them as gesture of courtesy by PSHS.



missed no chance to get photos clicked in the company of flowers and beautiful floral displays. On next day, painting and photography competition held at the venue filled more colors in the event. School kids and college students actively participated in it. In an event with so much participation of different organizations and floriculture allied business companies, it's inevitable that the entrepreneurs miss the golden chance of hiring talented floriculture students around. Work of the students at the festival was a blessing in disguise, which geared up a Job Fair. Floriculture students were interviewed under the lead of Dr. Iftikhar Ahmad by the



The festival was inaugurated with great applause. Chief guests were lead a visit to the show by Dr. Iftikhar Ahmad. Visit ended pleasantly with great appreciation for the organizing and his team. Then a group photo clicked by M. Kashif terminated the inauguration ceremony.

After the inauguration, judging team arrived for evaluation of the exhibits in the festival and then afterwards, show was open for public. Nature lovers

manage of a leading landscape company based in Saudi Arabia. PSHS wishes good luck to all the interviewees. On 3rd day of the event, which was supposed to be last day of the festival, prize distribution ceremony of the festival was held at the New Senate Hall. Prize distribution ceremony started with recitation of Quranic verses by M. Kashif followed by recitation of Naat by Saba Sattar. Guests of honour were welcomed to the ceremony.



Shields were distributed among the winners of the competitions. Distribution of shields was performed by Sheikh Javed Iqbal, Director Floriculture Punjab, Prof. Dr. M. Jafar Jaskani (Executive Director, EFS), Prof. Dr. Shahzad M.A. Basra (Professor, Agronomy), Mr. Raheel Sultan (Chief Executive, Best Garden Nursery), Dr. Najma (MPA), Prof. Dr. M. Amjad (Dean, Faculty of Agriculture, UAF) and Prof. Dr. Aman Ullah Malik (Director, IHS). Trophies were also awarded to the overall winners of different categories of competition. Judges of the festival, who were Mr. Khalid Waheed Ramay (Gardeners Club, FSD), Mr. Ghulam Mustafa Shad (Deputy Director Horticulture, PHA, Lahore.), Mr. Shoaib Raza (Chairman Hort., Ghazi Univ., DG Khan), Dr. Naeem Iqbal (Chairperson, GC Univ., FSD) and Ms. Kiran (Institute of Home Sciences, UAF) were also acknowledged by awarding shields for their fair and unbiased evaluation. How can the labor be neglected, who are the real heroes working tirelessly to make arrangements on behalf of their respective organizations. Special cash prizes on behalf of Vice Chancellor were distributed among the staff of different organizations participating in the festival winner of the festival trophy, for the most active participation and amazing number of positions in the festival, was awarded to NIBGE. It was the third time, NIBGE won this trophy. Certificates were awarded to all the participants and Hi-tea for all refreshed the audience. Pakistan Atomic Energy Commission Foundation School, Divisional Public School, Lahore Grammar School, Junior

Laboratory School, Little Angels, Divisional Model College, Angels International College and Laboratory Girls College showed their maximum participation in the flower festival and won remarkable number of positions. Among university students, Khizra Farzand and Tazkia Hussain won maximum positions. Directorate of Floriculture, AARI, NIAB, NIBGE, Millat Tractors (Lahore), Sitara Chemicals, Best Garden Nursery, Qadir Bakhsh Nursery, Waqar Enterprises Nursery (Pattoki), New Rehman Nursery, UAF Estate dept. and a private mowers company participated in the event with astonishing displays. Millat tractors even displayed a stall for the sale of their products.

PSHS thanks them all for their participation and wishes them for more in future.



One Day Seminar on "Dissemination of Seed Production Technology of Vegetable Crops"

Farmers from different areas of Punjab actively participated in seminar. Speakers were invited from AARI and UAF who gave brief lectures to growers on different aspects for seed production of vegetables. Speakers have called for tangible steps to pave the way for production of indigenous on-farm vegetable seeds as the country is spending a huge foreign exchange of 6 billion rupees annually on imported vegetable seeds. The session was chaired by the Vice Chancellor University of Agriculture Faisalabad, Professor Dr. Iqrar Ahmad Khan (SI), whereas Director Institute of Horticulture, Dr. Muhammad Amjad (Project coordinator), Dr. Khurram Ziaf (Project Incharge) and others also spoke on the occasion. More than 150 participants attended workshop. Farmers told Professor Dr. Iqrar Ahmad Khan (SI) that after getting training under this project, they produced their own vegetable seed and also distributed to other local farmers for growing of vegetables. They encouraged other farmers to produce at their farms.



International Workshop on Diversification and Value Addition of Floriculture

Pakistan Society for Horticultural Sciences® under the umbrella of Institute of Horticultural Sciences in collaboration with USDA, PARB, Greenworks, Nawab Agriculture Pakistan, Green Farms and Best Garden Nursery Farms organized International Workshop on Diversification and Value Addition of Floriculture. The workshop which lasted for 2 days was a great success for the Institute and particularly the organizers among which Dr. Iftikhar Ahmad (Workshop Secretary) took the lead in getting all the tasks done well in time.

Day 1 of the workshop comprised of Inaugural session followed by technical sessions, while Day 2 of the workshop included an Industry Tour. In the inaugural session of the workshop, after recitation of Holy Quran by Hafiz Kashif, Prof. Dr. A. U. Malik (Director, IHS) gave welcome address followed by Key Note address by Prof. Dr. John M. Dole (Associate Dean and Director Academic Programs, North Carolina State Univ., USA). After words that Vice Chancellor, UAF, Prof. Dr. Iqrar Ahmad Khan (Sitara-e-Imtiaz, Order des Palmes Academiques)



moderators were Dr. Iftikhar Ahmad and Miss Munazza Hafeez. A total of 21 presentations from presenters round the globe were delivered in the three technical sessions which were paused by Tea and Lunch breaks to refresh the participants. There was also a poster session by Postgraduate students. Day 1 of the workshop concluded with the closing ceremony in which



delivered Inaugural Address marking the inauguration of the workshop. At the end of inaugural session, Prof. Dr. Muhammad Amjad (Dean, Faculty of Agriculture) expressed gratitude towards the distinguished guests and after that participants along with presenters and chief guests proceeded for the group photo, which was clicked in IHS lawn by official photographer of Univ. and Hafiz Kashif.

With great enthusiasm, Technical Sessions began after the tea break. There were three technical sessions which were chaired by Prof. Dr. Nadeem Akhtar Abbasi, Prof. Dr. Ishtiaq Rajwana and Prof. (R) Dr. M. Aslam Khan, while

certificates, souvenirs and shields were presented to the guests of honor and oral presenters. Clatter of applause for the organizers terminated the event which was followed by official business meeting of Pakistan Society for Horticultural Sciences which was held at Library, Institute of Horticultural Sciences.

Next day, participants of the workshop along with foreign guests set off for the Industry Tour led by Dr. Iftikhar Ahmad. Starting from the Best Garden Nursery, FSD where Mr. Raheel Sultan (Owner, Best Garden Nursery) briefed about the exotic ornamental plants at the nursery and led a visit of the entire area. Participants



were also served Hi-Tea by the host. Then there was a visit to Dar-es-Salam Farm (A Project of Greenworks) near Sheikhpura. There participants were demonstrated advanced flower production technology being employed at farm level, which also included very well installed drip irrigation system and in strawberry fields. Apart from Kale, Broccoli and strawberries, Bulbous crops including lilies, gladioli and tulips were also growing well over there. Over there, participants were served lunch by courtesy of Greenworks. Moreover, boxes of farm fresh strawberries were gifted to all participants. Last visit was of Behzad Specialty Cut Flower Farm near Bedian, Lhr. Overthere, Mr. Muhammad Behzad Rafiq (Landscape and cut flower grower) warmly welcomed us and briefed about his wonderful experience of specialty cut flower production as well as of gladiolus production. Being the youngest entrepreneur in the field, with his excellent marketing skills he captured the entire market setting

himself up as the role model for floriculture students and making his advisor Dr. Iftikhar Ahmad proud. Group photo followed by refreshments terminated the trip and we safely travelled back to university.



Trend Setting IHS

Being the trend setter institute of the university, once again IHS marked a high tide when Prof. Dr. A. U. Malik (Director IHS) gave a presentation to Prof. Dr. Iqar Ahmad Khan (Sitara-e-Imtiaz, Ordre des Palmes Académiques), Vice Chancellor, UAF about the newly implemented quality assurance system at Institute level. Vice Chancellor very much appreciated the idea and advised to replicate its implementation at faculty level.



Industry Tours & Students Practical Training

Postgraduate floriculture students led by Dr. Iftikhar Ahmad, enjoyed a trip to Lahore regarding the course Turf Grasses. In the trip they visited DHA Raya Golf and Country Club, Royal Palm Golf and Country Club and Jallo Botanical Garden, PHA Lhr. Desperate floriculturists were eager to learn the management techniques of golf courses. They just not learnt about management but also about the machinery employed over there. Cordiality of Mr. Helder Fontinha, the owner of DHA Raya Golf and Country Club aided students to be more inquisitive for sake of learning. The trip had much more to amaze the students when they arrived at Jallo Botanical Garden. Butterfly garden, cactus garden, shrub garden, bonsai and topiary displays were of special interest to the young floriculturists. They were spell bound to see the beautiful displays and diversity of plants at the garden.

Postgraduate pomology students were led to Sidhar Mandi by Dr. Raheel Anwar in order to analyze local packing of fruits and vegetables so that the students can better compare them with standard packing methods and can judge the drastic differences in commodities locally packed and standardized packing.

In the course Temperate Fruits, undergraduates were led to a trip to Soon Valley, Khushab, by Dr. Ahmad Sattar Khan. Over there students saw the commercial orchards of temperate fruits as well as visited Horticultural Research Station, Soon Valley. They came to know about specific varieties of temperate fruits to be cultivated in different areas of Pakistan. Students also got equipped with hands-on knowledge about commercial production of minor fruits and its economic returns.

Commercial flower production was also unveiled when passionate horticulturists visited Pattoki under the lead of Dr. Iftikhar Ahmad. Series of nurseries on left and right with exceptional displays of ornamental plants appealed to everyone's sight. All the ambushed students with their eyes wide open fled towards the window seats when flood of flower farms seemed to be nearby with the mesmerizing fragrance in the air. Their joy knew no bounds when they visited Waqar Enterprises Nursery and learnt different techniques of producing standard

roses. The collection of roses in that nursery amazed everyone. Gazes were diverted to beautiful colors of conspicuous roses. Then visit to a series of commercial farms of roses, gladioli and tuberose helped to gain knowledge about commercial floriculture. Growers not only transferred their knowledge but also shared their remarkable experiences in flower production and its sustainability in the field of horticulture. Jaw dropping cost efficiency of this business stimulated the interest of horticulturists for opting floriculture as their entrepreneurship in future. Students were served a Hi tea in afternoon by a grower as a welcoming gesture which refreshed everyone. From the sunrise till the sunset, continuous visits of floriculture farms and nurseries came to an end at the hub of nurseries where resided the gigantic plants which are used in developing housing

colonies and all over Pakistan. The very informative yet entertaining trip came to an end when all 90 students dined together at Pattoki Restaurant before departure to Faisalabad.

Beginners in horticulture major were led a trip to Best Garden Nursery, FSD, by Mr. Mohsin Bashir (Lecturer, IHS) so that the students can better identify different house plants. In the course, House Plants, this trip served as

an aid to boost up the aesthetic sense of students as well as provided a better insight in the subject.

Environment is getting deteriorated day by day due to human intrusion in nature. Horticulture is the subject that can ameliorate environment. To serve the purpose and to create awareness among youth about Environmental Horticulture, postgraduates were led to Rawalpindi/Islamabad where they visited Environmental Protection Agency followed by Morgah Biodiversity Park and NARC Phytoremediation unit. In the whole trip, students were briefed about environmental pollution and ways to encounter it. Morgah biodiversity park was an exemplary place for learning water conservation, rain fetching, organic farming and recycling. This surely stirred the minds of students and motivated them for environmental protection using horticultural approach.

“Nature is not a place to visit, its home. The earth has its own music for those who will listen”.





Newsfeed of IHS

- ◆ Students and faculty members of Federal Urdu University of Arts, Science and Technology, Karachi visited IHS on October 17, 2016.
- ◆ On October 27, 2016, Mr. Daniel Linotte and Mr Badar ul Islam from UNIDO, met with Prof. Dr. Aman Ullah Malik (Director, IHS) to discuss impacts of European Union funded TRTA-II Program: Code of Practices in Kinnow and Mango Industries.
- ◆ IHS participated in technology exhibition during Rabi Festival, November 4-7, 2016 hosted by UAF. Faculty members and students of the institute actively participated in exhibition activities and provided extension services to the farmers.
- ◆ Mr. Jurek Juszczyk, Deputy High Commissioner, Australian High Commission, Islamabad met with Principal Investigators of Australian funded projects at UAF and visited Postharvest Research and Training Center UAF on November 17, 2016.
- ◆ Dr. Umbreen Shahzad, Dr. Shahid Rizwan and students of BZU sub-campus Bahadur, Layyah visited Institute of Horticultural Sciences on November 19, 2016. Dr. Summar Abbas Naqvi, Dr. Muhammad Usman, Dr. Muzammil Jahangir and Dr. Raheel Anwar introduced them to fruit orchard and labs of the institute.
- ◆ Prof. Dr. Aman Ullah Malik and Dr. Ahmad Sattar Khan presented their research findings at "National Conference on Sustainable Management and Control of Fruit Fly Infestation" organized by USPCAS-AFS (US funded), November 23-24, 2016 at University of Agriculture, Faisalabad.
- ◆ Prof. Dr. Aman Ullah Malik (Director IHS) participated as speaker in "13th Annual Fulbright and Humphrey Alumni Conference" held at HEC, Islamabad, Dec 2-4, 2016, organized by The United States Educational Foundation in Pakistan. This year the theme was "Agents of Change". Dr. Malik delivered a lecture on "An Opportunity Which Transformed an Industry".
- ◆ H.E. Mr. Umaru Tanko Al-makura, Executive Governor of Nassarawa state of Nigeria visited the University of Agriculture, Faisalabad on 9th

December, 2016. MOU for academic linkages and technology transfer of citrus and rice will be made after a follow up visit by UAF experts to Nigeria.

- ◆ Prof. Dr A. U. Malik (Director IHS) gave a presentation at "International TOT on Global GAP Standards for greater Market Access" 05-10 Dec, 2016, Lahore, organised by Asian Productivity organisation of Japan and National Productivity Organisation of Pakistan.
- ◆ Xinjiang Agriculture University China and University of Agriculture Faisalabad, signed various MoUs on 15th Dec 2016, including one to set up a China-Pak Agriculture Base for Research and Development, to promote Jujube (Ber), Grapes and Cotton. Chinese and Pakistani delegates also planted Chinese jujube seeds to establish first nursery at PARS. Chinese delegates presented home dried Jujube at the ceremony. We hope that



our increasing collaboration with China in agricultural education and R&D will help introduce new fruits and opportunities for local growers in near future.

- ◆ Horticulture students from Azad Jammu and Kashmir University, Rawlakot, visited Institute of Horticultural Sciences on 26th December, 2016. Students (AJK and Gilgit-Baltistan areas), took keen interest in the R&D program at Institute and were inspired to get an opportunity for higher education at UAF.

Newsfeed of IHS (Conti....)

◆ Dr. Adnan Younas (Assistant Professor, IHS, UAF) in collaboration with other faculty and private sector stakeholders organized a training workshop on "Edible Landscape" on February 5, 2017 at Qadir Buksh Farms, Faisalabad to promote the idea of Edible Landscape design that is both beautiful and completely in tune with nature - a beautiful garden with a naturalistic feel. People from all quarters of life actively participated in this event and appreciated the efforts of organizers.

◆ Delegation from Punjab University (Dept of Botany) Dr. Kamran Atif and Dr. Ayesha Nazir along with students of BS Botany (8th semester) from University of the Punjab, Lahore visited Institute of Horticultural Sciences, UAF. Prof. Dr. Aman Ullah Malik (Director, IHS, UAF) welcomed students. Later on, students visited Postharvest Research and Training Centre and Landscape Studio of the Institute for research and outreach activities updates

◆ IHS installed a beautifully designed activity board in main corridor at UAF. An event calendar provides month wise scheduled program while highlights of the monthly events are being shown in photographs. The activity board is getting attention of students, faculty and visitors. Vice Chancellor appreciated the initiative and encouraged other departments to design similar activity boards.

◆ Dr. Raheel Anwar (Assistant Professor, IHS, UAF) organized a training program on "Postharvest quality assessment and value addition in horticultural crops – II"

on February 22-23, 2017 at Agriculture Training Institute (ATI), Sakrand, Sindh. The training program was organized under a USAID/UC-Davis-funded Agriculture Innovation Program. Students and teaching staff of ATI, Field Assistants and farmers of Sindh participated in this capacity building program.

◆ Institute of Horticultural Sciences, UAF, in collaboration with Australian/ACIAR funded Project on Agriculture Value Chain Collaborative Research Program organized "National Consultative Workshop on



Vegetables" at Serena Hotel (Nov 7-9, 2016), Faisalabad. The conference was great success as it promoted vegetable production as well as addressed the problems faced in vegetable production nationally.





Visit of NAEAC (Higher Education Commission) Team

National Agriculture Education Accreditation Council (NAEAC) has a mandate to evaluate and accredit agricultural academic programs in the country. In 2009, IHS secured highest score and was ranked in "W" category. This year again, NAEAC conducted its second round of evaluation of IHS as well as three other departments including Institute of Soil and Environmental Sciences, Agronomy and PBG. An eight members team of eminent scientists along with its Chairman, and Secretary arrived at UAF on 24th Jan. NAEAC team conducted a comprehensive assessment of IHS on Jan 25-26, 2017. The assessment included faculty strength and competence, courses, lab facilities, field research

infrastructure and facilities, Quality and relevance of R&D, industry and international/national linkages etc. During the visit of IHS, NAEAC team was given a detailed presentation by Dr Malik, and then led them to visit Institute's labs and field areas. Afterwards, team members also had individual meetings with IHS teaching staff, undergraduate and postgraduate students. Team members much appreciated institute's efforts to maintain quality of its academic, R&D and Outreach program and also suggested points for further improvement. At the end of assessment, NAEAC team gave a briefing at a joint meeting in the office of Dean faculty of Agriculture.



Mehfil-e-Milad

When the month of Rabi-ul-Awal arrived, Pakistan Society for Horticultural Sciences (Faisalabad Chapter) planned to organize a Mehfil e milad in regard of the Holy month of Rabi-ul-Awal. The event took place on 9th of Rabi-ul-Awal in vegetable seed lab. from 2:00 to 4:00 p.m. All faculty members and students were cordially invited to be a part of sacred event. Milad began with recitation by Kashif, followed by Hamd e Bari Talla recited by Saba, Munazza, Mursleen and Shaista. Then a series of naats were recited by Zahid, Saba, Naila and Aqsa. Moreover, impressing compering by Tazkia and Kiran marked the

event with triumph. Prof. Dr. Tahir Siddiqui (Chairman Naat and Qirat Club and Chairman Dept. of Forestry Range Management and Wildlife) being the chief guest spoke On Seerat un Nabi (SAW). His comprehensive address enlightened the faith of audience present there. Prof Dr. Amanullah Malik (Director, IHS) giving his concluding remarks about the event said that there is an urge to practice religion and follow Seerat un Nabi (SAW). Salam recited by whole audience under the lead of Saba Sattar followed by Dua terminated the event. Confectioneries were served to all.



Strawberry: Scrumptious but Still an Underutilized Fruit in Pakistan

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Strawberry is a short statured plant belonging to family Rosaceae and is native to Europe. Its sweet, delicious, aromatic, juicy textured and perky red fruit is very much liked in every part of the world. Now-a-days, commercially grown strawberries are hybrids of genus *Fragaria*. Most of the commercially adapted varieties (*Fragaria x ananassa*) are octoploid that contain eight sets of chromosomes. During the past century, hundreds of varieties have been introduced for different regions, seasons and consumer preferences. Depending upon climatic requirements and fruiting season, these varieties are classified into June-bearing, ever-bearing or day-neutral varieties. Since, strawberry fruit is non-climacteric in nature, it cannot ripe after harvest. So, harvest at mature red stage is very important to market good quality fruit. Immature fruits have green or yellow patches on their surface. Since the fruits cease maturing soon after their harvest, immature fruits should be avoided as they are likely to be sour and of inferior in quality. Good quality strawberries are mature sized and shiny red while still attached with calyx (green cap) but free from mould and sand particles. Poor quality fruit exhibit dull red colour, deformed shape (sunken or flattened) and/or signs of mould, cuts or discoloured patches on surface. Cool storage of strawberries may help to maintain quality of this delicate fruit for few extra days.

Strawberry fruit is low in calories (32 calories per 100 g fresh weight) and lipids but rich source of health promoting vitamins and minerals (Table). Strawberries have significantly high amounts of phenolics, anthocyanins and ellagic acid. Scientific studies showed that consumption of this fruits may have many health benefits against cancer, inflammation, aging and brain diseases. Fresh fruits are an excellent source of ascorbic acid, which is also a powerful natural antioxidant. Consumption of fruits rich in ascorbic acid helps the body develop immunity against infections, scavenge harmful free radicals and counter inflammation. The fruit is rich in B vitamins. It contains very good amounts of

vitamin B6, niacin, riboflavin, B5 and B12. These vitamins are acting as co-factors that help in metabolizing carbohydrate, proteins and lipids. Strawberries contain vitamin A, vitamin E and health promoting flavonoid polyphenolic antioxidants such as zeaxanthin, lutein and β -carotene in small quantity. These compounds act as protective scavengers against O₂-derived free radicals and reactive O₂ species that take part in various disease processes and aging. In total, antioxidant strength (oxygen radical absorbance capacity) of strawberry fruit is about 3.5 mmol trolox equivalents per 100 grams. In addition, strawberry fruit contains ample quantity of minerals like potassium, manganese, fluorine, copper, iron and iodine. Intake of potassium helps in controlling heart rate and blood pressure while manganese functions as co-factor of an antioxidant enzyme, superoxide dismutase. Copper and iron are utilized in synthesis and structuring of red blood cells, respectively. Fluorine prevents of dental decay.

In Pakistan, Chandler is most commonly cultivated variety which falls into June-bearing group. Strawberry nurseries in Swat valley produce its runners and sell it for Rs. 0.75 to 2.5 per runner depending upon sale volume. In addition to higher altitude areas of Islamabad and Mardan, strawberry is now being successfully grown in Chenab and Ravi river belt. Its transplantation is mostly done during mid-October to mid-November and harvested from mid-February to end-April. Retail price of strawberry fluctuates from Rs. 300 to as low as Rs. 80 depending upon the harvest volume. Peak production season of strawberry is mid-March. On an average, farmers are earning Rs. 2 to 5 lac per acre each season. This trend is encouraging its cultivation in other areas of the Punjab also. Production and postharvest technology of strawberry is not yet standardized and farmers are growing strawberry based on their own experience. Inadequate production and handling is causing serious losses at production and postharvest level (Figure). So, there is need to develop technology package for proper production and postharvest management which will



help to promote its production and better return from its harvest. Until now, strawberry is only consumed fresh in Pakistan whereas processing and value addition is almost negligible. Establishment of processing sector in Pakistan will not only reduce losses of this delicate fruit but will also increase its consumption into other value added products including ice creams, jams, jellies, cakes, smoothies. Fresh sliced strawberries can be a great addition to fruit or green salad. They can be a great snack between meals. Dried slices of strawberry can be added in muffins, pie, cakes and are used in cereal flakes as a breakfast meal. The fruits are a popular addition to milk products; as in strawberry flavoured ice cream, milkshakes, smoothies and yogurts. High price returns from this crop has been encouraging farmers to grow more strawberries and there is a dire need to standardize its production and postharvest management technology so that farmers can produce better crop, obtain high yield and fetch best farm gate income. Moreover, introduction of processing industry is also imperative for value addition of this perishable products.

Establishment of cold chain may greatly extend its market life which is, otherwise, not more than 2-3 days under normal conditions.

Table: Nutrient composition of strawberry and other minor fruits generally grown in Pakistan.

Fruits	Strawberry	Apricots	Grapefruit	Grapes	Jujube	Litchi	Loquat	Peach	Pear	Plum	Pomegranate
Water (g)	91	86	91	84	78	82	87	89	84	87	78
Energy (kcal)	32	48	32	57	79	66	47	39	57	46	83
Protein (g)	0.7	1.4	0.6	0.8	1.2	0.8	0.4	0.9	0.4	0.7	1.7
Carbs (g)	8	11	8	14	20	17	12	10	15	11	19
Ca (mg)	16	13	12	37	21	5	16	6	9	6	10
Fe (mg)	0.4	0.4	0.1	0.3	0.5	0.3	0.3	0.3	0.2	0.2	0.3
Mg (mg)	13	10	8	14	10	10	13	9	7	7	12
Mn (mg)	0.4	0.1	0	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Vit. C (mg)	59	10	34	7	69	72	1	7	4	10	10
Unsat. FA (mg, Poly)	155	77	24	401		132	91	86	94	44	79

(Source: United States Department of Agriculture)



Figure: An overview of production and postharvest management of strawberry in Pakistan. Strawberry plants are generally grown on raised beds (top left) and fruit is harvested manually (top right). In Punjab province, this delicate fruit is generally handled and transported in plastic or mulberry baskets (bottom left) and retailed by local vendor to super markets (bottom right) without considering its specific postharvest management requirements.

Friends gifted by Prof. Dr. Iqrar Ahmad Khan (S.I., Ordre des Palmes Académiques) Vice Chancellor UAF

Books are friends. Prof. Dr. Iqrar Ahmad Khan (Sitara-e-Imtiaz, Ordre des Palmes Académiques), Vice Chancellor, University of Agriculture Faisalabad awarded booklets copies to , Prof. Dr. Muhammad Amjad, Prof. Dr. Aman Ullah Malik, Prof. Dr. M. Asif, Dr. Saeed Ahmad, Dr. C. M. Ayyub, Dr. Muhammad Usman

and Dr. Summar Abbas Naqvi , for their significant contribution in publication of booklets on production and postharvest technologies of horticultural crops, on the eve of UAF books and magazines inauguration ceremony festival on October 20, 2016.



KINNOW ; THE GEM OF WINTER

By Imran Muhammad Siddique
Horticulturist
Horticultural Research Station, Sahiwal



Introduction

God being Creator of humankind has in advance, created many weather and season based plants and herbs that provide food and treatment to living creatures. Kinnow, well known citrus fruit (*reticulata*), belongs to the family of citrus fruits *rutaceae*, including grape fruits, lemons, limes, oranges, tangerine and tangelos etc. cultivated in hot climate, plant height can go up to 35 feet.

Availability

The season of availability starts from mid October and extends normally up to April with the peak occurring in mid January. The advent and use of controlled atmosphere cold storage have, however made it possible to sell citrus fruit as late as May, extending the market season & availability considerably, in fresh condition. In Pakistan kinnow is grown under totally natural conditions to enhance the original flavour and characteristics of the fruit and to preserve its fundamental goodness to its optimal.

Salient Characteristics

- Easy peeler.
- High juice content.
- Rich source of vitamin C.
- Delicious & refreshing taste.
- Highly flavoured and aromatic.
- Attractive color.
- Melting flesh.
- High Nutritional Composition.
- Highly seediness is the only demerit of this GOD gifted fruit.

There are a lot of mineral salts in kinnow alongwith other nutritive ingredients i.e., lime, phosphorus, iron and exuberant amount of vitamins. Basically, having organic citric acid, kinnow is rich in vitamin C and vitamin B complex. Energizer of human body, it possesses ample quantity of carbohydrates (glucose, fructose & sucrose). In a different way, some particular outstanding stimulus

zones of kinnow, by and large are, it is well known elixir for human stomach health turmoil. Robust action aiming at, giving a kick-start to the frail health of patients, suffering from typhoid and chronic constipation, kinnow takes them to a path to quick recovery.

Remarkable specialty of Kinnow's nectar, is that it is absorbed immediately into human stomach and digests food sharply. Kinnow juice starts working when it reaches into stomach and gives extra sufficient energy to body. Kinnow is highly rich in mineral salts, especially lime that alleviates acidity complaints from those who are meat lovers and remain seated without any working movement. Being beneficial and useful, it also dispels acidity of blood and covers losses occurred due to long seating.



It also diminishes sluggishness of intestines owing to sub-standard food intake. Strong and coordinated rocking response of God's highly fuelling gift impacts positively if used in the morning, at night's sleeping hours or during noon moments for constipation problems.

Miraculously, kinnow is the best food for those who suffer from fevers. Kinnow removes symptoms of fevering elements, discharges filthy

matters from skin and kidneys. No food can be more healthful for fever than juice of kinnow. Above all, sweet kinnow juice quenches thirst & excludes poisonous matters from body.

Being best anti-poison medicine, kinnow nectar is the best distilled water, free of germs and other matters entirely. It is juice as well as food. More comprehensively, it increases hunger demand being amongst the best appetizers. Short of pancreas quantity can be compensated by drinking fresh kinnow juice. Salubrious for physical nourishment and growth of children,



exclusion of internal poisons, replacement of mother's milk with the best safety from diseases plus getting vitamins, kinnow has every meritorious character. Kinnow has loose skin which is easily peel-able, and the peel is used in various sweet dishes. It contains essential oils which are used in perfume industry and in skin care preparations.

Kinnow mandarin contains beta-carotene which has powerful antioxidant properties and helps to protect skin damage caused by the sun. It also contains limonene which is believed to be a potent anti-cancer agent which also has the ability to lower cholesterol levels. Apart from these constituents it also has vitamin A and a high vitamin C content as well as the minerals like iron, calcium and phosphorous. It has a high juice content and is good with carrot juice, the combination provides us with a lot of vitamin A which is beneficial for eyesight as it helps to prevent macular degeneration. Just one kinnow provides more than the recommended daily amount of vitamin C so it is a powerful little fruit, and a very tasty one. We have been eating kinnow since November and it will be with us until (hopefully) the end of May.

Health Benefits

The juicy, soft, scented and refreshing kinnow is one of the best fruit which helps maintaining optimal health. Its consumption is popular in raw, peeled and also in juice form and even the rind of kinnow is used by people in recipes, either for flavoring or garnishing purposes. The experts, elaborating its health benefits, associate kinnow with protection and maintenance of the health of bones due to its richness in calcium while beta-carotene, a nutrient present in it, is a very powerful antioxidant that protects cells from degeneration.

Besides, kinnow helps to maintain dental health of an individual and keep blood pressure under check; it also supports the production of hemoglobin in the body owing to the presence of magnesium and being rich in vitamin B6. The high content of potassium in kinnow helps to maintain electrolyte balance in the cells and also aids the maintenance of a healthy cardiovascular system. However, the folic-acid present in kinnow helps in proper brain development.

Kinnow is favorite delight of winter season liked by all old and young-ones and is consumed in different ways as some like it in peeled form and some like its refreshing juice.

Kinnow is rich in nutrition and have countless health benefits and having a glass of kinnow juice, in the breakfast, keeps us fresh all the daylong and helps in maintaining good health. Kinnow is very well known for its flavour, fragrance and juiciness, because of the presence of citric acid, flavonoid and limonoid. It is very rich in vitamin C content.

According to an estimate approximately 95 percent of the total kinnow produced all over the world is grown in Pakistan. However, the wastage of crop is a worrying factor as presently around 20% produce is wasted during harvesting and another 10% during processing. Research on improved ways of harvesting and alternative usage of the low grade fruit can greatly decrease post-harvest losses and increase revenue generation.

Untiring efforts are needed to maintain, improve and promote this real gift of God, which is undoubtedly the gem of winter fruits of Pakistan.

Internal Internship Program

Institute of Horticultural Sciences for the first time introduced Internal Internship Program for B.Sc. (Hons.) students of last semester. The program was wisely planned by Prof. Dr. A.U. Malik (Director, IHS) and internship committee members, aimed for grooming of graduates to be in the field of horticulture. This would also prepare them for the upcoming challenges in the Internship Program followed by the internal internship experience. Internal Internship not just served as warm up session for the last semester students but also



engaged them in practical training. Feedback meeting was called by Director IHS at the end, in which majority of students agreed that they learned a lot from their mother institute before going to their internship stations. Program worked out well. Cheers.

'International seminar on Promotion of Floriculture in Potohar' organized by Pakistan Society for Horticultural Science at PMAS arid Agriculture University Rawalpindi

Pakistan Society for Horticultural Science organized an international seminar on Promotion of Floriculture in Potohar at the PMAS Arid Agriculture University Rawalpindi, on March 06, 2017, with an aim to promote the flower cultivation at commercial and export level in the region.

Two distinguished floriculture experts, Prof. Dr John M Dole from USA and Dr Vim Van Kester from Netherland presented a way forward with innovative modern technologies and shared their good experiences to audience for improving floriculture businesses in the region. The seminar was arranged by the Pakistan Society for Horticultural Science in collaboration with Department of Horticulture, PMAS arid Agriculture University, Rawalpindi, which was inaugurated by PMAS-AAUR Vice Chancellor Prof. Dr. Rai Niaz Ahmad.

guest stressed that there is a great potential of floriculture in Potohar region and it is a fast growing sector of Pakistan, which has potential to develop into a profitable business sector particularly if value is added to floriculture products through processing, packaging and supply chain management. This would increase the farm income, generate employment opportunities and help to reduce poverty, he added.

Dr John described the importance of foliage plant, cut flowers and ornamental plants. He indicated the narrow range of floriculture products in Pakistan and suggested new plant species for introduction in Pakistan. He also provided knowledge about cut flower production all-round the year. He described the quality parameters of different cut flower required in international market. He highlighted

the present scenario of floriculture in Pakistan. He also highlighted the issues and their solution to promote the floriculture business in Pakistan.

Dr Vim described the cut flower industry in Netherlands and how they cultivate and export the cult flower in all over the world. Dr. Nadeem Akhter Abbasi, President, Pakistan Society for Horticultural

Science and Dean Faculty of Crop and Food Sciences delivered the welcome address to participants and appreciated the participation of foreign experts and acknowledged the efforts of Dr. Iftikhar Ahmad, General Secretary, PSHS, and Prof. Dr. Ishfaq A. Hafiz, Chairman, Department of Horticulture, PMAS-AAUR, for making this seminar a fruitful event..



Prof. Dr. Nadeem A. Abbasi, Dean Faculty of Crop and Food Sciences, PMAS-AAUR and Dr. Malik Abid Mehmood, Director General, Parks & Horticulture Authority, Rawalpindi, was the guest of honor in the seminar.

The speakers advised the participants to grow flowers that can meet the international quality requirements and get advantage of agro-climatic conditions available in the region to exploit local and international markets. The chief

IHS Students Interaction with Foreign Delegates to Explore Future Collaborations

IHS students were given an opportunity to meet Prof. Dr. John M. Dole (Associate Dean and Director Academic Programs, North Carolina State Univ., USA), Dr. Kamani Ratnayke (Senior Lecturer, Wayam ba University, Sri Lanka) and Mr. Vim Van Kester (PUMs, Netherlands) and present their research work as well as their future career plans. It was a golden chance for the students to groom up themselves in field of Horticulture by suggestions from the foreign horticultural experts. All postgraduate & Under graduate students were invited in the meeting.





Soilless Substrates – A Requisite for Quality Ornamental Plant Production

Iftikhar Ahmad, Bilal Abdullah, Shaiza Rasool and Munazza Hafeez
Institute of Horticultural Sciences
University of Agriculture, Faisalabad-Pakistan



Soilless plant production is a method of growing plants without using soil as rooting medium. For efficient and intensive ornamental plant production, soilless cultivation has become a requisite all over the world. In majority of developed countries, a porous substrate or growing medium is being used for providing nutrients and water to the commercially grown ornamental plants. Different materials which are used as substrates components are being selected mainly on the basis of their price, transportability and performance. However, in recent years, there has been growing concern over the environmental impacts of some commonly used materials, which has led the researchers to identify some environmentally sustainable alternatives. Many renewable materials from agricultural, industrial and municipal wastes are being tested and a few of these have shown potential and are being used commercially as substrate for raising ornamentals.

Soilless substrates are mainly used to overcome soil borne diseases, enhanced control of water and fertilizer applications, optimal moisture and nutrient nutrients supply, ability to kill disease causing microbes between growing periods, environmental protection, sustained water application and avoiding soil salinity and drainage issues. However, there are also several disadvantages associated with soilless substrates, such as having less root volume and nutrient storage in plug trays or pots, low buffering capacity and rapid changes in pH and EC of the substrates. An ideal substrate should have high water holding capacity and aeration, should be light weight, stable, have low salts and should provide maximum nutrients to the plants.

For selection of a substrate with above-mentioned characteristics, substrate components may be divided into two major groups based on the nature of their components:

1). Organic: These substrates are composed of organic materials that absorb and release nutrients to plants, have relatively high buffer capacity and exchangeable cation content compared to inert materials. Chemical changes are slower, requiring less intensive control. This group includes but not limited to coco coir, peat moss, composts, agricultural bi-products and other organic mixtures.

2). Inorganic: Some inorganic substrates are inert. They do not decompose, are not chemically active, have low buffer capacity and exchangeable cation content, and contain no organic material that enables micro-biological activity. In such substrates, chemical changes are quick, necessitating intensive irrigation and fertilizer control. This group includes rock wool, perlite,

Styrofoam and sponge.

3). Mineral: These are the substrates that react chemically, absorb and release nutrients, have a medium buffer capacity, and are therefore involved in plant nutrition. This group includes volcanic ash, pumice and vermiculite.

During recent year, ornamental plant production has emerged as a profitable business with a much higher potential for returns compared to other agronomic and/or horticultural crops. It has been acknowledged as an economic activity, which has the potential for generating employment and foreign exchange. For any country to diversify its agricultural base geared towards exports, the ornamental crop industry presents one of the most viable sectors. However, for nursery raising of ornamental plants and seasonal annuals, still conventional methods and soil are being used as substrate for raising nursery. This situation has created a big hindrance in quality plant production and export. Although, some progressive growers are using imported peat on small scale, but it is very expensive and is a non-renewable recourse. Therefore, the authors have started a comprehensive program to develop a local sustainable soilless for the local floriculture industry. Because search for alternative high-quality and low-cost materials as growing media in horticulture is a necessity due to the increasing demand.

There are some potential agricultural and industrial wastes, which can be used as soilless substrate after amendments and composting. Several agricultural wastes which are quite cheaper and easily available are being tested for checking their suitability to be used as substrate as alternative of peat. Along with these organic wastes, a few inert inorganic materials will also be tested in order to make the substrate more reliable, cheaper and sustainable for short term and long term plant production based on biodegradation of the substrate components. During preliminary survey, it has been found that no reliable soilless substrate is currently available in the country which can be used commercially. Some imported products are available in the market which are not only expensive but not reliable due to variable results. Therefore, efforts are being made at University of Agriculture, Faisalabad, for developing soilless substrate(s) using local materials, which have been identified and are being analyzed for their physico-chemical properties and are being tested in various combinations and ratios.

Grab your Registration for National PSHS

Glad to announce that Pakistan Society of Horticultural Sciences is now elevated to National level with the new name "Pakistan Society for Horticultural Science". An individual with a degree in Horticultural Sciences is eligible to hold regular membership of the society. Amateurs, students enrolled in Horticultural degree programs and entrepreneurs involved in Horti. businesses can also become associate/corporate members. For registration, Dr. Iftikhar Ahmad, General Secretary, may be contacted at

Ph: 041-9201086, 0334-7416664

Email: iftikharahmadhashmi@gmail.com

A/c Title: Pak Society for Horticultural Science

Account No.: 4140764178

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Registration/Membership Form

Please attach 2 passport size colored photograph

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Queries/Comments

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