

Seed Tech News



ISST:
**Disseminating Knowledge of
Seed Science & Technology**

Volume: 47, No. 3 & 4

July-Dec 2017



Newly elected Executive Council of Indian Society of Seed Technology (2017-2020) takes over the charge

Secretary : Sandeep Kumar Lal
Chief Editor : Shiv K Yadav
Editor : D. Vijay

From President's Desk...

Dear Members,

Greetings from the Secretariat!

At the outset I, on behalf of the newly elected Executive Committee, wish to express our thanks to all of you for choosing us to serve you for the coming three years to make our esteemed society a fine example of a professional body. We are humbled at the confidence bestowed on us and assure you of our most sincere efforts to raise the status of the Indian Society of Seed Technology amongst the most competently run and science-based academic bodies in the country.

It is needless to say that we need everyone's support in our endeavour. Moving forward, we would like ISST to be more inclusive and interactive. We would welcome your suggestions and views in making our efforts more fruitful and serve better. In spite of your busy schedules, I would be personally grateful if you kindly take some time out and communicate with us how you would like your Society to grow! Agriculture is going through a phase which is both challenging and exciting. On one hand, we are struggling to maintain sustainability of our farmers in the face of increasing threats of climate change and pest complexes, shrinking natural resources and rising cost of production. On the other, new opportunities are opening with cutting edge inventions and innovations, such as CRISPR CAS-9 and other gene editing tools; a range of effective and targeted biological and combination seed treatments, including Nano formulations; cloud seeding technology and so on. Seed technologists have a greater role to play by testing the efficacies of various technological options, customizing to suit our needs and adopting the best practices. Seed technologists are the most vital link in the whole process of variety development and quality seed supply to the end user, the farmer. As a professional body our focus should be to engage all stake holders in a manner that will synergize our individual efforts for the benefit of the farmers and simultaneously creating more visibility to Seed Technology as a discipline.

The new EC proposes to create Zonal Chapters of ISST, as communicated by the Secretary earlier. We also propose to organize a one day Brainstorming or a Special Lecture to celebrate the Foundation Day of our Society.

As you are aware Seed Tech News (STN) is a quarterly newsletter to communicate the forthcoming events having directed to seed professionals; new technological options and innovations; debate on policy issues; new publications and special achievements by its members. So, please communicate newsworthy items to the Editor, STN.

Looking forward to your views and suggestions and with warm personal regards, and wish you all a very happy and prosperous New Year 2018.

Malavika Dadlani

NEW EXECUTIVE COUNCIL of ISST (2017-2020) TAKES OVER

President: Dr. Malavika Dadlani

Dr. Dadlani is the former Joint Director (Research) and Head, Division of Seed Science and Technology, Indian Agricultural Research Institute, New Delhi. She has nearly 40 years of research, teaching, extension and management experience and is well known nationally and internationally in the field of Seed Science and Technology. As a member of several important committees of the Govt. of India, she contributed in technical and policy issues. She has served as a Consultant to a number of international organisations, viz., FAO, GFA, Bioversity International, CCAFS. She has guided a large number of Post Graduate students, leading to 21 M.Sc./Ph.D. degrees and published over 200 scientific papers, books, chapters, manuals etc., of which more than 115 are in peer reviewed journals, which are widely referred and cited. She received several awards and recognitions for her contributions in the area of seed research and teaching, which include : Fellow, Indian Society of Seed Technology, 1990; IARI Best Teacher Award, 2001; FAO Expert Consultation on Quality Declared Seed, 2002; ISTA Vigour Committee, 2001-2013; Rao Bahadur Dr. Ram Dhan Singh Award in Seed Technology, 2006-07; Bhumi Nirman Award, 2008; Fellow, National Academy of Agricultural Sciences, 2010; Member, Executive Committee, SAARC Seed Forum, 2010-12. She is in the Editorial Boards of Agricultural Research, National Academy of Agricultural Sciences, New Delhi and Dialogue, Indian Academy of Sciences, Bengaluru.



Mobile: +91 9868100549

Email: malavikadadlani@rediffmail.com

Vice President-I: Dr. Jatinder Kumar Sharma

Dr. Sharma joined as an Assistant Scientist in 1988 in the department of Plant Breeding & Genetics, HP Agricultural University, Palampur, HP. Later he was elevated to the position of Senior Scientist in 1998 and Principal Scientist in 2006. He is also holding the charge of Nodal Officer (Seed) since 2007. He was selected as Head, department of Seed Science & Technology in 2013. He had been on FAO assignment as Expatriate expert under UN Mission for two years (2005-07) on educational improvement programme in Eritrea, N-E Africa where he served as the Head of Research & Publications department in the Hamelmalo Agricultural College, Eritrea and was associated in preparing the 'Vision 2010' document of the National College. He is also Nodal Officer (PPV&FRA and Biodiversity) and member of IPR Cell of the university. He has served the All India Coordinated Research Project (NSP-BSP & STR) from



1988 to 2017 (29 years). Dr. Sharma has published 89 research articles in different journals of National and International repute. He has published two practical manuals and three books on Seed Production & Technology, besides many popular articles, TV telecasts and Radio recordings on seed development activities and imparted training to >1500 youth. He was instrumental in starting M.Sc. programme in Seed Science & Technology in the university and taught several Seed Technology courses to UG & PG students. He guided 6 M.Sc. students. He has helped in registering five farmer varieties of maize, rice and rajmash with PPV&FRA and established three seed banks at far-flung areas of HP. He is the recipient of 'Scientist of the Year Award 2008' and 'Fellow Award' of Indian Society of Biochemists, 2009.

Mobile: +91 9418909960

Email: jksharma58@yahoo.com

Vice President-II: Dr. Muthusamy Bhaskaran

Dr. Bhaskaran obtained his Bachelor's degree in Agriculture in 1984 from Tamil Nadu Agricultural University (TNAU), Coimbatore. His Master's in Agriculture and Doctoral Degree in Seed Science and Technology are also from the same University. He was the recipient of the Best Ph.D. Scholar award (1995) given in recognition of his outstanding research work. Seed production, quality enhancement and regulation have been the areas of his research interests. Since 1986 he worked as Assistant Professor (Seed Science and Technology) at various institutions in TNAU, Coimbatore. In 2005, he was appointed as the Director of National Seed Research and Training Centre (NSRTC), GOI, Ministry of Agriculture, Varanasi, UP, and played a key role in operationalization of various Organizations at Central and State level and preparation of various Bills, Schemes, Guidelines, Rules and Directions. He has also served as Professor and Head, Department of Seed Science and Technology as well as Special Officer to the Seed Centre of Tamil Nadu Agricultural University. After his 30 years of meritorious services at various State and Central Government Organizations, Dr. Bhaskaran assumed the charge of the Vice-Chancellor of the Tamil Nadu Open University, Chennai, on March 3, 2016. As a teacher, apart from teaching UG and PG students, he has guided 10 Post Graduate and 6 Ph.D. students. The Madras Agricultural Students Union of TNAU conferred upon him the Best Teacher Award and Best Textbook Writer Award. So far, he has published more than 100 publications and 5 textbooks. Dr. Bhaskaran is a member of several National and International Boards related to Seed Science Research and Technology.



Mobile: +91 9444131117

Email: bhaskm@yahoo.co.in

Seed Tech News

Secretary: Dr. Sandeep Kumar Lal

Dr. Lal is working as Principal Scientist (Seed Technology) in the Division of Seed Science and Technology, IARI, New Delhi and has a research experience of over 17 years in the field of seed production, seed testing and seed quality enhancement. He graduated from GBPUAT, Pantnagar and obtained his M.Sc. and Ph.D. in the discipline of Seed Science and Technology from IARI, New Delhi. He started his career as ARS Scientist and served AICRP-NSP (Crops) from 1999 to 2003. Thereafter, he joined the Division of Seed Science & Technology, ICAR-IARI, New Delhi and was involved in the seed production of field crops and research in the area of hybrid seed production and seed quality enhancement. He is actively involved in research, P.G. teaching and research guidance, extension and training activities. He is also the Scientist In-charge, Seed Testing Laboratory. He has published 28 research papers in International/National peer-reviewed journals, 23 popular articles, 45 symposia abstracts, 3 book chapters and 2 books. He has been involved in the organisation of more than 22 international/ national training programmes, published 15 training manuals and delivered 65 training lectures. He is a life member of several scientific societies and Fellow of Indian Society of Seed Technology from 2008. He has served the Indian Society of Seed Technology as Treasurer during 2014-17.



Mobile: +91 9811048932
Email: skl_nsp@yahoo.com

Joint Secretary: Dr. B.S. Tomar

Dr. Tomar is serving as Head, Division of Vegetable Science at ICAR IARI since April, 2016. Earlier he served as In-charge, Seed Production Unit and Ornamental Horticulture & Landscaping Unit of IARI. He obtained his B.Sc. (Ag.) and M.Sc. (Ag. Botany) from Meerut University and Ph.D. in Horticulture (Vegetable Crops) from



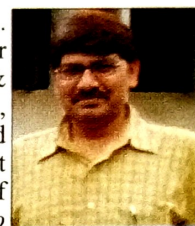
IARI, New Delhi. During the 32 years of his career, he has contributed substantially in seed production programme of vegetables and marigold at IARI, in addition to the farmers' participatory seed production programme. He was associated in the development of five open pollinated vegetable crop varieties and has standardized the hybrid seed production technology of bottle gourd, cucumber, summer squash and tomato. He has delivered more than 100 lectures in farmers' trainings and >200 talks in All India Radio and Doordarshan. He has guided 8 Ph.D. and 5 M.Sc. students and served as BOS member in Department of Seed Science & Technology and HN Bahuguna Garwal University, Srinagar during 2014-17. He served twice as elected faculty representative in academic council of IARI, New Delhi during 2014-15 and 2016-17. Dr. Tomar has

worked in FAO as TCDC consultant for development of vegetable seed breeding programme at Taskant, Uzbekistan during 2009. He is a recipient of Jawahar Lal Nehru Award in 1995 for best Ph.D. thesis in Vegetable Science and IARI Best Teacher Award (2014) for outstanding contribution to Post Graduate teaching. He was conferred with Fellow of the Indian Society of Seed Technology, New Delhi (2003), Indian Society of Seed Spices, Ajmer (2015) and Indian Society of Vegetable Science (2017).

Mobile: +91 9868336217
Email: bst_spu_iari@rediffmail.com

Treasurer: Dr. Zakir Hussain

Dr Zakir Hussain joined ICAR in 1998. He worked as Scientist and Senior Scientist in Tissue Culture & Cryoreservation Unit at ICAR-NBPGR, New Delhi. He joined IARI in 2013 and currently working as Principal Scientist at ICAR-IARI, New Delhi in the Division of Vegetable Science. Trained in *in-vitro* conservation and use of molecular markers, his fields of specialisation are Plant Genetic Resources, Conservation Biotechnology and tomato breeding. He has published more than 100 publications including 40 research papers in peer reviewed journals.



Mobile: +91 9873339006
Email: drzakirhussain24@gmail.com

Councillor-North Zone: Dr. Arvind Kapur

Dr. Kapur is the Managing Director of Acsen HyVeg Pvt. Ltd. He is responsible for growth and strategic planning of the company. He brings over three decades of experience in National and Multinational Seed Industry. He is instrumental in bringing about technological and managerial excellence in the Company's operations. Prior to his movement to Seed Sector, he was Associate Professor in Punjab Agriculture University. As a part of many technical and business organizations, he has promoted the cause of agriculture and biotechnology. Presently he is engaged in awareness program for IP related issues in Asia and Globally. Dr. Kapur is a Master of Science and Ph.D. in Plant Biochemistry. He has rich experience of excellence in business and product development, leading cross functional teams, delivering strong and sustainable gains for launching hybrids in vegetable and field crops. He has also achieved extensive expertise and success in streamlining R&D, Production process, Double Haploid Lab while safeguarding consistency and improving profitability and quality. He is chairing the APSA Committee and member for IP committee of ISF. He is a board member of Indo-Swiss Collaboration in Biotechnology (ISCB), as well as many business Chambers like CII, Assocham, FICCI and PHDCCI.



Mobile: +91 9810894125
Email: arvindkapur@hyveg.com

Seed Tech News

Councillor-Delhi Zone: Dr. Satish Kumar Yadav

Dr. Yadav is serving as Principal Scientist, Germplasm Exchange Division of ICAR-NBPGR, New Delhi. He is actively involved in explorations, collection, characterization, field evaluation, documentation and storage of Vegetable Crops germplasm. He has published 40 Research papers, 26 Abstracts, 35 Technical Bulletins, 2 Training manuals. He is credited with registration of four novel germplasm and participated/presented in 40 seminar/symposia. He conducted two short term courses sponsored by ICAR. He is recipient of awards and fellowships of several scientific societies, including ISSST.

Mobile: +91 9868573218
Email: satish.yadav1@icar.gov.in



Councillor-West & Central Zone: Dr. Kalyanrao Patil

Dr. Patil obtained B.Sc. (Agri.) degree from University of Agricultural Sciences, Dharwad in 2005, M.Sc. (Agri.) in Seed Science and Technology from GBPUA&T, Pantnagar in 2007 and Ph.D. in Seed Science and Technology from IARI, New Delhi in 2012. He is working as Assistant Professor at Anand Agricultural University, Anand, Gujarat since 2012. He is actively involved in UG & PG teaching and guided 3 Masters' and one Ph.D. student. He has published 20 research papers in national and international journals. He served as EC member (West & Central Zone) of ISSST, New Delhi earlier for three years.

Mobile: +91 9099060491
Email: patil_kalyan@rediffmail.com



Councillor-West & Central Zone: Dr. Sunil Mahajan

Dr. Mahajan, Senior Scientist (Seed Technology), ICAR-CICR, Nagpur graduated from Dr. PDKV, Akola, Nagpur Campus and subsequently obtained his M.Sc. and Ph.D. degrees from IARI, New Delhi. He joined ARS in 2002 at ICAR-CAZRI, RRS, Jaisalmer. He has published 23 research papers; one bulletin; 12 book chapters; three popular articles and 18 abstracts apart from having one patent and two awards to his credit. He participated in several trainings, seed days, farmers' talks, radio talks and TV Shows. He is also involved in seed production and sale under MSP. His research areas include induction of dormancy in mungbean, dormancy breaking/seed storage technologies for Citullus colocynthes, organic seed production technology for Guar, threshing methods/germination enhancement and storage of Cumin, storage and improvement of seed quality in cotton. He is a Life Member of Indian Society of Seed Technology; Arid Zone Research Association of India and Indian Society for Cotton Improvement.

Mobile: +91 9828825203
Email: sunilsmahajan@rediffmail.com



Councillor-South Zone: Dr. Rame Gowda

Dr. Gowda is currently the Associate Director of Research (HQ) at UAS, Bangalore, the former Special Officer (Seeds) and Professor (HAG) & University Head, Department of Seed Science and Technology, University of Agricultural Sciences, Bangalore. He has 36 years of Teaching, Research, Extension and Management Experience in the field of Seed Science & Technology. He has served as a member of several important State Seed Committees, Central Seed Committees, Board of Director, State Seed Certification Agency etc. He has contributed in academic, technical and policy issues. He has guided 37 Post Graduate students (25 M.Sc. (Agri.) and 12 Ph.D.) in Seed Science & Technology and published more than 190 scientific papers, several chapters, manuals Annual reports etc., of which more than 90 research papers are in peer-reviewed journals (NAAS rated). He has organized trainings at state and national levels including ICAR summer/winter school, short courses, seminar/workshops/conferences etc. He received several awards and recognitions for his contributions in the area of seed research, teaching, extension and management which include Gold Medals for his M. Sc. (Ag) from UAS, Bangalore & Ph.D. from TNAU, Coimbatore; Fellow of Indian Society of Seed Technology (2017); Commonwealth Fellowship(1994); ICAR Senior Research Fellowship (1989) and Certificates of Merits (36) by the UAS, Bangalore for his externally funded projects, seed revenue generation under revolving fund, creation of Infrastructure for seed developmental activities at the University level etc. He also served in the Editorial Board of Seed Research, Oilseed Journal and serving as member of various academic Institutions.

Mobile: +91 8792405145
Email: drguasb@gmail.com



Councillor-East Zone: Dr. P.K. Barua

Dr. Barua is presently Professor and Head, Department of Plant Breeding & Genetics, Assam Agricultural University, Jorhat. He obtained his M.Sc. (Agri) in Plant Breeding from PAU Ludhiana and Ph.D. from AAU Jorhat. He was recipient of Commonwealth Post-Doctoral Fellowship (1999-2000) at the National Institute of Agricultural Botany, Cambridge (UK). After two years of service as agricultural extension officer in the government department of agriculture, he joined the Department of Plant Breeding & Genetics, Assam Agricultural University, Jorhat in 1984. Presently he teaches plant breeding, seed technology and intellectual property rights. He has 28 research papers, one practical manual in seed technology, 3 books and booklets on IP management and plant variety protection and 2 book chapters. He has guided 10 M.Sc. students in plant breeding and seed science



Seed Tech News

and 2 Ph.D. students in plant breeding. He is currently involved in crop improvement research in oilseed Brassica and has developed several Brassica lines, one of which has been recommended for the state of Assam.

Mobile: +91 9435095436

Email: purna.barua@gmail.com

Chief Editor: Dr. Shiv K. Yadav

Dr. Yadav is serving as Principal Scientist (Seed Technology) in the Division of Seed Science and Technology in ICAR-Indian Agricultural Research Institute, New Delhi. He has been a recipient of several National/International scholarship/fellowships throughout his educational career. He has been associated for the last 18 years in teaching of 11 postgraduate courses in Seed Science and Technology at IARI, and guided three each, M.Sc. and Ph.D. students. He has handled several in-house as well as externally funded projects over a period of more than 20 years and is an established researcher in the areas of seed quality testing, seed vigour evaluation, seed enhancement, seed production technology of varieties/hybrids, characterization of cultivars, DUS Testing and Plant Variety Protection. He has 69 national and international research papers, 58 technical articles, five books, 14 manuals, seven book chapters, 54 manual chapters, 43 research abstracts and six mustard varieties to his credit. He is on the panel of external experts of many reputed universities, institutions and UPSC. Dr. Yadav has led development of customized capacity building programmes for National and International researchers, government officials and farmers and offered more than 40 trainings. He has delivered more than 150 invited lectures in different trainings on various aspects of Seed Science and Technology, apart from several radio and TV talks. He is the recipient of Ram Nath award for popular article writing, Young Scientist Award and "Fellow" of SEE and ISST, 6 best poster and 3 best oral presentation awards. He is also member of editorial board/reviewer of 10 National and 2 International journals published in different fields of Plant Science. He has served Indian Society of Seed Technology in different positions, including Secretary, Chief editor of 'Seed Research' and editor of 'Seed Tech News'.

Mobile: +91 9868273684

Email: sky_sst@yahoo.com

Out Going President: Dr. S. Rajendra Prasad

Dr. Prasad is serving as Dean, College of Agriculture, University of Agricultural Sciences, GKVK, Bengaluru. Prior to this, he was Director, Indian Institute of Seed Science, Mau. During his tenure at Mau, he streamlined the network projects and initiated viable discussions in the annual group meetings. He has enormously contributed to Seed Production programme of the university during his tenure as Special Officer (Seeds).



He is an outstanding researcher, teacher and administrator. He has a large number of high impact research papers, manuals and reports to his credit.

Mobile: +91 9452883308

Email: srprasad1989@yahoo.co.in

Editor, Seed Research: Dr. R. Umarani, TNAU, Coimbatore

Editor, Seed Tech News: Dr. D. Vijay, IARI, New Delhi

Editorial Board:

- Seed production and breeding:
Dr. N. K. Biradarpatil, UAS, Dharwad
- Seed testing:
Dr. K. Keshavulu, TSSCA, Hyderabad
- Quality enhancement:
Dr. V. Krishnaswami, Retd. Professor, TNAU
- Seed molecular biology and basic sciences:
Dr. Sharmila Deka, AAU, Jorhat
- Seed processing and marketing:
Dr. Ashwani Kumar, IARI, RRS, Karnal
- Seed storage:
Dr. Rekha Chaudhury, NBPGR, New Delhi
- Seed health:
Dr. Mohan S. Bhale, JNKVV, Jabalpur

NEWS ITEMS

Genetically Boosting the Nutritional Value of Corn Could Benefit Millions

Rutgers scientists have found an efficient way to enhance the nutritional value of corn – the world's largest commodity crop – by inserting a bacterial gene that causes it to produce a key nutrient called methionine, a key amino acid, according to a new study. Discovery could benefit millions of people in developing countries, such as in South America and Africa, who depend on corn as a staple. It could also significantly reduce worldwide animal feed costs.

– Todd B Bates | <https://news.rutgers.edu/genetically-boosting-nutritional-value-corn-could-benefit-millions/20171009#.WfqhGWiCzDf>

Iowa State University (USA) and Andhra Pradesh Government (India) collaborate to establish Mega Seed Park at Andhra Pradesh

In May, Iowa State University, USA (ISU) signed an agreement with Andhra Pradesh state government, which marked the beginning of an inception phase to establish an Andhra Pradesh Seed Research and Technology Business Center and Mega Seed Park in the Kurnool district of Andhra Pradesh. As part of the project, ISU is working with the Andhra Pradesh state government, Acharya N. G. Ranga Agricultural University, and other state agencies to achieve and ensure continued seed security through science led innovations, policies, and public-private partnerships. The Mega Seed Park, the first of its kind in Asia, will serve as a reference center to develop the seed leaders of tomorrow.

– Iowa seed and biosafety news | <http://www.seeds.iastate.edu/files/page/files/Fall2017.pdf>

World Seed Partnership (WSP) website launched

The World Seed Partnership (WSP) is an initiative taken by four international organizations (OECD, UPOV, ISTA and ISF) to support the development of the seed sector in countries around the world. Bringing together the knowledge and expertise of its four partners, the World Seed Partnership aims to provide guidance on the development of an appropriate and effective seed regulatory framework built on the following elements:

- Establishment and implementation of an effective system of plant variety protection (UPOV)
- Enhanced seed quality assurance for better on-field performance through improved seed sampling, seed testing and storage capabilities (ISTA)
- Development of a reliable and internationally acceptable seed varietal certification system for seed movement nationally and internationally (OECD)
- Facilitating growth of the local seed industry to ensure farmers' access to improved varieties and seeds (ISF)

– <http://www.worldseedpartnership.org/>

Near complete assembly of hexaploid bread wheat published

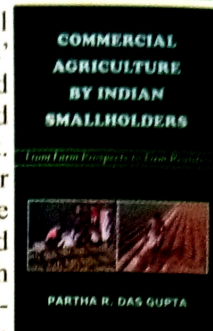
The wheat (*Triticum aestivum*) genome one of the most complex genomes known to science and is over five times the size of human genome, was assembled using deep sequencing coverage from a combination of short Illumina reads and very long Pacific Biosciences reads. This is the first near complete assembly published in Giga Science journal by Zimin et al from USA and UK. The final assembly contains 15,344,693,583 bases and has a weighted average (N50) contig size of 232,659 bases. Earlier three attempts were made to sequence the genome resulted in publishing of 5.42 billion bases in 2012, 10.2 billion bases in 2014 and 12.7 billion bases in 2017 covering 78% of genome. The present publication claimed to cover 96% of genome assembly with 15.34 billion bases. Apart from its large size, high proportion of relatively long near-identical repeats, most of them due to transposable elements, made the wheat genome a more complex one. Another major challenge in assembling the wheat genome is that it is hexaploid, and the 3 component genomes - wheat A, B, and D, each comprising 7 chromosomes, share many regions of high similarity. Genome assembly programs are thus faced with a doubly complex problem: first, that the genome is unusually repetitive and, second, that each chromosome exists in 6 copies with varying degrees of intra- and inter-chromosome similarity.

The data can be accessed from the National Center for Biotechnology Information (NCBI) under BioProject PRJNA392179.

–<https://academic.oup.com/gigascience/article/doi/10.1093/gigascience/gix097/4561661>

BOOK REVIEW

The book entitled 'Commercial Agriculture by Indian Small Holders' (ISBN 13: 9788187374855) is authored by Dr. Partha R. Das Gupta and published by Maya Publishers Pvt. Limited, New Delhi. It comprised four chapters with 109 pages, wherein the author has shared his experiences gained through the work in association with NGOs and farmers in the field of agri-horticultural crops. The book is an encyclopaedia for solving practical problems of resource-limited farmers as well as climatically challenged production conditions under small holdings. The information included in chapter 2 on bitter gourd production; in chapter 3 on emergence of new Kalahandi – National Seed hub (Hybrid seed production of rice) and in chapter 4 on participatory seed production, commercial growing of vegetables are some of the unique experiences of an effort made by a scientist, NGO, private seed company and the farmers jointly, and are willing to transform the challenged rural life into a new era of economic empowerment. The efforts made by Dr. Partha R. Das Gupta in bringing out the ground reality of rural development based on agri-hort technology into a book form will be handy in guiding administrators, students and extension specialists working for the betterment of socio-economic conditions. Dr. Partha deserves high appreciations for his commendable compilation. The book is nominally priced at Rs. 495.00 and hope it will be available in all leading bookshops for the benefit of readers.



Reviewed by: Dr. B.S. Tomar

Head, Division of Vegetable Science, ICAR-IARI, New Delhi

UP COMING EVENTS

ISTA Workshop on Germination Analysis & Viability by Tetrazolium Testing and Quality Management in Seed Testing

The International Seed Testing Association and Indo American Hybrid Seeds, Bengaluru, India jointly organizes a Workshop on Germination Analysis & Viability by Tetrazolium Testing and Quality Management in Seed Testing at Bengaluru, India from 15-19 January 2018. The workshop will deal with the topics of Viability and Germination of 7 crops (*Glycine*, *Oryza*, *Brassica*, *Helianthus*, *Capsicum*, *Allium* and *Solanum*) and offers the theoretical background as well as intensive hands on training. The workshop offers possibility for discussion of the germination methods, the practical evaluation of seedlings as well as the preparation and evaluation of seeds for their viability with Tetrazolium salt. The quality management based use of ISTA methods in the seed-testing laboratory is an integral part of the workshop.

For more information, check the website <https://www.seedtest.org/en/event-detail---0--0--0--89.html>

Seed Tech News

ISTA SHC Workshop: Seed Health Methods using PCR, ELISA, dilution plating and indexing methods

The International Seed Testing Association Seed Health Committee and Indo American Hybrid Seeds, Bengaluru, India jointly organizes a Workshop on Seed Health Methods using PCR, ELISA, dilution plating and indexing methods at Bengaluru, India from 13-16 March 2018. This workshop will provide an overview of Seed Health Testing Methods and detection of seed-borne bacterial, viral and nematode pests which are very relevant for seed trade in the field and vegetable crops seed industry in India & other countries. It will be focused on *Xanthomonas campestris* pv. *campestris* on Brassica spp., *Clavibacter michiganensis* and Tobamoviruses on tomato, Cucumber Green Mottle Mosaic Virus CGMMV cucumber and *Aphelenchoides* on rice. Methods covered will be dilution plating, ELISA, SE-PCR and PCR on isolates and morphological identification. The workshop is aimed for Seed Analysts and Quality managers of seed companies and seed trade officials and plant quarantine department of the private and Government officials, Seed Scientists in the Government Institutions and Agricultural Universities.

For more information, check the website <https://www.Seedtest.org/en/event-detail---0--0--0--93.html>

RESEARCH ADVANCES...

Layered seed pelleting with soil enhances field establishment in Dinanath grass (*Pennisetum pedicellatum*)

Grass seed is often blamed for absence of germinable true seed within the spikelet due to frequent abortion during seed filling. This undesirable trait, coupled with lightweight of the fluffy seed, makes sowing of grass seed so difficult that field establishment becomes a real hazard in many grasses like dinanath (*Pennisetum pedicellatum*). We have redesigned the old seed ball/pelleting technology where, seeds were mixed with ground soil and water, and rolled in a rotating tyre to get small seed pellets/balls. The seeds, which were placed at core of the balls could not germinate even after getting soaked in irrigated or rainwater under field condition. In the present experiment, small bead of pelleting material was prepared initially by controlling the rotation of the tyre and then true seeds of grass were dusted on the beads. Earlier limitation of reduced seed germination and



Field establishment of dinanath grass through fluffed (A) and pelleted (B) seed

weaker seedlings from pellets was rectified by placing the seeds towards the outer surface covered with just one thin layer of pelleting material in the new method. The modified pellets were of 10-15 mm diameter and 2.0-4.0 gm in weight and contains 5-10 seeds with >90% seed germination. Under field trial, seed pellets performed better than fluffed seeds in terms of dry fodder yield (58.3 vs. 73.3 q/ha) and seed yield (14.5 vs. 19.5 q/ha), which can be attributed to better seedling establishment.

Aniruddha Maity, D. Vijay, S. K. Singh and C. K. Gupta

Division of Seed Technology, ICAR-IGFRI, Jhansi

Assessment of market available berseem seed quality

Berseem (*Trifolium alexandrinum*) is an important rabi season fodder crop of northern India and is a potential milk multiplier. In India, only part of the projected berseem seed requirement is fulfilled by seed chain and imports from Egypt. The remaining demand of berseem seed is fulfilled from unorganized sector due to very few public and private players in fodder crops. The quality of seed from unorganized sector is not assured. Presence of spurious seed/low quality seed in berseem is often reported by farming community. Thus, in the present study seventeen different berseem seed samples collected from traders and from open market of Bundelkhand region, were tested for their quality and compared with ICAR-IGFRI produced TL seed. It was observed that the physical purity of samples varied from 18.28 to 98.70% and germination percentage from 4 to 100%. The seed vigour index-I that is highly indicative for quality of seed was recorded highest (887.49) in variety wardan of IGFRI followed by open market samples OM-5 (775.33), OM-4 (773.22) and traders sample TS-4 (757.33). The mixtures of other species found with berseem are mainly Chicory and *T. resupinatum*. Only IGFRI produced seed (var: Wardan), two imported seed samples and one open market sample (OM-5) possessed quality attributes as per IMSCS. Therefore, it can be concluded that the huge quantity of spurious seed available in the market affects both yield and quality of forage and bring loss to the farming community.



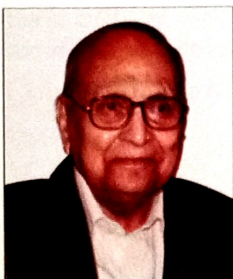
Experimental field and open market sample with chicory

Sanjay Kumar, D. Vijay, C. K. Gupta, A. Maity, Manjunatha N., V. K. Wasnik and V. K. Yadav
Division of Seed Technology, ICAR-IGFRI, Jhansi

OBITUARIES

The seed science and technology fraternity lost two of its pioneers **Dr. B. R. Barwale** and **Dr. Manmohan Attavar** in the year 2017. Our sincere tributes to these two departed souls.

Dr. Badrinarayan R Barwale, Founder and Chairman of Maharashtra Hybrid Seeds Company (MAHYCO), passed away on 24 July 2017 at 86 years of age.



Dr. Barwale, laid the foundation of the organized private seed sector in India with the start of MAHYCO in 1964, built upon his threefold principle of precise situational awareness, readiness to work hard and the constant pursuit of innovation.

Dr. Barwale championed the cause of small farmers of the country and strongly believed that technology was the key to find solutions in crop improvement. He strived to source and introduce new technologies for farmers' benefit and one of his great achievements was to introduce Bt cotton in 2002, the only GM crop in India, which revolutionized the cotton production in the country.

He was a much decorated and honored seed industry professional recognized both nationally and internationally. The Indian Society of Seed Technology honored him in 1990 during the first International Conference on Seed Technology, while the Crop Science Society of America recognized him as the 'Father of Seed Industry in India'. Recognising Dr. Barwale's contributions to the Federation of International Seedsmen (FIS) awarded him the 'Life Membership' in 1996. For his contributions in developing the private seed sector in India and for his work in providing affordable, high-yield seed varieties and agronomic training to farmers across India he was awarded the prestigious '12 World Food Prize' in 1998. He received Chirmule Award in 2006 for his outstanding contribution to the Indian agriculture and Honary Fellowship Award from Indian Society of Cotton Improvement in 2007 for his contribution to Cotton seed market. He was honored by the Government of India with 'Padma Bhushan' in 2001. Dr. Barwale's lifelong contributions were recognized by both by the seed industry (at its First Indian Seed Congress 2010) and the research community (Indian Council of Agricultural Research in 2014). The Prime Minister of India felicitated him in 2016 in recognition of his immense contributions to Indian agriculture.

Dr. Manmohan Attavar, Chairman of the Indo American Hybrid Seeds (IAHS), Bangalore, passed away on 12 December 2017 at the age of 85 years. A post-graduate from the University of Agricultural Sciences, Dharwad and Montana State University, USA, Dr. Attavar set up Indo American Hybrid Seeds (IAHS) in 1965 with a global vision and focus on quality.



By producing and exporting petunia hybrid seeds to USA (1967), he placed the Indian seed industry on the global market. These seeds were produced in environment - controlled greenhouses, introduced by him in the country at IAHS. Besides, flower seeds, IAHS also used these greenhouses for production of a range of ornamental plants, the quality and range not seen in the country earlier.

Dr. Attavar was the pioneer in hybrid seed production under controlled greenhouse conditions in the 60s and developing and introducing commercial vegetable hybrids in 1973. He was also instrumental in popularizing the concept of 'Lab-to-land' program in agriculture, with the introduction of hybrid seed production program at farmers' fields in rural areas.

Adherence to maintaining high quality prompted Dr. Attavar to set up the Seed Testing Laboratory, the first private sector lab accredited by International Seed Testing Association in Asia in 2002. His strong belief in the importance of modern technology in agriculture/horticulture, led to the establishment of an international standard Genetic Engineering Laboratory & a Commercial Tissue Culture Laboratory in 1987 and the largest climate control greenhouse complex in Asia in 1997.

Dr. Attavar received several honors and awards for his significant contributions to horticulture in general and seed industry in particular. Honored with 'Padma Shri' by the Government of India, he is a recipient of several prestigious awards, including, Dr. M.H. Marigowda National Award, 'Rajyotsava State Award and Captains of Industry' award from Karnataka Government, APEDA, Horticulture Society of India, Indian Society of Ornamental Horticulture awards for his lifetime achievements in horticulture, among others. He was honored with the 'Life Membership' of the International Seed Federation in 2003 and was also the recipient of the Lifetime Award at the First Indian Seed Congress in 2010.

The **Indian Society of Seed Technology** salutes these visionary seed industry leaders.

Edited and published by Shiv K. Yadav and D. Vijay on behalf of the Indian Society of Seed Technology, F-5, First Floor, A Block, NASC Complex, Dev Prakash Shastri Marg, New Delhi 110 012
e-mail: seedtechnews@gmail.com, and printed at M/s Kamala Print-n-Publish,
O 96 New Mahavir Nagar, New Delhi 110 018