Seed Tech News

INDIAN SOCIETY OF SEED TECHNOLOGY
ISST
Estd. 1971

ISST:
Disseminating Knowledge of Seed Science & Technology

Vol.: 44, No. 3, September 2014

International Year of Crystallography 2014

Crystals-familiar to all in gemstones, snowflakes or grains of salts-are everywhere in nature. The study of their inner structure and properties gives us deep insight into the arrangements of atoms in the solid state. The insight into crystallography has led to many advances in the sciences of chemistry, physics, biology and mineralogy. Crystallography has become the core of structural science, showing us the structure of DNA, allowing us to understand and fabricate computer memories, showing us how proteins are created in cells, and helping us to design powerful new material and dyes. In biology, a fundamental advance occurred in 1953 with the discovery of structure of DNA by Watson and Crick based on diffraction experiments performed by Rosalind Franklin. A century ago it was found that crystals diffract X-rays. Noting this centennial of X-ray diffraction, the General Assembly of UN adopted 2014 as the "International Year of Crystallography" [IYCr2014].

For more information please visit *www.iycr2014.org*

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Editor : Manjunath Prasad CT

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Seed Tech News

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ISST is thankful to all their services to the society and wishes its outgoing Members all success in their future endeavours.

Notification

Ministry of Agriculture (Department of Agriculture and Co-operation), Govt of India

New Delhi, the 15 April 2014

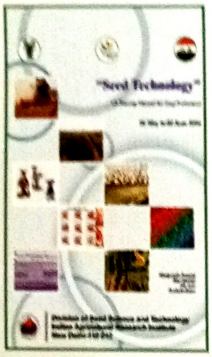
S.O. 1093 (E) – In exercise of the power conferred by Sub-section (2) of the Section 29 read with Section 14 of the Protection of Plant Varieties and Farmers' Rights Act, 2001 (53 of 2001), the Central Government hereby notifies the following genera or species (not being extant varieties and farmers' varieties) eligible for registration under the said Act, namely:

Crop species eligible for registration (1)	Common name in English (2)	Common name in Hindi (3)
Punica granatum L.	Pomegranate	Anar
Cattleya Lindl.	Orchid	Orchid
Phalaenopsis blume	Orchid	Orchid
Eucalyptus camaldulensis Dehnh. and *Eucalyptus tereticornis* Sm.	Eucalyptus	Safeda
Casurina equisetifolia L. and *Casurina jung-huhniana* Miq.	Casurina	Jungli Saru
Momrodica charantia L.	Bittergourd	Karela
Lagenaria siceraria (Mol.) Standl.	Bottlegourd	Lauki (Gheeya)
Cucumis sativus L.	Cucumber	Kheera
Cucurbita moschata Duch. ex Poir.	Pumpkin	Kaddu
Hordeum vulgare L.	Barley	Jau
Coriandrum sativum L.	Coriander	Dhaniya
Trigonella foenum-graecum L.	Fenugreek	Methi
Prunus dulcis (Mill.) DA Webb	Almond	Badam
Malus domestica Borkh	Apple	Sabe
Pyrus communis L.	Pear	Nashpaati
Prunus armeniaca L.	Apricot	Khubani
Prunus avium L.	Cherry	Cherry
Juglans regia L.	Walnut	Akharot
Vitis spp.	Grapes	Angur
Ziziphus mauritiana Lamk.	Indian Jujube	Ber

Sd/-
Atanu Purkayastha, Joint Secretary
[F. No. 2-9/2008-SD. IV]

Seed Tech News

International Training on "Seed Technology" for Iraqi Nationals



The Division of Seed Science and Technology, IARI, New Delhi organized an International training on "*Seed Technology*" from May 26 to June 02, 2014 sponsored by Agrinovate India Ltd. A total of 05 participants along with a country coordinator attended the eight-day programme. This course is organized in the backdrop of recently two similar internationally sponsored courses namely, WAAPP-Nigerian and AARDO sponsored courses held, respectively during the month January-February 2014 and March 2014. As usual to work with foreign participants; in the instant case participants from Iraq created an incredible impression and memories, which remain everlasting. Their openhearted cooperation, interest in learning is worth mentioning. Special mention is to be made about their quality to endure uncongenial climatic conditions and to remain nucleus of all the activities. Course content covered important aspects of seed production *i.e.* from seed to seed. Seed quality evaluation principles, procedures, methodology, reporting of results and seed processing were all dealt at length. Policy issues related to GM crops, PPV&FR, Import & Export Policy of quality seeds and planting materials, were the some other part of the course curriculum. Apart from regular scheduled classes; senior dignitaries were requested to spare time to have interactive sessions with the participants; which served as moral boosting to trainees as well to the course organizers. There were in total 18 lectures, 03 interactive sessions coupled with 8 Practicals and 05 demonstrations. The faculty of total resource persons was predominantly from IARI and its various divisions, and other institutions namely, ICAR, NBPGR, PPV&FRA, DAC, Ministry of Agril., Govt. of India.

Course Director: **Dr. SK Jain**, Professor & Head
Course Coordinators: **Dr. Atul Kumar**, Senior Scientist
Dr. Sudipta Basu, Senior Scientist
Mr. Manjunath Prasad CT, Scientist
Venue: **Division of Seed Science & Technology**
IARI, New Delhi

Comparison of International Seed Testing and Accreditation Agencies

The principal mission of crop improvement programme is to develop new HYV's/Hybrids and conduct in-field evaluation of new varieties and seed lots of cultivated plant varieties. Ultimately what is expected from consumers (farmers), retailers and regulatory bodies is seed that produced a healthy crop at a fair price. In the coming decade, world wide demand for seed produced among regions is expected to increase due to growth in population and global food consumption as well as trade liberalization. With global seed trade set to increase, as well as the growth of counter-seasonal production among countries, seed movement is vulnerable to restrictions related to standards for seed quality and biotech traits. An efficient national seed programme should establish seed crop inspection, seed testing and certification for safety, quality and regulatory compliance to help global retailers and brands gain consumer trust and foster brand loyalty. An efficient seed testing laboratory should assist the government seed producing organisation and private seed retailers to ensure their seed meet rigorous standards, whereas reducing time to market and overall costs. This important activity is the key to seed business entity to build scalability and maintain a competitive advantage.

For seed trade to increase an internationally acceptability test report as a communication tool on seed quality attributes should form the starting point for harmonization of seed testing methods. Accreditation is one method to achieve this. When a laboratory will be a part of national/international system of accreditation, it provides the lab to adopt and follow standardised seed testing methods and the third-party audit will further ensure uniform, consistant, reliable and repeatable data. Accrediting organizations, personnel, facilities and processes associated with seed testing enhances opportunities and fosters equitable global seed trade. Ultimately, accreditation recognises consistant levels of competency and confers specific authority. Globally, we have in place harmonize approaches at the international level (example-ISTA's analysis methodology and certificates). We would like to present here the comparison of global organizations facilitating seed trade through their seed testing and accreditation programmes (Table 1).

Manjunath Prasad, CT and SK Jain
Division of Seed Science and Technology
IARI, New Delhi

Association of Official Seed Analysts Inc.

101 East State St.
#214, Ithaca, NY 14850
607-256-3313
aosa.office@twcny.rr.com
http://www.aosaseed.com

The Association of Official Seed Analysts (AOSA) was formed in 1908 in response to initial attempt by individual states to develop seed laws which marked the beginning of regulated seed commerce in the United States. The AOSA is an organization of member laboratories. Members include official state, federal, and university seed laboratories across the United States and Canada.

Primary Functions:

- Establish the AOSA Rules for Testing Seeds which are generally adopted by most states as the rules for testing seeds in their respective states
- Contribute to the refinement and modification of the rules and procedures for seed testing
- Ensure that testing procedures are standardized between analysts and between laboratories
- Influence and assist in enforcement of appropriate seed legislation at state and federal levels

International Seed Testing Association

ISTA Secretariat
Zurichstrasse 50
8303 Bassersdorf CH-Switzerland
+41 1 838 6000
ista.office@ista.ch
http://www.seedtest.org

Founded in 1924, ISTA aim to develop and publish standard procedures in the field of seed testing, ISTA is inextricably linked with the history of seed testing. With member laboratories in over 70 countries world wide, ISTA membership is truly a global network.

Vision:

Uniformity in seed quality evaluation worldwide

Mission:

ISTA produces internationally agreed rules for seed sampling and testing, accredits laboratories, promotes research, provides international seed analysis certificates and training, and disseminates knowledge in seed science and technology. This facilitates seed trading nationally and internationally, and also contributes to food security.

Association of Official Seed Certifying Agencies

1601, 52nd Avenue, Ste 1
Moline, IL 61265
309 736 0120
http://www.aosca.org

The Association of Official Seed Certifying Agencies (AOSCA) was established in 1919 as the International Crop Improvement Association. Presently AOSCA has a number of member agencies across the US, plus global member countries located in Canada, South America, Australia and New Zealand.

Mission:

To promote and facilitate the movement of seed or plant products in local, national, and international markets through the coordinated efforts of official seed certification agencies acting to evaluate, document, and verify that a seed or plant product meets certain accepted standards.

National Seed Health System

IOWA State University
Seed Science Center
Ames, IA 50010
515 294 6493
http://www.seedhealth.org

The National Seed Health System (NSHS), established in 1999, is administered by the Iowa State University Seed Science Center under USDA-APHIS authority. The NSHS plays a vital role for the seed industry by giving seed companies and seed testing laboratories the option to conduct several important activities that support state and federal officials in the issuance of phytosanitary certificates for seed export.

Mission:

Its mission is to administer the programme, perform periodic audits of accredited entities, proficiency testing, develop testing and inspection protocols and evaluate and develop new and improved seed phytosanitary testing and inspection methods.

Activities for which entities can obtain accreditation include:

- Laboratory seed health testing
- Phytosanitary (growing season field) inspection
- Sampling seeds that requires laboratory seed health testing
- Visual sampling of seed shipments at exporters facility prior to issuance of phytosanitary certificates.

Society of Commercial Seed Technologists

653 Constitution Avenue NE,
Washington, DC 20002, USA
(202) 870-2412
scst@seedtechnology.net
http://www.seedtechnology.net
http://www.seedtest.com

The Society of Commercial Seed Technologists (SCST) is a organization comprised of commercial, independent and government seed technologists. Formed in 1922, the SCST functioned as a liaison between the Association of Official Seed Analysts (AOSA) and the American Seed Trade Association (ASTA). The SCST has developed over the years into a progressive organization that trains and provides accreditation of technologists, researches and develops rule changes, publishes training and education materials, and serves as an important resource to the seed industry.

Organization for Economic Co-operation and Development

2, rue Andre Pascal
75775 Paris Cedex 16 France
+33 1 45 24 82 00
http://www.oecd.org/tad/seeds

The (Organization for Economic Co-operation and Development) OECD originated in 1948 as the Organization for European Economic Co-operation (OEEC). The OECD is an international economic organization of 34 countries founded in 1961 to stimulate economic progress and world trade. OECD members and non-members engage themselves through working parties, schemes and/or programmes. The OECD Seed Schemes is one operation since 1958, which aim at seed certification ensuring the varietal identity and purity of the seed through appropriate requirements and controls throughout the cropping, seed processing and labeling operations. The OECD certification provides for official recognition of "quality-guaranteed" seed, thus facilitating international trade and contributing to the removal of technical trade barrier.

The Seed Schemes deal with the following species: Grasses and legumes, Crucifers and other oil or fibre species, Cereals, maize and sorghum, Sugar and fodder beet, Subterranean clover and similar species, Vegetables. The technical requirements are comprised in the Rules and Regulations of the OECD Seed Scheme. All schemes aim at seed certification (the vegetable schemes provides also for "Standard Seed" which are not certified but only controlled).

Table 1. Comparison of major activities of international organizations involved in seed testing and accreditation

Scope of Activity	International Organization					
	AOSA	AOSCA (U.S.)	ISTA	NSHS	OECD	SCST
Primary objective(s)	1. Education and accreditation of analysts 2. Research and development of standardized testing protocols to enhance seed trade	Coordinate seed certification activities of state and international member agencies	1. Development, validation and standardization of seed testing rules on international level 2. Accreditation of seed testing labs world wide 3. Education and training of seed analysts 4. Publication of scientific journal	Accreditation of private and public entities for phytosanitary field inspections, sampling, visual inspection, and laboratory seed health testing	Aid in movement of certified seed to countries which require OECD Certified Seed	1. Education and accreditation of analysts 2. Research and development of standardized testing protocols to enhance global seed trade
Germination, purity and weed seed (Noxious) determination	Yes	Yes	Yes	No	Yes	Yes
Biotech purity determination	Yes (through SCST accreditation)	Yes	Yes (individual laboratory accreditation)	No	No	Yes
Field inspection/ sampling	The AOSA rules cover sampling procedure and intensity	Conduct IRM assessment and trait specific QA program	ISTA rules cover procedure for seed sampling	Available for phytosanitary certification	Yes	Follow AOSA Rules
Accreditation schemes	Analyst accreditation and laboratory membership	Certify seed grown in accordance to AOSCA standards. Agencies approve seed conditioning facilities	Laboratory accreditation and analyst membership	Public/Private company accreditation granted by USDA-APHIS-PPQ which is based on ISO 9001:2000	Allow for Accreditation	Analyst accreditation
Annual fees	$600 per lab	Affiliate/Associate memberships at $50	5214 Swiss Franc (CHF) per lab for membership including participation in international proficiency test program	Yearly fee is 16.5% of the initial accreditation fee. Reaccreditation required every 3 years	Vary annually based on US GDP	$250 per individual
Mutual recognition	AOSCA, CFIA, OECD, ISF	AOSA, SCST, OECD	OECD, Canada, EU, ISF, APSA, AFSTA, ESA, National governments (76 member countries)	USDA-APHIS Program established by Federal Register Rule 7 CFR 353.9	AOSA and 54 other nations	AOSCA, CFIA (Canada), OECD

Source: www.amseed.org

Seed Tech News

Notification

Ministry of Agriculture (Department of Agriculture and Co-operation), Govt. of India

New Delhi, the 24 April 2014

S.O. 1146 (E) – In exercise of the power conferred by Section-5 of the Seeds Act, 1966 (54 of 1966), the Central Government, after consultation with the Central Seed Committee, being of the opinion that it is necessary and expedient to regulate the quality of the seeds of the varieties specified in column (2) of the table below of the kind specified in the corresponding entries in column (1) of the said table, hereby declares that the said varieties of seeds shall be the notified varieties to be sold for purpose of agriculture for the States mentioned in column (3) of the said table and shall be the notified varieties for the whole of India for the purpose of seed production and quality control with effect from the date of publication of this notification in the Official Gazette, namely:

Kind (1)	Variety (2)	States (3)
Bajra napier grass (Hybrid)	CO (BN) 5 (TNCN 074)	Throughout the country
Barley	DWRB-92	PB, HR, UP, DL & RJ
	VL Jau 118 (VLB 118)	JK, HP, UK, SK, WB, AR, AS, MN, MZ, NL & TR
Berseem	Hisar Berseem 2 (HB 2)	HR
Finger millet	KMR 204	KA
Forage pearl-millet	Nutrifeed (PAC-981)	PB, HR, RJ, GJ, MP, MH & UP
Gram	JG-12	MP
Greengram	MH 421	UP, RJ, RJ, PB, HR & UK
Horsegram	CRIDAHARSHA (CRHG 19)	AP, KA, KL & TN
Lentil	Raj Vijay Lentil 31 (JL 31)	MP
Maize hybrid	P3522 (X35A019)	PB, HR, DL, UK, UP, BR, WB, JH, OR, AP, TN, MH, KA, GJ, RJ, MP & CG
Pearl millet	Dhanashakti (ICTP 8203 Fe 10-2)	MH, KA, AP, TN, GJ, MP, RJ, UP, HR & PB
Pigeonpea hybrid	ICPH 2671	MP
Redgram	BRG-4 (BRG 10-2)	KA
Rice	ARB 6	KA
	CR Dhan 300 (CR2301-5) (IET 19816)	MH, OR, BR & GJ
	CR DHAN 303 (CR 2649-7) (IET 21589)	MP, UP & OR
Rice hybrid	PAC 801	UP
Sorghum	HJ 541	HR
Soybean	JS 20-29	MP, MH, RJ & UP
	JS 20-34	MP, MH, RJ & UP
	MAUS-2 (Pooja)	KA
	Raj Vijay Soybean 2001-4 (RVS 2001-4)	MP
Wheat	K0607	UP
	SHIATS-W6 (AAI-W6)	UP
	WHD 948	MH & KA

Sd/-

Atanu Purkayastha, Joint Secretary

[F. No. 3-34/2014-SD. IV]

The two letter abbreviations of Indian States & UT's is as per '***ISO-3166-2 Code***', where AP-Andhra Pradesh; AR-Arunachal Pradesh; AS-Assam; BR-Bihar; CG-Chhattisgarh; DL-Delhi; GA-Goa; GJ-Gujarat; HR-Haryana; HP-Himachal Pradesh; JK-Jammu & Kashmir; JH-Jharkhand; KA-Karnataka; KL-Kerala; MP-Madhya Pradesh; MH-Maharashtra; MN-Manipur; MG-Meghalaya; MZ-Mizoram; NL-Nagaland; OR-Odisha; PB-Punjab; RJ-Rajasthan; SK-Sikkim; TN-Tamil Nadu; TR-Tripura; UT-Uttarakhand; UP-Uttar Pradesh; WB-West Bengal.

PhD Thesis Abstracts

Optimization of quality hybrid seed production technology in cucumber (*Cucumis sativus* L.)

Pollination dynamics, physiological maturity and post-harvest seed extraction are most critical for cucumber hybrid seed production (HSP). HSP under controlled environment would be more economical. To standardize the quality HSP technology in cucumber, an experiment was conducted under different protected structures and open field conditions. Results in cucumber hybrid Pant Shankar Khira-1 showed that fruit characters and seed quality parameters were significantly higher under naturally ventilated poly house followed by insect proof net house as compared to open field conditions in both seasons. The seed yield (in 1000 m^2) was significantly higher under insect proof net house (15.02 Kg) followed by naturally ventilated polyhouse (14.87 Kg) and open field (4.45 Kg). The benefit-cost (BC) ratio is higher in insect proof net house (2.25) followed by open (1.12) and naturally ventilated polyhouse (0.37) condition. The number of filled seeds per fruit, 100-seed weight, seed yield per fruit were significantly higher at 7.00AM pollination in both the seasons. The number of fruit set and fruit developed to maturity were higher in naturally ventilated polyhouse and insect proof net house compared to open field and these were highest at 7.00AM followed by 9.00 AM and lowest at 11.00AM. The number of filled seeds per fruit in *Summer* (164.90) and *Kharif* (197.86) under insect proof net house was higher than naturally ventilated poly house and open field. The seed quality parameters were observed at 40 DFA in all three growing environments in both the seasons and the seeds reached physiological maturity at 35 DFA under naturally ventilated polyhouse, insect proof net house compared to 40 DFA in open field. It was observed that seeds extracted by fermentation method (24 hr) were having higher seed quality parameters than the acid and alkali seed extraction methods. Therefore, it was concluded that HSP in cucumber under insect proof net house is more remunerative and profitable.

Name of the student: **Girish Kaddi**
Name of the Major Supervisor: **Dr. BS Tomar**
Division of Seed Science and Technology
IARI, New Delhi 110 012

Optimization of priming technique in parental lines and hybrid of maize (*Zea mays* L.)

Poor and erratic plant establishment is one of the major encumbrances in achieving potential yields particularly under moisture stress. Seed hydropriming is one of the reliable pragmatic approaches to improve seed performance under a wide range of growing conditions. The present study was carried out with the focus on understanding the mechanism of seed enhancement with hydropriming. Low and high vigour seed lots of maize hybrid; PEHM-5 and its parental lines (CM 150 X CM 151) were used to study the biochemical, cell cycle activities and identification of protein markers for optimization of hydropriming in maize. Also, comparative storage studies of QPM hybrid VQPM-9 (VQL 1 X VQL 2) and non-QPM hybrid (PEHM-5 and its parents) were taken to establish the physiological and biochemical basis for their storage behavior under ambient condiditons. Hydropriming for 30 hr duration followed by either surface drying or drying back to original moisture content enhanced the seed vigour in both high and low vigour maize seeds which was attributed to enhanced activities of α-amylase, protease, esterase, dehydrogenase and key antioxidant enzymes. Upon priming the ratio of 4C:2C increased during the 30 hr priming period, though the level in case of redried seeds did not reach the level obtained after hydration in water without drying back. However, the 4C:2C ratio was constant after redrying, indicating that the ehromosomal material in the embryonic cells had ceased cell cycle activity at the G2 Phase. Hence, it indicated that the beneficial effects of priming on seedling performance are associated with the action of replicative DNA sysnthetic processes prior to germination. Comparative proteomic analysis of hydroprimed seeds specific protein spots which markedly changed in abundance between the primed and unprimed seeds which may be the candidates for the protein markers for priming effect and seed vigour. The hybrids exhibited significantly higher vigour than their resepective parental lines and QPM genotypes deteriorated faster as compare to non-QPM ones. Inbred lines, CM 150 and CM 151 were found to be better storers than VQL 1 and VQL-2. The decline in germination was moderate up to 9 months of storage which declined sharply up to 12 months, however, high vigour lots of both the hybrids maintained seed germination above certification standard (80%) even after 12 months of storage.

Name of the student: **Heena Rasool Mir**
Name of the Major Supervisor: **Dr. Shiv K Yadav**
Division of Seed Science and Technology
IARI New Delhi 110 012

Editorial Contact Information

Please send us information related to any news, new projects, opinions on policy issues, current happenings, publications, book reviews, foreign visits, new appointments, trainings, seminars, workshops and conferences or other interesting stuff related to seed for the next issue of Seed Tech News.

Suggestions and comments are welcome!

Editor
seedtechnews@gmail.com

Seed Tech News

INDIAN SOCIETY OF SEED TECHNOLOGY

RECEIPTS & PAYMENTS ACCOUNT FOR THE YEAR ENDED 31 MARCH 2014

RECEIPTS		AMOUNT	PAYMENTS		AMOUNT
Opening Balance			**Payments**		
Cash in Hand	32,789.18		By Salary	1,44,800.00	
Cash at Bank	13,871.69		By Reading Proof (Magazine)	10,000.00	
Fixed Deposit	34,67,185.30	35,13,846.17	By Conveyance	58,548.00	
Receipts			By Stationary	18,060.00	
Membership & Subscription			By Postage	13,246.00	
Ordinary	5,500.00		By Rental charges	1,30,000.00	
Associates	8,000.00		By Misc. expenses	400.00	
Life	1,07,500.00		By Bank Charges	681.00	
Foreign Member (Life)	66,239.25		By Honorarium Paid	10,000.00	
Sale of Seed Research	16,320.00		Conference Expenses	57,050.00	
Sale of Book	3,000.00		By Kamala Print-N-Publish	3,98,520.00	8,41,305.00
To Financial Assistance & Grant	10,05,000.00				
Conference Registration	4,26,600.00		**Closing Balance**		
Registration	1,225.00		Cash-in-Hand	1,513.18	
Interest Received	10,990.47		Cash in bank	78,599.43	
Interest on FDR	53,226.17	17,03,600.89	Fixed Deposit	43,01,029.45	
Other Receipts (Liability)		5,000.00	Loan and Advance	1,00,000.00	43,81,142.06
		52,22,447.06			**52,22,447.06**

Certified that in our opinion and to the best of our knowledge & belief and according to the books and record presented to us for verification and information and explanation given to us, the above set forth Balance Sheet as on 31-03-2014, Income & Expenditure A/c and Receipts & Payment A/c for the ended on that date are true and correct.

for Pandey KM & Associates, Chartered Accountants

Sd/-
CA KM Pandey

Sd/-
(SK JAIN)
Secretary

Sd/-
(HCS NEGI)
Treasurer

New Delhi
01 December 2014

News From DSST

1. Dr. SK Chakrabarty, Principal Scientist rejoined the Division of Seed Science and Technology, IARI, New Delhi on May 24, 2014 after getting transfer from National Fund for Basic Strategic and Frontier Research in Agriculture (NFBSFRA), ICAR, New Delhi.

2. A two day farmers training was conducted at Division of Seed Science and Technology, IARI on March 21-22, 2014 entitled "Uttam beej utpadan avam surakshit bhandaran". The training was coordinated by Dr. Sarla Yadav, Scientist and Dr. Monica A. Joshi, Sr. Scientist, DSST, IARI, under supervision of Dr. SK Jain, Professor and Head, Course Director.

3. A two day farmers training was conducted at Division of Seed Science and Technology, IARI on March 28-29, 2014 entitled "Kharf faslon me beej utpadan avam krashak adhikar". The training was coordinated by Dr. Shiv K Yadav, PS and Dr. Sandeep K Lal, Sr. Scientist, DSST, IARI, under supervision of Dr. SK Jain, Professor and Head, Course Director.

4. Mr. Dharampal is the new member at the Division of Seed Science and Technology, IARI, New Delhi. A graduate in Agriculture from RAU, Bikaner reported to duties as Technical Officer (T-3) *w.e.f.* April 30, 2014. ISST welcomes him to the seed fraternity and wishes him a fruitful career at DSST, IARI.

Edited and published by: **Manjunath Prasad CT** on behalf of the Indian Society of Seed Technology, Division of SST, IARI, 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 Phones : 98184 76511; 2599 7481

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