

Seed Tech News



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

Vol.: 43, No. 4, December 2013

The Brazilian Grape Tree

(*Plinia cauliflora*) is native to South America. The fruit, a succulent looking purple colour can be plucked and eaten straight from the tree.



The flowering habit is cauliflorous – means the plants flower direct from the woody trunk or stems. The fruit itself is about four centimeters in diameter and has up to four large seeds. It is a popular ingredient in jellies, refreshing summer juices and can be fermented into wine. The fruit is used to treat asthma and diarrhea and is also proven to fight cancer. Its slow growing habit makes the plant most popular as bonsai plant.

Secretary : SK Jain
Editor : Manjunath Prasad CT



Government of India

**6th National Seed Congress
on**

**“Advancement in
Agriculture through Quality
Seed”**

September 12-14, 2013

The sixth National Seed Congress jointly organized by UP Beej Vikas Nigam and NSRTC, Varanasi at Lucknow was inaugurated by Shri Anand Singh, Minister of Agriculture, Govt. of Uttar Pradesh. Shri Ujjawal Raman Singh, Chairman, UPBVN, Shri Rajeev Kumar Singh and Shri Manoj Kumar Pandey, State Agriculture Ministers, Shri Yogesh Partap Singh, State Basic Education Minister, Shri Alok Ranjan, Agriculture Production Commissioner, UP, Shri Debashis Panda, Principal Secretary (Agriculture), Dr. Atanu Purkayastha, Joint Secretary (Seeds), Ministry of Agriculture, Govt. of India, Shri Ranjan Shukla, Principal Secretary (Coordination), Govt. of UP along with Senior Officers from Ministry of Agriculture, Govt. of India were present. The congress was attended by 425 delegates representing Directorate of Agriculture from various states, MD of State Seed Corporations, Director of State Seed Certification Agencies, Senior State Government officials, Scientists, Seed Technologists and Research Scholars from reputed national and state research institutes, SAUs, Private Seed Companies, Seed producers and progressive farmers. Shri Akilesh Yadav, Hon'ble Chief Minister of Uttar Pradesh presided over the closing ceremony of the congress and awarded the progressive farmers of the state. The major attraction was the 'Seed Expo' demonstrating potential crop varieties by major stakeholders of Indian Seed Industry. The three day congress had six technical sessions, chaired by experts and eminent personalities to debate on strategic planning of seed production and advancement in the area of seed science and technology.

Congress Conclusions

Major recommendations of the congress are as follows;

**Session-I : Advances in varietal improvement
and seed quality enhancement**

Chairman : Dr. RR Hanchinal
Chairperson, PPV&FR Authority

Co-Chairman: Dr. B. Gopal Reddy
Director, APSSCA

Seed Tech News

- NARS must provide strong support to national seed system by supplying sufficient quantity of breeder seeds of newly notified varieties at right time. Seed production system must be supported by appropriate agronomic practices at the time of release of variety
- The public sector organizations including Cooperatives like IFFCO, KHRIBCO etc. should build a robust seed production system for major crops including millets to make them available to the farmers
- Focus is needed to identify alternative hybrid seed production areas to enhance availability of quality seeds which would reduce huge cost involved in transportation and storage for establishing strong seed distribution network
- Government should formulate strategic plan to replace original mega varieties with new improved stress tolerant varieties. State extension machinery should promote these stress tolerant varieties among farmers through crop demonstrations, cluster demonstrations, farm schools, distribution of mini-kits etc.
- Seed quality enhancement is one area, where Indian public sector needs to gear-up to international requirements to carve special niche for quality seed from India in international seed market

Session-II : Seed planning

Chairman : Sh. Debashis Panda
Principal Secretary (Agriculture)

Co-Chairman : Sh. Anand Krishna
MD, KSSC Ltd.

- All states must make efforts to produce quality seed as per seed plan by engaging credible seed producers having technical competence, sufficient seed infrastructure facilities and experience in seed production
- Provisions under Govt. development schemes like NFSM, RKVY, Accelerated Pulse Production Programme (A3P) clusters may be used to produce quality seeds aiming at both increasing seed and varietal replacement rate
- State should have seed contingent plan to effectively tackle the impacts caused by natural calamities and should have strategies to meet the demand of quality seeds of improved varieties/hybrids

- Provisions of the exemptions for expenditure on R&D under Section 35 of IT Act for seed companies having R&D centre recognized by Department of Scientific & Industrial Research may be given
- Steps need to be taken to bridge the existing gap between varieties released/notified and actual variety in seed production chain. Thrust on promoting new high yielding variety/hybrid through systematic seed plan, novel extension approaches and Govt. policy interventions need to be adopted
- Emphasis should be given to conserve local and traditional varieties, which are having high nutritional and novel quality attributes

Session-III : Seed trade and Public-Private Partnership

Chairman : Dr. Atanu Purkayastha
Joint Secretary (Seeds), Govt. of India

Co-Chairman: Sh. Raju Barwale
MD, Mahyco Ltd.

- In order to tap the international seed trade, Govt. of India may formulate long term export policy by liberalizing custom and NBA requirements. Incentives may also be provided to harness the export potential of India for exporting the seeds to many countries especially in Asia and Pacific Regions
- Scheme for promotion of Seed Export in submission of seeds and planting materials under National Mission on Agricultural Extension and Technology (NMAET) must be popularized
- Government may facilitate custom seed production for export. The seed companies will produce the seeds exclusively for export purposes under OGL category with a long term tie up with Foreign Seed Company or Organization
- Research may be focused on the requirement of quality parameter in relation to export of seed and accordingly, seed production plan may chalk out through 10 State Authorities designated under OECD Seed Scheme. Government of India may relax export barrier and provide production subsidies for production of seed meant for export
- Seed testing laboratories across the country should be provided with GM sampling and testing procedures with special reference to advanced

Seed Tech News

PCR based methods and notifications of testing of GM events approved in the country should subsequently be followed

Session-IV : Intellectual Property Rights and Farmers' Rights

Chairman : Dr. RR Hanchinal
Chairperson, PPV&FR Authority

Co-Chairman : Sh. UD Singh, MD, GSSC Ltd.

- For livelihood security of farmers, value addition in farmers' varieties accompanied with market linkages may be introduced and big campaign be initiated to get Intellectual Property Rights to these varieties through registration with PPV&FR Authority
- Farmer's participatory seed production is potent method to ensure availability of quality seed. Massive and periodical training programs of farmers groups to undertake 'Farmers Seed Production' should be organized and farmers should be encouraged to purchase seeds from farmers seed production groups with the help of state players like NSC, SSCs, etc.

Session-V : Seed quality assurance

Chairman : Dr. JS Chauhan, ADG (Seeds), ICAR

Co-Chairman: Sh. RK Trivedi, Director, NSRTC

- At the time of release/notification of variety, concerned breeder/institution should be insisted to provide distinct morphological characters of the variety for field inspections. In addition, the breeder/institution should provide gene markers, protein/isotype banding patterns/DNA fingerprints and suitable screen aperture sizes for grading of breeder seeds to facilitate easy genetic purity evaluation and processing
- Govt. of India must encourage ISTA accreditation for increasing the laboratory competence, improved seed quality assurance for international seed trade and to participate in OECD Seed Scheme

Editor, Seed Tech News

[With inputs from Proceedings of 6th National Seed Congress by Sh. RK Trivedi, Director, NSRTC, Varanasi.]

Notification

Ministry of Agriculture

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

New Delhi, the 19 September 2013

S.O. 2815 (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, hereby makes the following amendments in the notification of the Government of India in the Ministry of Agriculture, Department of Agriculture and Co-operation, number **S.O. 312 (E)** dated the 1st February 2013 and published in Gazette of India, Extraordinary, Part II, Section-3, Sub-section (ii), dated the 1st February 2013, namely:

In the Table to the said notification, for Rice Hybrid and entries relating thereto, the following details shall be substituted, namely:

Kind (1)	Variety (2)	States (3)
Rice Hybrid	CO 4 (IET 21449) (TNRH 174)	TN, GJ, MH, UT, UP, CG, WB & BR

Sd/-

Atanu Purkayastha, Joint Secretary
[F. No. 3-27/2013-SD. IV]

New Delhi, the 19 September 2013

S.O. 2816 (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, hereby makes the following amendments in the notification of the Government of India in the Ministry of Agriculture, Department of Agriculture and Co-operation, number **S.O. 2125 (E)** dated the 10th September, 2012 and published in Gazette of India, Extraordinary, Part II, Section-3, Sub-section (ii), dated the 10th September 2012, namely:

In the Table to the said notification, for Rice Hybrid and entries relating thereto, the following details shall be substituted, namely:

Kind (1)	Variety (2)	States (3)
Rice Hybrid	27P31 (IET 21415)	JH, MH, KA, TN, UP, BR & CG

Sd/-

Atanu Purkayastha, Joint Secretary
[F. No. 3-27/2013-SD. IV]

Seed Tech News

New Delhi, the 19 September 2013

S.O. 2817 (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)
Blackgram	Pratap Urd 1 (KPU 07-08)	RJ
Bottlegourd Hybrid	Santosh (Santosh 20) (KBGH 20)	DL, UP, BR & JH
Bread wheat	UAS 304	KA & MH
Cotton	RG-542	RJ
Finger millet	HIMA	AP
Groundnut	Dharani (TCGS 1043)	AP
Indian mustard	RH 0406	HR, PB, DL & RJ
	Dhivya-33	RJ, PB, HR & JK
	Raj Vijay Mustard-2 (JMWR 08-3)(RVM2)	DL, HR, JK, PB, RJ
	Pusa Mustard 29 (LET-36)	DL, HR, JK, PB, RJ
	Pusa Mustard 30 (LES-43)	UP, UT, MP & RJ
	Giriraj (DRMR IJ31)	RJ & HR
Maize	CMH 08-282	GJ, RJ, MP & CG

Maize
(Hybrid)

Shalimar Maize Composite-3	JK
KDM 438	JK
Pant Shankar Makka-1	UT
Sun Vaaman	AP, KA, TN, MH, AR, AS, MN, MG, MZ, NL & TR
Pratap QPM Hybrid-1 (EHQ-16)	RJ, GJ, CG & MP
KDMH 017	PB, HR, DL, UT, UP, BR, WB, OR & JH
BIO 9544 (BIO 151)	JK, HP, UT, AP, TN, MH, KA, AR, AS, MN, MG, MZ, NL & TR
NMH-1242	AP, TN, MH & KA
NSCH-12 (Misthi)	JK, HP, UT, PB, HR, DL, UP, AP, TN, MH, KA, AP, AS, MN, MG, MZ, NG & TR
S 6217	PB, HR, DL, UT, UP, AP, TN, MH, KA, GJ, RJ, MP & CG
LG 32-81 (Yuvraj Gold)	JK, HP, UT, BR, WB, JH, OR, UP, AR, AS, MN, MG, MZ, NG & TR
Bisco 97 Gold (Bisco New 704)	JK, HP, UT, AR, AS, MN, MG, MZ, NG & TR
Mungbean SML-832	PB
Mustard RRN-573	RJ
Oat NDO-2 (Narendra Jayee-2)	UP
Shalimar Fodder Oats-1 (SKO-20)	JK
Pearlmillet (Hybrid) GHB-905 (MH-1655)	RJ, GJ, HR, MP, UP, PB & DL

Seed Tech News

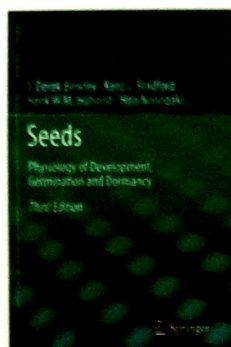
	Nandi-72 (MSH 238) (NMH 75)	GJ, RJ, MH, AP & TN	KPH-199	CG, MP & AP
	86M89 (MH 1747)	RJ, GJ, HR, UT, MP, PB & DL	KPH-371 KL	CG, JH, KA & KL
Red gram	PKV TARA (TAT-9629)	MH	VNR 2375 PLUS (IET 21423) (VNR-203)	UT, PB, MH, BR & KA
Rice	CR Sugandh Dhan 907 (IET 21044) (CR 2616-3-3-3-1)	CG, OR, GJ & AP	US 314 (IET 21777)	WB, BR, AP & UT
	CNR-2 (IET 20235)	BR, CG, MH & GJ	Safflower PKV Pink (AKS 311)	MH
	PUSA-6 (IET 22290) (PUSA 1612-07-6-5)	PB, HR, DL & JK	Setaria grass Palam Setaria-1 (S-18)	HP & UT
	NP 218 (IET 22218)	GJ & KA	Sorghum Wani 11/6 (PKV Ashwini)	MH
	NP 124-8 (IET 22110)	OR & CG	Soybean MACS 1188	MH, KA, AP & TN
	NP 209 (IET 22225)	OR & KA	Pratap Soya 45 (RKS 45)	RJ
	GAR-1 (IET-21276)	GJ	Sugarcane IMARTI (CoSe01421)	UP, BR & WB
	Pratap-1 (RSK-1091-10-1-1)	RJ	Karan 10 (Co 05009)	PB, HR, RJ, UT & UP
Rice (Basmati)	Malaviya Basmati Dhan 10-9 (HUBR 10-9) (IET 21669)	PB & HR	Co 06030	TN, AP & OR
	Vallabh Basmati-21 (IET 19493) (MAUB-21)	UP	Co 06027 MH, GJ & KL	TN, AP, KA,
	PUSA Basmati-1509 (IET 21960) (PUSA 1509-03-3-9-5)	UP & DL	Sunflower hybrid Olisum 3794 (PAC 3794)	MH, TN, KA & AP
Ricebean	Him Shakti (VRB-3)	PB, HP, HR, UP, RJ, UT, AR, AS, MN, MG, MZ, NG & TR	Wheat MP 3336 (JW 3336)	MP, CG, RJ & UP
	Arize Dhan	OR	DBW 71	PB, HR, DL, RJ, UP, JK, HP & UT
Rice hybrid	27P52 (IET 21433)	UT, CG, OR, GJ, AP	K0402 (MAHI)	UP
	27P63 (IET 21832)	CG, UP, KA, AP		

Sd/-
Atanu Purkayastha, Joint Secretary
[F. No. 3-27/2013-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.

Seed Tech News

New Publications



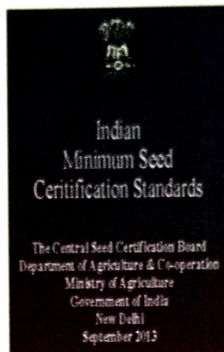
Seeds: Physiology of Development, Germination and Dormancy

Bewley, J. D., Bradford, K. J., Hillorst, H. W. M. & Nonogaki, H.

3rd edn 2013, 392p, Springer

ISBN: 978-1-4614-4692-7

99.00 USD



Indian Minimum Seed Certification Standards

Revised edition, September 2013

**National Seeds Corporation
Bheej Bhawan, Pusa Campus
New Delhi 110 012**

Rs. 800.00

This updated and revised third edition provides a thorough overview of seed biology and incorporates much of the progress that has been made during the past fifteen years. With an emphasis on placing information in the context of seed, this new edition includes recent advances in the area of molecular biology of seed development and germination, as well as fresh insights into dormancy, eco-physiology, desiccation tolerance and longevity. Authored by preeminent authorities in the field, this book is an invaluable resource for researchers, teachers, and students interested in the diverse aspects of seed biology.

Source: www.springer.com

News from DSST

Dr. (Ms) Malavika Dadlani, Joint Director (Res.), IARI and Former Head, Division of Seed Science and Technology, IARI, New Delhi superannuated from her official duties on 25 November 2013. At present, Dr. Dadlani is involved with Bioversity International India, New Delhi as consultant. ISST wishes her a happy and healthy retired life.

Seed Certification in India is the result of an Act passed by the Parliament in 1966. The main objective of the Act is to foster the production of improved seeds and planting material in India and provide for the Certification thereof. Seed certification is based on a record system which documents the entire process from the initial application for field inspection through tagging of the seed. Seeds sold in bulk is considered 'tagged' when an official certification certificate has been issued for a specific lot. The purpose of Seed Certification is to preserve genetic and mechanical purity, and identity of seed through all steps of production, harvesting, storage and conditioning. The certification process is accomplished when seed meets specific minimum requirements as established by regulation. Requirements for producing certified seed of field crops include planting eligible stock, field inspection of the growing crop, conditioning seed in an approved plant, sampling, laboratory analysis and proper labeling of the seed. This requirements provide the buyer with the best possible assurance of obtaining good quality seed of known purity and heridity.

This revised publication contains in, the General Certification Standards, those standards which apply generally to all crops offered for certification in India. Individual seed standards include any modifications of the General Certification Standards as well as standards which apply only to the specific crop.

Editor, Seed Tech News

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

ICAR Sponsored Short Course Conducted at DSST, IARI



A 10 days ICAR sponsored short course on ‘Emerging Paradigms in hybrid seed production, plant variety protection, value addition and quality assurance for enhancing productivity and sustainable crop production’ was organized at the Division of Seed Science and Technology, IARI from September 03-12, 2013. A major portion of the seed requirement is met from farm-saved seed where quality is not assured. To ensure availability and use of quality seed, advanced techniques in seed production, processing, seed testing, packaging and storage with novel approaches are of immense importance. Eighteen participants were trained in a module which was divided into three parts; 1. Hybrid seed production, 2. Plant variety protection, and 3. Quality assurance. The course dealt with advances in hybrid seed production of selected crops, PVP, its procedure for field crops, vegetables and ornamentals, seed quality evaluation, enhancement and assurance. Lectures and field visits to seed production plots showcasing experimental hybrids was taken up to understand the actual picture of parental line screening and hybrid development. A lecture was organized on protected cultivation of vegetables and ornamentals along with visit to Center for Protected Cultivation Technology (CPCT), IARI. The course also included lectures on status of plant variety protection in India, principles of DUS testing in field, vegetable crops, flowers and ornamental crops and overall impact of PPV&FR Act on Indian Seed Industry by renowned and experienced resource persons. Overview of seed testing with special emphasis on ISTA approved protocols/methods along with advanced techniques used for genetic purity and detection of GM seeds was covered in-depth. During valedictory function, Dr. M. Dadlani, JD (Res.), IARI urged all the participants to use the knowledge gained to improve their performance in research and teaching.

Course Director: **Dr. Sudipta Basu**, Senior Scientist
 Course Coordinator: **Dr. SS Parihar**, Head
Dr. Sandeep K Lal, Senior Scientist
Dr. Arunkumar, MB, Senior Scientist
 Venue: **Division of Seed Science and Technology
 IARI, New Delhi**

National Training Conducted at Directorate of Seed Research, MAU



Directorate of Seed Research, Mau in collaboration with National Seed Research and Training Center, Varanasi jointly organized national training on “Varietal Purity Testing through Conventional and Biotechnological Tools” from October 15-19, 2013 at DSR, Mau. The training programme was inaugurated and addressed by Dr. Rajendra Prasad, Project Director, DSR, Mau. The training was specially designed for various public and private personnel involved in seed production, certification and quality assurance activities especially, seed certification agency. The training includes both theory and hand's-on training on various conventional tools like GOT, biochemical protein profiling and modern biotechnological tools like DNA fingerprinting for genetic purity assessment of seeds. A total of 30 participants were registered for this training from various parts of India. Mainly participants were from Karnataka, U.P, MH, Gujarat, Bihar and W.B. About the usefulness of the course curriculum, majority of the participants, *i.e.* 13 were from seed certification agency and regularly working with the genetic purity testing; and others included were assistant professors, who were involved in teaching, research and seed production activities. The training included 17 lecture with various theme area of varietal purity testing starting from field standards, morphological markers, biochemical tools, IPR, New Seed Bill and PPVFR Act.

Course Director: **Dr. S. Rajendra Prasad**, PD
 Course Coordinator: **Dr. R. Dandapani**, Scientist
 Venue: **Directorate of Seed Research,
 Maunath Bhanjan (UP, India)**

Effect of heat stress on floral and seed characteristics in bread wheat

High temperature stress is one of the major constraints in increasing productivity of wheat adversely affecting plant growth, yield and seed quality. Hence, wheat genotypes were sown under three different dates during the month of November, December and January to expose the plants to differential temperature regimes. The study showed significant differences among dates of sowing, thereby indicating sensitivity to heat stress. The degree of sensitivity to withstand high temperature stress varied and crop was much more susceptible under extremely late sown conditions. The genotypic differences were significant for all traits under investigation, suggesting that the material was genetically diverse. Among the plant morphological traits, there was a maximum reduction in plant height under extremely late sown conditions (January sown) as compared to other conditions. Wheat varieties sown during the month of November took more time to reach the anthesis stage than sown in December and January. Seed yield and yield contributing traits *viz.* number of tillers and 1000-seed weight were most susceptible to heat stress. The spike characters *viz.* spike density, spike length and number of spikelets per spike were least affected by heat stress and hence identified as heat tolerant traits. The traits *viz.* tiller number, grain yield, biomass, 1000-grain weight and vigour index II were found to be most susceptible to heat stress. The study also identified tolerant and susceptible genotypes with respect to all the morphological and seed traits, as shown by heat susceptibility Index values.

Name of the student: **Faridullah**

Name of the Major Supervisor: **Dr Monika A Joshi**
Division of Seed Science and Technology
IARI, New Delhi 110 012

Physiological phenotyping of soybean genotypes for seed longevity

Genotypic variability with respect to seed storability was observed among 26 different soybean genotypes comprising 13 black seeded good storer and 13 yellow seeded poor storer. Black seeded small soybean genotypes, showed better storability. A significant reduction in seed coat hardness was observed with increase in storage period; however the reduction was much more under ambient seed storage than those of controlled storage.

Seed viability and vigour parameters, irrespective of genotypes, decreased with increase in period of storage, whereas EC gradually increased with increase in storage period. Under ambient storage in Delhi environment, cream/yellow seeded poor storer genotypes registered marginal increase in 100-seed weight with increase in storage period when compared to controlled storage environment. Volatile aldehydes, esterase enzyme activity increased with increased period of seed storage, whereas superoxide dismutase activity consistently declined with increased period of storage. Based on detailed physiological and biochemical phenotyping, four genotypes, namely DS-12-13, DS-2614, SL-799 and SL-525 were identified as good performers/storer. The good storability of soybean seeds can be attributed to the combined effect of seed coat (testa) colour, seed size, seed coat hardness, free radicle mediated chain reactions leading to biomembrane permeability, efficiency of antioxidant system in the seed to counter free radical accumulation. The data showed a strong +ve correlation between accelerated ageing and seed hardness, followed by accelerated ageing and seed germination, whereas a strong but negative correlation was observed between volatile aldehydes and seed hardness. The volatile aldehydes and/or seed hardness are suggested as better indices of soybean seed quality. From the above two, any parameter can be chosen as a good marker for seed quality in soybean.

Name of the student: **Mohmad Zahid**

Name of the Major Supervisor: **Dr SK Jain**
Division of Seed Science and Technology
IARI, New Delhi 110 012

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