



# DMR Newsletter



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## From the Director's Desk

**India poised for maize revolution** Maize is an important crop being utilized as food, feed, specialty corn, starch, etc. for both domestic consumption as well as export. Being C4 plant, it is more resilient to changing climatic conditions. High yielding Single Cross Hybrid (SCH) seeds with improved package of practices boosted maize production registering highest growth

rate of 8.0 per cent (2006-2010). This is the highest among all other food crops, surpassing the 4 per cent growth rate for agriculture and 4.7 per cent for maize set by Planning Commission in 11<sup>th</sup> Five Year Plan and has contributed immensely to the national economy. The production and productivity of 21.28 million tonnes and 2.56 tonnes/ha, respectively during 2010-11 has been possible owing to the concerted efforts of the scientists of Directorate of Maize Research (DMR) and AICRP (Maize) centres /ICAR Institutes and farmers of the country. For further improvement of farm profitability in maize-based cropping systems, crop diversification, intercropping and resource conservation technologies are most suitable. DMR/SAUs and its associated institutes are committed to bring revolution in maize production and productivity in India.

## 54<sup>th</sup> Annual Maize Workshop at TNAU, Coimbatore



*Release of technical bulletins during inaugural session of the workshop*

The 54<sup>th</sup> Annual Maize Workshop was held at Tamil Nadu Agricultural University (TNAU), Coimbatore from April 2-4, 2011 with the objective to review the progress made in the previous year and discuss and finalize research programs for the coming year. The Workshop was inaugurated by Dr. Swapan Kumar Dutta, Deputy Director General (Crop Science) ICAR, New Delhi. In his inaugural address, Dr. Dutta expressed that maize is a crop of prosperity as it can add vitality to the food security of the nation. He commended the country's tremendous growth in maize production and productivity over the years that allowed India to export around three million tons to several neighboring countries thereby earning valuable foreign exchange. He further opined that the production target of 45-50 million tons by 2025 could be achieved through the deployment of Single Cross Hybrids coupled with improved production and protection technologies. Dr. Dutta urged private sector companies to contribute to

## DG (ICAR) visits DMR and shares his vision on maize R&D in the country

Secretary, DARE and Director General, ICAR Dr. Subhana Ayyappan visited DMR on April 27, 2011. Director, DMR Dr. Sai Kumar welcomed him and appraised him about current maize scenario and highlighted the future growth prospects. Dr. Ayyappan visited DMR fields and was highly impressed with the performance of Single Cross Hybrids of maize. He also visited the DMR green house and different laboratories. He addressed the faculty and interacted individually with scientists. He expressed great satisfaction over the phenomenal growth of maize in India, showed keen interest in on-going R&D activities and guided on various key issues pertaining to research and administration. He also discussed the priorities of XII plan. Dr. Ayyappan expressed that India has become a force to reckon with within shortest possible time in the area of maize R&D. He emphasized on the development of sound future strategies in view of vertical as well as horizontal growth, enhanced industrial application and emergence of specialty corns for livelihood security in context of periurban agriculture. His keen interest, pragmatic approach and prudent suggestions would be of great source of inspiration to the scientists of DMR. Indian Maize Program is expected to touch newer heights under his dynamic leadership.



*DG (ICAR) interacting with Director (DMR) at experimental field of DMR*

public sector maize research, and young scientists to devise new ways of increasing the maize yield. Chairman of the inaugural session Dr. P. Murugesha Boopathi, Hon'ble Vice-Chancellor, TNAU, Coimbatore while delivering the Guest of Honour address explained that over the years maize has become an economically important crop. Due to its new industrial uses, the demand especially in Asia is increasing rapidly. Dr. R.P. Dua, Assistant Director General (FFC) ICAR, New Delhi, stressed that climate change has assumed a wider ramification, therefore development of resilient hybrids to adapt to climate change must be given priority in future research projects. On this occasion, sixteen technical bulletins/documents covering all the major facets of maize R&D published by DMR/AICRP centre



Dr. S. K. Dutta DDG (CS) and Dr. R. Sai Kumar, Director (Maize) presenting patented technology "Insect Rearing Cage" to the house during annual maize workshop, 2011

were released, one patented technology "Insect Rearing Cage" was presented and a website "Agri Daksh"-a tool for development of online expert system, was also launched.

Dr. R. Sai Kumar, Director, DMR presented the project report and highlighted the progress of Indian Maize Program made in the year 2010-11. During his presentation, he emphasized that Single Cross Hybrid breeding program would remain the focussed area of research

and seed production programs would receive greater attention. He reiterated the importance of basic and strategic research and the need to augment conventional as well as molecular breeding approach in developing desirable maize germplasm. He highlighted the working plans for commercialization of technologies including hybrids.

During the three-day workshop, progress made in various disciplines were thoroughly discussed and the salient achievements were highlighted. Five technical sessions were held to discuss important as well as emerging issues of maize, many important decisions were taken and technical programs of different disciplines were also chalked out.

More than 200 delegates (public as well as private sector) from different parts of the country participated in the workshop and contributed with zeal towards the scientific deliberations over three days. Maize stall showcasing the prominent technologies/publications, different maize products, etc. was put up during the workshop. All the delegates visited the stall and expressed great pleasure over the progress made in developing and propagating technologies in the farmer's field.

The major recommendations that emerged from the workshop are as follows:

- Five hybrids were recommended for release in different parts of the country.
- 23 inbred lines were identified as sources of resistance to various diseases across the locations.

## Identification of new hybrids for release

Given below is the list of hybrids recommended for release during 54<sup>th</sup> Annual Maize Workshop, 2011

S. No.	Hybrids	Centre/Organization	Area of Adaptation/Zone	Characteristics
1	X7B 401	Pioneer	Gujarat, Rajasthan, M.P, Chhattisgarh (Zone-5)	Medium, orange, flint grains, avg. yield 6.5 t/ha
2	MCH 38	Monsanto	Eastern UP, Bihar, Orissa, Jharkhand, Maharashtra, Tamil Nadu, Karnataka & Andhra Pradesh (Zone-3&4)	Late, Semi-flint, yellow grains, avg. yield-8.6 t/ha
3	KMH-3712	Kaveri	Punjab, Haryana, Delhi, western UP, East UP, Bihar, Jharkhand, West Bengal, Orissa, Rajasthan, Gujarat, M.P & Chhattisgarh (Zone-2,3&5)	Medium, semi-dent, yellow grains, avg. yield-7.0 t/ha
4	MCH-37	Monsanto	AP, Maharashtra, Karnataka & TN (Zone-4)	Medium, semi-dent, yellow grains, avg. yield-8.1 t/ha
5	Mon 29	Monsanto	Eastern UP, Bihar, Jharkhand, & Orissa (Zone-3) (Rabi)	Late, dent, yellow grains, avg. yield-10.0 t/ha



## Notification of Maize Hybrids and Composites

Six hybrids and one composite variety of maize were notified vide notification no. 632 (E) dated 25/03/2011. The detailed list is given below:

### Notified Hybrids/Variety of Maize

S. No.	Hybrids	Pedigree	Centre/Organization	Area of Adaptation	Characteristics
1	DHM 119	BML2 X BML15	ANGRAU, Hyderabad	A.P. Maharashtra, Karnataka & TN	Medium, yellow, flint, avg. yield-7 t/ha
2	PMH 4	LM5 X LM16	PAU, Ludhiana	Delhi, Punjab, Haryana, Western UP & tarai UA	Medium, yellow - orange, flint, avg. yield 8.3 t/ha
3	Bisco 855	(BSI-245/BSI-226) X BSI-214	Bisco Seeds	A.P. Maharashtra, Karnataka & TN	Medium, yellow dent, avg. yield-6.5 t/ha
4	Bisco 855	(W 105/W 160) X W 201	Bisco Seeds	Delhi, Haryana, Punjab & Western Uttar Pradesh	Medium, white dent, avg. yield-8.3 t/ha
5	Bisco 111	(BS-240/BS-210) X BSI-214	Bisco Seeds	Rajasthan, Gujarat, M.P. & Chhattisgarh	Medium, orange-yellow dent, avg. yield-8.0 t/ha
6	PMH 5	LM16 X LM18	PAU, Ludhiana	Rajasthan, Gujarat, MP & Chhattisgarh	Early, orange, flint, avg. yield-6.0 t/ha
Composite					
1.	SHATAK - 9905	Pool 10 AG 10, SI 19 HG-88-A, CML 24, C-8923 & Pop 500C 1	PDKV, Akola	Maharashtra	Late, flint, yellow grains, avg. yield-4.0 t/ha.



## Identification of Stable Sources of Resistance to Major Diseases of Maize

Inbred Line	Diseases
DMSC 16-1	TLB, P. rust
DMSC 16-2	TLB, MLB, P. rust
Gen 1858	TLB, PFSR
PFSR/51016-1	TLB, MLB, BSDM, PFSR, P. rust
HKI 141-1	TLB, PFSR, P. rust
HKI 141-2	TLB, PFSR, P. rust
CML 141	TLB, PFSR, P. rust
HKI MBR-139	TLB, MLB, PFSR, P. rust
HKI-MBR-139-2	TLB, MLB, BSDM, PFSR, CLS
HIGH OIL POPULATION II -2	TLB, MLB
PFSR-S2	TLB, PFSR, P. rust, CLS
CM114	MLB, PFSR, RDM
DMRQ-107	MLB, PFSR, CLS
HIGH OIL POPULATION II -4	MLB, BSDM, ESR
PFSR-S3	MLB, BSDM, PFSR, RDM, CLS
CML 33	MLB, BSDM, PFSR, CLS
DMSC 36	BSDM, PFSR, CLS
LM-12	BSDM, PFSR, CLS
PFSR-R9	BSDM, PFSR, RDM
DMOIL-2	PFSR, RDM
LM-16	BSDM, PFSR, P. rust, CLS
PFSR-R10	BSDM, PFSR, RDM, CLS
JCY2-1-2-1-1B-1-2-3-1-1	BSDM, PFSR, RDM

**TLB** - Turicum Leaf Blight      **CLS** - Curvularia Leaf Spot  
**BSLB** - Banded Leaf and Sheath Blight      **RDM** - Rajasthan Downy Mildew  
**BSDM** - Brown Stripe Downy Mildew      **MLB** - Maydis Leaf Blight  
**PFSR** - Post Flowering Stalk Rot      **P.Rust** - Polysora Rust

## Hybrids and Composites of maize registered under PPV&FR Act, 2001

During the period under report, twenty five varieties including eighteen hybrids and seven composites of maize were registered w.e.f. Oct. 20, 2010 under extant category of PPV&FR Act, 2001. The registration certificates were granted on May 18, 2011. Out of 18 hybrids, 12 are of normal maize, namely HHM-2, Vivek Maize Hybrid-27, Vivek Maize Hybrid-25, Vivek Maize Hybrid-17, Vivek Maize Hybrid-9, Vivek Hybrid-5, Vivek Hybrid-4, DMH-2, Him 129, COM (M) 5, COH(M)-4, Pusa Early Hybrid Makka-2, five Quality Protein Maize, viz. HQPM-1, Shaktiman-1, Shaktiman-2, Shaktiman-3 and Shaktiman-4 and one baby corn HM-4. The seven composite varieties of maize included three normal, viz. Amar (D-941), Narmada Moti and Shalimar KG Maize -1 and two each of baby corn, viz. VL Baby Corn-1, COBC-1 and sweet corn Win Orange Sweet Corn and Priya Sweet Corn, respectively.

## Lecture by Dr. S. K. Vasal



Dr. R. Sai Kumar, Director (Maize) welcoming Dr. S.K. Vasal, Eminent Maize Breeder and World Food Laureate

World Food Laureate and eminent maize breeder from CIMMYT, Dr. Surinder Kumar Vasal visited DMR on February 2, 2011 and interacted with the faculty. He expressed his great pleasure over the vertical and horizontal growth of maize in India and credited Indian Maize Program for being dynamic. During this occasion, he presented a lecture on "Critique for the development of inbred lines of maize". Various approaches for developing and identifying inbred lines were discussed. He highlighted the merits and the demerits of the breeding approaches which a breeder should keep in mind at the time of germplasm development. He explained in depth the desirable traits of hybrid-oriented germplasm, and presented his opinions over the current strategies followed in India. His vital inputs are expected to be of immense use to the breeders.



Dr. S.K. Vasal, presenting a lecture during his visit to DMR

## Evaluation of maize inbred lines for drought tolerance

(Agriculture Research Station, Karimnagar)

### Performance of tolerant lines under mid-season drought conditions (Karimnagar)

An experiment was carried out at ARS, Karimnagar with 13 maize genotypes including BML-6 as check. The experiment was laid out in RBD with three replications in two experimental conditions viz., irrigated condition and moisture stress condition. Observations were recorded on days to 50% tasseling, days to 50% silking, plant height (cm), ear height (cm) and ear weight (g) in each entry and in each replication in irrigated and moisture stress conditions.

Of the twelve lines studied, four were found to be tolerant to flowering stage drought stress as ascertained from narrow ASI (2.7-5) and percent barrenness (0.0-25.9). This information has been compiled in the table :

Inbred Line	Days to Silking (50%)	ASI	Barrenness (%)
KDML-3	75	5	21.2
KDML-19	75	4	0.0
KDML-66	67	4	25.9
KDML-29	71	2.7	0.0
BML-6 (check)	70	5	25.2

## Organization of Training Programs/Field Days

### Training Program on Development of Inbred Lines and Single Cross Hybrids of Maize

A three-day training program on “Development of Inbred Lines and Single Cross Hybrids of Maize” was organized from March 12–14, 2011 at Winter Nursery Centre, D.M.R., Hyderabad. 40 breeders from different SAUs / ICAR institutes across the country attended the program. The program was inaugurated by Dr. D. M. Hegde, Project Director, DOR, Hyderabad. He extolled the virtues of Single Cross



*Dr. D.M. Hedge, Director, DOR, presenting the inaugural address*

Hybrids in enhancing the production and productivity of maize and called upon the breeders to make use of latest technologies in research programs. He also cautioned the breeders to be highly careful in selecting desirable germplasm for maintaining the genetic diversity among the hybrids. Dr. R. Sai Kumar while presenting a lecture on “Methods of inbred lines development in maize” highlighted various methods using genetically diverse base material for the development of agronomically superior, vigorous and genetically diverse inbred lines suitable as male and/or female. He reiterated the need to maintain proper records/data in the breeding program. He elaborated on key traits for identifying productive lines (as female parents) and superior pollinators. During this program, criteria for identifying pollinators and seed parents, roguing of off-types, DUS-related traits, etc. were thoroughly discussed. The breeders visited the Winter Nursery Program, evaluated the lines/introductions/ and selected the desirable ones and indented for the same for utilizing in the development of Single Cross Hybrids.



*Participants listening to the lecture on **Development of Inbred Lines and Single Cross Hybrids of Maize** at Hyderabad*

### Training program on Plant Variety Protection and Farmers' Rights with special reference to Maize

In order to highlight the farmer's issues and make them aware about their rights, one day “Awareness-cum-Training program on Plant Variety Protection and Farmers' Right with special reference to Maize” was organized by Regional Maize Research and seed Production Centre, Begusarai on March 6, 2011 at Sarai Ranjan Village,



*Distinguished guests on the dais*

Samastipur, Bihar. More than 500 participants including Breeders, progressive farmers, NGOs, etc. participated in this program. The inaugural session was Chaired by Sh. Giriraj Singh, Hon'ble Minister of Animal Husbandry and Fisheries Resource, Govt. of Bihar. Sh. Vijay Kumar Chaudhary, Hon'ble Minister of Water Resources and Smt Ashvamegh Devi, Member Parliament were Guests of Honour.

Dr. R. Sai Kumar, Director (DMR) welcomed the house and briefed about the steps taken for Farming Community and the role of Directorate in protection of farmer's rights and varieties of maize. Dr. Sain Dass, Former Director (DMR) presented the Maize Scenario in India vis'a'vis world and explained to the house how India registered high growth in maize production.



*Dr. R. Sai Kumar addressing the participants of the training program*

### Maize Germplasm Field day at Winter Nursery, Hyderabad

Field day was conducted on March 13, 2011 at Winter Nursery Centre, Hyderabad. Around 100 Scientists from both public and private organizations visited the Introduction block of Winter Nursery. The breeders evaluated more than 1500 introductions/lines (indigenous as well as exotic germplasm) and selected the desirable ones for utilization in the respective breeding programs. The seed of the indented lines/introductions would be supplied for augmenting the Single Cross Hybrid program.



*Group photograph of breeders from ICAR Institutes, SAUs and private organizations during Field Day at Hyderabad on March 14, 2011*

## Organization of Meetings

### Research Advisory Committee (RAC) of DMR

Research Advisory Committee (RAC) of DMR was held on June 13, 2011 under the chairmanship of Dr. J. B. Choudhary with a view to review on-going research projects and seek expert opinion on formulation and execution of new proposals. At the outset, Dr. Sai Kumar, Director (DMR) welcomed the committee and presented an over-view of annual progress report. The PIs presented the salient achievements in their respective disciplines. The committee



*Dr. J.B. Chaudhary, Chairman and Members, Dr. Sain Dass, Dr. Basant Ram, Dr. K.S. Hooda (Member Secretary) listening to the presentation given by Dr. R. Sai Kumar, Director (Maize) on the occasion of RAC meeting at DMR.*

appreciated the efforts of the Director in stream-lining the Maize Project. The committee expressed great satisfaction over the successful outcome of the *in-house* research projects. They also appreciated the efforts of the Directorate in giving a fillip to maize R&D by way of devising and implementing need-based, target-oriented, research projects to address the important issues of changed agricultural scenario in India.

### Institute Research Council (IRC) Meeting of DMR



*Chairman IRC, Dr. R. Sai Kumar, Director (DMR) Members, Dr. Sain Dass, Dr. V.P. Ahuja and Dr. K.T. Pandurange Gowda during the meeting*

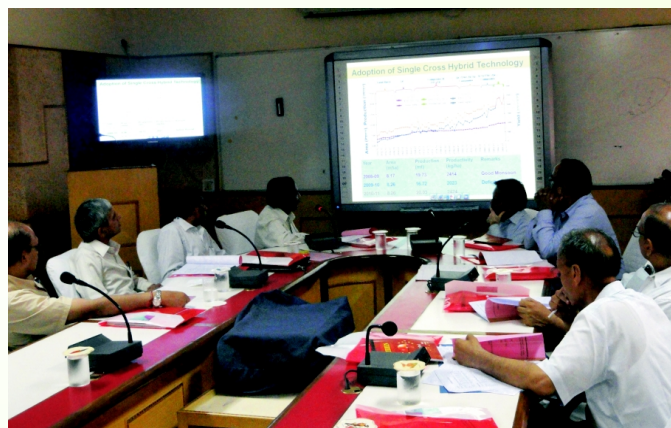
Institute Research Council (IRC) of DMR was held on June 14, 2011 under the chairmanship of Dr. Sai Kumar, Director (DMR). The experts included Dr. Sain Dass, former Director (DMR), Dr. V.P. Ahuja, former maize breeder and Dr. K.T. Pandurange Gowda, maize pathologist. Dr. Sai Kumar welcomed the experts and the participants and presented an over-view of maize research in India. The scientists of DMR presented the salient achievements of their respective *in house* projects. The committee members were quite impressed with the outcome of the projects and hoped the trend would continue in future as well.

During the meeting five new projects were presented for approval. The details are given as follows :

1. Development of early and extra-early single cross maize hybrids (Dr. Vinay Mahajan)
2. Development of normal and QPM hybrids for winter season (Dr. Ramesh Kumar)
3. Breeding maize for high starch and methionine content (Dr. Bhupender Kumar)
4. Biochemical studies on shelf life of beta carotene in maize (Ms. Sapna)
5. Biochemical characterization of maize genotypes for fodder quality and preservation (Dr. Dharam Paul)
6. Diversified maize based cropping systems for higher productivity and sustained soil health (Dr. Ashok Kumar)

### Institute Management Committee (IMC)

3<sup>rd</sup> meeting of Institute Management Committee (IMC) was held on May 18, 2011 at Directorate of Maize Research, New Delhi under the chairmanship of Dr. R. Sai Kumar, Director DMR. At the outset, Director DMR and Chairman of IMC welcomed the members and presented the progress of ongoing activities of DMR and brief achievements made since last IMC meeting. The members noted progress with satisfaction and hoped the trend to continue in future.



*Dr R. Sai Kumar addressing the members of IMC*

## Human Resource Development

During the period under report, several scientists availed of the opportunities offered by ICAR Institutes/SAUs in enhancing their skills by way of participating in different programs. The list is given below:

Duration	Participant	Title	Venue
Jan. 5-25, 2011	Dr. Nirupma Singh	Marker Assisted Selection for enhancement of Rust Resistance and Quality Traits in Wheat	DWR, Karnal
Jan. 10-15, 2011	Dr. J. Kaul	Data analysis using SAS	IASRI, New Delhi
Jan. 20- Feb. 9, 2011	Mr. Manivannan A.	Impact of Genomics in Crop Improvement: perceived and achieved	TNAU, Coimbatore
Feb. 9-12, 2011	Dr. Nirupma Singh	Wheat Productivity Enhancement under changing climate	UAS, Dharwad
Feb. 14-20, 2011	Dr. Ambika Rajendran	Training on Cyber laws and Information Security for Women Scientists and Technologists	Indian Institute of Public Administration, New Delhi
Feb. 18-Mar.10	Dr. Nirupma Singh	Advanced Techniques in Plant Biochemistry and Molecular Biology	Division of Biochemistry, IARI, New Delhi

## High Level Meetings for Popularization of Single Cross Hybrid Technology of Maize

### Director's Meeting with Chairman Punjab State Farmers' Commission



*Dr. R. Sai Kumar, Director (Maize), Dr. Sain Dass former Director (Maize) and other participants of the meeting*

A meeting regarding the preparation of an action plan for Punjab with respect to maize and pulse crops was held on May 23, 2011 under the chairmanship of Dr G. S. Kalkat, Chairman Punjab State Farmers' Commission. The major discussion was held on how to check the depleting ground water in Punjab and to maintain the soil fertility by suggesting alternative remunerative crops to replace at least one third area from rice to other less water requiring but profitable crops like maize. The Hon'ble Chairman agreed that maize can solely contribute towards shifting area under rice cultivation and an action plan was formulated in this regard. In this plan it was decided that late maturing Single Cross Hybrids would be demonstrated on the farmer's field by way of FLDs. Seed production would also be taken up selecting some villages in these pockets as per one hybrid-one village concept for maintaining the genetic purity with proper monitoring. Since Punjab has favourable land and good quality water for seed production, it was

opined that the state can act as seed hub for neighbouring areas which will greatly help in procuring good quality seed. Inter cropping of maize + pulses and maize + soybean to make the kharif crop cultivation more remunerative was also discussed and worked upon.

### Director's Meeting with Sri Ashok Gehlot Hon'ble Chief Minister of Rajasthan



*Hon'ble Chief Minister Sri Ashok Gehlot interacting with Dr. R. Sai Kumar, Director Maize*

On June 4, 2011, a high level meeting was held with Hon'ble Chief Minister of Rajasthan, Sri Ashok Gehlot, Chief Secretary and other important dignitaries of the state. Dr. R. Sai Kumar, Director (DMR) briefed the Hon'ble Chief Minister on visible impact of Single Cross Hybrid Technology in enhancing the maize production over the years. Impressed by the phenomenal growth of maize in the country, Sri. Gehlot called upon the State to devise an action plan for popularization of Single Cross Hybrid Technology. Consequently, an action plan was devised for the same.

### Visit of Foreign Delegates

During the period under report, following delegations from different countries visited DMR and interacted with the scientists and exchanged views and information on current global scenario and future strategies in maize R&D vis-a-vis Indian Maize Program.

- For strengthening the maize program, a delegation from Mozambique under the leadership of Dr. (Eng.) V. Massingue, Hon'ble minister of Science and technology visited DMR on January 20, 2011.



- A delegation of four scientists from China visited DMR on February 11, 2011.



- A delegation from Afghanistan visited DMR on March 11, 2011 and discussed "Maize Research in India". They interacted with the scientists and deliberated upon various key issues of agricultural growth in India and Afghanistan.
- A delegation from Mozambique under the leadership of Mr. Jose Pacheco, Hon'ble minister of Agri. visited DMR on March 29, 2011.



- A delegation from Mozambique under the leadership of Dr. Inacio Calvino Maposse, President of Scientific Council of Agriculture, visited DMR on June 9, 2011.

## Launch of new ICAR-CIMMYT Collaborative Project

ICAR-CIMMYT collaborative project “Abiotic stress tolerant maize for increasing income and food security among the resource-poor in South and Southeast Asia” (ATMA) was launched in Project Launch Workshop at University of Hohenheim, Stuttgart, Germany on May 30-June 1, 2011.



*Participants of Project Launch workshop*

During the presentations, Dr. R. Sai Kumar, Director, DMR highlighted the role of development of a comprehensive package (for the partner countries viz. Bangladesh, Vietnam and Philippines) to address their pertinent issues of water deficit and excess soil moisture. The progress made under BMZ-funded project on “Abiotic stress tolerant maize for increasing income and food security among the poor in Eastern India and Bangladesh” (April 2008-June 2011) was reviewed. The new project on Abiotic Stress Tolerant Maize for Asia (ATMA) was launched with the target of identifying abiotic stress tolerant maize Single Cross Hybrids suitable for cultivation in drought and water-logging prone conditions of the partner countries with the Directorate as leading centre and Dr. Sai Kumar as P.I. Directorate has state of art infrastructure and research facilities and this project would further help in enhancing its research capacity and meeting the expectations of the country.

### Participation of DMR Scientists in various Meetings/Workshops/Symposiums, etc.

- ◆ Dr. Jyoti Kaul attended Review meeting of PPV&FRA on February 25, 2011 at SASC Complex, New Delhi.
- ◆ Dr. P. Kumar, Dr. Jyoti Kaul and Dr. Usha Nara participated in ZTM & BDM Meeting-cum-Workshop on February 17-18, 2011 at ZTM & BDM Unit, IARI, New Delhi.
- ◆ Dr. P. Kumar and Dr. Jyoti Kaul attended Symposium on Era of genetically engineered crops on May 16-18, 2011 at Biotechnology Consortium India Ltd. New Delhi.
- ◆ Dr. Jyoti Kaul attended meeting of PPV&FRA in maize on May 22, 2011 at VARDAN, New Delhi.
- ◆ Dr. P. Kumar attended ICAR-Industry meet on May, 2011 at ICAR, New Delhi.
- ◆ Dr. J. C. Shekhar and Dr. Ramesh Kumar attended meeting cum workshop on “Towards more effective role of Heads of Divisions and Regional Stations in ICAR institutes” from June 14-15 at Central Institute of Agricultural Engineering, Bhopal (MP).

## Launch of Maize AgriDaksh

Maize Agri Daksh-the first expert system developed using AgriDaksh was launched by Directorate of Maize Research, in collaboration with Division of Computer Applications, IASRI, New Delhi on April 2, 2011 at TNAU, Coimbatore. It is based on Agri Daksh which is a tool for developing online expert system.



### Maize AgriDaksh Features include:

- ◆ Location specific variety information with multiple pictures of each variety
- Location, basic and advance search for finding varieties and their features
- Character based question-answering module for variety selection
- Comprehensive plant protection having Diseases, Insects, Weeds, Nematodes, and Physiological Disorders sub-modules
- Picture based question-answering module for diseases and insect-pest identification
- Information about maize products along with their recipes
- Detailed information about normal and specialty maize production technologies
- Provision to ask questions or send feedback to maize experts

## Awards/Honours/Promotions



Dr. R. Sai Kumar Director (DMR) received Krishi Samman at Hyderabad for being instrumental in developing high yielding SCHs of maize, the cultivation of which have paved way

for a mini-revolution of maize in AP.



Dr. K. T. Pandurange Gowda, Professor (Plant Pathology) has been awarded Dr. Kalaiah Krishnamurthy National Award for the year 2009-10 for the outstanding research contribution in Maize research by University of Agricultural Sciences, Bangalore.



Dr. Jyoti Kaul selected as Principal Scientist (Plant Breeding) on May 27, 2011.



Mrs. Kamlesh Malik promoted as assistant on March 31, 2011

## Frontline Demonstrations (FLDs)/ Field Days/ Seed Distribution :

◆ DMR coordinated approximately two thousand FLDs during rabi / spring 2010-11 which were organised in more than ten states of India through agencies of public and private sectors. Seed production, Quality Protein Maize, baby corn, green cobs, single cross hybrids, intercropping, resource conservation technologies, etc. were demonstrated in FLDs at farmer's field.

◆ More than twenty Field Days were organized in different parts of the country to popularize maize technologies



Field day at Samastipur district of Bihar

◆ Distributed 20 quintal baby corn seed at village Aterna, Sonipat



## Officers' Training Program:



Director (Maize) addressing participants in Officers' Training Program at DMR

## Foreign Visits

■ Dr. R. Sai Kumar, Dr. Jyoti Kaul, Dr. V. K. Yadav and Mr. Manavannan A. visited University of Hohenheim, Stuttgart, Germany to attend BMZ Project Launch Workshop entitled "Abiotic Stress Tolerant Maize for increasing income and food security among the resource-poor in South and Southeast Asia" from May 30 to June 1, 2011.

■ Dr. K. P. Singh visited Department of Chemical and Environmental Engineering, University of California, Riverside USA as a visiting Scholar from April 27 to July 26, 2011 for a period of three months.

## Farmers' Training Programs



Farmers' Training Program at Aterna, Sonipat on January 31, 2011



Director (DMR) addressing the farmers at Krishna Nagar, Nadia(W.B.) on April 19, 2011

## Kisan Melas and Exhibitions :

Pusa Krishi Vigyan Mela was held in Mela ground, IARI New Delhi from March 03 to 05, 2011. DMR received "UTTAM STALL" award



DMR receiving "UTTAM STALL" award in Pusa Krishi Vigyan Mela

## New Joining



**Dr. Bhupender Kumar**  
as Scientist  
(Plant Breeding)  
on Jan. 6, 2011



**Dr. A. K. Singh**  
as Sr. Scientist  
(Agronomy)  
on Jan. 19, 2011



**Shri Rohtash**  
as Administrative  
Officer  
on May 24, 2011



**Dr. Ashok Kumar**  
as Prin. Scientist  
(Agronomy)  
on May 31, 2011

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