Pearl Millet News

All India Coordinated Pearl Millet Improvement Project

Jodhpur 342 304, Rajasthan, India

www.aicpmip.res.in

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The first issue of Pearl Millet News is in your hands. This Newsletter would be a regular feature to cover news on research and development aspects of pearl millet. The information can be submitted to the Project Coordinator (Pearl Millet), All India Coordinated Pearl Millet Improvement Project, Mandor, Jodhpur 342 304. Email: pcunit@sify.com aicpmip@gmail.com. The Pearl Millet News is also available at www.aicpmip.res.in

Success story 'Genetic diversification in pearl millet pays rich dividends' highlighted on ICAR website

Genetic diversification of pearl millet cultivars has been a high priority area in pearl millet improvement research. As a result several genetically diverse hybrids and open-pollinated varieties (OPVs) have been developed. They have been widely adopted by Indian farmers resulting in enhanced pearl millet productivity. Success story on this aspect was highlighted by the Indian Council of Agricultural Research (ICAR) on its website in June 2011. This can be accessed at http://www.icar.org.in/en/node/2919

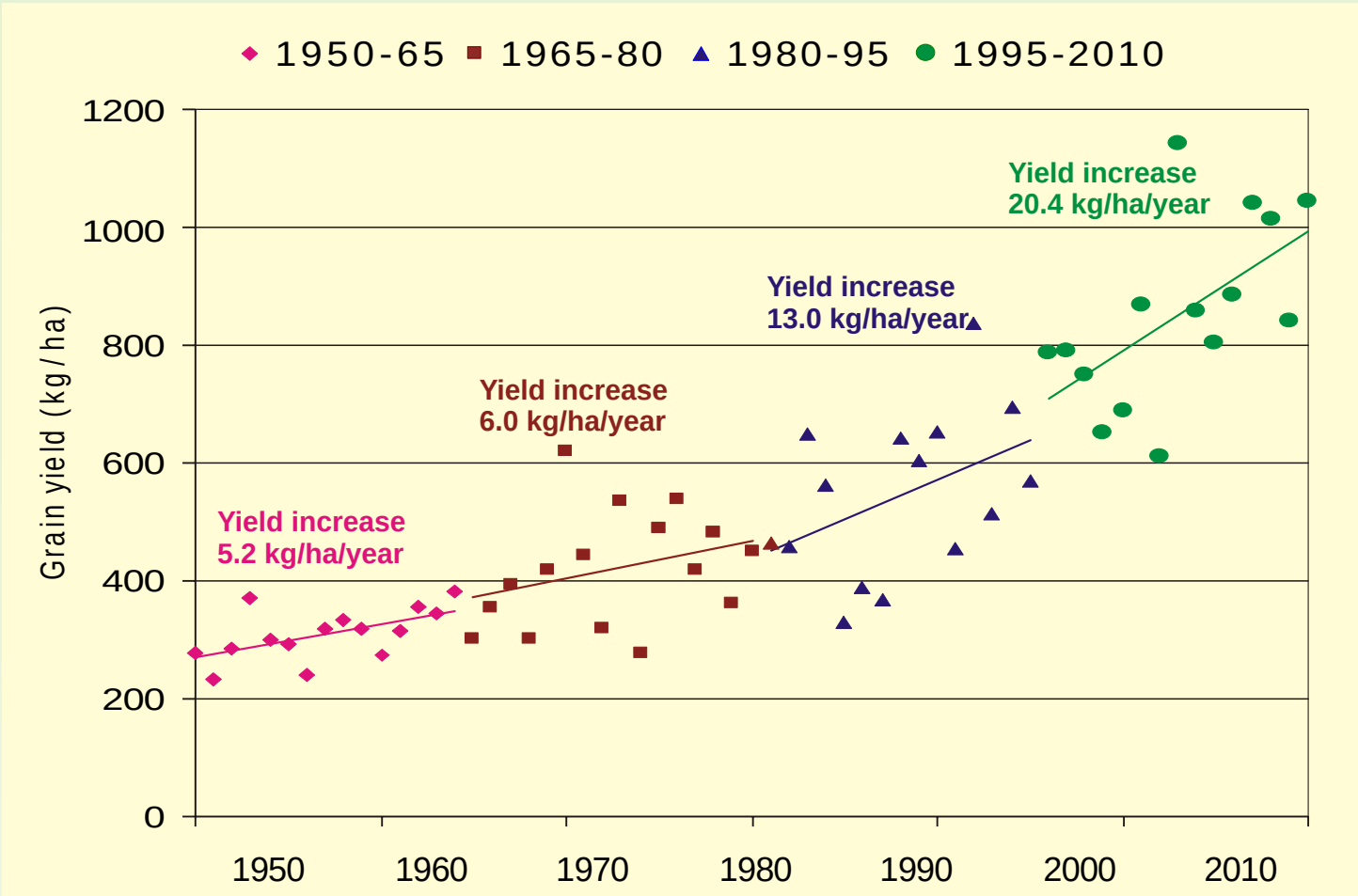

Fig. 1: Trends in pearl millet productivity during 1950-65, 1965-80, 1980-95 and 1995-2009 in India (values inside figure indicate rate of improvement in grain yield in kg/ha/year during four phases)

The salient features of this success story are:

- Given that pearl millet grain forms the basis of food and nutritional security in rainfed regions, the Indian Council of Agricultural Research (ICAR) in collaboration with its partners including the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) took up the challenge to improve pearl millet productivity to ensure food supply and poverty alleviation through strategic research on genetic diversification of parental lines of hybrids.
- There have been three conspicuous phases of hybrid development in India in comparison to pre-hybrid phase prior to 1965 during which improvement largely concentrated in local traditional landrace materials using simple mass selection and a few varieties were developed and released. The average rate of improvement in pearl millet productivity during 1950-65 was only 5.2 kg/ha/year (Fig. 1).
- During 2nd phase (1965-80), 17 hybrids were released but there was only limited variation in pollinator and seed parents of hybrids. There was only modest increase (6 kg/ha/year) in pearl millet productivity during this phase.
- During 3rd phase (1980-95), research on the diversification of the genetic base of seed parents of hybrids was intensified. Forty hybrids were released for general cultivation during this period and the productivity during this period increased at twice the rate (13 kg/ha/year) compared to that during the previous phase.
- Current phase (1995 onwards) of hybrid

development has put a greater emphasis on genetic diversification of both seed and pollinator parents with the result that more than 60 hybrids were released for various niche ecologies. As a result, improvement in grain productivity has further increased to 20 kg/ha/year.

- The genetically diverse hybrids are currently grown by farmers over 60% of approximately 9.5 m ha in country. As a result, both production and productivity of pearl millet have been on the rise. The grain production has increased from 3.5 m tons in 1960s to 9.5 m tons in 2010 owing to development of high-yielding genetically diverse hybrids and their adoption by Indian farmers.

News

National Demonstration of Pearl Millet Hybrids held at AICPMIP, Jodhpur

The All India Coordinated Pearl Millet Improvement Project (AICPMIP), Jodhpur organized the National Demonstration of Pearl Millet Commercial Hybrids on 23rd September, 2011 at Jodhpur. More than 200 participants including farmers, policy makers, researchers, states department of agriculture, state seed corporations, national seed corporation, seed traders and seed dealers attended these demonstrations. In addition, all 13 Project Incharges of AICRP on Pearl Millet and more than 50 Plant Breeders from private sector participated.

Dr. S.K. Datta, Deputy Director General (Crop Sciences), who was present on this occasion, highlighted the potential of hybrids to enhance crop production under rainfed conditions. He stressed on enhancing hybrid adoption especially in Rajasthan, the state that has more than 5 m ha

under pearl millet cultivation, to further increase crop productivity to ensure food security and to provide additional income to farmers. He mentioned that such a large number of pearl millet hybrids are grown together for the first time in India. The hybrids on display provided a wide range of choices in terms of maturity, plant type, seed size and colour and different combinations of grain and dry stover yields.

Dr. A.K. Dahama, Vice-Chancellor of the SK Rajasthan Agricultural University, Bikaner underlined that the economy of the Rajasthan state depends on pearl millet and this serves as the source of livelihood and economic security of rural

population. He suggested that the seed of hybrids developed by AICRP, Jaipur should be given further push through public-private partnership.

Dr. Gurbachan Singh, Agriculture Commissioner, Department of Agriculture and Cooperation, Govt. of India; Dr A.S. Faroda, former Chairman, ASRB; Dr. M.M. Roy, Director, Central Arid Zone Research Institute; Dr. Sain Dass, Former Project Director, Directorate of Maize Research; Dr. R.P. Jangir, Director Research, SK RAU, Sh Dayal S. Choudhary, General Manager, Rajasthan State Seed Corporation, Jaipur; and several state government

officials from Rajasthan, Andhra Pradesh, Karnataka and Uttar Pradesh were present during demonstration.

Dr. O.P. Yadav, Project Coordinator (Pearl Millet) highlighted that the purpose of demonstration was to educate the farmers and seed production

agencies with the latest released hybrids in order to reduce the time gap between hybrid development and its adoption. The demonstration provided unique opportunity to assess all commercial hybrids of pearl millet simultaneously at one place by all stakeholders.

The National Demonstration made is possible for the first time to grow and evaluate 128 pearl millet hybrids at one place. There was an interactive session after the field visit to discuss the issue of pushing pearl millet hybrids with more vigour and force so that this technology can be further used to enhance the income of farmers.

Quinquennial Review Team (QRT) Constituted

The QRT to review the research work done by the All India Coordinated Pearl Millet Improvement Project has been constituted by the ICAR under the Chairmanship of Dr. B.S. Dhillon, Vice-Chancellor, Punjab Agricultural University, Ludhiana. Other members are Dr. B.L. Jalali, Dr. A. Seetharam and Dr. R.C. Gautam. Dr. O.P. Yadav will be Member Secretary. The QRT would assess the contribution of AICRP on pearl millet improvement for the period 2007-2011.

Project Coordinator meets Minister of Agriculture, Govt. of Rajasthan

Project Coordinator Dr. O.P. Yadav met Sh. Harji Ram Burdak, Minister of Agriculture, Govt. of Rajasthan on 19 January 2012. Dr. Yadav briefed Sh. Burdak on the activities of AICPMIP and pearl millet

cultivars developed for different agro-ecologies of Rajasthan and other states. Minister emphasized the need of drought-tolerant and early maturing pearl millet cultivars for Rajasthan state. Sh. Burdak was very keen to promote the improved pearl millet cultivars and to enhance their adoption in Rajasthan. Discussions were also held on seed production, promotion of hybrids developed by AICPMIP and timely availability of quality seed for farmers at a reasonable price.

Visits

- Dr. S. Ayyappan, Secretary, DARE and Director General ICAR, visited the stall of All India Coordinated Pearl Millet Improvement Project at Marathwada Krishi Vidyapeeth, Parbhani on 31 January, 2012. He took keen interest in pearl millet research activities being undertaken at AICPMIP, Aurangabad. Dr. Ayyappan was the chief guest for the University Convocation. Dr. N.B. Katare, Pearl Millet Breeder explained the work done at Aurangabad center to the Director General. Dr. Ayyappan was accompanied by Dr. K.P. Gore, Vice-Chancellor and Dr. G.R. More, Director of Research, M.K.V., Parbhani.
- Dr. S.K. Datta, Deputy Director General (Crop Science), ICAR visited AICPMIP, Jodhpur on 22-23 September 2011. He addressed the Scientist-in-charges of AICPMIP centres. The AICRP centres presented the brief resume of work done on pearl millet improvement at each center and also discussed with Dr. Datta their strategies for the coming 12th plan.
- Dr. Gurbachan Singh visited AICPMIP, Jodhpur on 1 November 2011 and visited pearl millet experiments and National Demonstrations. He described the Demonstrations as a wonderful display of pearl millet hybrids and production technology.

Awards/Recognition

- All India Coordinated Pearl Millet Improvement Project has been awarded for its outstanding contribution towards registration of crop varieties with the Protection of Plant Varieties

and Farmers' Right Authority (PPVFRA). Dr. O.P. Yadav, Project Coordinator (Pearl Millet) received the award on 11 November 2011 in a function held at New Delhi. A total of 26 pearl millet cultivars have been registered with PPVFRA and several are in the process of registration. AICPMIP is a nodal agency for undertaking DUS testing in pearl millet .

- Dr. O.P. Yadav was admitted to the Fellowship of the National Academy of Agricultural Sciences (NAAS) in June 2011 for his contribution in pearl millet improvement.

Personnel

- Dr. R.P. Jangir joined as the Director (Research) of the SK Rajasthan Agricultural University, Bikaner on 3 September 2011. Dr. Jangir is a renowned agronomist of drylands. He worked in the Project Coordinating Unit of AICPMIP at Jodhpur during 1995-2000. AICPMIP wishes him well in his endeavors.
- Dr. Ruchika Bhardwaj joined as Assistant Millet Breeder in the Forage & Millet Section of the Dept. of Plant Breeding & Genetics, PAU Ludhiana on 1 October 2011. We welcome her to AICPMIP. Her email ID is ruchipau@gmail.com
- Drs. BS Rajpurohit, HR Bishnoi, PS Shekhawat and PC Gupta have been promoted as Associate Professor. Congratulations!
- Dr. R.S. Mahala has been promoted to the position of Research Director (Cotton & Millet) from January 1, 2012 in the Pioneer Overseas Corporation. This promotion has come for his significant contribution in pearl millet breeding. Dr. Mahala has been a very active collaborator with AICPMIP since last more than two decades. AICPMIP congratulates him on his promotion.

Overseas/ foreign visits

- OP Yadav, PS Shekhawat, Virender Malik, SK Gupta, Satish Pareek and A. Jailekha visited Ethiopia during 12-15 October, 2011 to attend the 'Planning and Mid-Term Review' of project HOPE. The meeting was held at Adis Ababa.
- OP Yadav, SK Gupta and RS Mahala visited Tanzania during 29 October - 5 November 2011 to act as resource person in the international training course on 'Pearl Millet Improvement and Seed Production for Eastern and Southern Africa'.

Trainings

- AICPMIP held 1-day training on DUS (Distinctness, Uniformity and Stability) testing in pearl millet at Jodhpur on 22 September 2011, in which 38 researchers from AICRP centres and private sector participated. The details of DUS traits and their recording procedure were discussed in details and were practically demonstrated to all participants.

- An international training course on 'Pearl Millet Improvement and Seed Production' was organized from 30 October to 5 November 2011 at Moshi, Tanzania for Eastern and Southern Africa. The training was by planned by ICRISAT and was attended by 37 participants from Eritrea, Ethiopia, Kenya, Tanzania, Sudan, Uganda and Zimbabwe. They were given hands-on training on various aspects that are important in pearl millet improvement, production, protection and seed production.

New cultivars/germplasm/lines

Nine new pearl millet cultivars released and notified for general cultivation in different states of country. These are RHB 173 (MH 1446), HHB 226 (MH 1479), RHB 177 (MH 1486), 86 M 66 (MH 1617), PAC 909 (MH 1435), 86 M 64 (MH 1540, MSH 203), 86 M 53 (MH 1541), Mandor Bajra Composite 2 (MP 489) and Pusa Composite 612 (MP 480).

- Pearl millet hybrid RHB 173 - MH 1446 (93333A x RIB 192) MH developed at AICPMIP, Jaipur was notified vide S.O. 632(E) 25.3.2011 for cultivation in Rajasthan, Haryana, Gujarat, UP, Punjab, Delhi and MP.
- o Pearl millet hybrid HHB 226 - MH 1479 (ICMA 843-22 x HBL 11) developed by AICPMIP, Hisar has been notified vide S.O. 632(E) 25.3.2011 for cultivation in the dry areas of Rajasthan, Gujarat and Haryana.
- Pearl millet hybrid RHB 177 - MH 1486 (ICMA 843-22 x RIB 494) has been notified for the dry areas of Rajasthan, Gujarat and Haryana vide S.O. 632(E) 25.3.2011. This hybrid has been developed by AICPMIP, Jaipur.
- Pearl millet hybrid 86M64 - MH 1540 & MSH 203 (M096F x M117R) has been recommended for cultivation for Kharif season in the Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu; and for summer growing areas of Gujarat Maharashtra, Rajasthan and Tamil Nadu. The hybrid is notified vide S.O.283(E) 7.2.2011 and developed by the Pioneer Overseas Corporation, Hyderabad.
- Pearl millet hybrid PAC 909 - MH 1435 has been recommended for cultivation for Kharif season in the Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu for kharif. The hybrid is notified vide S.O.2326(E) 10.10.2011 and developed by the Advanta, Hyderabad.
- Pearl millet hybrid 86M66 - MH 1617 (M124F x M118R) has been recommended for cultivation in kharif season for the states of Rajasthan, Gujarat, Uttar Pradesh, Haryana, Punjab, Madhya Pradesh. The hybrid is notified vide S.O.2326(E) 10.10.2011 and developed by the Pioneer Overseas Corporation, Hyderabad.
- Pearl millet hybrid 86M53 - MH 1541 (M096F x M119R) notified vide S.O. 283(E) 7.2.2011 and developed by the Pioneer Overseas Corporation, Hyderabad is recommended for cultivation in Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu
- Pearl millet composite variety Mandor Bajra Composite 2 (MBC 2) MP 489 has been notified vide S.O.2326(E) 10.10.2011 for cultivation in dry areas of Rajasthan, Gujarat and Haryana. The variety is developed by AICPMIP Cooperating center, ARS, Mandor, Jodhpur.
- Pearl millet composite Pusa Composite 612 MP 480 has been notified vide S.O. 632(E) 25.03.11 for cultivation in Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu. The variety is developed by AICPMIP cooperating centre at IARI, New Delhi.

Registration

A total of twenty six pearl millet hybrids and varieties have been registered with Protection of Plant Variety and Farmers Right Authority (PPVFRA), New Delhi. The four among these have been registered in 2011.

These are Pusa Composite 443 (MP 443), GHB-744 (MH-1272), PHB-2168 and PCB 164. The other varieties that have been registered with PPVFRA include GICK V-96752 (MP 363), RBH 30, X-7, Haryana Composite-10, HHB-117, HHB 67 Improved, RHRBH-8609 (Shraddha), Pusa Bajri-266 (MP-226), X-6 (MH-140), JBV-2 (GKKV-93191), AIMP-92901 (Samrudhi-MP-282), Pusa Composite-383(MP-383), COH (Cu) 8, RHB-121 (MH-892), HC-20-(HMP 9102), CoCu-9, MP-406 (CZP 9802), GHB-558 (MH-946), GHB-526 (MSH-105), Parbhani Sampada (PPC-6), GHB-538 (MH-1049) and GHB-719 (MH-1236).

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All India Coordinated Pearl Millet Improvement Project (AICPMIP) administered by the Indian Council of Agricultural Research (ICAR) is one of 61 Coordinated Projects working under the aegis of ICAR and is mandated for conducting and coordinating research activities in pearl millet improvement and management of resources, diseases and insect-pests. The AICPMIP has a network of 14 AICRP centers in the states of Rajasthan, Maharashtra, Gujarat, Haryana, Uttar Pradesh, Madhya Pradesh, Punjab, Karnataka, Andhra Pradesh and Tamil Nadu. The AICPMIP, through ICAR, collaborates extensively with international and national organizations in developing germplasm and improved breeding material, and in conducting strategic research on diversification of hybrid parental lines, trait-based breeding, marker-assisted selection and biofortification.

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