

Newly released high yielding single cross maize hybrids for different ecologies of India

ICAR-Indian Institute of Maize Research, Ludhiana 141 004

The genetic enhancement through breeding for high yielding single cross hybrids paid rich dividend for enhancing productivity of maize in the world and same holds true with India. Central Sub Committee on Crop Standards, Notification and Release of Varieties for Agricultural Crops (CSC on CSN & RVAC) notified six new maize hybrids during 2017-18 in field corn (03), baby corn (02) and popcorn (01) developed by Indian Council of Agricultural Research (ICAR), Indian Institute of Maize Research (IIMR), Ludhiana. These hybrids have been

recommended for cultivation in various agro ecologies of the country. These (newly release) hybrids are having, high grain yield, multiple disease tolerance, nutrients responsiveness, and attractive grain colour in normal maize and popcorn, while have all desirable characteristics of popcorn (high grain yield, popping percentage) and baby corn.

The details of all newly developed and released hybrids for various agro-ecologies and season of the country are given below:

1. DMRH1301

Cultivar and growing ecologies : DMRH 1301 for North Eastern Plain Zone (NEPZ) comprising the states of Eastern UP, Bihar, Jharkhand, West Bengal and Odisha and Central and Western Zone (CWZ) comprising the states of Rajasthan, Gujarat, Chhattisgarh and Madhya Pradesh



Type of corn : Field corn (Yellow maize)
 Parentage : BML 6 × IML 418-1
 Year of release (CSC on CSN & RVAC) : 2017, (Dated 9th August, 2017)
 Gazette Notification Details : S.O.399(E)S.N.17, Dated 24th January, 2018
 Yield (t/ha) : 9.5-10.0
 Season : Rabi/Winter
 Maturity Group : Medium (125-140 days)
 Reaction to major diseases and insects : Moderately Resistant (MR) to *Turcicum* leaf blight and Charcoal rot diseases under artificial epiphytotic conditions at hot-spot locations.
 Other remarks : Medium maturity single cross hybrid shown significant yield superiority over the best check in North East Plain Zone and Central Western Zone during three years of testing in AICRP, trials of maize. This hybrid is responsive to high inputs

BHUPENDER KUMAR¹, JC SEKHAR¹, SB SINGH¹, OP YADAV^{1,2}, JKAUL^{1,3}, KS HOODA¹, LATE. R SAI KUMAR¹, VISHAL SINGH¹, V MAHAJAN^{1,4}, R. KUMAR¹, V NARSHIMA REDDY⁵, ABHIJIT DAS¹, K YATISH¹, G MUKRI^{1,3}, D P CHAUDHARY¹, C M PARIHAR^{1,3}, S L JAT¹, A K SINGH¹, VINOD KUMAR¹, HARPREET KAUR¹ and CHHAVI NATH¹

¹ICAR-Indian Institute of Maize Research (IIMR), Ludhiana, India; ²ICAR-Central Arid Zone Research Institute (CAZRI), Jodhpur, India; ³ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India; ⁴ICAR-National Bureau of Plant Genetic Resources (NBPGR), New Delhi, India; ⁵PJTSAU, Hyderabad, India

2. DMRH 308

Cultivar and growing ecologies : DMRH 1308 for Central and Western Zone (CWZ) comprising the states of Rajasthan, Gujarat, Chhattisgarh and Madhya Pradesh



Type of corn : Field corn (Yellow maize)
 Parentage : BML 6 × HKI163
 Year of release (CSC on CSN & RVAC) : 2017, (Dated 9th August, 2017)
 Gazette Notification Details : S.O.399(E) S.N.19 Dated 24th January, 2018
 Yield (t/ha) : 9.0
 Season : Rabi/Winter
 Maturity Group : Medium-Late (125-145 days)
 Reaction to major diseases and insects : Moderately Resistant (MR) to *Turcicum* Leaf blight and Charcoal rot diseases under artificial epiphytotic conditions at hot-spot locations.
 Other remarks : Medium-late maturity single cross hybrid shown significant grain yield superiority over the best check during three years of testing in AICRP trials in CWZ of maize. This hybrid is responsive to high inputs

BHUPENDER KUMAR¹, J C SEKHAR¹, S B SINGH¹, O P YADAV^{1,2}, J KAUL^{1,3}, K S HOODA¹, LATE R SAI KUMAR¹, M C KAMBOJ⁴, SAIN DASS¹, VISHAL SINGH¹, V MAHAJAN^{1,5}, R KUMAR¹, V. NARSIHMA REDDY⁶, ABHIJIT DAS¹, K YATISH¹, G MUKRI^{1,3}, D P CHAUDHARY¹, C M PARIHAR^{1,3}, S L JAT¹, A K SINGH¹, VINOD KUMAR¹, HARPREET KAUR¹ and CHHAVI NATH¹

¹ICAR-Indian Institute of Maize Research (IIMR), Ludhiana, India; ²ICAR-Central Arid Zone Research Institute (CAZRI), Jodhpur, India; ³ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India; ⁴CCSHU, Hisar, India; ⁵ICAR-National Bureau of Plant Genetic Resources (NBPGR), New Delhi, India; ⁶PJTSAU, Hyderabad, India

3. DMRHP 1402

Cultivar and growing ecologies : DMRHP1402 for North Western Plain Zone (NWPZ) comprising states of Punjab, Haryana, Delhi NCR and Western Uttar Pradesh and Central Western Zone (CWZ) comprising states of Rajasthan, Madhya Pradesh, Chhattisgarh and Gujarat



Type of corn : Popcorn
 Parentage : JP-8 × DPcl 117
 Year of release (CSC on CSN & RVAC) : 2017, (Dated 9th August, 2017)
 Gazette Notification Details : S.O.399(E) S.N.18, Dated 24th January, 2018
 Yield (t/ha) : 2.5-3.0

NEW SINGLE CROSS MAIZE HYBRIDS DEVELOPED AND RELEASED

Season	:	<i>Kharif</i>
Maturity Group	:	Early (80-85days)
Reaction to major diseases and insects	:	DMRHP 1402 has shown Moderately Resistant (MR) to Charcoal rot disease under artificial epiphytotic conditions at hot spot locations.
Other remarks	:	DMRHP 1402 showed significant overall grain yield superiority over the best check (VL Popcorn). Highest popping percentage is reported (up to 98%) with a mean of 88.73% in AICRP trial. It has shown 13.42 % superiority in % Poppiness to the best check VL Popcorn. The highest popping expansion (PE) is reported up to 1:20 in AICRP trial, with mean of 1: 15.66 in the proposed hybrid.

BHUPENDER KUMAR¹, J C SEKHAR¹, S B SINGH¹, O P YADAV^{1,2}, J KAUL^{1,3}, K S HOODA¹, LATE R SAI KUMAR¹, VISHAL SINGH¹, V. MAHAJAN^{1,4}, R KUMAR¹, ABHIJIT DAS¹, K YATISH¹, G MUKRI^{1,3}, D P CHAUDHARY¹, C M PARIHAR^{1,3}, S L JAT¹, A K SINGH¹, VINOD KUMAR¹, HARPREET KAUR¹ and CHHAVI NATH¹

¹ICAR-Indian Institute of Maize Research (IIMR), Ludhiana, India; ²ICAR-Central Arid Zone Research Institute (CAZRI), Jodhpur, India; ³ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India; ⁴ICAR-National Bureau of Plant Genetic Resources (NBPGR), New Delhi, India.

4. DMRH 1305

Cultivar and growing ecologies	:	DMRH 1305 for Northern Hill Zone (NHZ) comprising the states Jammu & Kashmir, Himachal Pradesh, Uttarakhand (Hill region), Meghalaya, Sikkim, Assam, Tripura, Nagaland, Manipur and Arunachal Pradesh
--------------------------------	---	---



Type of corn	:	Field corn (Yellow maize)
Parentage	:	V 373 × HKI 1105
Year of release (CSC on CSN & RVAC)	:	2018, (Dated 5 th November 2018)
Gazette Notification Details	:	S.O. 6318(E) S.N.40, Dated 26 th December, 2018
Yield (t/ha)	:	6.5
Season	:	<i>Kharif</i>
Maturity Group	:	Early
Reaction to major diseases and insects	:	Resistant to <i>Curvularia</i> leaf spot, moderately resistant to <i>Turcicum</i> leaf blight (TLB), Maydis leaf blight (MLB), and to insect <i>Chilo partellus</i> under artificial epiphytotic conditions at hot-spot locations.
Other remarks	:	Hybrid has shown significant yield superiority over the best check (PMH 5) in AICRP trials in NHZ. Hybrids is of attractive grains colour and responsive to high inputs.

BHUPENDER KUMAR¹, S B SINGH¹, O P YADAV^{1,2}, VISHAL SINGH¹, SAIN DASS¹, M C KAMBOJ³, V MAHAJAN^{1,4}, H S GUPTA^{5,6}, S K PANT⁶, G S BISHT⁶, M C PANT⁶, ABHIJIT DAS¹, R KUMAR¹, S NEELAM¹, VINOD KUMAR¹, CHAVVI NATH¹, SONU KUMAR¹, H R PRADHAN¹, SUJAY RAKSHIT¹, J C SEKHAR¹, P BAGARIA¹, K S HOODA¹, S L JAT¹, C M PARIHAR^{1,7}, A K SINGH¹ and MEENAKSHI¹

¹ICAR-Indian Institute of Maize Research (IIMR), Ludhiana, India; ²ICAR-Central Arid Zone Research Institute (CAZRI), Jodhpur, India; ⁴ICAR-National Bureau of Plant Genetic Resources (NBPGR), New Delhi, India; ⁵Borlaug Institute for South Asia (BISA), New Delhi, India; ⁶ICAR-Vivekananda Parvatiya Krishi Anusandhan Sansthan, Almora, India; ⁷ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India

5. IMHB 1532

Cultivar and growing ecologies : IMHB 1532 for North West Plain Zone (NWPZ) comprising the states of Punjab, Haryana, Delhi, Uttarakhand, U.P. (Western region) & Central Western Zone (CWZ) comprising the states Rajasthan, Gujarat, Madhya Pradesh and Chhattisgarh



Type of corn : Baby corn
 Parentage : IML 127-1 × IML 242-1
 Year of release (CSC on CSN & RVAC) : 2018, (Dated 5th November 2018)
 Gazette Notification Details : S.O. 6318(E) S.N.41, Dated 26th December, 2018
 Yield (t/ha) : 2.0 de-husked baby corn
 Season : *Kharif*
 Maturity Group : Medium
 Reaction to major diseases and insects : Resistant to *Curvularia* leaf spot, (CLS) moderately resistant to *Turcicum* leaf blight (TLB), *Maydis* leaf blight (MLB) and Charcoal rot, and to insect *Chilo partellus* under artificial epiphytotics conditions at hot-spot locations.

Other remarks : Hybrid has shown 10.2% baby corn yield superiority over the best check (HM 4) over three years of testing in AICRP trials of NWPZ & CWZ; Responsive to high inputs. Length of baby corn is 7.0-9.0 cm and fodder yield of 12.0-15.0 t/ha in the recommended zones.

BHUPENDER KUMAR¹, S B SINGH¹, O PYADAV^{1,2}, VISHAL SINGH¹, MUKESH CHOUDHARY¹, PARDEEP KUMAR¹, VINOD KUMAR¹, CHHAVI NATH¹, SONU KUMAR¹, H R PRADHAN¹, SUJAY RAKSHIT¹, J C SEKHAR¹, PRAVIN BAGARIA¹, K S HOODA¹, S L JAT¹, C M PARIHAR^{1,3}, D P CHAUDHARY¹ and MEENAKSHI¹

¹ICAR-Indian Institute of Maize Research (IIMR), Ludhiana, India; ²ICAR-Central Arid Zone Research Institute (CAZRI), Jodhpur, India; ³ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India

6. IMHB 1539

Cultivar and growing ecologies : IMHB 1539 for Northern Hill Zone (NHZ) comprising the states J&K, Himachal Pradesh, Uttarakhand (Hill region), Meghalaya, Sikkim, Assam, Tripura, Nagaland, Manipur and Arunachal Pradesh.



Type of corn : Baby corn
 Parentage : HKI 1105 × IML 127-1
 Year of release (CSC on CSN & RVAC) : 2018, (Dated 5th November 2018)
 Gazette Notification Details : S.O. 6318(E) S.N.42, Dated 26th December, 2018
 Yield (t/ha) : 1.3 de-husked baby corn

Season	:	<i>Kharif</i>
Maturity Group	:	Early
Reaction to major diseases and insects	:	Moderately resistant (MR) to multiple diseases, viz. <i>Turcicum</i> leaf blight, <i>Maydis</i> leaf blight, Banded leaf and sheath blight, and charcoal rot and to <i>Chilo partellus</i> insect under artificial epiphytotic conditions at hot-spots locations.
Other remarks	:	This hybrid has shown 16.0 % baby corn yield superiority over the best check (HM 4) over three years of testing in AICRP trials of NHZ; Responsive to high inputs. Length of baby corn is 10.0-11.0 cm and fodder yield of 22.0-24.0 t/ha in the recommended zone

BHUPENDER KUMAR¹, S B SINGH¹, O PYADAV^{1,2}, VISHAL SINGH¹, SAIN DASS¹, M C KAMBOJ³, MUKESH CHOUDHARY¹, PARDEEP KUMAR¹, VINOD KUMAR¹, CHHAVI NATH¹, SONU KUMAR¹, H R PRADHAN¹, SUJAY RAKSHIT¹, J C SEKHAR¹, P BAGARIA¹, K S HOODA¹, S L JAT¹, C M PARIHAR^{1,4}, D P CHAUDHARY¹ and MEENAKSHI¹

¹ICAR-Indian Institute of Maize Research (IIMR), Ludhiana, India; ²ICAR-Central Arid Zone Research Institute (CAZRI), Jodhpur, India; ³CCSHU, Hisar, India; ⁴ICAR-Indian Agricultural Research Institute (IARI), New Delhi
