

Recently released hybrids

and varieties of pearl millet

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Pearl millet [Pennisetum glaucum (L.) R. Br.] is the staple food of poor and small farmers as well as feed and fodder for livestock in the rainfed region of the country. Like some other C4 plant species, such as sorghum, maize, foxtail grass (Setaria spp) and switch grass, pearl millet adapts to most hostile environments including, hot, dry, high light intensities and poor quality soils. It requires fewer inputs and is highly nutritious as food, feed and fodder. In India, pearl millet is the fourth most widely cultivated crop after wheat, rice and maize. Pearl millet is grown in 7.5 million hectare during 2016-17. About 9.73 million tonnes of pearl millet was obtained during this period with a record productivity of 1,305 kg/ha. It is mainly grown in Rajasthan, Maharashtra, Gujarat, Uttar Pradesh and Haryana, and almost 90% acreage of pearl millet comes from these states. It is mainly grown in kharif (June to October), although in certain pockets of Gujarat, Rajasthan and Uttar Pradesh, this crop is grown as summer crop (February to May).

Key words: Agroclimatic Zone, Hybrid, Pearl millets

Among millets, pearl millet holds first place followed by sorghum and finger millet. It is a good source of energy, carbohydrate, protein, fat, ash, dietary fibre, iron, and zinc. Pearl millet is gluten free and safe for people allergic to gluten. Recently government of India also notified pearl millet as nutri-cereal and also included in public distribution system. Both public and private sector agencies are playing a significant role in the development of pearl millet hybrid and variety. Every year new and high yielding cultivars are developed by various centres working on pearl millet improvement programme. Farmers should always use recently developed hybrid and variety so that grain and stover yields potential of these hybrid varieties can be realized and thereby increased in farmers' income. This article is an attempt to provide an update information of recently (2012-2018) released pearl millet hybrids and varieties to the farmers.

Hybrids and varieties released for A1 zone

Areas of Rajasthan, Haryana and Gujarat where annual rain fall is less than 400 mm come under this zone. This zone has very hostile climatic conditions characterized by long spells of drought and high temperature. During 2012-2018, six hybrids namely RHB 223, JKBH 1108, MPMH 21, HHB 272, HHB 234 and Bio 70 were developed for this zone. RHB 223 is the latest one. The details of the hybrids along with their agronomic grain quality traits are presented in Table 1.

Hybrids and varieties released for A zone

This zone represents the areas of seven pearl millet growing states namely Rajasthan, Haryana, Gujarat, Uttar Pradesh, Madhya Pradesh,



Fig. 1. Pusa 1201

Table 1. List of hybrids released during 2012 to 2018

Hybrids	Year	Recommended area	Maturity group/duration and salient feature
Pusa 1201 (MH 1849)	2018	NCT, Delhi	Medium maturity, high yielding and highly resistant to downy mildew and blast
GK 1116 (MH 1974)	2018	Rajasthan	Late maturing, resistant to downy mildew and blast
NBH 4903 (MH 1743)	2018	Rajasthan	Medium maturity
BHB 1202 (MH 1831)	2018	Rajasthan	Early maturing and released resistant and notified for A ₁ zone, to downy mildew and blast
AHB 1200 (MH 2072)	2018	Rajasthan, Haryana, Gujarat, Delhi, Punjab, Maharashtra and Tamil Nadu	High Fe and Zn
HHB 299 (MH 2076)	2018	Rajasthan, Haryana, Gujarat, Delhi, Punjab, Maharashtra and Tamil Nadu	High Fe and Zn
NBH 4903 (MH 2035)	2018	Maharashtra, Karnataka, AP, TN	Late maturity
PB 1705 (MH 2008)	2018	Rajasthan, Gujarat, Haryana, Punjab, MP, UP, Delhi	Medium maturity
RHB 223 (MH 1998)	2018	Drier part of Rajasthan, Gujarat and and Haryana for early maturity group (A ₁)	Early maturity
Mahabeej 1005 (MH 1852)	2017	Maharashtra	Medium maturity
PBH 306 (MH 1962)	2017	Maharashtra, Karnataka, AP, TN	Late maturing, high grain and dry yield, resistant to downy mildew, blast, rust and ergot
JKBH 1008 (MH 1828)	2016	Rajasthan, Gujarat, Haryana (A1)	Early, grey coloured, globular grins; resistant to downy mildew and blast
XMT 1497 (MH 1928)	2016	Rajasthan, Gujarat, Haryana, Punjab, MP, UP, Delhi	Medium, grey coloured, hexagonal grins; resistant to downy mildew, blast, ergot and rust
KBH 3940 (MH 1984)	2016	Rajasthan, Gujarat, Haryana, Punjab, MP, UP, Delhi	Late, grey coloured, obovate grins; resistant to downy mildew, blast ergot and rust
Nandi 75 (MSH 287)	2016	Rajasthan, Gujarat, Maharsashtra, TN UP,	Summer Late, grey coloured, globular grains seeds; resistant to downy mildew and rust
86M 82 (MH 1888)	2016	Rajasthan, Gujarat, Haryana, Punjab, MP, UP, Delhi	Late, grey coloured, obovate seeds; resistant to downy mildew, ergot, rust and smut
86M13 (MSH 276)	2016	Rajasthan, Gujarat, UP, Maharashtra, TN	Summer Late, grey coloured, obovate seeds and resistant to downy mildew
Bio 8145 (MH 1970)	2016	Rajasthan, Gujarat, Haryana, Punjab, MP, UP, Delhi	Late grey coloured globular grains; resistant to downy mildew, blast, rust and ergot
JKBH 1100 (MH 1810)	2016	UP	Late, resistant to downy mildew, rust and smut diseases
JKBH 1105 (MSH 254)	2016	Summer areas of UP	Summer Late, Globular, grey brown grain; resistant to downy mildew, rust and smut diseases
Phule Aadishakti (DHBH 9071)	2016	Maharashtra	Late, Grey, globular seed and resistant to downy mildew
86M84 (MH 1890)	2016	Rajasthan, Gujarat, Haryana, Punjab, MP, UP, Delhi	Medium, Tall plant with lodging tolerance, long compact ear-head, high grain and fodder yield
MPMH 21 (MH 1777)	2016	Rajasthan, Gujarat, Haryana (A1) mildew, mildew, blast and smut	Early, Grey brown hexagonal grains, resistant to downy
HHB 272 (MH 1837)	2016	Rajasthan, Gujarat, Haryana (A1)	Early, Grey globular grains and resistant to blast
Co.10	2016	Tamil Nadu	Medium, Grey brown bold grains and resistant to downy mildew
hybrids Proagro Tejas	2015	Rajasthan	Early and resistant to downy mildew
PHB 2884	2015	Punjab	Late maturity and grey seed
86M88 (MH 1816)	2015	Maharashtra, Karnataka, TN, AP	Late maturity, a rainy season hybrid with wider adaptability and excellent potential, highly tolerant to leaf blast and rust
86M01 (MH 1790)	2015	Rajasthan, Gujarat, Haryana, Punjab, MP, UP, Delhi, Maharashtra, Karnataka, TN, AP	Purple anther colour, medium plant height, conical ear-head, obovate and grey coloured grains
NBH 5061(MH 1812)	2015	Maharashtra, Karnataka, TN, AP	Late, purple anther colour, medium plant height, compact lanceolate ear-head, and grey coloured grains
NBH 5767 (MH 1785)	2015	Maharashtra, Karnataka, TN, AP	Medium maturing, purple anther colour, medium plant height, compact lanceolate ear-head and deep grey coloured grains
KBH 108 (MH 1737)	2014	Rajasthan, Gujarat, Haryana, Punjab, Delhi, UP and MP	Late maturing, tall plant height, purple anther colour, cylindrical very compact ear heads, obovate grey seed, resistant to downy mildew, blast and smut

Contd.

Table 1. (Concluded)

Hybrids	Year	Recommended area	Maturity group/duration and salient feature
GHB-905 (MH-1655)	2013	Rajasthan, Gujarat, Haryana, Punjab, Delhi, UP and MP	Medium maturing, medium height, yellow anther colour, compact cylindrical ear heads with bristles, resistant to downy mildew and globular grey brown seeds
Nandi-72 (MSH-238) (NMH 75)	2013	Summer growing areas of Gujarat, Maharashtra, Rajasthan and Tamil Nadu	Medium tall plant height, purple coloured anthers lanceolate thick compact ear heads, resistant to downy mildew and globular deep grey seed.
86M89 (MH 1747)	2013	Rajasthan, Gujarat, Haryana, Punjab, Delhi, UP and MP	Late maturing, tall height, conical very compact ear heads, yellow anther colour, resistant to downy mildew and obovate deep grey coloured seed
MPMH 17(MH 1663)	2013	Rajasthan, Gujarat, Haryana, Punjab, Delhi, UP and MP	Medium maturing, medium height, yellow anther colour, compact lanceolate ear heads with bristles, resistant to downy mildew and grey brown seeds
HHB 234(MH 1561)	2013	Western Rajasthan and drier part of Gujarat and Haryana	Early maturing, candle shaped ear heads with small bristles, medium seed size and tolerant to downy mildew
Kaveri Super Boss (MH 1553)	2012	Rajasthan, Gujarat, Haryana, Punjab, Delhi, UP and MP, Maharashtra, Karnataka, Andhra Pradesh and Tamil Nadu	Late maturing, tall height, long compact cylindrical ear heads, purple anther colour and globular grey coloured seed
Bio 70 (MH 1632)	2012	Western Rajasthan and drier part of Gujarat and Haryana	Early maturing, conical compact ear heads, yellow anther colour, globular grey seed and tolerant to downy mildew
Bio 448 (MH 1671)	2012	Rajasthan, Gujarat, Haryana, Punjab, Delhi, UP and MP	Late maturing, cylindrical compact ear heads, yellow anther colour, globular grey seed and tolerant to downy mildew
Nandi-70 (MSH 224)	2012	Summer growing areas of Gujarat Maharashtra, Rajasthan and Tamil Nadu	Medium plant height, cylindrical thick compact ear heads and globular deep grey seed.
Pratap (MH 1642)	2012	Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu	Medium maturity, medium plant height, cylindrical semi compact ear heads and globular grey seed.
PKV-Raj (BBH 3)	2012	Maharashtra	Medium maturing, Medium height, conical compact bristled ear heads and grey coloured seed
MP-7872 (MH-1610)	2012	Rajasthan, Gujarat, Haryana, Punjab, Delhi, UP and MP	Late maturing, medium height, yellow anther colour, spindle ear heads and grey coloured globular seed
MP-7792 (MH-1609)	2012	Rajasthan, Gujarat, Haryana, Punjab, Delhi, UP and MP	Late maturing, medium height, yellow anther colour, cylindrical ear heads and grey coloured globular seed
86M86 (MH 1684)	2012	Rajasthan, Gujarat, Haryana, Punjab, Delhi, UP and MP Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu	Late maturing, Medium to tall plant height, conical very compact ear heads, purple anther colour and grey hexagonal seeds
CO 9	2012	Tamil Nadu	Medium maturing, medium height, Candle compact ear heads and greyish yellow seed colour
Shine (VBBH3040) (MH 1578)	2012	Maharashtra, Karnataka, Andhra Pradesh and Tamil Nadu	Medium maturing, medium height, red node pigmentation, yellow anther colour, compact spindle shaped ear heads resistant to downy mildew and grey bold seeds

Punjab and Delhi where annual rainfall is more than 400 mm. During last six years, fourteen hybrids PB 1705, PBH 306, XMT 1497, KBH 3940, 86M82, Bio 8145, 86M84, KBH 108, GHB 905, 86M89, MPMH 17, Bio 448, MP 7872, MP 7792 were released for this zone. One population Pusa composite 701 was also released for this zone (Table 1 and 2).

Hybrids and varieties released for B zone

Pearl millet growing area for B zone is Maharashtra, Andhra Pradesh, Tamil Nadu and Karnataka.



Fig. 2. Pusa Composite 701

Table 2. List of varieties/populations released during 2012 to 2018

Varieties	Year	Recommended area	Maturity group/duration and salient feature
ABV 04 (MP 552)	2017	Maharashtra, Karnataka, AP, TN	High grain and dry fodder yield, resistant to downy mildew and blast
Pusa Composite 701 (MP535)	2016	Rajasthan, Haryana, Gujarat, MP, UP, Delhi and Punjab	High yielding and dual purpose, medium maturing, highly resistant to downy mildew and blast
Dhanashakti (ICTP 8203 Fe 10-2)	2014	Maharashtra, Karnataka, AP, TN, Rajasthan, Haryana, Gujarat, MP, UP, Punjab	High iron, early maturing and open pollinated variety
ABPC-4-3 (MP 484)	2012	Maharashtra	Late maturing, medium plant height, lanceolate ear heads and globular grey seeds

In this zone also annual rainfall is more than 400 mm. During 2012 to 2018, six hybrids viz., NBH 4903, 86M88, NBH 5061, NBH 5767, Pratap and Shine have been released for this zone (Table 1).

Hybrids and varieties released for both A and B zone

Seven hybrids AHB 1200, HHB 299, 86M01, 86M13, 86M86, Nandi 75, Kaveri Super Boss and one variety Dhanshakti can be grown in both A and B zones (Table 1).

State released hybrids and varieties

One hybrid Pusa 1201 was released and notified for Delhi and adjoining areas in 2018. Hybrids GK 116, NBH 4903, BHB 1201, Proagro Tejas, were released for Rajasthan. Three hybrids Mahabeej, Phule Aadishakti, PKV-Raj (BBH 3) and one variety ABPC-3 were released for Maharashtra. Hybrid JKBH 1100 for Uttar Pradesh, Co. 9 and Co.10 for Tamil Nadu and PHB 2884 were released for Punjab (Table 1 and 2).

Iron and zinc enriched hybrids and varieties

Two hybrids AHB 1200 and HHB 299 were released and notified in 2018. These hybrids are specifically bred for high iron and zinc content and play significant role in alleviating the malnutrition (Table 1 and 2).

Hybrid released for summer season

In recent six years, five hybrids namely Nandi 75, 86M13, JKBH 1105, Nandi 72 and Nandi 70 were released and notified for summer season (February-May) (Table 1).

Latest varieties of pearl millet developed by IARI

During last six years, IARI has developed one hybrid and one variety. Variety Pusa Composite 701 was released and notified for seven states Rajasthan, Haryana, Gujarat, Uttar Pradesh, Madhya Pradesh, Punjab and Delhi in 2016. Average yield of this variety is 2.3 t/ha. It matures in 80 days. Pusa Composite 701 is highly resistant to downy mildew and blast. IARI has also

developed one hybrid Pusa 1201. This hybrid was released and notified in 2018 for Delhi and adjoining areas. The average yield of this hybrid is 2.8 t/ha. Pusa 1201 matures in 80 days. It is highly resistant to downy mildew and blast. Pusa 1201 also contains 55 ppm Fe and 48 ppm Zn (Table 1 and 2).

SUMMARY

In this article pearl millet hybrids and varieties released and notified during 2012 to 2018 were discussed. During these six years, 49 hybrids and four varieties were released and notified for different pearl millet growing area of the country. Hybrids and varieties released and notified for A₁, A, B zone, states and summer season are described. Two hybrids and one variety having high iron and zinc were also highlighted.

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- ◆ वर्षा जल संरक्षण से बढ़ाएं कृषि उत्पादकता
- ◆ सरसों व तोरिया से लें अधिक लाभ
- ◆ वर्षा आधारित खेती से बढ़ाएं आमदनी
- ◆ बदलती जलवायु के दुष्परिणामों को कम करने के उपाय
- ◆ गाय के दूध से पनीर बनाने की स्वचालन तकनीक
- ◆ पशु चारे के लिए नैपियर घास की खेती
- ◆ प्लास्टिक बोतल में ढिंगरी मशरूम का उत्पादन
- ◆ फसलों का सच्चा मित्र है ट्राइकोडर्मा

संपर्क सूत्र: व्यवसाय प्रबंधक, भाकृअनुप-कृषि ज्ञान प्रबंध निदेशालय, कैब-1,
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