

SHORT COMMUNICATION

A Note on New Rice Varieties and Hybrids from Karjat, Maharashtra State**BD Waghmode and JH Dongale***Regional Agricultural Research Station (RARS), Karjat-410 201, Dist. Raigad (Maharashtra)***Key words: Rice, *Oryza sativa*, Hybrids, Maharashtra**

Maharashtra state contributes to 3.7 per cent area and 2.8 percent production of rice at national level. The total area under rice crop, total rice production and average productivity in Maharashtra state during the last decade has remained stable around 15 lakh ha, 23 to 24 lakh tones and 1.7 t/ha respectively. The productivity of rice crop in state during 60's was around 0.8 t/ha. It rose up to 1.7 t/ha by introduction, development and adoption of 51 new high yielding rice varieties and coupled with improved packages of crop production (Agriculture epitome, 1997-98). The state has four agro-climatic regions, out of which 71 per cent area comes under the traditional rice growing area, characterised by assured and high rainfall conditions where rice transplanting is practiced where as in remaining 29 per cent area, rice crop is cultivated by non-traditional method i.e. by drilling under upland rained conditions. This was essential to develop different duration, high yielding and quality grain rice varieties and rice hybrids suitable for different ecosystems in the state so as to increase the production and productivity of the state. Following are the six new high yielding rice varieties and four rice hybrids developed at RARS, Karjat.

Karjat 1 (IC412923)

Karjat 1 is early duration rice variety maturing in 110-115 days. It is selection from a cross between Holmaldiga X IR 36, bred at RARS, Karjat by Prof. VH patil and his co-workers. It is dwarf variety (65 to 70 cm) with dark green foliage having short bold non scented kernel. 1000-grain weight: 24.0 g, high protein content (8.97 %) and high rice bran oil content (8.89 %). It is recommended for bacterial blight endemic pockets. It is resistant to BHP and bacterial blight at flowering stage and immune at vegetative stage. It is moderately resistant to blast and leaf scald. Non-lodging and non-shattering variety, seeding to 50% flowering period is 80 to 85 days. Average yield ranged between 3.5 to 4.5 t/ha. It was released by State Variety Release Committee in 1987.

*E-mail: hybrid@vsnl.net***Karjat 2 (IC412924)**

Karjat 2 is late duration rice variety maturing in 140 days and is developed by hybridization between RPW 6-17 (Phalguna) x RP 4-14 (Prakash) followed by pedigree method, bred at RARS, Karjat by Prof. VH Patil. It was tested under IET No. 12331. It is dwarf (100-105 cm), erect with dark green leaves, flag leaf disposition is vertical with medium size. leaf blade is narrow, less hairy and dark-green and panicles, are compact, dense with less sterility. The glume colour of the variety is yellowish, coleoptiles: white, awns: absent. The rice variety having long slender grains with translucent kernel with grain size is length (6.46 mm), breadth (2.05 mm). L/B ratio 3.23, 1000-grain wt. 22.9 g. It can be successfully grown in soils where mid-late to late varieties are grown with either assured rainfall or with protective irrigation as followed in eastern part of Vidarbha region. The seed rate is 40 kg/ha. The average grain yield ranged between 4 to 4.5 t/ha. It is non-lodging and non-shattering variety, seeding to 50% (lowering period is 05 days. It is moderate y resistant to stern borer and resistance to gall midge, blast and neck blast. It showed moderate resistance to brown spot and moderate susceptibility to BLB. It is released by State Variety Release Committee in 1994.

Karjat 3 (IC412925)

Karjat 3 is an early duration rice variety maturing in 110-115 days and is evolved by hybridization between IR 36 x KJT 35-3 followed by pedigree method of selection, bred at RARS by Prof. VH Patil and his co-workers. It was tested under IET No. 12481. It is mid tall variety (95-100 cm height) with dark-green leaf blade and leaf sheath, having excellent phenotypic appearance, medium tillering ability and fully exerted compact panicle. The four characters are glume colour: straw, awns: absent, grain size (LxB): 5.78 mm x 2.54 mm, L/B ratio; 2.27. 1000-grain wt.: 24.00 g. It is having grain type: short bold, white belly: present translucent intermediate, milling recovery: 75 %, alkali value: 4.4, amylose per cent: 23.94 per cent. The variety is suitable for rainfed uplands as

well as irrigated areas, cultivated during *kharif* and *rabi* season in Konkan region and eastern part of Vidarbha and is responsive to nitrogenous fertilizers. Seed rate for transplanting varies between 55-40 kg/ha and 60-70 kg/ha for drilling, average grain yield ranged between - 1.5 to 5 t/ha. The variety has erect plant type having non-lodging and non-shattering ability, duration from seeding to 50 per cent flowering is 85 days. It is resistant to blast, moderately resistant to bacterial leaf blight and brown spot. Karjat 3 rice variety is stress tolerant having wide adaptability and is released by the State Variety Release Committee in 1994.

Karjat 4 (IC412926)

Karjat 4 is an early duration rice variety maturing in 110-115 days having superfine grain type which is evolved hybridisation (IR 22 x Zinia 63) followed by pedigree method, bred at RARS. Karjat by Prof. VN Deshpande and his co-workers. It is tested under IET No. 14227. It is dwarf 75-80 cm), erect with dark green leaves: flag leaf disposition is vertical with medium size, medium tillering ability with excellent phenotypic appearance with, fully exerted compact panicle. It has glume colour straw, awns absent, grain size (LxB) 4.87 mm x 1.6 mm, L/B ratio 3.04, 1000 grain wt 10.5 g. This rice variety having short slender grain type with translucent and non-scented kernel. The hulling per cent is 79.10%, milling; 73.96%, head rice recovery: 70%, alkali value: 6.0 amylose per cent 20.45%. It is recommended for four districts of Konkan region under suitable environmental conditions where early duration rice varieties are grown during both the seasons *kharif* and *rabi* hot weather. The seed rate is 30-35 kg/ha, average grain yield ranged between 3 to 3.5 t/ha. It is non-lodging and non-shattering variety and the duration from seeding to 50 per cent flowering is 80-85 days. Karjat-4 rice variety is moderately resistant to leaf folder. Tolerant to moisture stress. It was released by State Variety Release Committee in 1998.

Karjat 5 (IC545081)

Karjat 5 (IC545081) is a medium duration (125-130 days) rice variety having long bold grain type and appeared to be a prominent, alternative to jaya evolved through selection form BR-827-35-3-1-1-1 by BV Ongale, BD Waghmode and others at RARS, Karjat which is tested under IET No. 18905 in AICRIP traits. It is mid tall in stature (110-120 cm), high milling percentage (77.5%) and 61.11 per cent head rice recover with 27.0 g 1000

grain weight. It has given average yield ranged between 5.0 to 5.5 t/ha and 6.5 to 7.0 t/ha straw yield. It showed multiple resistance to diseases and pests (HR Neck Blast, MR – Leaf blast, RTV, Brown spot and sheath rot and MR Stem borer. The leaf folder, HR whorl maggot, MT-WBPH and PPH). It was released for transplanted conditions during *kharif* season for commercial cultivation in rice growing areas of Maharashtra state during 2005.

Karjat 6 (IC545080)

It is mid late in duration (128-130 days) having short slender (superfine) with translucent kernels evolved through hybridization (Heera x Karjat 184) followed by pedigree method, bred by BV Ingale, BD Waghmode and others at RARS. Karjat was tested under IET No. 19032 in AICRP traits. It has 13.30 g 1000 grain weight, with 3.06 L/B ratio, grain without chalkiness, high milling (75.8%) and high head rice recovery (70.2%) per cent, intermediate amylose content (25.43 %) in grain, average yield ranged between 3.5 to 4.5 t/ha. It has multiple resistance to major diseases and pests. (HR-leaf folder, R-SBPH, MR-BPH, GMBS, leaf blast, neck blast, brown spot and sheath rot). It was released for transplanted conditions in *kharif* season for commercial cultivation in rice growing areas of Maharashtra during 2005.

Sahyadri (IC412927)

Sahyadri is midlate duration (125-130 days) rice hybrid developed by using CMS line (IR 58025A) and restorer line (BR 827 35-3-1-1-1-R), bred at RARS. Karjat by Prof. VN Deshpande and his co-workers. It is medium tall plant (115-120 cm) with intermediate habit, high tillering ability and well exerted panicle. Husk colour: straw, awns: absent, grain size (LxB): 7.18 x 2.39 mm, L/B ratio: 3.0 and 1000 grain weight is 28.0 g. Sahyadri has long slender translucent grain without white belly, slightly scented, hulling: 78%, milling: 67.3% and head rice recovery: 51.5%. It is recommended for rice growing districts of Maharashtra state including Kharland (coastal saline soils) in Konkan region. It is widely adopted in various agro ecological situations. It has given average yields ranged between 6 to 6.5 t/ha. It is non-lodging and non-shattering plant: days required to 50 per cent flowering are 95-100 days. The rice hybrid is resistant to leaf blast and leaf scaled and moderately resistant to BLB. It was released by State Variety Release Committee in 1998 for commercial cultivation in Maharashtra state.

Sahyadri 2 (IC545072)

Sahyadri 2 is an early duration (115-120 days) rice hybrid developed by using CMS line (IR58025A) and restorer line (KJTR-2), bred at RARS, Karjat by Dr BV Ingale, BD Waghmode and others which is tested under IET No. 17661 in AICRP trials. It has better grain quality (LS) 1000 grain weight: 23.5 g, good milling (71.5%) and Head rice recovery (56%), intermediate amylose content (22.7%), yield potential 6.0 to 6.5 t/ha with multiple diseases and pest resistant (HR-false smut, MR-neck blast, sheath rot, BLB, RTV and stem borer). It is suitable for uplands and double cropped areas in the state. It was released for transplanted conditions in *kharif* season for commercial cultivation in rice growing areas of MS during 2004.

Sahyadri 3 (IC545076)

Sahyadri 3 is mid late duration (125-130 days) rice hybrid developed by using CMS line (IR 58025A) and restorer line (KJTR-3), bred at RARS, Karjat by Dr BV Ingale, BD Waghmode and others which is tested under IET No. 18829 in AICRP trials. It has better grain quality (LS) 1000 grain weight: 28.0 and good milling (74.5%) and head rice recovery (60.2%). Intermediate amylose content, grain chalkiness: absent, optimum aroma, average grain yield ranged between 6.5 to 7.5 t/ha. It has multiple resistance to diseases and pests (R-blast, L-neck blast, MR-brown spot, sheath blight, sheath rot, and MR-stem borer, R-leaf folder, MR-WBPH and BPH). It is suitable for irrigated ecosystem in the state. It is released for transplanted conditions in *kharif* season for

commercial cultivation in rice growing areas of MS during 2005.

Sahyadri 4 (IC545078)

Sahyadri 4 (KJTRH 2) is an early duration (115-120 days) rice hybrid developed by using CMS line (1K-5S025A) and restorer line (KJTR-1), bred at RARS, Karjat by Dr. BV Ingle, BD Waghmode and others which is tested under IET No. 18610 in AICRIP- trials. The plant height of the rice hybrid is 100 cm with high panicles/m²: 369. The rice hybrid Sahyadri 4 recorded average grain yield 5.5-6.6 t/ha in different trials conducted at national and state levels. The rice hybrid Sahyadri 4 having long slender grain type with 6.74 mm. Kernel length. 1.76 mm: Kernel breadth and 3.82 : L/B ratio. It has 69.4 % milling with High ASV (7.0) desirable AC (21.38 %), and soft GC (69 mm) and very occasionally grain chalkiness. Sahyadri -4 rice hybrid is moderately resistant to leaf blast, neck blast, brown spot and rice tungro virus. It has wider adaptability in different agro ecosystems in transplanted and direct sowing conditions at national level. Sahyadri 4 rice hybrid has been identified for release for commercial cultivation in five states of the country viz., Punjab, Haryana (North western region); Uttar Pradesh, West Bengal (Eastern and north eastern region) and Maharashtra (Western region), by the Central Varietal Identification Committee, during 41st All India Rice group meeting held at Hyderabad on April, 16th 2006.

References

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