

Press Note

Launch of seed sale of RobiNOweed Basmati Rice Varieties for Direct Seeded Rice cultivation

Pusa Institute, New Delhi today launched the seed sale of RobiNOweed Basmati Rice Varieties namely, Pusa Basmati 1979 and Pusa Basmati 1985 tolerant to Imazethapyr 10% SL for Direct Seeded Rice cultivation. Speaking on the occasion, Dr Ashok Kumar Singh, the Director, IARI, New Delhi highlighted that the major concerns in rice cultivation in north western India include (a) depleting water table (b) labor scarcity for transplanting of rice and (c) the emission of greenhouse gas, methane under transplanted flooded condition. Direct seeded rice can address all these concerns. DSR reduces water usage significantly compared to traditional flooding method due to no continuous flooding, targeted water application, lower percolation losses, and decreased evaporation. Studies suggest DSR can save approximately 33% of the total water requirement making it a sustainable choice, particularly in water-scarce regions.

However, weeds are a major problem under DSR which needs to be addressed in order to ensure the success of DSR. In this direction, concerted research at ICAR-IARI, New Delhi has led to the development of two RobiNOweed Basmati rice varieties, Pusa Basmati 1979 and Pusa Basmati 1985 which are the first Non-GM herbicide tolerant Basmati rice varieties tolerant to Imazethapyr 10% SL to be released for commercial cultivation in India.

Pusa Basmati 1979



Pusa Basmati 1979 is a MAS derived herbicide tolerant near-isogenic line of Basmati rice variety “PB 1121” possessing mutated AHAS allele governing tolerance to Imazethapyr 10% SL with seed to seed maturity of 130-133 days and average yield of 45.77 q/ ha under irrigated transplanted condition across two years of testing in the National Basmati trials.

Pusa Basmati 1985



Pusa Basmati 1985 is a MAS derived herbicide tolerant near-isogenic line of Basmati rice variety “PB 1509” possessing mutated AHAS allele governing Imazethapyr tolerance with seed-to-seed maturity of 115-120 days and average yield of 5.2 t/ha under irrigated transplanted condition across two years of testing in the National Basmati trials.

He elaborated extensively on the package of practices tailored for these two rice varieties when cultivated under Direct Seeded Rice (DSR) method. He stressed the importance of adopting necessary precautions for effective weed management in these crops. Given their tolerance to the broad-spectrum herbicide Imazethapyr 10% SL, these varieties are poised to revolutionize weed control in DSR, thereby streamlining the cost of Basmati rice cultivation. Moreover, these varieties not only reduce the labour-intensive processes associated with weeding but also mitigate the environmental impact of traditional rice cultivation methods. This underscores their potential to contribute significantly to sustainable agriculture practices and the overall well-being of the agricultural ecosystem.

Dr. P.K. Singh, Commissioner of Agriculture at the Ministry of Agriculture and Farmers Welfare, Government of India, underscored the importance of these varieties and appreciated the contribution of IARI in bringing improvements in the varietal traits targeted towards saving water, increasing yield with better climate resilience. Dr. D.K. Yadav, ADG(Seeds) at ICAR in New Delhi, emphasized the boon these two Basmati rice varieties would represent for farmers in the Basmati GI area. He highlighted the paramount importance of seeds as the primary input for crop cultivation.

Notably, IARI Basmati rice varieties hold a staggering 95 percent share in the country's total Basmati rice exports, which amounts to a whopping 51,000 crores. Dr. Yadav urged farmers to actively promote these improved varieties to safeguard the food security of the nation. As a tangible step forward, seeds of these varieties were given to four farmers hailing from Haryana, Punjab, Delhi, and Uttar Pradesh. The other interested farmers were provided the seeds of these varieties from SPU on payment basis at a nominal price.

Pritam Singh, a farmer from Haryana, shared his extensive experience with practicing Direct Seeded Rice (DSR) cultivation method since 2009. Cultivating an impressive area of 40-50 acres, he has achieved a remarkable yield of 27 quintals per acre. His success story serves as a testament to the efficacy of DSR as a viable cultivation method, particularly when coupled with proper management practices and suitable crop varieties. Dr. T K Das, a Principal Scientist specializing in Agronomy, delved into a comprehensive discussion regarding the wide array of herbicides applicable for DSR cultivation. His insights likely encompassed various aspects such as the efficacy of different herbicides in weed control, their application methods, dosage, and timing to effectively manage weeds and optimize crop yields in DSR systems. The preemergence application of pendimethalin effectively manages a wide range of noxious weeds, including their seeds, by inhibiting their germination and early growth stages. However, some weeds may still emerge despite pendimethalin application. In such cases, the surviving weeds can be effectively controlled by applying Imazethapyr approximately 20 days after sowing. Imazethapyr is a post-emergence herbicide that selectively targets grassy and broadleaf weeds, complementing the preemergence action of pendimethalin. By incorporating both preemergence and post-emergence herbicides into the weed management strategy, farmers can ensure comprehensive weed control throughout the crop cycle, leading to improved crop establishment and higher yields.

Dr C. Viswanathan (Joint Director, Research), Dr R.N.Padaria (Joint Director, Extension), Dr Gopala Krishnan (Head, Division of Genetics), Dr Gyanendra Singh (In-Charge, Seed Production Unit), Head of the Divisions and scientists of Pusa Institute, farmers, seed companies, and media graced the occasion.



