

Towards Viksit Bharat@2047 Technological Innovations and Policy Options for Eastern Region



ICAR Research Complex for Eastern Region

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Towards Viksit Bharat@2047: Technological Innovations and Policy Options for Eastern Region

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Improved Agro-techniques for Enhancing the Productivity of Millets in Eastern India

Period of development: 2020 - 2024

Developers:

Rakesh Kumar, JS Mishra, BP Bhatt, S Mondal

Background:

Growing of nutri-cereals/millets is an alternative approach for realizing & sustaining the crop productivity. Millets are highly nutritious, resilient to harsh growing conditions and require minimal input, thus, could play a vital role for food and nutritional security in climate change scenario. Diversification of the existing production system through inclusion of nutri-cereals/millets help to improve socio-economic situation. Thus, there is an urgent need to standardize agro-techniques of nutri-cereals for improving the system productivity in eastern India & accelerates its present form from of cultivation i.e. subsistence farming to income generation-oriented farming.

Description of the technology:

A long-term field experiment was conducted during *kharif* 2020 at ICAR Patna with an objective to standardize agro-techniques of nutri-cereals for enhancing system productivity. During 1st/2nd year, 7-nutri-cereals including [(Jowar: CSV 15) & Bajra: Proagro 9001] & 5-minor nutri-cereals [(Ragi: RAU 8), Barnyard millet: VL 207), Foxtail millet: Rajendra Kauni), Proso-millet: TNAU 202) and Kodo-millet: JK 41)] were grown in 3-different planting window (starting with onset of monsoon and later at 10-days intervals). Among tested cultivars of Bajra, maximum grain yield was recorded with Proagro 9001 (2.98 t/ha). Thus, bajra hybrid Proagro 9001 may be promoted for commercial cultivation at wider area of rainfed production system. Similarly, among the tested cultivars of Ragi, the maximum grain yield was recorded by RAU 8 (2.10 t/ha). Thus, ragi cv. RAU 8 may be promoted at wider scale in rainfed system with improved production technologies. Among the cultivars, maximum grain yield was recorded by Barnyard cv. DHMB 93-3 (1.70 t/ha). Thus, barnyard cv. DHMB 93-3 may be grown at wider scale along with 100% fertility levels to achieve better the crop yields under rainfed production system. Application of atrazine@0.5 kg/ha (PE) fb 1 HW (30 DAS) had significantly higher yields of Bajra (3.08 t/ha, Ragi (2.29 t/ha) and Sawa (1.61 t/ha) but at par with 2-hand weeding (25 & 45 DAS). Amongst nutrient management, application of 100% RDN was significantly higher yield of Bajra (2.83 t/ha), Ragi (2.25 t/ha) & Sawa (1.54 t/ha) at par with 75% RDN (IN) & 25% RDN (FYM).

Commercial potential:

The technology can be offered through consultancy services or outsourced to the State Agricultural Department, Development agencies like Millets Mission, RKVY, NGOs, and farmers' groups.



Field view of different millets production

Impact:

Under Bihar's Climate Resilient Agriculture (CRA) Program, millet-based systems were promoted across 38 districts with a ₹ 60 crore budget (2019–24). ICAR-RCER Patna developed 10 Climate-Resilient Villages in Gaya and Buxar, covering more than 1,000 ha in drought-prone areas.

Agro-ecoregions suitability:

Rainfed and water scared Areas

Reference:

Kumar Rakesh, Makarana G, Mishra JS, Bhatt BP. 2022. Response of sorghum (*Sorghum bicolor*) cultivars to nitrogen in non-traditional areas of Bihar. *Indian Journal of Agricultural Sciences* 92(9):1076–1079. <https://doi.org/10.56093/ijas.v92i8.109875>