

HIGH PROTEIN RICE VARIETIES IN ODISHA, A STEP FORWARD TOWARDS NUTRITIONAL SECURITY BRIEF DESCRIPTION OF THE TECHNOLOGY

Introduction

Grain protein content (GPC) is a significant factor determining nutritional quality of rice. Although this cereal contributes 29% dietary protein for millions of rice-eating population, in general rice is deficient in protein. CR Dhan 310 (IET24780: CR2829-PLN-37) has been identified for release in National level as first high protein rice variety. Another variety, Mukul (IET 24772: CR2829-PLN-100) has been released by SVRC for Odisha as nutrient rich rice.

CR Dhan 310: It has medium duration (120-125 days), semi-dwarf plant type (110 cm) with medium slender and good grain quality. It is suitable for irrigated and favorable shallow rainfed areas. National average of grain yield is 4483 kg/ha and it contains average 10.2% protein in polished rice.

Mukul (CR Dhan 311): It has medium duration (120-125 days), semi-dwarf plant type (110 cm) with long bold grain and good cooking and eating quality. It is suitable for irrigated and favorable shallow rainfed areas. National average of grain yield is 4331 kg/ha and in Odisha it is 5542 kg/ha. It has high protein content (10.1%) and moderately high level of Zn content (20 ppm) in 10% polished rice. Moreover, the protein content and protein yield of the proposed variety, IET 24772, were found significantly higher than Naveen under station trial and at farmers' field condition in Odisha.

Agro-climatic zone where the technology is successful

Mid-central table land and east and south-eastern coastal plain (non-saline) (Zone 3, 10)



Field view of CR Dhan 310



Field view of CR Dhan 311

Success

The average yield of Mukul (CR Dhan 311) was found 4645kg/ha with protein yield of 469kg/ha as compared to Naveen with 38 kg/ha at ten blocks (20 farmers fields) under Cuttack, Jagatsinghpur, Denkanal, Baramba districts.

Farmer, Khtramohan Swain, vill. Mudupur, block-Jagatsinghpur, got award in state level in 2016-17 for his progressive contribution including adaptation of high protein rice 'Mukul'



Views of the farmers

Farmers accepted these varieties due to their resemblance with well adapted variety Naveen and suitability in upland/medium land situation.



Farmer, Khetramohan Swain, vill. Mudupur, block-Jagatsinghpur, got award in state level in 2016-17 for his progressive contribution including adaptation of high protein rice 'Mukul'

Which existing technology to be replaced by this:

Naveen is popular rice variety in irrigated ecosystem for Odisha. But date of notification of this variety exceeds 10 years. CR Dhan 310 and CR Dhan 311 (Mukul) are phenotypically



CR Dhan 310



CR Dhan 311

similar with Naveen with similar yielding potentially. They are being considered as valid replacement of Naveen.

To which other agro-climatic zones it can be upscaled:

CR Dhan 310 and CR Dhan 311 are recommended for irrigated upland/medium land area of Odisha across the zones.

Suggested action plan (policy and market) for upscaling:

At present no support price for farmers for high nutrient rich or any other specialty rice is available.

Therefore, for popularization of the variety in suitable lands and for increasing the higher commercial value of this rice initiatives from Institutional and extension machinery as well as modification in policy decision are collectively required.

Higher support price for growers and subsidy for mid-day meal rice are required to give benefits both the poor rice-farmers and our underprivileged children in villages of India.

Linkage with the on-going govt. programmes:

Linkage with the mid-day meal programme and BGREI programme are required.

Citation

K Chattopadhyay, SG Sharma, TB Bagchi, A Poonam, LK Bose, AK Mukherjee and ON Singh (2017). High protein rice varieties in Odisha, a step forward towards nutritional security brief description of the technology. ICAR-National Rice Research Institute, Cuttack.



Published by:

Dr. Himanshu Pathak, Director
ICAR-National Rice Research Institute
Cuttack-753006, Odisha
Phone No. - 0671-2367757;
Email - director.nrri@icar.gov.in