

Black Rice Production for Nutritional Security: An Initiative by Progressive Farmer in District Gorakhpur of Uttar Pradesh

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Importance of black rice

Black rice is a range of rice types of the species *Oryza sativa*. The origin of history of black rice from Asia. In ancient China there is cultivation of black rice for royal families only. Consumption of black rice is banned for ordinary peoples of China and due to this black rice is known as "Forbidden Rice" and after some time there is extension and spread of black rice in the America, China, Australia and Europe. In India, black rice is cultivated in north east state. For the getting higher profit to farmers this experiment of black rice was carried out firstly in Nagpur district. Black rice is known for its nutritional value and is a source of iron, vitamin E, calcium, magnesium, zinc and large amount of antioxidants anthocyanin. The colour of black rice is due to antioxidant anthocyanin. Due to presence of anthocyanin, the consumption of black rice keeps away from disease like cancer, harmful atherosclerotic plaque, heart attack and normal cholesterol level of body also maintained. Polluted air and adulterated food produce the poisonous substances in our body and researchers prove that consumption of black rice regularly destroy the poisonous liquid from body. Phytonutrients which important constituent of black rice helps to vanish the poisonous food/liquid from the body. In black rice there is presence of lots of fibers which have ability to reduce the constipation from our body and it is also helps in reducing the weight and extra fat from our body. Gluten is absent in black rice, due to this food digestion takes place easily. There is presence of abundance of fiber in outer layer i.e., bran. Due to this glucose absorption takes place very slowly and this will reduce the diabetes (Shinde *et al* 2020 and Soma Saha 2016).

District's agro-climatic situation

Gorakhpur district is a part of the North Eastern Plain Zone of Uttar Pradesh. The soils of district are alluvial, calcareous and salt affected. The district has a large number of streams, ponds and rivers,

which brings tremendous flood during the rainy season and miseries to the human and animal population. The average annual rainfall is about 132.09 mm but it varies in various part of the district. The maximum and minimum temperature varies from 48 to 04 °C. This makes agriculture the most important profession of people.

Description of intervention and process Undertaken

During 2019, a progressive farmer Mr. Vipin Kumar Srivastava, village- pindari, post- barayipur, block-pali, district-Gorakhpur of Uttar Pradesh came in contact with the scientists of the KVK. He has size of land holding about four acres. His aged 34 years old and qualification has MBA (Finance). Their village located in 25 km away from district headquarter and 40 km from Mahayogi Gorakhnath Krishi Vigyan Kendra, Chaukamafi, Gorakhpur. Presently he is a role model for farmers to get additional income by black rice production. His income raised from adopting new technologies in farming system. He is also running a Farmers Producer Company.



Mr. Srivastava heard about the importance of black rice through newspaper and other media sources. He also exposed his keen interest to KVK scientists for production of black rice in their farm. By taking

the technical know-how from KVK scientists, he started cultivation of black rice in an area of 0.5 acre during kharif 2019. All the necessary arrangement made by Mahayogi Gorakhnath Krishi Vigyan Kendra Chaukmafi, Gorakhpur regarding scientific cultivation of organic black rice production.

Profitable income

The economic performance of organic black rice was compared with recommended rice varieties like Swarna sub-1 and BPT 5204. Mr. Srivastava said that he was getting net returns from the recommended varieties about Rs. 25000-30000 per acre. He incorporated organic black rice cultivation in their cropping system during 2019 with the help of KVK technocrats and received average returns of Rs 48900.00 from 0.5acre land presented in table 1. After getting success in cultivation of black rice and higher monetary returns as compared with recommended paddy varieties cultivation in the first year, he increased the organic black rice cultivation area (2.5 acre) during kharif 2020. In this way he got more profit (Rs. 242250 per 2.5 acre) from their organic black rice.



The socio-economic status of Mr Srivastava is increasing among the farming communities and other societies also. His and other associated farmer's confidence improved with KVK scientists to have face-to face discussion and facilitated sharing of knowledge with experiences. These enterprises are not only the good source of good income but also generating the employment to the farmers.



Table 1: Yield and Economic analysis of black rice cultivation during kharif 2019 and 2020

| Year | Area (Acre) | Production (Kg) | Cost of cultivation (Rs) | Selling price (Rs) | Gross Income (Rs) | Net Income (Rs) |
|------|-------------|-----------------|--------------------------|--------------------|-------------------|-----------------|
| 2019 | 0.5 | 250 | 13600 | 250 | 62500 | 48900 |
| 2020 | 2.5 | 1235 | 64500 | 250 | 312500 | 242250 |

Impact

A dynamic young person Mr. Srivastava has proved to a successful farmer and moral support to the other farmers regarding popularization of organic black rice production in his nearby areas. This technology helps him for empowerment, livelihood and nutritional security. Now this technology is adopted by farmers by seeing and believing in nearby villages. Mr. Srivastava created awareness among farming community for production and marketing of black rice which is also known as "super food" with its nutritional value.

References

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