GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE AND FARMERS WELFARE
DEPARTMENT OF AGRICULTURAL RESEARCH & EDUCATION

LOK SABHA
UNSTARRED QUESTION NO. 1753
TO BE ANSWERED ON 10TH FEBRUARY, 2026

BIOFORTIFIED RICE AND WHEAT

1753. SHRI P C MOHAN:

Will the Minister of AGRICULTURE AND FARMERS WELFARE कृषि और किसान कल्याण मंत्री be pleased to state:

(a) whether new varieties of rice and wheat released in recent years have been biofortified with iron, zinc or other micronutrients and if so, the research undertaken by ICAR and allied institutions in this regard;

(b) whether any similar biofortified varieties are available or under development for maize, ragi and other millets;

(c) whether these varieties offer agronomic or income advantages to farmers, including yield, climate resilience or market value;

(d) the steps taken to create awareness among farmers and promote their adoption;

(e) the percentage of area under biofortified crop cultivation in Karnataka at present and the States leading in their promotion; and

(f) whether such crops are being integrated into nutrition programmes such as POSHAN Abhiyaan and PM-POSHAN to improve dietary outcomes?

ANSWER

THE MINISTER OF STATE FOR AGRICULTURE AND FARMERS WELFARE
कृषि और किसान कल्याण राज्य मंत्री (SHRI BHAGIRATH CHOUDHARY)

(a) to (c): Yes, National Agricultural Research System under the aegis of Indian Council of Agricultural Research (ICAR) has developed 73 biofortified varieties of wheat (rich in iron and zinc and/or protein) and 15 of rice (rich in zinc and/or protein) during last ten years. Research on crop biofortification is undertaken under the ICAR - Consortium Research Platform on Biofortification alongwith other inhouse and externally funded projects, which has led to release of 117 other biofortified varieties/hybrids [barley (1), maize (43); ragi (7),

pearl millet (15), little millet (2), proso millet (1), foxtail millet (1), sorghum (1), lentil (3), chickpea (1), faba bean (1), mustard (9), soybean (8), groundnut (3), gobhi sarson (1)] and 20 of horticultural crops [sweet potato (5), potato (4), greater yam (2), Amaranthus (3), okra (1), cauliflower (1), grape (1), pomegranate (1), banana (1), guava (1)] during 2014 to till now.

These cultivars have been improved for essential nutrients viz., iron, zinc, calcium, protein, lysine, tryptophan, pro-vitamin-A and E, anthocyanin, vitamin-C, oleic acid and linoleic acid. The concentration of several anti-nutritional factors viz., erucic acid, glucosinolates, phytic acid and trypsin inhibitor has also been significantly reduced in some of the cultivars and off-flavor of soybean grains. These biofortified cultivars with balanced concentration of nutrients are also high yielding and climate resilient; thus ideal for meeting country's food and nutrition security. Apart from quality traits, all these varieties are having one or more traits for various biotic and/or abiotic stresses with equal or better yield to their conventional counterparts.

(d): Various steps have been taken for creation of awareness and adoption of biofortified varieties through including them in frontline demonstrations (FLDs) and cluster front line demonstration (CFLD), mini kits under National Food Security and Nutrition Mission (NFSNM) of Department of Agriculture and Farmers Welfare conducted by ICAR Institutes, Krishi Vigyan Kendras and State Department of Agriculture. Awareness about biofortified varieties and their advantages is made regularly through field days, training programmes, Kisan Melas, doordarshan, radio, pamphlets, bulletins, print and electronic media. Hon'ble Prime Minister dedicated the biofortified varieties to the nation during three mega farmers' programmes on 16 October, 2020 (World Food Day), 28 September, 2021 and 11 August, 2024 and interacted with the farmers; which created mass awareness about biofortified varieties.

During the last five years, 62,793.0 quintals of breeder seed of various biofortified varieties was produced and supplied by ICAR to various public and private sector seed producing agencies for supply to the farmers. For faster seed delivery >1500 memorandum of agreement (MoUs) have been signed with more than 300 private seed companies for seed production and marketing of biofortified varieties.

(e): Based on the breeder seed indents and their downstream multiplication to foundation and certified seed, Karnataka has an estimated area of 0.35 lakh ha under biofortified crops, comprising wheat, proso millet and groundnut.

(f): Biofortified crops, including nutrient-rich millets are integrated into national nutrition-support programs such as POSHAN Abhiyaan and PM-POSHAN. Department of Food & Public Distribution (DFPD), Ministry of Consumer Affairs, Food & Public Distribution under Wheat Based Nutrition Programme (WBNP) and Scheme for Adolescent Girls (SAG) is emphasizing on the supply of millets for preparation of Hot Cooked Meal (HCM) and Take Home Rations (THR) at Anganwadis for pregnant women, lactating mothers, adolescent girls and children below 6 years of age, as millets are highly nutritious and are known to have high nutrient content which includes protein, essential fatty acid, dietary fibre, B-Vitamins, minerals such as calcium, iron, zinc, folic acid and other micro-nutrients thus helping to tackle anaemia and other micro-nutrient deficiencies common among women and children.

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