



**KAMARAJ IAS ACADEMY**  
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# Biofortified Seeds

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## Why is in news? Ecological Impact of Biofortified Seeds

Since 2014, 142 biofortified varieties including 124 of field crops have been developed under aegis of the Indian Council of Agricultural Research (ICAR).

These biofortified varieties don't have any impact on ecological conditions especially on soil and water, as these are normally bred varieties and their water and nutrient requirement is like traditional varieties.

All the biofortified varieties are **equal or better in yield to conventional varieties** of respective crops.

Produce of these biofortified varieties **is not expensive** than the existing varieties in the market, as there is no yield penalty and no extra cost incurred in cultivation of biofortified varieties.

Under **National Food Security Mission (NFSM)**, assistance is given through State/Union Territory to the farmers for interventions like cluster demonstrations on improved package of practices, demonstrations on cropping system, seed production, distribution of High Yielding Varieties (HYVs)/ hybrids, cropping system based trainings etc.

The Mission also provided support to the ICAR, State Agricultural Universities and Krishi Vigyan Kendras for technology back stopping and transfer of technology to the farmer under supervision of Subject Matter Specialists/ Scientists.

Under NFSM, States/ ICAR may organize latest crop production technology demonstrations/ Cluster Frontline Demonstrations/ Front Line Demonstrations on bio-fortified varieties. States are also encouraged to produce and distribute biofortified seeds.

## Biofortification:

Biofortification is the process by which the **nutritional value of food crops is enhanced by various methods** including plant breeding, agronomic practices and modern biotechnological techniques.

Basically, biofortification is the process of growing crops to **increase nutrition value from the seed on**.

It is **different from food fortification** which involves improving the nutritional content of food crops during the processing stage.

In biofortification, the nutritional value of crops is improved during the plant growth stage, i.e., nutritional micronutrient content is embedded in the crop being grown.

Crops can be biofortified through selective breeding or genetic engineering. In India, biofortification is done exclusively through selective breeding.

The focus of biofortification research is **iron, zinc and vitamin A deficiencies**. These are the micronutrients whose deficiencies affect the most number of people worldwide.

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In India, the focus is on pearl millet (iron), wheat (zinc), sorghum (iron), rice (zinc), cowpeas (iron) and lentils (iron and zinc).

Currently, biofortified pearl millet, rice, and wheat are available to farmers in India.