



IARI Breeds Nutrient-Rich Hybrid Maize

Recently Indian Agricultural Research Institute (IARI) scientists have bred world's first quality protein and pro-vitamin A-rich bio-fortified hybrid maize.

- Maize, the third most important foodgrain following wheat and rice, is grown throughout the year in India. Popularly known as corn, it is used to make food items such as chips, flakes, popcorns etc.

Nutrient-Rich Hybrid Maize

- Cereal grains are high in carbohydrates (65-75%) and low in protein (7-12%) and their proteins are deficient in essential amino acids such as lysine and tryptophan.
- Lysine and tryptophan are two essential amino acids- building blocks of protein- which cannot be synthesized by body and must be supplied to body via diet.
- **Hybrid maize Pusa Vivek QPM 9** Improved is claimed to be the world's first ever rich in lysine and tryptophan as well as pro-vitamin A.
- Vitamin A, a micronutrient, is required for good vision, healthy teeth, skin and skeletal tissue. Deficiency of Vitamin A, predominantly seen in developing countries, can cause blindness and increase the susceptibility of an individual to infectious diseases.
- Although, vitamin A rich maize has been developed elsewhere, the new variety is important as it is rich not only in vitamin A but also in two essential amino acids as well.
- The improved version incorporates an Opaque-2 gene that enhances lysine and tryptophan content, and another gene crtRB1, which results in higher levels of carotenoids (beta-carotene, alpha-carotene and beta-cryptoxanthin) that convert into vitamin A in the body. Normal maize has more of lutein and zeaxanthin, which are carotenoids that cannot convert into vitamin A.
- The bio-fortified hybrid is not genetically modified, as both the Opaque-2 and crtRB1 genes are obtained from maize lines and not any alien/unrelated plants or microorganisms.

Significance

- It can be a game changer in countering hidden hunger which stems from mineral and vitamin deficiencies, often caused by a lack of diversity in the diet.
- It has potential to improve the nutritional status of a large population covering the children suffering from malnutrition which can enhance India's ranking in Global Hunger Index (GHI) which is currently in dismal state (India ranked 103 out of 119 countries in the GHI 2018).
- The early maturity of the hybrid maize makes it suitable for hilly and relatively water-stressed regions like Himachal Pradesh, Uttarakhand, Maharashtra etc.
- It can also be used by animal feed makers, who currently buy synthetic lysine as the grain itself has quality protein and pro-vitamin A. The poultry and pigs will, then, have more body weight gain and better feed conversion ratio.

Indian Agricultural Research Institute (IARI)

- Indian agricultural Research Institute (IARI), popularly known as Pusa Institute, began in 1905 at Pusa (Bihar) with the generous grant from an American philanthropist, Mr. Henry Phipps.
- Following a devastating earthquake in 1934, the institute was shifted to Delhi on 29th July 1936. Post independence, the institute has been renamed as Indian Agricultural Research Institute (IARI).
- The green revolution that brought smiles to millions of Indians bloomed from the fields of IARI with

the development of famous wheat varieties which contributed to massive production.

- IARI continues to be the leading institution for agricultural research, education and extension in the country.

Rural Development Ministry Conducts Survey under Mission Antyodaya

The Rural Development Ministry has done a gap analysis of more than 3.5 lakh villages, in more than 1.6 lakh panchayats under the Mission Antyodaya convergence scheme.

- Gap analysis involves the comparison of actual performance with potential or desired performance.
- **Kuligod in Karnataka's Belagavi district** is the country's best developed village, but more than a third of the gram panchayats ranked in the top 10 are in Andhra Pradesh.
- In October 2017, an initial baseline survey was carried out in 50,000 gram panchayats, in 2018, the exercise is expected to cover all of the country's 2.5 lakh panchayats by the end of November. The rankings will be updated as more panchayats are included.

Survey Analysis

- A team of officials surveyed and scored village level facilities and amenities using parameters related to infrastructure, economic development and livelihood, irrigation facilities, health, nutrition and sanitation, women's empowerment, and financial inclusion.
- About a quarter of all villages have more than 75% of households using clean energy, such as LPG or biogas which should be further increased in alignment with the Pradhan Mantri Ujjwala Yojana.
- More than 73% of the villages are connected with an all-weather road which needs to be speeded up as Government has brought forward the target date by three years from 2022 to 2019 to achieve complete rural connectivity through all-weather roads under Pradhan Mantri Gram Sadak Yojana.
- The survey indicates moderate progress in the rural housing scheme as less than 10% of the villages have more than 80% of their houses with kachha walls and roofs, indicating temporary structures.
- Financial inclusion which is the most vital link for village empowerment still has long way to go, with less than 15% of villages having banks, while just more than 10% have ATMs.
- At the national level, the data shows progress in some areas and also spotlights discrepancies in respect of targets met under some other government schemes.
- For example, the survey reveals that more than 95% of villages have electricity available for domestic use, while the government had earlier this year claimed that 100% of villages had power connections.
- Similarly with regard to sanitation, the survey shows only 58% of villages, slightly more than 2 lakh of the 3.5 lakh surveyed villages are open defecation free (ODF). However, according to the Swachh Bharat Abhiyan-Gramin, about 5 lakh out of India's 6 lakh villages are already ODF.

The survey result is significant for the outcomes achieved from various schemes but since it shows the gap between the claimed achievements and outcomes, it should be taken up seriously by the Government to remove the discrepancies in the targets met.

Mission Antyodaya

- Mission Antyodaya is a mission mode project envisaged by the Ministry of Rural Development. It is a convergence framework for measurable effective outcomes on parameters that transform lives and livelihoods.

Significance of Mission Antyodaya

- In India, 8.88 crore households are found to be deprived and poor households as per Socio Economic Caste Census (SECC) of 2011 from the perspective of multi-dimensional deprivations such as shelterlessness, landlessness, households headed by single women, SC/ST household or disabled member in the family.
- These households require targeted interventions under government's various schemes and programmes in areas such as wage creation, skill generation, social security, education, health, nutrition and livelihood creation. In this context, 'Mission Antyodaya' seeks to converge government interventions with Gram Panchayats as the basic unit for planning by pooling resources - human and financial - to ensure sustainable livelihoods.
- It facilitates identification of gaps in a quest for poverty free gram panchayats and drive economic activities.
- Since this scheme is expected to encompass schemes from ministries of health, education, employment and social security (insurance schemes under financial services), the recipient can access varied benefits under one umbrella.
- The transmission due to such a convergence is likely to be high and could also enable extensive coverage. This can go a long way in helping the government achieve its aim of reaching the poorest of the poor and the disenfranchised.
- The convergence of multiple schemes under a single scheme could enable the government to migrate all these to the digital Aadhar-enabled platform thereby contributing further to the Digital India mission aims.

Niti Aayog Frames PPP Guidelines for District Hospitals

Niti Aayog, along with technical assistance from the World Bank, has formed guidelines for Public-Private Partnership (PPPs) for providing health services in district hospitals.

- The documents have been designed to supplement efforts for provision of prevention and treatment services of non-communicable diseases (NCDs) related to Cardiac Sciences, Oncology, and Pulmonary Sciences at the district hospitals in tier 2 & 3 cities.
- PPP for NCDs in district hospitals will play a pivotal role in ensuring the availability of the services at the district headquarters.

Background

- The contribution of non-communicable diseases (NCD) to the overall disease burden in the country has increased over the years. But **district hospitals in the country have focused mainly on communicable diseases and reproductive and child health. As a result of which the capacity for handling NCD cases by district hospitals has not been adequately developed.**
- Presently, in India **patients have to travel long distances for availing medical services for NCDs due to urban bias in the availability of private health care**, especially secondary and tertiary care which is skewed towards Tier-1 cities.
- National Programme for Prevention and Control of Cancers, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) was launched by the Ministry of Health and Family Welfare (MoHFW) in 2010.
- One of the objectives of the programme is to:
 - Build capacity at various levels of health care for prevention, early diagnosis, treatment, Information Education Communication (IEC) and Behaviour Change Communication (BCC), operational research and rehabilitation.
 - Provide support for diagnosis and cost-effective treatment at primary, secondary and tertiary levels of health care.

NITI Aayog Guidelines

- PPP Units will be established in District Hospitals
 - The model covers the prevention and treatment of three Non-Communicable Diseases- **Cardiovascular diseases, Cancers and Pulmonary Diseases.**
 - The scope of services:
 - **Oncology:** Palliative care, Medicinal /Conservative Management (including Chemotherapy, Growth Inhibitors & Hormone Therapy)
 - **Pulmonology:** Emergency Management of acute syndromes, Medicinal/Conservative Management for COPD, Bronchial Asthma and Bronchoscopy.
 - **Cardiology:** Emergency Management of acute syndromes, Medicinal/Conservative Management, and Angiography/Angioplasty.
 - All these services in PPP facility will be offered by a **Single partner or a single group of private partners.**
 - The private partner will invest in upgrading/building and equipping the facility and responsible for operational management and service delivery.
 - The government will provide physical space & other infrastructure in 'as-is-where-is' condition, provide support facilities and hospital amenities.
 - Four PPP models—**Management of Contract, Purchasing of Services, Build, Operate and Transfer Model or a Co-location Model**—have been proposed.
 - In the **Management of Contract model**, the state government will bring in a private partner for a period of 10-15 years of investing in equipping the government facility, hiring human resources and managing the facility, while the government will reimburse the private partner.
 - In the **Purchasing of Services model**, the state government will identify medical and surgical procedures that a private partner, will carry out and the government will pay or co-pay the costs. This will be for a period of one to three years.
 - In the **Build, Operate and Transfer Model**, the private partner will have the vacant land offered by the government for thirty years or more and will finance the project.
 - The **Co-location model** will involve government allowing a private partner to set-up a separate facility through private investment within an existing government hospital premise for a duration of 15 years with a renewal option and it will allow the private facility to charge patients.
 - 'User Fee' can be charged by the private entity from patients.
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Important Facts for Prelims (18th October 2018)

Kamikaze Drone

- At its Raising Day function in Manesar, the National Security Guard (NSG) showcased recently acquired unmanned aerial vehicles which also includes Kamikaze Drones.
- A Kamikaze drone is also known by names such as a suicide drone or a loitering munition. A loitering munition is a type of unmanned aerial vehicle designed to engage beyond line-of-sight ground targets with an explosive warhead.
- It is an unmanned aerial vehicle that is designed to self-destruct after serving its purpose.
- It can be effective in room intervention during counter-terrorism operations - a drone breaking in and exploding will involve a lower risk of the casualty than jawans entering physically.
- Kamikaze Drone is built indigenously by an Indian company Vortex UAS.

Deep Submergence Rescue Vehicle-DSRV

- The Indian Navy successfully executed the trials of the newly-inducted rescue vehicle which will now help conduct a rescue mission to bring back personnel from a disabled submarine.

- Apart from rescue missions, they can also be deployed for various other missions like laying cables on the sea bed.
- The DSRV is operated by a crew of three, and can rescue 14 personnel from a disabled submarine at one time.
- DSRVs are transportable by truck, aircraft, ship, or by specially configured attack submarine. It dives, conducts a sonar search, and attaches to the disabled submarine's hatch.
- India has joined a select group of countries that have the capability to locate and rescue "distressed submarines". At present, the US, China, Russia and a few other countries have the capabilities to deploy DSRVs.
- The second DSRV is expected to be inducted at Visakhapatnam in 2019. It has been built by James Fisher & Sons, a United Kingdom company.
- The induction of the DSRV is part of Indian Navy's efforts to enhance operational capabilities when China has been ramping up its maritime presence in critical sea lanes which are of strategic importance to India.

World's Largest Unmanned Transport Drone

- China successfully tested the world's largest unmanned transport drone which can carry a payload of 1.5 tonnes.
- Feihong-98 (FH-98) was adapted from the prototype of the Shifei Y5B, a China-developed transport plane which has been widely used for over 60 years.
- As China's first fully domestically-built transport aircraft, the Shifei Y5B has a history of over 60 years since its first flight in 1957 and has been widely used.

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