



## Seed Connect

A monthly newsletter of Federation of Seed Industry of India

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An economic analysis was done to assess the impact of international agriculture research and development conducted at U.S. universities over 40 years.

Leading this [study](#) is the agriculture economist, Timothy J. Dalton from Kansas State University who reported results from a study of projects completed between 1978 and 2018. The study was funded by the United States Agency for International Development through its Collaborative Research Support Program and Feed the Future Innovation Labs.

The research looked at USAID projects representing an investment of \$1.24 billion to support agricultural development and improve food security around the world. According to the study lead, these projects returned \$10 billion in economic impact. Further, these university-funded programs positively impacted the most vulnerable populations in low- and middle-income countries. Those living in poverty on less than \$5.50 per day received 78% of the research benefits, and nearly 30% of those who received benefits live in extreme poverty on less than a daily net income of \$1.90. The study indicated that every dollar invested provides a return of \$8.52 in economic impact.

The authors found what they termed “high return investments” in areas such as integrated pest management technologies; new varieties of cereals and legumes; and in alleviating post-harvest losses through improved storage practices. He added that agricultural research targets two segments of populations in low-income countries: farmers who are just getting by, and consumers in urban areas who allocate 70-80% of their budget toward food. When these two populations are combined, it is seen that agricultural research is lifting broad populations out of poverty. This differentiates investment in agriculture than many other investment alternatives. Investment in agriculture affects the population broadly through higher incomes or cheaper food. Investment in agricultural research and development takes time, but persistence pays.

In this newsletter we have also covered news around several important developments on agriculture across India, globally and in the area of research. We hope you find it a good read!



**Shivendra Bajaj**  
**Executive Director**  
**Federation of Seed Industry of India and Alliance for Agri Innovation**

## News from India and Around the World

### [India & Mauritius to Collaborate with Other Countries to Ensure Food Security](#)

(Krishi Jagran)

Maneesh Gobin, Mauritius' Minister of Agro-Industry and Food Security, met with Union Minister of Agriculture and Farmers Welfare, Narendra Singh Tomar. The two leaders agreed that both countries will collaborate more closely with other countries on food security. During the meeting, Tomar stated that India's relations with Mauritius are not only political and commercial but also cultural and spiritual. Tomar stated that the Government of India, led by Prime Minister Narendra Modi, is very serious about agriculture and that many concrete steps have been taken to advance it, and that India has achieved self-sufficiency in food grain production to meet not only its domestic needs but also to export to other countries.

### [Agri-tech empowering Indian farmers' ecosystem](#)

(The Times of India)

The Indian agriculture sector has waited a long time for innovation to challenge the current status quo. Agriculture is the highest contributor to India's annual GDP at 18% to 20%. Yet, it continues to be heavily impacted by unique on-ground challenges, slow growth rate, mobility, and supply chain issues among others. Reforming the sector is critical, and this is where technology has been pivotal. Armed with hi-tech digital tools and intricate systems knowledge, agri-tech is set to reform old ways. According to a report, the agri-tech sector can touch \$24 billion in valuation by 2025. Although technological interventions are already changing the landscape, there's still a lot to unlock.

### [India's agriculture challenges can be addressed with AI](#)

(Inventiva)

Artificial intelligence (AI) and digital technology have the potential to support our farmers in overcoming a range of challenges. These technologies provide farmers with enhanced decision-making as one of their core benefits. Increased access to markets, inputs, data, guidance, loans, and insurance would benefit farmers in India's agricultural sector. Smallholder farming in India may benefit significantly from having access to AI models that may boost farm revenue, optimize input costs, and de-risk agriculture through quick data intervention.

### [How Agritech is reshaping the farming landscape in India](#)

(The Times of India)

While Indian agriculture shoulders increasing responsibilities, the majority of its problems remain the same. Undoubtedly, challenges related to weather, soil, seeds, irrigation, etc., continue to affect farming in India. But new-age technologies & innovations and applying scientific thinking to farming are gradually ushering a change in Indian agriculture — perhaps the biggest since the Green Revolution.

### [Time for India to adopt Global Best standards in Cotton Productivity: Shri Piyush Goyal](#)

**(PIB)**

An interactive meeting with stakeholders of Cotton Textile Value Chain on improving cotton productivity & branding of Indian Cotton was held at New Delhi in the august presence of Shri Narendra Singh Tomar, Minister of Agriculture & Farmers' Welfare, Shri Piyush Goyal, Minister of Commerce & Industry, Consumer Affairs, Food & Public Distribution and Textiles and Smt. Darshana V. Jardosh, Minister of State for Textiles & Railways. Shri Goyal said that it is vital to increase yield and profit margins for our cotton farmers by creating awareness about right seeds and encouraging farmers to adopt modern technology and progressive agricultural practices.

### [First I2U2 projects to promote agriculture, food, green energy in India](#)

**(Business Standard)**

The first projects of the I2U2 will be located in India and help with agriculture, food and green energy, according to the joint statement of the four leaders after the group's launch. Indian Prime Minister Narendra Modi along with his Israeli counterpart Yair Lapid and UAE President Sheikh Mohammed bin Zayed Al Nahyan along with the US President Joe Biden launched the Middle East Quad known as "I2U2" from the initials of the participants. The UAE will invest \$2 billion in the agriculture and food project that aims to "maximise crop yields and, in turn, help tackle food insecurity in South Asia and the Middle East," the statement said.

### [India not facing any wheat crisis, assures agriculture minister](#)

**(MoneyControl)**

India is not facing a crisis as far as wheat is concerned, the minister for agriculture and farmers welfare said on July 22. "There is no wheat crisis in the country, as India produces more wheat than its domestic requirement," Narendra Singh Tomar said in a written response in Parliament's Upper House. As per third advance estimate, the wheat production has been pegged at 106.41 million tonnes during 2021-22 which is above the five-year average production of 103.89 million tonnes, the minister said. India had on May 13 banned wheat exports to ensure domestic availability but has been allowing shipments to select countries as assistance. It has since then also tasked an inter-ministerial committee with decisions on allowing exports of wheat flour.

### [India has potential to produce 9.7 million tonnes of seaweed: ICAR-CMFRI](#)

**(Business Standard)**

CMFRI, which is affiliated with the Indian Council of Agricultural Research (ICAR), has laid emphasis on upscaling seaweed farming in India as it has the potential of being a major contributor to the global seaweed production, which is worth billions of dollars, the institute said in a release. Dr A Gopalakrishnan, Director of ICAR-CMFRI, said global production of seaweed -- which comprises various marine plant species and algae -- in 2022 was 35 million tonnes so far which was worth around USD 16.5 billion, according to the release.

### [Scaling up digital innovations in agriculture](#)

**(The Hindu Business Line)**

The agricultural sector is vital for the Indian economy to sustain the livelihoods of some 58 per cent of families and ensure food security for 1.3 billion people. The sector has reached a critical juncture. While it is under stress to feed a growing population with limited natural resources and ecological challenges, the agricultural sector is also expected to sustain income for 100 million smallholders while facing the continued threat of climate change. To effectively respond to this situation, the farm sector needs to address the critical issues of inclusive access to factors of production, efficient supply chains and sustainable resource use.

### [Using AI and ML to manage complex databases in agriculture](#)

**(CRN India)**

Traditionally, farmers rely on physical inspection of massive fields over long periods of time to find out whether their yields are unhealthy or infected, as well as study their growth. With AI- and ML-driven systems, farmers can use data-driven insights to study the yield in a fraction of the time and take necessary steps more quickly. Technology-powered tractors or unmanned aerial vehicles (UAVs) can assist farmers to collect crop data in less time, with higher efficiency. A data-driven approach results

in better extraction of information from farms. However, this data comes with a lot of complexities that are difficult for humans to comprehend and deal with. AI algorithms are designed to effectively extract insights and enable decision making for farmers. With these systems, farmers can predict yields, evaluate crop quality, detect abnormalities, and take relevant measures. Farmers can also log in to customized dashboards on electronic devices to access accurate assessments of harvestable versus non-harvestable acres at any point. The maturity and weight of harvestable crops can also be measured and predicted.

### [India has transformed from food aid recipient to major agricultural exporter: USAID Administrator](#) (The Indian Express)

With US support, India has “transformed” from food aid recipient to major agricultural exporter, USAID Administrator Samantha Power said. Power, who is visiting India, made these remarks after meeting food security experts in Delhi. Taking to Twitter, Power said, “With US support, India transformed from food aid recipient to major agricultural exporter. To tackle the global food crisis, India’s insights and leadership are vital. I met with experts in Delhi to discuss how India’s expertise can be brought to bear to help fight global hunger.”

## New Research

### [Climate-driven expansion of northern agriculture must consider permafrost](#) (Nature)

Northern expansion is often seen as a solution to climate-driven agricultural challenges in lower latitudes, yet little is known about cultivation–permafrost interactions. We outline four science-based adaptations, informed by farmer knowledge, that reduce risk and inform decisions to sustainably manage and develop permafrost-agroecosystems. Increasing temperatures and changing precipitation are projected to negatively affect agricultural outputs in many critical food-producing regions. Globally, it is estimated that major crop yields will decrease by up to 10% with every 1 °C of warming, with the exception of high-latitude countries. In the absence of adaptation, changing climate patterns may also alter the spatial distribution of food production globally. This geographical shift may already be occurring, as demonstrated by the 3.2% decline in the number of farms between 2012 and 2017 in the contiguous United States, and a concurrent 30% increase in Alaska.

### [New research proposes local Biological Control Agent hubs to fight fall armyworm in Bangladesh](#) (Eurekalert)

New CABI-led research, working in conjunction with the Bangladesh Agricultural Research Institute (BARI), proposes the establishment of local Biological Control Agent (BCA) hubs to fight the devastating fall armyworm pest in Bangladesh. The scientists, who published their findings in the CABI Agriculture and Bioscience journal, say a non-linear business model could reverse the current low uptake of safer-to-use and more environmentally friendly BCAs to fight fall armyworm (*Spodoptera frugiperda*) by maize farmers in the country.

### [Economists Study Impact of International Agricultural Research at U.S. Universities](#) (Seed World)

An economic analysis on the impact of international agriculture research and development conducted at U.S. universities over 40 years indicates that every dollar invested provides a return of \$8.52 in economic impact. Kansas State University agricultural economist Timothy Dalton is reporting results from a study of projects completed between 1978 and 2018 and funded by the United States Agency for International Development through its Collaborative Research Support Program and Feed the Future Innovation Labs. The research looked at USAID projects representing an investment of \$1.24 billion to support agricultural development and improve food security around the world. Those projects returned \$10 billion in economic impact, according to Dalton. Much of the work is done by agricultural scientists at U.S. land grant universities. “These university-funded programs positively impact the most vulnerable populations in low- and middle-income countries,” Dalton reported. “Those living in poverty on less than \$5.50 per day receive 78% of the research benefits, and nearly 30% of those receiving benefits live in extreme poverty on less than a daily net income of \$1.90.”

## Designer Crops of the Future Must Be Better Tailored for Women in Agriculture

(Scientific American)

Scientists are starting to make headway in understanding the needs of women farmers. For instance, in a forthcoming study by the International Potato Center (CIP), researchers working on new varieties of sweet potato for East Africa found that 80 percent of stakeholders were aware that women prioritised the taste of sweet potato varieties over all other traits because this impacts the likelihood of their children eating it. Another example is demand for rice fragrance in South and Southeast Asia, which was found to be mainly driven by women. This is reinforced by other studies that indicate that the ease of cooking for staple crops such as cassava is also a key factor that influences the uptake of new varieties among women. They tend to prefer varieties that cook quickly during boiling, which is determined by factors such as age, phytic acid levels and larger starch granules.

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