



Rice is a staple food for majority of the population in India. In several parts of the country it is consumed throughout breakfast, lunch or dinner. Rice is also part of many packaged snack items in the market. This shows that to support the population we will have to increase the production. Since rice is a water guzzler crop, we need new innovations to support both the production and natural resources. Given this background, I have written in [The Tribune](#) about the benefits that hybrid rice can bring to the farmers while limiting the use of natural resources.

Apart from natural resources, air pollution is also one of the biggest concern for the northern part of India, specially Delhi, Punjab and Haryana. During this time, the entire focus is shifted to the crop burning in the fields. Farmers cannot cut or uproot straws after paddy harvest since there is little time left to sow wheat. This problem can be solved if farmers get enough time to remove straws without setting them on fire. A logical solution can be to increase the gap between paddy harvest and wheat sowing.

Hybrid rice appears to be a feasible solution that can be implemented easily and smoothly. Hybrid rice is produced by crossing two genetically distinct varieties. Hybrid rice varieties are early maturing, with around 110 days duration for cultivation. On the other hand, inbred, Open Pollinated Varieties (OPV) take up to 160 days. This certainly widens the gap between Kharif harvest and rabi sowing, preventing farmers from taking the hasty decision of crop burning. At present, farmers in Punjab rely on the Pusa-44 rice variety because of its high yielding capacity. But it is one of the oldest crop varieties, with a cultivation period of 155-160 days. Other important varieties, such as basmati too, need 140-145 days.

Hybrid rice is known to produce a higher number of grains with less water when compared to the inbred varieties. It needs around 1,750 litres of water to produce one kg of hybrid rice. But the requirement swells to 3,500 litres to produce one kg of inbred rice. Indian Council of Agriculture Research (ICAR) has developed some hybrid rice varieties that are early maturing and less water intensive. Experiments have shown that hybrid rice varieties lead to high vigour and a more stable seed yield. Higher the vigour, the better the plants' ability to resist variable environmental production's negative impact. There are major benefits hybrid rice varieties offer to farmers of Punjab and those in other parts of the country. Besides early maturing characteristics, hybrid rice facilitates good quality grain, ensures higher crop output resistance to diseases, pests and insects, and builds climate resilience in the crop. Despite so many benefits, hybrid rice adoption has been under par.

We hope given the sustainability benefits that hybrid rice presents such as shorter duration, low water requirement, lesser electricity usage, climate resilience, the farmers will embrace these varieties.

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!



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News from India and Around the World

[Hybrid rice can improve productivity and limit the usage of natural resources](#)

(The Tribune)

Agriculture in the States of Punjab and Haryana is facing two major problems—water shortage and power outages. The groundwater table in Punjab is falling at an alarming rate. The drop was a metre every year in 18 of 22 districts between 1998 and 2018, revealed a study carried out by the Punjab Agricultural University. Farmers have moved to tube wells from canals over the past few decades to access water round-the-clock. However, it has resulted in the depletion of the water table. It also has had an impact on power consumption. The State, especially rural areas, are witnessing unscheduled power cuts due to coal shortage. In such conditions, cultivating long, water-consuming crops can lead to unexpected expenses, leading to long term loss. Hybrid rice appears to be a feasible solution that can be implemented easily and smoothly. Hybrid rice is produced by crossing two genetically distinct varieties. Hybrid rice varieties are early maturing, with around 110 days duration for cultivation

[India to supply 65,000 MT urea for paddy cultivation](#)

(Mint)

India will be supplying 65,000 metric tonnes of urea to Sri Lanka to avoid any disruption in paddy cultivation as it faces the worst economic crisis in its post-independence history. High Commissioner of Sri Lanka in New Delhi Milinda Moragoda met with the Secretary of the Department of Fertilisers Rajesh Kumar Chaturvedi in New Delhi to discuss the supply of urea required for the current Yala cultivation season in Sri Lanka, according to media reports. Moragoda thanked Chaturvedi for India's decision to supply 65,000 MT of urea required for paddy crop. The Government of India has decided to supply this quantity of urea immediately to Sri Lanka at the request of the Government of Sri Lanka, despite a ban on export of urea from India.

[India looking at learning advances in drip irrigation for paddy, sugarcane, cotton](#)

(Daiji World)

After years of learning best agricultural practices from Israel, India is now taking help from the country to set up Centres of Excellences for Agriculture to advance in usage of micro and smart irrigation systems (drip irrigation) for paddy, sugarcane and cotton cultivation. As Union Agriculture and Farmers Welfare Minister, Narendra Singh Tomar, will be leading a delegation to Israel from May 8-11, his very first visit will be to the facilities of Green 2000 - Agricultural Equipment and Know How Ltd. and NETAFIM Ltd., which are engaged in planning, setting up, consultation and on-going management of various projects in different spheres of agriculture and usage of drip irrigation in paddy, sugarcane and cotton cultivation. Tomar, who is visiting Israel on invitation by his Israeli counterpart, Oded Forer, for

bilateral meetings to discuss agricultural issues between the two countries, will have a roundtable discussion with Agritech Startup companies at the Israel Export and International Cooperation Institute, Tel-Aviv too.

[Vice President M Venkaiah Naidu calls for fund boost to agriculture research](#)

(The New Indian Express)

Vice President M Venkaiah Naidu has stressed the need for further investment in agricultural research and extension, to achieve sustainable gains in agricultural productivity. He said that expenditure on research and development in India was less than one per cent of the contribution of agriculture in the Gross Development Product (GDP), and less than what other developing and developed nations were spending on that front.

[Why we need data in farming to create a sustainable food future for India](#)

(Your Story)

The Indian agricultural value chain goes through various intermediaries before making its way to consumers. The sector is also heavily fragmented and unorganised, which adds another layer of challenges for small farmers who constitute 86 percent of the primary food providers in the country. The current structure also has limited access to credit, capital, farm inputs, and marketplaces for these farmers. Low technology penetration is another major constraint, since it brings with it transparency, trackability and predictability as a by-product, which could greatly benefit the sector.

[Government Of Canada Invests In The Future Generation Of Agricultural Leaders](#)

(India Education Diary)

Canada's young farmers are helping to strengthen our agriculture and agri-food sector through their leadership and innovative contributions. The Honourable Marie-Claude Bibeau, Minister of Agriculture and Agri-Food announced an investment of up to \$2.1 million for three organizations to support development opportunities for Canadian youth in agriculture. With funds under the Agri Competitiveness Program, these organizations will deliver important programming and initiatives that help to develop the future generation of agricultural leaders. Canadian 4-H Council (4-H Canada) will receive up to \$1.8 million over two years to develop new curriculum and resources that empower youth through leadership programs, aimed at growing their practical knowledge and skills in key areas concerning Canadian agriculture. Through this project, 4-H Canada will reach an increased number of youths in diverse audiences, create new mentorship opportunities and advance awareness of Canadian agriculture, food literacy and exciting careers in the agri-food sector.

[Why India's heatwave holds lessons for the world](#)

(Scroll.in)

India experienced its hottest March this year since the Indian Meteorological Department started recording weather data in 1901. April was no better: the heatwave continued and 14 weather stations breached their previously registered highest temperature records. The heatwave made global headlines since it scorched the wheat crop at a time when the Russia-Ukraine war had made more countries dependent on wheat supplies from India. International wheat prices surged 6% after India banned wheat exports.

[Drones Will Take Agriculture To The Next Level, Empower Farmers](#)

(Inc42)

Prime Minister of India said that drones will emerge as a 'gamechanger' in the agriculture sector and take it to the next level. The PM underscored the importance of drones in sectors such as agriculture while inaugurating the Bharat Drone Mahotsav 2022. He added that the use of deeptech technology is bound to increase in the coming days. Addressing the gathering, Modi asserted that drone technology will play a major role in empowering farmers and modernising their lives.

[Agri export sector bats for freight support](#)

(Mint)

Amid soaring international and domestic transport costs owing to the Russia-Ukraine war, exporters of agricultural commodities have asked the central government to reinstate the Transport and

Marketing Assistance (TMA) scheme which had an allocation for ₹200 crore. The scheme was beneficial for low value agri products, especially vegetables. Exporters said that often, air freight rates are higher than the cost of vegetables, and a 200-600% jump in freight rates in the last two years has worsened the situation. Federation of Indian Export Organizations (FIEO) has said that withdrawal of TMA scheme has come as a “setback” for agri exporters and that small businesses have had to bear the brunt of the same.

[State to introduce farmer-centric policies](#)

(The Times of India)

Madhya Pradesh government is committed towards making agriculture profitable and introducing farmer’s centric policies, said agriculture minister Kamal Patel. The state government has made farmer centric policies for farmers of Madhya Pradesh and is committed towards making farming profitable. The state government has also planned to promote the third season crop summer ‘mung’ to help farmers increase their income.

[How Are Indian Agritech And Agri-Fintech Startups De-Risking Agriculture For Farmers?](#)

(Inc42)

In the last six years, agritech start-ups in India have witnessed unprecedented growth. Leveraging 4G connectivity and rising smartphone penetration, agritech entrepreneurs have built farmer platforms, B2B agri marketplaces, rural fintech businesses, and farm-to-consumer (F2C) brands. But this represented only a small part of Indian agriculture and reached less than 20% of Indian farmers. I believe there is a dire need for farmers to shift towards a system where smallholders can freely practice digital agriculture practices without the fear of risks associated with farming. For instance, through digitalisation, Farmer Producer Organisations (FPOs) can estimate the total volume of output from member farmers and identify potential buyers during or before the harvest season.

[Hungary explores investment opportunities in water, agriculture and food processing, and S & T sectors](#)

(The Economic Times)

Hungary has been among India’s steadfast partners in Central Europe and the two have agreed to further explore opportunities in various sectors including water, agriculture, food processing, health and S&T. The Hungarian side also signed the International Solar Alliance Framework Agreement coinciding with the visit of its Foreign Affairs and Trade Minister Péter Szijjártó. He was accompanied by a high-level business delegation.

[75 Indian villages to be shaped with Israeli cooperation](#)

(The Economic Times)

Taking to the “next level” the Indo-Israel cooperation in the field of agriculture, 75 Indian villages will be shaped with Israeli cooperation to mark the country’s 75th Independence anniversary, Union Agriculture Minister of India said. They discussed various issues related to modern agro techniques, capacity building, transfer of knowledge know-how and support in the fields of agriculture, water management, environment and rural development, keeping in view the scope and potential of agriculture development in both the countries, the Ministry of Agriculture and Farmers Welfare said in a statement.

[Biden outlines plan to boost U.S. agriculture production as Ukraine invasion fuels high food prices](#)

(CNBC)

President Joe Biden on Wednesday outlined White House plans to help American farmers boost crop production to counter reduced food exports from Europe caused by Russia’s invasion of Ukraine. The president, who spoke from a farm in Kankakee, Illinois, noted that Russian President Vladimir Putin’s attack has driven up the global prices of a variety of food staples, including wheat, corn, barley, oilseeds and cooking oil. Russia and Ukraine, combined, supply more than 25% of the world’s wheat exports and about 20% of barley exports. “Right now, America is fighting on two fronts,” Biden told the crowd assembled at the farm. “At home, it’s inflation and rising prices. Abroad, it’s helping Ukrainians defend their democracy, and feeding those who are left hungry around the world because Russian atrocities exist.”

[China, Brazil sign agreement to boost trade of corn, other agricultural products](#)

(Global Times)

China and Brazil have reached an agreement to boost cooperation in agricultural trade including corn, soybean meal and peanuts, as China expands the import of feed grains for the needs of deeper agricultural processing. The General Administration of Customs (GAC) and the Brazilian Ministry of Agriculture signed the Protocol on Phytosanitary Requirements for exporting Brazilian corn to China (revised edition), according to a statement on the website of China's Ministry of Commerce (MOFCOM). "The signing of the agreement indicates that China moves to enlarge the import of corn while reducing purchase of soybeans in an effort to increase food security," said Li Guoxiang, a research fellow at the Rural Development Institute under the Chinese Academy of Social Sciences.

New Research

[A wiring diagram to integrate physiological traits of wheat yield potential](#)

(Nature)

Researchers proposed a wiring diagram as a platform to illustrate the interrelationships of the physiological traits that impact wheat yield potential and to serve as a decision support tool for crop scientists. The wiring diagram is based on the premise that crop yield is a function of photosynthesis (source), the investment of assimilates into reproductive organs (sinks) and the underlying processes that enable expression of both. By illustrating these linkages as coded wires, the wiring diagram can show connections among traits that may not have been apparent and can inform new research hypotheses and guide crosses designed to accumulate beneficial traits and alleles in breeding. The wiring diagram can also serve to create an ever-richer common point of reference for refining crop models in the future.

[Retail prices of nutritious food rose more in countries with higher COVID-19 case counts](#)

(Nature)

The COVID-19 pandemic has curtailed lives and livelihoods, leading to price spikes for some foods and declines for others. We compare monthly retail food prices in up to 181 countries from January 2019 to June 2021, test for differences over time and find that average prices rose significantly, especially for more nutritious food groups in countries with higher COVID-19 case counts. Analysis of retail prices by food group complements data on farm commodity prices and overall consumer price indexes, helping to guide policy for resilience and response to shocks.

[South Asian agriculture increasingly dependent on meltwater and groundwater](#)

(Nature)

Researchers used a high-resolution cryosphere–hydrology–crop model forced with an ensemble of climate and socio-economic projections to assess how the sources of irrigation water supply may shift during the twenty-first century. They found increases in the importance of meltwater and groundwater for irrigated agriculture. An earlier melt peak increases meltwater withdrawal at the onset of the cropping season in May and June in the Indus, whereas increasing peak irrigation water demand during July and August aggravates non-renewable groundwater pumping in the Indus and Ganges despite runoff increases. Increasing inter-annual variability in rainfall runoff increases the need for meltwater and groundwater to complement rainfall runoff during future dry years.

[A Century of Antarctic Agriculture Is Helping Scientists Grow Food in Space](#)

(The Wire)

The earliest efforts to grow plants in Antarctica were primarily focused on providing nutrition to explorers. In 1902, British physician and botanist Reginald Koettlitz was the first person to grow food in Antarctic soils. He collected some soil from McMurdo Sound and used it to grow mustard and cress in boxes under a skylight aboard the expedition's ship. The crop was immediately beneficial to the expedition. Koettlitz produced enough that during an outbreak of scurvy, the entire crew ate the greens to help stave off their symptoms. This early experiment demonstrated that Antarctic soil could be productive, and also pointed to the nutritional advantages of fresh food during polar expeditions.

[Learning from nature: Biosynthesis of cyanobacterin opens up new class of natural compounds for applications in medicine and agriculture](#)

(Science Daily)

Researchers in the groups of Prof. Tobias Gulder from TU Dresden and Prof. Tanja Gulder from Leipzig University have succeeded in understanding the biosynthetic mechanisms for the production of the natural product cyanobacterin, which in Nature is produced in small quantities by the cyanobacteria *Scytonema hofmanni*. In the process, they also discovered a new class of enzymes for building carbon-carbon bonds. The (bio)chemists are thus significantly expanding the biocatalytic repertoire currently known from Nature and are opening up new, sustainable biotechnological applications in medicine and agriculture.
