



The Punjab Agricultural University (PAU) has developed three new varieties of wheat - PBW 803, PBW 824 and PBW 869, berseem (clover)- BL 44 and oats - OL 15 for cultivation in Punjab.

According to the experts PAU, PBW 803 is recommended for cultivation in the South-Western region of Punjab under irrigated timely sown conditions. The crop's average height is 100 cm and it matures in 151 days. It is fully resistant to brown rust and moderately to yellow rust. Its average yield is 22.7 quintals per acre.

PBW 824 is recommended under irrigated timely sown condition. It had 104 cm average height and matured in about 156 days. The PBW 869 variety has been recommended for sowing with happy seeder or super seeder in in-situ rice residue-managed fields, based on research and adaptive trials conducted by the Borlaug Institute for South Asia and PAU. Its average height is 101 cm and it matures in about 158 days. It is fully resistant to brown rust and moderately to yellow rust. Its average yield is 23.2 quintals per acre.

Clover variety BL 44 grows quickly and has more number of tillers. The OL 15 is single-cut oats variety for irrigated areas of Punjab. Its plants are tall, have long and broad leaves with more leafiness and tillering ability.

The newly developed varieties is full of potential and is set to benefit the farmers and the sector as well.

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

[Critical decisions being taken to benefit small farmers: PM](#)

(The Indian Express)

Addressing the nation from the Red Fort on the 75th Independence Day, Modi said: “We need to take cognizance of a major challenge posed in our agriculture sector. Challenge of shrinking of land of villagers which is due to immense rise in population, and smaller land holdings due to the divisions happening in the family. Farming land has shrunk alarmingly.” “More than 80 per cent of the farmers of the country are those who have less than two hectares of land. If we see, 80 out of 100 farmers have less than two hectares of land i.e. the farmers of our country are practically in the small farmer category,” he said. “Unfortunately, small farmers remained excluded from the benefits of the yesteryear’s policies in the country. They did not get their due importance. Now, keeping in mind these small farmers in the country, agricultural reforms are being undertaken, and critical decisions are being taken to benefit them,” the Prime Minister said.

[PM Releases 9th Instalment Of PM-KISAN](#)

(Outlook Krishi)

Prime Minister Narendra Modi released the ninth instalment of financial benefit under Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme via video conferencing. He also interacted with farmer beneficiaries during the event. This enabled the transfer of more than Rs. 19,500 crores to over 9.75 crores beneficiary farmer families. Prime Minister Modi spoke of the sowing season and expressed the hope that the amount received today will help the farmers. He also mentioned that the scheme of Kisan Infrastructure Fund with Rs. 1 lakh crores corpus also completes one year. During his address, he touched upon initiatives like Mission Honey-Bee and making saffron from Jammu & Kashmir in the NAFED shops. Honey mission has led to 700 thousand crore exports of honey resulting in extra income for farmers.

[Cabinet nod for ₹11,040cr scheme to boost oil palm farming](#)

(Hindustan Times)

To encourage palm oil production in India and decrease its import, the Centre has approved a plan named National Mission on Edible Oils – Oil Palm, agriculture minister Narendra Singh Tomar said that the government has earmarked ₹11,040 crore for the plan. North-eastern Regional Agriculture Market Corporation Limited will also be getting a revival package of ₹70.45 crore. The decision comes after Prime Minister Narendra Modi announced the new Central scheme on August 15 during his Independence Day speech at Red Fort. “India is dependent on imports of edible oil... we import edible oil in large quantities, 56% of which is palm oil... It has been seen that India can cultivate around

2,800,000 hectares of land for palm oil trees, especially in the northeast region, where over 900,000 hectares is feasible for such cultivation,” he said.

[Revolutionizing the agriculture industry by using advanced technology](#)

(Express Computer)

In the present times, as per industry estimates, approximately 60% of the country’s population depends on agriculture as their primary source of livelihood. The sector contributes 14 % in the total GDP of the nation. In spite of the lack of technology and innovation, the agricultural industry has a strong presence and huge potential for growth. With the introduction and adoption of technologies, the industry will progress and prosper in the times ahead. A recent EY report highlights a similar trend and states that India’s Agri-Tech sector possesses a vast potential to grow, and it will hit the \$24.1 billion mark by 2025. It further shares that the Indian Agri-Tech sector is presently valued at \$204 million and comprises 1% of the total agricultural industry. The study further points out that the Agri-Tech space will consolidate and will witness start-ups expansion that will cater holistically to the demands and needs of the farmers in the times to come.

[Agriculture in 25 districts of Maharashtra vulnerable to climate changes, says study](#)

(Hindustan Times)

A new study by researchers from two Central government institutes — both under the Indian Council of Agricultural Research (ICAR) — has found that just over two-thirds of arable land in Maharashtra is vulnerable to climate change-related impacts, such as drought, floods, and diminishing water security. Of the state’s 36 districts, 11 were found to be highly vulnerable to climate-related agricultural distress (making up 40% of cropped land), while another 14 districts (making up 37% of the state’s agricultural land) were found to be moderately vulnerable to climate change. These districts are all spread out over eastern Vidarbha and central Maharashtra. The study, titled ‘Socio-economic vulnerability to climate change – Index development and mapping for districts in Maharashtra’, was led by researchers Chaitanya Adhav (from the ICAR-National Dairy Research Institute in Karnal, Haryana) and Dr R Sendhil (from ICAR-Indian Institute of Wheat and Barley Research in Karnal).

[10 entities allowed to use drones: MoCA](#)

(Mint)

The Ministry of Civil Aviation (MoCA) and regulator Directorate General of Civil Aviation (DGCA) allowed 10 organisations, including state governments and private companies, to use drones for a year. Those given permission include - Karnataka, National Health Mission (Mumbai), Gangtok Smart City Development project, Steel Authority of India's (SAIL) plant at West Bengal's Burnpur, Hyderabad's Asia Pacific Flight Training Academy, Gujarat's Blue Ray Aviation, Tractors and Farm Equipment Limited, Mahindra & Mahindra, Bayer Crop Science, and Indian Institute of Tropical Meteorology, Pune.

[Driving a 2nd green revolution via agri-biotech](#)

(The Hindu Business Line)

Indian agriculture has come a long way since the country saw the Green Revolution in the late Sixties, which saved the country from food shortages and severe farming distress. The science behind the revolution is what made all the difference. Today, India is once again at the cross-roads, though it’s on a much stronger wicket than it was five decades ago. India is today a leading producer of a variety of crops. They include rice, wheat, cotton, sugarcane and an impressive list of fruits and vegetables. But, in terms of yield or output per unit of land, we lag behind countries that are major cultivators of food crops.

[Sugar rally could help India to export 6mn tonnes without subsidy](#)

(Mint)

India could export 6 million tonnes of sugar in the new season starting in October even without government subsidies, with global prices making overseas sales more lucrative after rising to their highest in 4-1/2 years, industry officials said.

[Farm sector at centre stage, sowing robust again](#)

(India Today)

India's agriculture sector is once again at the centre stage of the national economy. Farming carried the baton of the country's growth when industries and services were substantially affected during the nationwide lockdown and local restrictions. The momentum of agricultural growth is on as nearly 76 per cent of the 2020 kharif acreage level was covered as of July 30, 2021, according to a report by the ICRA rating agency. The acreage is a robust 9.5 per cent higher than the sowing level recorded in the same period of the 2019 kharif season though it may not reach the record level of the year 2020, the report noted. "We expect acreage in the current kharif season to modestly trail the record high witnessed in the 2020 season," ICRA added. The agriculture sector seems immune from the catastrophe induced by the pandemic.

BRICS for partnership in strengthening agro-biodiversity for food security

(Business Standard)

BRICS nations have pitched for closer ties in strengthening agro-biodiversity to ensure food and nutrition security, the government said on Saturday. The issue was discussed in the working group of agriculture represented by top agriculture officials from Brazil, Russia, India, China and South Africa (BRICS) virtually on August 12-13. The group stressed on having closer ties in strengthening cooperation and research in the field of agriculture, an official statement said. In the meeting, the group shared that the United Nation has noted BRICS countries are well positioned to take a leading role in helping to achieve the objectives of the 2030 Sustainable Development Goals to eradicate hunger and poverty.

CO2 GRO partners with an agriculture innovator in Japan

(Far Eastern Agriculture)

Toronto-based CO2 GRO Inc (GROW). has announced a commercial feasibility of a CO2 delivery solutions system with a Japan-based greenhouse grower. The grower is an agriculture innovator in Japan with its high-tech Controlled Environment Agriculture facilities (CEA). The commercial feasibility will be conducted in a section of one of the company's commercial greenhouses for up to twelve months. The CO2 Delivery Solutions system will utilise an existing overhead irrigation boom to apply the CO2 saturated solution mist on the plants. The primary focus of the commercial feasibility is to assess CO2 Delivery Solutions impact on life cycle acceleration enabling more harvest turns, increased biomass growth and CO2 usage.

Vietnamese agricultural exports shine despite pandemic

(Hortidaily)

The agricultural industry has promoted trade successfully despite difficulties caused by the COVID-19 pandemic, contributing to expanding export markets and helping the country gain an impressive trade surplus of US\$3.9 billion in the first seven months. Among trade deals made by the agriculture industry in the period, the most notable was Vietnam's lychee exports to Japan. With efforts in negotiation and commitments to comply with Japan's regulations, Japan authorized Vietnam to supervise and approve Vietnamese quarantine treatment establishments. According to Hoang Trung, director of the ministry's Plant Protection Department, the department had to continuously work online with Japanese authorities, even implementing online inspection, which created favorable conditions for enterprises to successfully export lychees in 2021.

Japan sours as premium grape widely copied in China, South Korea

(Nikkei Asia)

High-end grape variety "Shine Muscat" is a bona fide Japanese brand, certified by the nation's agricultural ministry. Sweet and fragrant, the grapes can fetch \$60 or more per bunch at grocery stores. But this prized breed has been widely copied by farmers in South Korea and China, who now beat Japanese counterparts in production volume. South Korea exports five times more Shine Muscat grapes by value than Japan, while Chinese farmland devoted to the grape is more than 40 times larger than the Japanese figure. Japanese legislation took effect in April that barred the seeds and seedlings of registered plants and fruits from being taken out of the country, but implementation of the law remains a challenge.

[Japan opens doors to California plums](#)

(Fresh Plaza)

The United States Department of Agriculture (USDA) announced that Japan has granted market access for California plums. According to the California Fresh Fruit Association, “Eliminating the phytosanitary barriers keeping California plums out of the Japanese market required multiple rounds of technical negotiations that were somewhat hampered by the COVID-19 pandemic.” The CFFA says the decision was made thanks to help from the USDA Animal Plant Health Inspection Service and Agricultural Research Service’s negotiators and experts, as well as the Fresno County and Tulare County Agricultural Commissioner offices. The decision still calls for strict packing and fumigation protocols in place.

[TN’s exclusive agri budget seeks to create base to transform farmers into traders](#)

(The Hindu Business Line)

Key focus areas for transforming the agriculture sector will be turning agriculture attractive for younger generation, promotion of food processing, exports and organic farming. The first-ever exclusive agriculture presented by the DMK government vows to transform Tamil Nadu’s agriculture sector into value-oriented one.

[New agriculture visa set to be introduced](#)

(Canberra Times)

Migrant farm workers from Asian nations will be offered a path to permanent residency under a long-awaited agriculture visa. The category, which will be in place from September 30, will apply to skilled, semi-skilled and unskilled workers according to new details released. Agriculture Minister David Littleproud said the government would negotiate with individual countries to join the scheme. Vietnam, Thailand, The Philippines, South Korea and other Asian nations are expected to be among the first included.

[Ten water infrastructure projects funded to boost SA agriculture](#)

(Food Mag)

Ten water projects are being funded by almost \$90 million under the National Water Grid Fund – Connections Pathway program in South Australia, to significantly boost the state’s agriculture industry. The projects will enhance water security, help stimulate regional economies and create jobs, with funds provided by the South Australian government, the Commonwealth and program partners. The projects range from delivering additional water to Barossa Valley wine producers, to supporting water efficient, high technology glass houses for growing vegetables at Virginia. “We know water is a critical resource for a successful agriculture sector and these 10 projects across South Australia will grow jobs by delivering new and affordable water, enhancing water security and helping stimulate regional economic development,” minister for Primary Industries and Regional Development David Basham said.

[Nutrient-rich human waste poised to sustain agriculture, improve economies](#)

(Illinois News Bureau)

The future connection between human waste, sanitation technology and sustainable agriculture is becoming more evident. According to research directed by University of Illinois Urbana-Champaign civil and environmental engineering professor Jeremy Guest, countries could be moving closer to using human waste as fertilizer, closing the loop to more circular, sustainable economies. A new study characterizes the spatial distribution of human urine-derived nutrients – nitrogen, phosphorus and potassium – and agricultural fertilizer demand to define supply-demand location typologies, their prevalence across the globe and the implications for resource recovery. The findings are published in the journal Environmental Science and Technology.

[Digital technology and African smallholder agriculture: Implications for public policy](#)

(Brookings)

COVID-19 has exacerbated challenges to Africa’s food and agriculture sector and to its millions of smallholder farmers. At the same time, the pandemic has accelerated innovative efforts to develop and deploy the transformative power of digital technology to address these problems in ways that

leapfrog past practices and traditional solutions. Emerging evidence from Asia and Africa suggests that digital technology holds promise to dramatically enhance smallholder productivity and incomes by increasing on-farm and off-farm efficiency, enhancing traceability, reducing vulnerability to counterfeit products, and improving farmers' access to output, input, and financial markets. The change is driven by the introduction of new forms of intermediation and the collection, use, and analysis of massive amounts of agriculture data to disrupt existing business models. New strategic partnerships between the public and private sectors are an essential component for reaping the positive impacts of digital technology and avoiding unintended and unwelcome secondary effects.

[Zimbabwean young farmers lead the charge in agriculture](#)

(How me made it in Africa)

Agriculture in Zimbabwe is on an upswing and young people are the driving force. For example, the country is set to harvest 2.8 million tonnes of maize this year, triple the 2020 harvest, and making it the highest output in 20 years. The anticipated 2021 bumper harvest should finally ensure food surplus in Zimbabwe, Information Minister Monica Mutsvangwa said in June. Just a year ago, the United States Agency for International Development (USAID) doled out \$86.9 million to boost food security in the country. About 57% of Zimbabwean women between ages 20 and 31 and 47% of men in the same age bracket are growing fruits such as mangoes, involved in rearing livestock such as the prolific breeders Boer goats, and cultivating tobacco, corn and so on.

[German investor brings aquaponics vegetable farming to Southern Africa](#)

(Hortidaily)

A German investor, Desert Foods International, DFI has partnered with a South African Farmer to implement a historic climate-resilient agriculture vegetable and fish farming project. The project, which will spread to the entirety of Southern Africa, commenced operations most recently at a farm in South Africa with a foreign direct investor, DFI, as a financial sponsor of a water-saving year-round farming practice that is 10x times more productive than open-field agriculture. Hekpoort, Gauteng Province – north-west of Johannesburg, is where the largest and technically most advanced aquaponics facility in Southern Africa has gone into operation. The team also has in-depth farming experiences with pak choi, kale (flat and curly), celery and almost any fancy lettuce from butter to cos. The weekly harvest capacity is in the range of 20,000 units of organically cultivated greens.

[Africa's first digital map of its land reveals a surprising fact about its trees](#)

(Quartz Africa)

As Africa registered a significant first, becoming the first continent in the world to complete its digital land-use data, new revelations emerged about its trees outside of key forests in Africa. There are more trees in Africa than initially thought, with the latest study showing there are about 7 billion trees on the continent, not counting the continent's major woodlands like the Congo rainforest. This is according to a recent study by the Food and Agriculture Organisation. The open data initiative that covered the period between 2018 and 2020, disclosed more forests and arable lands than were previously detected. FAO said the findings reveal huge opportunities for the management of the environment, agriculture, and land use in Africa, and increase countries' ability to track changes and conduct analyses for informed sustainable production, restoration interventions, and climate action. Consequently, countries can detect where deforestation is happening, where settlement land is encroaching on cropland or grassland and where the wetland is being lost.

[Russian Domestic Wheat Price at Season Record Fuels Concerns](#)

(Bloomberg)

Russian domestic wheat prices jumped in August to levels typically not seen this time of year, raising concerns about food price inflation and possible government reaction. Wheat prices for the month are surging to the highest in at least a decade, contrary to the typical decline during this period as the new harvest flows in. That may be the result of farmers holding the grain back from the market because they're wary of making bad deals under a recent export tax. The duty was meant to help stifle inflation, yet the annual rate is now 6.5%, the highest since 2016.

[China Headed For Record Purchases Of U.S. Ag Exports](#)

(Successful Farming)

Exporters sold \$15.2 billion worth of American farm products to China in the first six months of 2021, raising the possibility of record sales this year, wrote economist David Widmar on the Agricultural Economic Insights blog. Sales are on pace to hit \$33.7 billion, with some of the most active months for sales — during and after the fall harvest — still to come.

New Research

[Indian scientists generate hydrogen from agricultural residue: Could power EVs](#)

(The Financial Express)

Indian scientists from Sentient Labs, a Research and Development innovation lab, with the MACS – Agharkar Research Institute (ARI) have developed the first of its kind technology. Its creators claim that they have devised a process to generate hydrogen directly from agricultural residue. They say that it could be used to power fuel-cell vehicles. Sentient Labs has been working on identifying bottlenecks in battery technology and fuel cell technology and hydrogen generation. MACS-ARI has also been committed to conduct basic and applied research in life sciences and harness the genetic diversity of microbes for bio-energy generation and has been working towards developing solutions that are appropriate for national use. Hydrogen fuel-cell technology is said to be the next big step in sustainable mobility, or a parallel technology to go alongside BEVs. Sentient Labs states that the technology would most likely be beneficial and suitable for commercial vehicles and would leave a minimal environmental footprint.

[GND University and Indian Council of Agriculture Research \(ICAR\) sign MoU to promote sustainable agriculture, climate-resilient farming](#)

(Punjab News Express)

Exchanging scientific information freely, forging cooperative research, hosting students and faculty, and sharing agricultural technology to promote the development and use of drought- and pest-resistant crops. These will be just a few of the collaborations that will be strengthened when Guru Nanak Dev University, which is among the best universities in India, signed a Memorandum of Understanding (MoU) with ICAR-Indian Institute of Maize Research on Thursday. In a historical and strategically development, Guru Nanak Dev University Amritsar has entered into a partnership with ICAR-Indian Institute of Maize Research, Ludhiana, an autonomous body responsible for co-ordinating agricultural education and research in India, as well as other related matters of mutual interest. A formal “MoU” was signed between GNDU Vice-Chancellor Professor Jaspal Singh Sandhu and Dr. Sujay Rakshit, Director, ICAR-Indian Institute of Maize Research recently. The collaboration will increase the number of academic and student exchange opportunities between the institutes.

[New imaging, machine-learning methods speed effort to reduce crops' need for water](#)

(Illinois Edu)

Scientists have developed and deployed a series of new imaging and machine-learning tools to discover attributes that contribute to water-use efficiency in crop plants during photosynthesis and to reveal the genetic basis of variation in those traits. The findings are described in a series of four research papers led by University of Illinois Urbana-Champaign graduate students Jiayang (Kevin) Xie and Parthiban Prakash, and postdoctoral researchers John Ferguson, Samuel Fernandes and Charles Pignon. The goal is to breed or engineer crops that are better at conserving water without sacrificing yield, said Andrew Leakey, a professor of plant biology and of crop sciences at the University of Illinois Urbana-Champaign, who directed the research.

[Punjab Agricultural University develops five varieties of 3 crops](#)

(The Tribune)

The Punjab Agricultural University (PAU) has developed and recommended three new varieties of wheat and one each of berseem (clover) and oats for cultivation in Punjab. These include PBW 803, PBW 824 and PBW 869 of wheat, BL 44 of berseem and OL 15 of oats. The varieties were approved during the meeting of the State Variety Approval Committee held under chairmanship of Dr Sukhdev Singh Sidhu, Director, Agriculture. As per Dr Navtej Singh Bains, director (Research), and Dr Jaskarn Singh Mahal, director (Extension education), PAU, PBW 803 has been recommended for cultivation in

the south-western region (Bathinda, Faridkot, Fazilka, Ferozepur, Mansa and Muktsar) under irrigated timely sown conditions. “Its average height is 100 cm and it matures in about 151 days. It is fully resistant to brown rust and moderately to yellow rust. Its average yield is 22.7 quintals per acre,” said Dr Bains.

[Data-driven decentralized breeding increases prediction accuracy in a challenging crop production environment](#)

(Nature)

Crop breeding must embrace the broad diversity of smallholder agricultural systems to ensure food security to the hundreds of millions of people living in challenging production environments. This need can be addressed by combining genomics, farmers’ knowledge, and environmental analysis into a data-driven decentralized approach (3D-breeding). This idea was tested as a proof-of-concept by comparing a durum wheat (*Triticum durum* Desf.) decentralized trial distributed as incomplete blocks in 1,165 farmer-managed fields across the Ethiopian highlands with a benchmark representing genomic prediction applied to conventional breeding. We found that 3D-breeding could double the prediction accuracy of the benchmark. 3D-breeding could identify genotypes with enhanced local adaptation providing superior productive performance across seasons. We propose this decentralized approach to leverage the diversity in farmer fields and complement conventional plant breeding to enhance local adaptation in challenging crop production environments.

[Violent conflict exacerbated drought-related food insecurity between 2009 and 2019 in sub-Saharan Africa](#)

(Nature)

Conflict, drought and locusts are leading concerns for African food security but the relative importance and spatiotemporal scale of crises resulting from each hazard is poorly characterized. Here we use continuous, subnational data to demonstrate that the rise of food insecurity across sub-Saharan Africa that began in 2014 is attributable to an increase in violent conflict, particularly in South Sudan and Nigeria. Although drought remains a leading trigger of food crises, the prevalence of drought-related crises did not increase from 2009 to 2018. When exposed to drought, pastoralists experienced more widespread, severe and long-lasting food crises than people living in agricultural zones. Food insecurity remained elevated in pastoral regions for 2 years following a drought, while agricultural regions returned to pre-drought food-security levels in ~12 months. The few confirmed famines during the 2009–2018 period coincided with both conflict and drought, while locusts had little effect on food security during this period.

[A global database of diversified farming effects on biodiversity and yield](#)

(Nature)

With the Convention on Biological Diversity conference (COP15), United Nations Climate Change Conference (COP26), and United Nations Food Systems Summit, 2021 is a pivotal year for transitioning towards sustainable food systems. Diversified farming systems are key to more sustainable food production. Here we present a global dataset documenting outcomes of diversified farming practices for biodiversity and yields compiled following best standards for systematic review of primary studies and specifically designed for use in meta-analysis. The dataset includes 4076 comparisons of biodiversity outcomes and 1214 of yield in diversified farming systems compared to one of two reference systems. It contains evidence from 48 countries of effects on species from 33 taxonomic orders (spanning insects, plants, birds, mammals, eukaryotes, annelids, fungi, and bacteria) of diversified farming systems producing annual or perennial crops across 12 commodity groups. The dataset presented provides a resource for researchers and practitioners to easily access information on where diversified farming systems effectively contribute to biodiversity and food production outcomes.
