



A new law on agri-marketing reforms and contract farming has been enforced in India after President of India gave his assent on the Bill passed by the Parliament earlier this month — The Farmers Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020 (FPTC); The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Bill, 2020 (FAPAFS); and The Essential Commodities (Amendment) Bill, 2020 (ECA).

The Government of India said that this is a historic step and has been taken in the interest of farmers. As per the law, it will now provide greater choice and freedom to farmers to sell their produce in other places in addition to the Agricultural Produce Market Committee (APMC) designated *mandis*- market place. So now, the farmers can sell their produce anywhere in the country to consumers, factory premise or processing plant, cold storage, warehouse, produce collection centre or even the farmgate, thereby creating an environment of competition in the agriculture marketing.

Currently, farmers in few states are agitating that it will remove earlier arrangements with the Government like Minimum Support Price (MSP) and APMC controlled markets. However, Government of India has assured that such arrangements are still in place and will not have any affect with the introduction of the new law. The agri-makreting reforms through these law is expected to build more efficient value chains by reducing marketing costs, improving price realisation for farmers, enabling better price discovery and reducing the price for consumers. It is also expected to encourage private investment in storage by reducing wastage and containing seasonal price volatility.

Further, transactions in such trade areas other than APMC market will not be charged APMC market fee or cess. These levies shall apply only in trades that take place within the boundaries of the regulated market yards or mandis set up under the respective state APMC acts.

Mr Ram Kaundinya, DG, FSII's view is that these reforms are much needed and it had already been delayed by twenty years. They will definitely help farmers to discover better prices from the parallel private mandis which will be allowed now. Simultaneously, Government may make a robust implementation of the new rules by covering all the loose ends while

encouraging the Mandi system to upgrade their infrastructure, use modern technology and become more friendly to the farmer. On site warehouses with warehouse receipt systems should be set up in Mandis so that farmers are not forced to sell under distress. We are sure eventually the two parallel systems will find their own equilibrium of co-existence. A national register of all private buyers with validated identification and financial capacity may be created which farmers and FPOs may use while deciding to sell to a particular party. There is also a need for a major effort to build capacity among farmers and FPOs to conduct their commercial deals profitably. They have to be trained in basics of making contracts, agricultural commodity markets, price forecasts for their produce and similar skills. Digital proficiency is to be built among FPOs and farmers so that they can use the digital platforms effectively to buy inputs and to sell their output. This calls for a huge effort at training. The government and the stakeholders have to take this reform to its logical conclusion. There will be certainly some learnings to be picked up along the way. This is the start of a new era for the Indian farmer. Transformational changes can happen for the farmer's profitability and the face of agriculture can change for the better.

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



Shivendra Bajaj
Executive Director
Federation of Seed Industry of India

News from India

[Agriculture's watershed moment: New farm bills will unshackle 43% of India's workforce that is engaged in the sector](#)

(The Times of India)

1991 is remembered as a watershed moment in India's history. The licence raj was dismantled. India opened its markets to international trade, investment and competition. As a result, in the 30 years since then, we quadrupled our per capita incomes. In the 40 odd years between Independence and the 1991 reforms, per capita incomes only doubled. However, an important group was left out of the reform process. India's agriculture sector remained regulated by the archaic Agriculture Produce Marketing Committee (APMC) Acts. 2020 will be remembered as a watershed moment in India's economic history, much in the same way 1991 was, as this year marks the year where India's agriculture sector was finally unshackled and set on the path towards modernisation.

[Bills will provide sustainable, profitable future for farmers, say stakeholders](#)

(The Hindu Business Line)

Ram Kaundinya, Director-General, Federation of Seed Industry of India, said that they (the Bills) will give farmers the freedom to sell their produce in the mandi and will definitely help them to discover better prices from the parallel private mandis which will be allowed now. Simultaneously, the government may make a robust implementation of the new rules by covering all the loose ends while encouraging the mandi system to upgrade their infrastructure. On-site warehouses with warehouse receipt systems should be set up in mandis so that farmers are not forced to sell under distress. A national register of all private buyers with validated identification and financial capacity may be created. There is also a need for a major effort to build capacity among farmers and FPOs to conduct their commercial deals profitably. They have to be trained in basics of making contracts, agricultural commodity markets, price forecasts for their produce and similar skills. Digital proficiency is to be built among FPOs and farmers.

[India passes farm bills amid uproar by opposition in parliament](#)

(Aljazeera)

India's parliament has passed new bills the government says will make it easier for farmers to sell their produce directly to big buyers, despite growing protest from opposition parties and a long-time ally of the governing party. Opposition legislators raised slogans, tore documents and tried to grab the speaker's microphone in the upper house of India's parliament before two controversial bills were passed by a voice vote.

[Trust issue: Why Indian farmers are opposing 'historic' farm bills](#)

(India Today)

For decades, millions of India's small and marginal farmers have been living in abject poverty due to a cocktail of problems that exist in the country's tightly controlled agriculture sector. Years of unfulfilled promises on the minimum support price (MSP) mechanism, over-interference of middlemen and weak agricultural infrastructure have punctured India's agricultural sector growth and pushed the country's poorest farmers into a pool of debt, forcing many to take their own lives — a reason why the country has seen a massive dip in farming as an occupation.

[Cabinet hikes MSPs for rabi crops amid farm stir](#)

(Hindustan Times)

The Union government announced higher minimum support prices (MSPs) for a range of winter-sown or rabi crops, setting them at 50% over costs of cultivation, a move aimed at allaying concerns among farmer groups that a set of farm-sector reforms undertaken by the government could weaken the MSP regime. The decision on rabi MSPs was taken at a meeting of the Cabinet Committee on Economic Affairs (CCEA) chaired by Prime Minister Narendra Modi. Agriculture minister Narendra Singh Tomar announced the hike in Lok Sabha. The new MSP rates announced earlier than usual, come amid widespread protests by opposition parties and farmer groups in Punjab and Haryana, after Parliament passed two key farm bills. Earlier in the day, Prime Minister Narendra Modi, in a video address, said opponents of the farm-sector reforms were misleading farmers, saying the government would continue to buy farmers' produce at MSP rates.

[Green shoots in agriculture a promising sign](#)

(Indian Express)

The contraction of 23.9 per cent of real Gross Domestic Product (GDP) of the Indian economy in the first quarter (Q1) of the current financial year as compared to the last year's Q1, as shown in the GDP data released by National Statistical Office (NSO) on August 31, has become a point of hot discussion and worry. In absolute numbers, this contraction means that India's real GDP has shrunk to 26.90 lakh crore in Q1 this financial year from 35.35 lakh crore in Q1 last year. These data are being interpreted in different manners by different sections of society, think-tanks, academicians, politicians, economists, businessmen and general people, both within and outside the country, but most of the interpretations are negative as they tend to be victim of seeing the plausible only.

However, before jumping to any quick conclusion and/or forming a negative view about the whole matter, one must examine all facts and figures to avoid falling into the trap of any irrational conclusion.

[Indian Agriculture assures FAO of consistency in export of farm products for steady global supply](#)

(Plunge Daily)

With many countries suffering a disruption in agricultural output and supply, India has assured United Nation's Food and Agriculture Organization (FAO) that it will export farm products without any disruption. During the virtual meeting of FAO's 35th Asia-Pacific regional conference, SK Malhotra, Agriculture Commissioner said India had enough stocks to avoid any disruption. Malhotra said there would be no disruption in the global supply. "We are well prepared to step up farm exports as we have enough stocks," he said.

[Andhra bans online gambling, approves new free agriculture power supply policy](#)

(Hindustan Times)

The cabinet approved the revised policy of supplying agriculture power supply free of cost. Stating that farmers would continue to get power supply to their crops free of cost, he said there would be absolutely no burden on them whatsoever. The government would make direct cash transfer into the accounts of farmers to the extent of power they consumed and they, in turn, could pay the power bills to the power distribution companies. "This gives a sense of feeling that the farmers have been paying for the power consumed and the Discoms will not go into the red. The pilot project will be introduced in Srikakulam and it will cover the entire state from April 2021," he said.

[Agriculture Minister launches 22 Bamboo Clusters in 9 States, says India moving towards Increasing Export of Bamboo Products](#)

(Krishi Jagran)

Union Minister for Agriculture & Farmers' Welfare, Rural Development and Panchayati Raj Narendra Singh Tomar inaugurated 22 bamboo clusters in nine States – Madhya Pradesh, Gujarat, Maharashtra, Assam, Odisha, Nagaland, Tripura, Uttarakhand & Karnataka through virtual mode. He also released a logo for the National Bamboo Mission. Acclaiming the success of the National Bamboo Mission, the minister said that India is now gearing up to increase the export of bamboo products.

[India hopes farming can boost its economy. But, it may not be enough](#)

(The Economic Times)

India's agriculture sector isn't the bright spot in the economy that many think it may be. While farming was the only industry to post positive growth in the June quarter's gross domestic product data, the rapid spread of the coronavirus in rural areas and declining prices are set to weigh on the outlook. The optimism about the sector has been fueled by timely rains, a good monsoon and an increase in the crop area.

[India hopes digital tech will save its floundering farm sector – but it's working without evidence](#)

(Scroll)

India's farmers today are trying to run on a technological treadmill of rising input costs, increasing frequency and virulence of insects and pests along with declining levels of groundwater and soil fertility. This treadmill will not stop unless a paradigm shift is made towards sustainable agriculture. Despite compelling evidence that this is the only path forward, this change is resisted by experts who believe that technology is a panacea for all challenges.

[Farm Education in Tune with NEP](#)

(Pioneer)

The New Education Policy (NEP) focusses on re-orientation of school and higher education in India and inculcation of research-based studies and innovation in our education. However, the Indian Council for Agricultural Research (ICAR) has already been doing this on the ground for years and hence is in tune with the objectives of the NEP. As part of its focus on innovation and research-based learning, the ICAR-Agricultural University (AU) system, through its network of 74 universities, offers degree courses at the undergraduate level in 11 disciplines with emphasis on learning through hands-on-practice sessions and field experience training.

[India to be self-reliant in fertilisers production by 2023: Sadananda Gowda](#)

(The Financial Express)

India will be self-reliant in fertiliser production by 2023 as new units are being set up with an investment of Rs 40,000 crore to reduce dependency on imports, Fertilisers Minister D V Sadananda Gowda said. Addressing a webinar organised by cooperative IFFCO for farmers of Karnataka, the minister said the government is promoting nano fertilisers as these are 25-30 per cent cheaper and give 18-35 per cent higher yield, according to an official statement. He lauded the IFFCO's experiment in nano fertilisers which has received good feedback from farmers and farm varsities.

[How India's burgeoning start-up ecosystem is playing its part in disrupting agriculture sector](#)

(The Financial Express)

Agri-tech companies have received an investment of USD 532 million till April this year for growth and tap the market that has the potential to reach USD 24 billion by 2025, according to an EY report. "India's burgeoning start-up ecosystem has been actively playing its part in disrupting the agriculture sector. Agri-tech start-ups are operating in an attractive market with an estimated potential of USD 24 billion by 2025," EY said in its report 'Agri-tech – towards transforming Indian agriculture'. The agri-tech is helping in solving many challenges across the spectrum of the traditional agriculture value chain.

[India's agriculture sector has survived the pandemic. But will it survive climate change?](#)

(Scroll)

The only silver lining in India's worst-ever quarterly gross domestic product contraction was the agriculture sector. Between April and June, when the economy contracted by 23.9%, the sector posted a growth of 3.4%. But this silver lining could also fast fade off as the spectre of climate change haunts the agriculture sector. The Reserve Bank of India's annual report, released on August 25, took note of this looming danger. In its annual report, India's central bank stated that the country is witnessing more intense droughts, downward shifts in average rainfall as well as a higher frequency of cyclones. In 2019 alone, eight cyclones along with sharp volatility in rainfall led to "an increase in the extent of crop area damaged."

[South India to witness extreme rainfall by end of this century: IIT study](#)

(Hindustan Times)

The pattern of monsoon in India could undergo a major shift by the end of this century with southern India likely to register the maximum increase in extreme rainfall compared to states in central and north India, researchers from the Indian Institute of Kharagpur in West Bengal have said. The scientists have also projected that extreme rainfall may increase in the Arabian Sea and south-Asian countries, including Myanmar, Thailand and Malaysia.

[India can export pomegranates to Australia](#)

(The Tribune)

Indian pomegranates will soon appear on Australian shelves for the first time, according to Australia's High Commissioner to India Barry O'Farrell. This follows the completion of an import protocol for fresh pomegranate fruit from India following an import risk assessment involving significant collaboration and discussions between Indian and Australian authorities. Celebrated for centuries for their clusters of ruby red arils, pomegranates are a superfood packed full of vitamins, nutrients and anti-oxidants.

[Pesticides Management Bill 2020 will hurt Indian Farmers, Agriculture; Needs review before clearance](#)

(Krishi Jagran)

The Pesticides Management Bill 2020 (PMB) was introduced in the Rajya Sabha on 23 March 2020 to replace The Insecticides Act 1968, which currently governs the registration, manufacturing, export, sale and use of pesticides in India. While PMB is noble in intent, its many lacunae could end up hurting the interests of farmers and Indian agriculture. The Bill is slated to come up for discussions and subsequent consideration in the impending Monsoon Session of Parliament beginning 14 September 2020.

[A solar tree for agricultural applications](#)

(PV Magazine)

India's Central Mechanical Engineering Research Institute, under the Council of Scientific and Industrial Research (CSIR-CMERI), claims to have developed and installed the world's largest solar tree. The Internet of Things (IoT)-enabled solar tree — installed at the CSIR-CMERI Residential Colony in Durgapur — has an installed capacity of more than 11.5 kWp and it can generate 12,000 to 14,000 units of clean power annually. The solar trees can also cater to the agricultural community's needs in providing electricity for high-capacity water pumps, e-tractors and e-power tillers.

News from Around the World

[A Balanced Framework of IP Protection for Plant Related Innovations](#)

(European Seed)

The seed sector wants to emphasise that innovation in plant breeding continues to be critical both for breeders and farmers; it allows to do more with fewer inputs and develop improved plant varieties that better meet consumer demands and expectations, providing safe food, that is affordable, diverse and nutritious. This innovation life cycle safeguarding the probability and availability of these innovations can only be secured by ensuring effective intellectual property protection, which requires both effective plant breeders' rights (PBR) and patent rights. In the past decades, many technical tools have been developed in the field of plant breeding which increased the potential to overcome the ever emerging environmental and societal challenges. Whereas PBR remains the most suitable, effective and balanced way of protection for plant varieties as such, some plant related inventions require another type of intellectual property protection. Patents are an important tool to protect such intentions.

[The Politicisation of Australian Agricultural Trade with China Suggests that New Export Markets Need to be Cultivated](#)

(Futures Direction)

The Australia-China trade relationship has become increasingly politicised. Australia is becoming increasingly exposed to Chinese coercion as a result of a high proportion of its exports being sold to China. While Australian agricultural exports remained steady year-on-year in the first six months of 2020, the latest trade data from China suggests that tariffs and other trade barriers are starting to take a toll on the trade relationship. It is becoming increasingly clear that Australia will need to develop other export markets to reduce its reliance on China. As high quality, premium agricultural products remain in high demand globally, there is no shortage of countries that Australian agricultural commodities could be exported to.

[China Suspends Barley Imports from Australia's Largest Grain Exporter](#)

(Successful Farming)

China said that it had suspended barley imports from Australia's largest grain exporter, a ruling that threatens to inflame bilateral tensions. China's General Administration of Customs said barley shipments from CBH Grain would be halted after pests were found on multiple occasions, the administration said on its official WeChat account. CBH denied the charge as it said it would work with Australia's government to overturn the ruling.

[Wheat Price Direction Up in the Air](#)

(The Western Producer)

A Russian wheat analyst sees a bear market on the horizon due to overproduction while a Canadian analyst is slightly bullish for some types of wheat due to strong demand for the crop. Andrey Sizov, managing director of SovEcon, a Russian agricultural consultancy firm, thinks wheat prices are going to fall. He believes the only reason wheat hasn't gone into full bear mode already is because it is being propped up by the suddenly surging United States corn market.

[Australia crop output bounces back as rains ease drought](#)

(Business Times)

Australia's winter crop production is set to soar 64 percent after much-needed rainfall eased a drought that had ravaged the country's southeast, according to official projections. The agriculture department said production of major winter crops including wheat, barley and canola would increase substantially, taking output 20 per cent above the 10-year average.

[Amazon bans foreign seeds in US after thousands got unsolicited packets](#)

(Wion)

Amazon has banned sales of imported seeds in the United States after thousands of Americans said they had received packets of seeds they had not ordered, mostly from China. The company said that moving forward, it will be permitting the sale of seeds by sellers who are based in the US. In late July the Department of Agriculture reported that packages of seeds had been sent to Americans and warned not to plant them, in case they posed a danger to US agriculture.

[U.S., Chinese diplomats signal tricky road ahead for climate diplomacy](#)

(Reuters)

Former Vice President Joe Biden has pledged to reinvigorate U.S. climate leadership if he wins the Nov. 3 election against incumbent President Donald Trump. Re-establishing that leadership role, however, may not be so easy, according to U.S. and Chinese diplomats involved in past climate negotiations. The 2015 Paris Agreement hinged on a pact between China and the United States, the world's two biggest emitters, to cooperate on climate action. Now, the United States under Trump is poised to exit the treaty on Nov. 4, the day after the election. And the once-careful negotiations between Washington and Beijing have unravelled to what experts say is the worst level in years. Under Trump, the United States has launched a trade war against China and blamed Beijing for the COVID-19 pandemic, while China has cracked down on pro-democracy protests in Hong Kong, imprisoned Uighurs in Xinjiang and escalated tensions in the South China Sea. This week, the situation got even trickier as China's President Xi Jinping announced plans to be carbon neutral by 2060 and urged the world to step up to the challenge.

[Perdue says innovation, collaboration key to agriculture's future](#)

(Nebraska Today)

The future of U.S. agriculture is dependent upon research, innovation and collaboration, which together will lead to increased agricultural efficiency and sustainability, as well as development of foods designed to improve human health, U.S. Secretary of Agriculture Sonny Perdue said during a visit to Nebraska Innovation Campus.

[United States leaders scrutinize Mexico's ag trade practices](#)

(AgDaily)

The Office of the U.S. Trade Representative, the Department of Agriculture, and the Department of Commerce released a report outlining the Trump Administration's plan to address the threat posed by increased foreign imports to American producers of seasonal and perishable fruits and vegetables. The plan follows public hearings held in August where more than 60 witnesses testified, in addition to over 300 written submissions.

[Finance Minister Nirmala Sitharaman welcomes US companies investment in India](#)

(The Economic Times)

Finance Minister Nirmala Sitharaman welcomed US companies investment and partnership with India, especially in the manufacturing and infrastructure sectors, during a virtual discussion with US-India Strategic Partnership Forum's (USISPF) Board of Directors on the side-lines of its 3rd Annual Leadership Summit.

[Tony Blair: Why it's vital we are giving African agriculture the attention it needs](#)

(We Forum)

Over the next 30 years, Sub-Saharan Africa's population will double to over two billion, and its economies will industrialize. Africa's development will therefore be critical to the world's future stability, prosperity, and health. Given this, the continent should be receiving much more international attention. The argument for fundamental reforms is partly a moral one. The United Nations World

Food Programme warns that the number of people suffering from acute hunger in low and middle-income countries – including in Africa – could almost double this year, to 265 million, as a result of the pandemic. Strengthening Africa’s agriculture systems is vital to making the continent more self-reliant and resilient to future shocks. Otherwise, economies will remain stagnant, limiting tax revenues and leaving welfare systems unable to support people through crises such as COVID-19.

[For sustainable agriculture in West Africa, let’s leave our echo chambers](#)

(African Arguments)

Sustainable agriculture is growing fast in West Africa, and the transition is only gaining momentum. Over recent years, Senegal, Burkina Faso and Togo have adopted policies in support of agroecology. The West African bloc ECOWAS has ramped up its support into a fully-fledged agroecology programme and is now a pilot region in the ‘Scaling Up Agroecology’ initiative launched by the UN’s Food and Agriculture Organization. And West Africa’s biggest farmers’ organisation, ROPPA, is engaging with new ideas as a founding member of the Alliance for Agroecology in West Africa (3AO). These remarkable developments are no coincidence. With temperatures rising 1.5 times faster than global averages, and with 70-80% of the region’s rapidly growing population living on less than \$2 a day, agroecology provides compelling responses to West Africa’s challenges. Agroecology combines different plants and animals and uses natural synergies – not synthetic chemicals – to regenerate soils, fertilise crops, fight pests, and build resilience to shocks. It is labour intensive and relies on farmers developing knowledge with each other and with scientists. This means agroecology is perfectly adapted to a region where family farms still account for 90% of agriculture and diversified production (‘polyculture’) is still being applied on some 80% of farmland.

[Circular economy: moving Africa towards environmental sustainability](#)

(ISS)

For Africa, the impact of COVID-19 has made thinking about the future more important than ever. Recent analysis by the African Futures and Innovation team at the Institute for Security Studies forecasts that the pandemic is set to undo several years of development progress on the continent. At the same time, COVID-19 has raised questions about how prepared we are for future disasters, especially those linked to climate change. Although we cannot predict the future, current societal, environmental and economic trends can be used to anticipate scenarios and decide what action is needed now to achieve our desired outcomes. For Africa, an important question is how to recover from COVID-19 while enhancing environmental sustainability.

[Feeding Africa’s urban population hinges on value chain](#)

(AA)

In an effort to feed growing urban as well as rural populations, Africa faces challenges posed by “weak links” which affect food delivery on the one hand and the delivery of inputs on the other, according to Kiriimi Sindi, a Kenya-based agricultural economist. “The main challenge is that Africa has very low farm productivity of all the major crops on the continent, being the biggest net importer of maize, beans, rice and wheat,” Sindi said. “So what Africa has to do in order to feed rural and urban populations is to increase productivity. But issues of the agriculture value chain need to be addressed for the farmers to be able to deliver [produced] food to urban areas and in turn access services and inputs such as the best seeds and fertilizers [from urban areas].” Although Africa has 65% of the remaining arable land in the world, its food import bill during the last five years averaged \$68.5 billion annually, according to the African Development Bank.

[South Africa’s land reform policies need to embrace social, economic and ecological sustainability](#)

(The Conversation)

Land reform is central to South Africa’s quest for social justice. During the apartheid era, land was concentrated in the hands of the white minority. Black people were dispossessed of their land and excluded from land ownership. After democracy in 1994, South African policy was developed to restore dispossessed land rights (restitution), upgrade the rights of those with insecure land tenure (reform), and transform the racially biased land ownership patterns (redistribution). Despite government policy and intention, the land reform process has been fraught with inefficiencies and corruption. It is estimated that to date only 9% of farmland has been transferred.

[How COVID-19 could spearhead a resilient and sustainable sub-Saharan Africa](#)

(We Forum)

The Regional Economic Outlook for sub-Saharan Africa published earlier this year highlights the lasting damage in the region from climate events. Over the medium term, annual per capita economic growth can decline an additional 1 percentage point with each drought. That impact is eight times worse than for an emerging market or developing economy in other parts of the world. Nelson Mandela once said: "do not judge me by my successes, judge me by how many times I fell down and got back up again." Given the increased frequency of shocks, building capacity to withstand them becomes essential to protect development gains. Of course, good health depends on good nutrition. When a climate shock hits, having access to enough safe and nutritious food is essential to survival. And this is where better education on the impact of climate change can help countries safeguard agricultural output. In Chad, for example, farmers are improving water retention through new rainwater harvesting techniques.

[Red locusts destroy 500 hectares of Namibian grazing land](#)

(Wion)

Namibia is struggling to contain the second outbreak this year of the African migratory red locust, which has destroyed 500 hectares of grazing land in the north-east of the country, the country's agriculture minister said. At least 19 areas in the fertile Zambezi region, which borders Zambia, Zimbabwe, Angola and Botswana, have been hit by a red locust outbreak since Aug. 12, agriculture minister Calle Schlettwein said in a statement. In total, 4,002 square kilometres have been invaded and 500 hectares of livestock grazing land destroyed, he said. The country needs around 30 million Namibian dollars (\$1.77 million) for additional resources to contain the spread and enable aerial spraying, the minister added.

[Grain Grower's of Canada Deliver Speech From The Combine](#)

(DiscoverAirdrie)

The Grain Growers of Canada releasing a seven-minute youtube video asking the Federal Government to support Canada's grain industry in order to drive the post pandemic recovery. Grain Grower Chair Jeff Nielsen says they want to see agriculture included in this week's throne speech. "We're all very cautious that we may not. I guess is the big fear. So, we just thought it was timing right now to step out ahead. Ask and explain to the government that there are six key areas that agriculture is looking at to be worked on, and worked on in the next session of Parliament." The six requests of the federal government are, as follows: provide effective Business Risk Management programs; support science and innovation in agriculture; support crop health; help improve trade access; provide carbon tax exemptions; and improve cellular service and connectivity in rural areas.

New Research

[Agriculture to receive boost as CSIR-CRI produces sufficient planting materials](#)

(MyJoy Online)

Government's agriculture agenda are been assured of a constant supply of planting materials by the Crops Research Institute of the Council for Scientific and Industrial Research under the Modernizing Agriculture in Ghana Programme (MAG). CRI's Technical specialist at MAG secretariat, Prof. Joe Manu-Aduening says the institute has produced enough planting materials and foundation seeds to ensure success of the initiatives. This came up during an inspection tour by the Ministry of Food and Agriculture at the project sites at Fumesua. The Institute is involved in the implementation of various research, technology and dissemination projects to help realize objectives of the 'Modernizing Agriculture in Ghana' (MAG) programme.

[Aerospace, agriculture combine in data research project at Arkansas State University](#)

(Talk Business)

One professor is hoping to carry on that tradition with a new, innovative research project. Dr. John W. Nowlin, assistant professor of geospatial technologies in the College of Agriculture, is directing the project, titled "Swords to Plowshares: Agro-Applications Exploration & Development" (SPAED). Meta

Special Aerospace is partnering with the College of Agriculture and its Agricultural Systems Technology Lab to develop applications for using aerial remote sensing technologies. The company is providing use of one of its aircraft equipped with high-tech instruments for data collection. Nowlin said the main objective of the project is to research and develop agricultural applications, using airborne sensor data, in the Mississippi Alluvial Plain (MAP) and Crowley's Ridge regions. "We will be collecting field measurements of crop height, elevation, vegetation health indices, soil moisture, water level of flooded fields and storage reservoirs, and analyzing topographic surface accuracy and precision," he said. This will primarily be at existing USDA research locations and in fields and reservoirs with existing flood depth gauges." Researchers plan to make flights over the areas they are studying every two weeks into October. The project will continue after the growing and harvest season to the end of December 2020.

[A recipe to reverse the loss of nature](#)

(Nature)

Taking a long view out to the year 2100, Leclère et al. present a global modelling study assessing the ability of ambitious conservation and food-system intervention scenarios to reverse the decline, or, as they call it, "bending the curve", of biodiversity losses resulting from changes in agricultural land use and management. Projections of future land use and biodiversity are uncertain, and when these models are combined, this uncertainty is compounded. One of the great innovations of Leclère and colleagues' work is in embracing this uncertainty by combining an ensemble of four global land-use models and eight global biodiversity models and measuring the performance of future land-use scenarios in terms of higher-level model-independent metrics such as the amount of biodiversity loss avoided.

[A dietary anthocyanin cyanidin-3-O-glucoside binds to PPARs to regulate glucose metabolism and insulin sensitivity in mice](#)

(Nature)

We demonstrate the mechanism by which C3G, a major dietary anthocyanin, regulates energy metabolism and insulin sensitivity. Oral administration of C3G reduced hepatic and plasma triglyceride levels, adiposity, and improved glucose tolerance in mice fed high-fat diet. Hepatic metabolomic analysis revealed that C3G shifted metabolite profiles towards fatty acid oxidation and ketogenesis. C3G increased glucose uptake in HepG2 cells and C2C12 myotubes and induced the rate of hepatic fatty acid oxidation. C3G directly interacted with and activated PPARs, with the highest affinity for PPAR α . The ability of C3G to reduce plasma and hepatic triglycerides, glucose tolerance, and adiposity and to induce oxygen consumption and energy expenditure was abrogated in PPAR α -deficient mice, suggesting that PPAR α is the major target for C3G. These findings demonstrate that the dietary anthocyanin C3G activates PPARs, a master regulators of energy metabolism. C3G is an agonistic ligand of PPARs and stimulates fuel preference to fat. In plants, C3G is an important secondary metabolite with a multitude of biological functions, including UV protection, pathogen defence, insect attraction, symbiosis, and flower variation^{9,10}. Plant food containing C3G that is ingested by humans undergoes digestion in the gut, following which both C3G and its aglycone, cyanidin, can be absorbed by the intestinal epithelium and delivered to the circulation to exert multiple biological functions in tissues¹¹. C3G is more stable than its aglycone cyanidin in aqueous solution¹²; thus, C3G is believed to be the major bioavailable and active form of cyanidin in human tissues.

[Mapping twenty years of corn and soybean across the US Midwest using the Landsat archive](#)

(Nature)

Field-level monitoring of crop types in the United States via the Cropland Data Layer (CDL) has played an important role in improving production forecasts and enabling large-scale study of agricultural inputs and outcomes. Although CDL offers crop type maps across the conterminous US from 2008 onward, such maps are missing in many Midwestern states or are uneven in quality before 2008. To fill these data gaps, we used the now-public Landsat archive and cloud computing services to map corn and soybean at 30 m resolution across the US Midwest from 1999–2018. Our training data were CDL from 2008–2018, and we validated the predictions on CDL 1999–2007 where available, county-level crop acreage statistics, and state-level crop rotation statistics. The corn-

soybean maps, which we call the Corn-Soy Data Layer (CSDL), are publicly hosted on Google Earth Engine and also available for download online.

[Impacts of rising temperatures and farm management practices on global yields of 18 crops](#)

(Nature)

Understanding the impact of changes in temperature and precipitation on crop yields is a vital step in developing policy and management options to feed the world. As most existing studies are limited to a few staple crops, we implemented global statistical models to examine the influence of weather and management practices on the yields of 18 crops, accounting for 70% of crop production by area and 65% by calorific intake. Focusing on the impact of temperature, we found considerable heterogeneity in the responses of yields across crops and countries. Irrigation was found to alleviate negative implications from temperature increases. Countries where increasing temperature causes the most negative impacts are typically the most food insecure, with the lowest calorific food supply and average crop yield. International action must be coordinated to raise yields in these countries through improvement and modernization of agricultural practices to counteract future adverse impacts of climate change.

[Pathways for advancing pesticide policies](#)

(Nature)

Numerous pesticide policies have been introduced to mitigate the risks of pesticide use, but most have not been successful in reaching usage reduction goals. Here, we name key challenges for the reduction of environmental and health risks from agricultural pesticide use and develop a framework for improving current policies. We demonstrate the need for policies to encompass all actors in the food value chain. By adopting a multi-disciplinary approach, we suggest ten key steps to achieve a reduction in pesticide risks. We highlight how new technologies and regulatory frameworks can be implemented and aligned with all actors in food value chains. Finally, we discuss major trade-offs and areas of tension with other agricultural policy goals and propose a holistic approach to advancing pesticide policies.
