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1943 - 2018

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Issue: May, 2018



India : Government aims to harness big data, AI in Agriculture Sector

NITI Aayog, the government's main think tank signed an agreement with software firm IBM to develop a model for crop-yield predictions using Artificial Intelligence (AI) so that farmers can be provided real-time advisories in these states.

The government and private companies alike are taking the first steps to deploy big data analytics, artificial intelligence (AI), and the Internet of Things (IoT) to gain insights into and offer solutions to problems in India's agriculture sector.

To experiment with such technology, the NITI Aayog, will start a pilot project on 'precision agriculture' using AI in 10 districts to be selected from seven states: Assam, Bihar, Jharkhand, Madhya Pradesh, Maharashtra, Rajasthan, and Uttar Pradesh.

While the project is aimed at improving yields through last-mile solutions, the private sector is also wagering money on so-called smart-agriculture systems. Companies such as CropIn and Robert Bosch Engineering and Business Solutions are equipped to provide a range of technologies based on AI in areas such as pest surveillance, climate control, controlled irrigation, and warehouse management.

Bosch is looking to offer products in precision agriculture, smart irrigation, remote sensing technology, drone applications, and cold storage solutions that rely on IoT. The Internet of Things essentially refers to smart devices connected to the web.

Bosch smart irrigation controller called Aquazen is an IoT-enabled, remotely controlled cross-platform system equipped with Big Data Analytics and Intelligent Irrigation Scheduling. It's accessible through both web and mobile applications that are hosted on enterprise cloud.

The company also offers polyhouse monitoring systems that can create automatic SMS alerts for any change in temperature, humidity, and soil moisture in such farms. Its sensors can also detect pest intrusions in polyhouse cultivation. CropIn Technology also offers products such as SmartFarm, which it claims digitises every aspect of farming for more efficiency.

While many of these private-sector solutions are aimed at agri-businesses and enterprises, the public-sector driven NITI Aayog's pilot project will aim at improving yields of small landholders. IoT technologies will have an increasing role in many spheres. Policymakers dealing with traditional problems of agriculture might benefit from insights thrown up by data analytics. For example, water-scarce Israel has successfully used such technologies in micro-irrigation.

The project will come up with 'climate-aware cognitive farming techniques' and systems of crop monitoring, including early warning on pest attacks and disease outbreaks by harnessing AI.

Source: <https://www.hindustantimes.com/>



India: Lack of Data – Challenge for Crop Risk Insurance

Lack of data, on exposure, historical crop yields and insured losses, pose a challenge in insuring Indian crop risk, according to Lloyd's of London, global insurance and reinsurance specialist.

A probabilistic crop risk model of the crop insurance market must reflect the way crop insurance is administered. The Crop Risk Model should include the following attributes: Major drivers of crop yield variability, nation-wide coverage for most perils, model for insurance clusters, attritional and catastrophe losses, impact of irrigation, separate models of different crops for Kharif and Rabi seasons and models for PMFBY and weather-based crop insurance scheme, modelling for historical and probabilistic simulated losses and exposure management functionality. A strong crop risk model will provide a valuable tool in understanding and accounting for uncertainty.

The national crop insurance data portal requires a greater wealth of data to fully meet the reinsurance market needs. Gathering detailed and real-time exposures at the time of planting (such as crop variety, planting dates, irrigation levels) and better monitoring via remote sensing will help to improve crop risk modelling.

With the availability of better quality data, crop models can become more sophisticated to consider the impact of different managerial practices (such as seed varieties and the use of fertilisers).

Models can also evolve to allow in-season loss prediction by applying forecast weather data to crop yield models, as well as estimating crop yield and loss behaviour under different climate scenarios.

A strong technology-backed platform could help ensure more accurate claim information and claim settlement procedures for farmers. There is also opportunity to increase awareness about the benefits of PMFBY across villages. Wider inclusion of more farmers in the PMFBY net will help reduce the protection gap.

Source: <https://www.thehindubusinessline.com/>



Vietnam - Poor farmers to be supported with up to 90 per cent of agricultural insurance

An individual who works in agriculture and is from a poor or near poor household will receive support of up to 90 per cent for agricultural insurance fees from the Government. As per the New resolution No.58, which will be valid from June 5, 2018, an individual who works in agriculture and does not belong to a poor or near poor household will be covered for up to 20 per cent of agricultural insurance fees. Agricultural insurance aims to protect farmers against any loss of crops and livestock. It is expected to provide value to low-income households in rural areas by increasing farmers' resilience against incidents as well as promoting investment in planting and breeding activities. According to the new policy, an agricultural organisation may also be supported up to 20 per cent of agricultural insurance if it operates in the model of cooperative, cooperates with others and applies innovations in planting and manufacturing towards a clean, high-tech and eco-friendly agriculture.

The subjects covered by the resolution are divided into three categories, listed below: Plants: rice, rubber tree, pepper, cashew, coffee, fruit trees and vegetables. Livestock: buffalo, cow and poultry Aquaculture: black tiger prawn, whiteleg shrimp and tra fish. Risks against which farmers are protected by the insurance including natural risks and animal disease risks which have to be publicly announced or officially confirmed by responsible State agencies. Provinces and cities which enjoy the assistance policy are the country's main agricultural production areas. Moreover, the list of areas receiving the assistance policy in these provinces and cities will be decided by the Prime Minister. Therefore, local authorities can choose to implement the support on all chosen areas or on piloting communes and districts. The list of these localities has to be announced on mass media and reported to ministries of finance, agriculture and rural development.

The process of granting insurance fees will be conducted by insurance agencies, following the procedure regulated by the Government. Insurance agents providing agricultural insurance have to meet the Government's requirement of capital, solvency, internal audit and management. They also have to have headquarters or branches at provinces or cities where the policy of agricultural insurance assistance is conducted.

Source: <http://english.vietnamnet.vn>



Bangladesh - ADB tells Government to roll out nationwide agri-insurance

The Asian Development Bank has called for government investment to scale up sustainable agriculture insurance in Bangladesh. The agriculture insurance market is underdeveloped and the government should enact a policy to help the sector to mature. The recommendations are made based on the experience of the pilot project 'Weather Index-based Crop Insurance' funded mostly by the Manila-based multilateral lender and run by Sadharan Bima Corporation. Crop insurance is an insurance package designed for farmers to protect them from crop losses due to natural disasters such as hail, drought, floods and so on. Farmers in Bangladesh are more vulnerable to the vagaries of weather than most due to climate change making the country highly susceptible to the increasing monsoon floods and tropical cyclones. But they cannot protect themselves against the devastating climatic events because traditional insurers have been unable to come up with suitable crop insurance schemes.

The ADB-administered programme allows a farmer to claim compensation from his/her insurer when certain climatic trigger points are hit, such as cyclone or tropical storm in a given area hits a specified magnitude or when rainfall rises above or drops a certain level. Having this kind of cover would give farmers the ability to continue to plan and save for the longer term even if their harvests are suddenly and arbitrarily destroyed by bad weather.

A new weather index in conjunction with the Bangladesh Meteorological Department was generated using weather data for the past 25-30 years. A total of 12,000 small farmers came under insurance coverage against the target of 6,000. The ADB provided a grant of \$2 million to run the pilot project in three districts: drought-prone Rajshahi, flood-prone Sirajgonj and cyclone-prone Noakhali. Some 20 automated weather observation machines were installed on the roofs of different upazila parishad buildings. The feedback from the pilot project is very encouraging.

A partnership between the public and private sectors is needed to make agri insurance less expensive to farmers. The financial sector policymakers should acknowledge that agriculture insurance is a useful instrument to transfer financial risk away from the farmer. ADB went on to advise financial institutions to introduce agriculture insurance tagged with farm credit to encourage farmers to take insurance coverage. ADB also emphasised on adoption of technology for agriculture insurance to get early warnings, which will enable farmers to avoid weather risks. Sadharan Bima collected a total of Tk 51.36 lakh (USD 60,580) as premium from farmers. Of the sum, subsidy from the ADB and government was Tk 21.97 lakh (USD 25,914), according to a presentation made at the seminar. So far, insurance claims amounting to Tk 53.46 lakh (USD 63,056) were settled under the project. The pilot, which began in March 2014, will end on June 30. Climate change has intensified natural hazards and disasters, posing huge threats for the agriculture sector. So, it is high time that agriculture insurance is embraced to reduce farming losses.



El Niño affected two-thirds of the world's harvests

According to researchers at Aalto University, Finland, large-scale weather cycles, such as the one related to the El Niño phenomenon, affect two-thirds of the world's cropland. In these so called climate oscillations, air pressure, sea level temperature or other similar factors fluctuate regularly in areas far apart in a way that causes rain and temperature patterns to shift significantly. In the recent years, researchers' ability to predict these oscillations has improved significantly. With this research, we highlight the potential of utilizing this improved forecasting skill in agricultural planning. This could improve the resilience of agriculture to climate related shocks, which can improve food security in many areas across the globe.

The study, published in Nature Communications is the first global study which examines the impacts of the El Niño-Southern Oscillation as well as the similar North Atlantic Oscillation (NAO), and the Indian Ocean Dipole, on global food crop production. These climate oscillations can be divided into different episodes depending on their phase. It is already known that El Niño and its opposite phase, La Niña have a clear effect on corn, soy, rice, and wheat yields in many areas across South Asia, Latin America and southern Africa.

North Atlantic Oscillation significantly affects crop production in many parts of Europe, but also in North Africa and the Middle East. The NAO describes the relationship between the Icelandic low pressure and the Azores high pressure areas. When the air pressure in Iceland is significantly lower than in the Azores, stronger winds increase the transport of warm, moist air from the Atlantic to Europe. During the other phase of the NAO, when the air pressure difference is smaller, less than average amounts of mild air flow to Europe. It makes the winters colder and less rainy. When the Atlantic air pressure difference has been high, the productivity of crops in Europe has reduced by 2% compared to the average. The effect has been particularly strong in places like Spain and the Balkans, where the decrease in productivity has been as much as 10%. Crop productivity reductions, by up to 6%, were also observed in North Africa and the Middle East. During the other phase of NAO, when the air pressure difference is weaker, the same areas have shown positive changes in crop productivity.

In the Indian Ocean Dipole (IOD), the surface water temperature of the Indian Ocean fluctuates regularly in the ocean's eastern and western parts. When the surface water is warmer in the Western Indian Ocean, the temperatures in the Eastern Indian Ocean tend to be lower, and vice versa. The IOD phenomenon affects food crop production particularly in Australia, where the crop productivity may, depending on IOD's phase, be up to 8% smaller or 6% larger compared to the average. This study has been conducted in collaboration with researchers from Columbia University, Vrije Universiteit Amsterdam, Potsdam Institute for Climate Impact Research (PIK), and the University of Bonn.

Source: <http://www.freshplaza.com>

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