Technology is beginning to transform Indian agri, education, health

Farmers in Devanakonda mandal in Kurnool district of Andhra Pradesh are dependent on the rains. The area is not irrigated. The farmers are relatively poor, with landholdings of 2-3 acres each, and grow crops like groundnut and cotton.

Groundnut yields depend a lot on when it is sowed. It's best sown when there is good moisture in the soil. And when it starts flowering, the crop should not suffer a dry spell. Farmers go by their experience, gut feel, and weather reports to determine the sowing time.

Sometime before the kharif season last year, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the Andhra Pradesh government decided to partner with Microsoft to bring some technology into predicting the best time to sow. Microsoft used its Azure cloud platform to obtain and bring together tonnes of data - going back some 40 years - about weather patterns in the area, soil conditions and more, built a modelling framework with ICRISAT, and applied its machine learning technologies. Microsoft also offered to send SMSes in Telugu to farmers on its findings, and ICRISAT informed the farmers that they had the option of going by those advisories.

Towards the end of May, the area received good rains, and some farmers decided to sow. The ICRISAT-Microsoft model found that it would be best to sow in the third or fourth week of June. About 175 farmers went by this advice. As it turned out, there was a dry spell in August, and those who sowed early suffered because their plants had flowered by then.

"Those who went by our advice saw an average 30% higher yield than those who sowed early," says Suhas P Wani, director of the Asia Research Program at ICRISAT.

Encouraged by the experience, the programme has been expanded to 13 districts of Andhra Pradesh, and to many more crops, including cotton, ragi, rice, and maize. ICRISAT and Microsoft have also just entered into an understanding with Karnataka to develop an agricultural commodity price forecasting model, with the objective of enabling farmers to better predict prices. For this season, the prediction model will be applied to the tur crop.

"This year we should be touching 2,500 farmers in AP, and 1,200 in Karnataka. By next year, the number should be 10,000 in each state," says AVR Kesava Rao, honorary fellow and scientist (agroclimatology) at ICRISAT. ICRISAT and Microsoft are also building advisories for fertiliser and pesticide use, and for harvest and post-harvest practices, for each region, depending on its specificities. Cloud computing, the enormous computing power that it brings, machine learning and artificial intelligence technologies, and extraordinarily powerful communication and collaboration tools - all of which today come at very low costs - Read more..