

A Cloud Startup Wants To Be A Crystal Ball For Farmers Everywhere

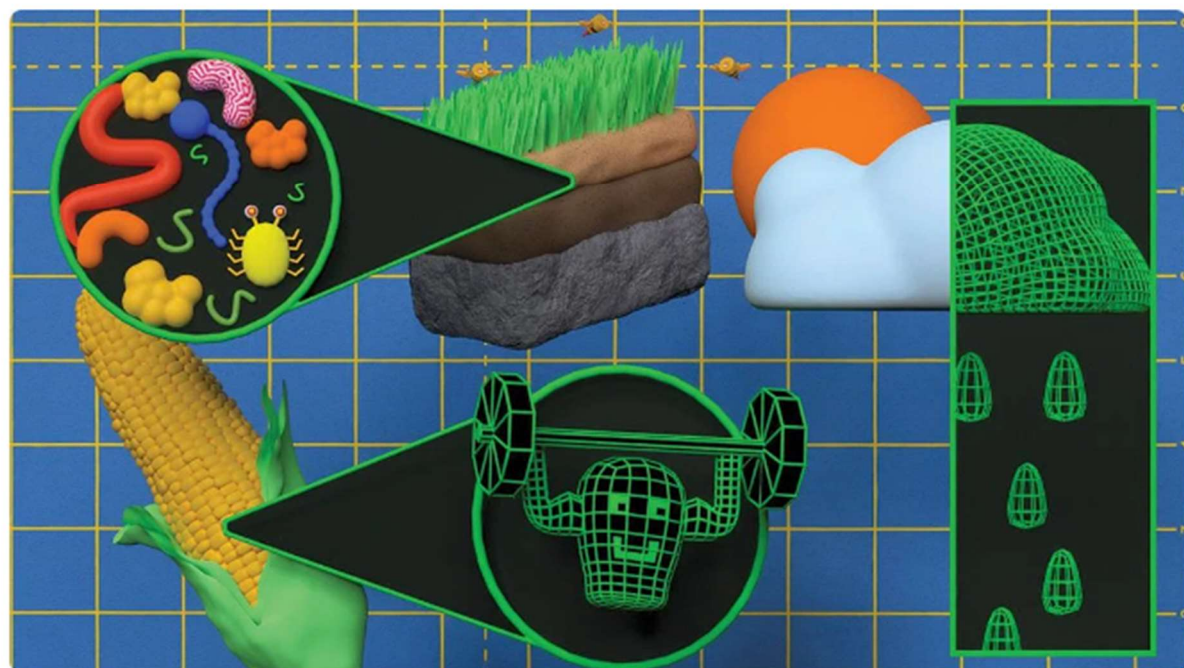
India's Cropin aims to boost agricultural efficiency by helping growers know what to plant and when to sow, water and fertilise.

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(Bloomberg Businessweek) – Gangavalli Naga Suresh and his ancestors have grown crops including corn, oil palm and rice in eastern India's Vijayawada region for generations, gazing at the sky to predict weather, sifting soil through their fingers to gauge moisture and jotting down yields and prices as well as dates for sowing, watering and harvesting. Four years ago, Suresh turned to technology to help him plan his 40-acre family-owned farm. A service now gives him tailored advice for critical decisions, such as how much seed to sow and when to do it, informed by meter readings of soil temperature and moisture content, satellite imagery of local weather patterns and artificial intelligence tools. "Technology helps me use materials and labor more precisely," says Suresh, standing in a field covered in wispy corn shoots. "My income has risen nearly 30%."

Behind the farmer's efforts to optimize his operations is Bangalore-based Cropin Technology Solutions Pvt, which is building a global cloud-based service for agriculture. The startup reaches 7 million farmers in 100 countries through its 250 customers, which include seed giant Syngenta AG, consumer goods company Unilever Plc, the governments of India and Nigeria, and agencies such as the World Bank. Cropin's annual revenue is in the tens of millions of dollars, and it has raised \$33 million to date, says its co-founder and chief executive officer, Krishna Kumar. He expects the company to come close to a \$500 million valuation with its next investment round, which would help Cropin on its quest to become a Wikipedia-like database for agriculture that farmers can consult with their smartphones. "In a decade, we want to be the crystal ball that every farmer could gaze into and foresee yield or pricing information customized to his particular farm," says Kumar, 41.

When Cropin got going in 2010, venture funds were reluctant to hear agriculture technology pitches, and most investors focused on funding e-commerce startups that linked farmers with buyers, Kumar says. Cropin's most prominent investors, Beenext of Singapore and the Bill & Melinda Gates Foundation, came on board in 2017 and 2018, respectively. But the agtech sector is attracting more interest now. In the three months that ended in June, venture capital-backed agtech companies raised \$2.5 billion in 204 deals, according to tracker PitchBook. "It's very difficult to make money in agriculture, that's the challenge for startups," says Vineet Rai, managing partner at Aavishkaar Capital, which focuses on agtech investing. "For over a decade, this segment has existed outside the sight of investors, but agtech's time will be in the coming decade."

Market conditions are helping agtech backers make their case, as supply chain snarls, climate change and Russia's invasion of Ukraine worsen a food crisis, amid forecasts for the human population to reach 10 billion by 2050. By employing technology, the agriculture industry could tack on \$500 billion of additional value to global gross domestic product by 2030, amounting to a 7% to 9% improvement, according to research by the McKinsey Global Institute.

Cropin's broad focus is uncommon among agtech startups, which tend to fix on a segment of the industry, a particular crop or a small geography. A major rival is Azure FarmBeats, a business-to-business data hub that Microsoft Corp. has been piloting to help make growing more precise. In April 2021, Cropin hired two-decade Microsoft veteran Rajesh Jalan, who built early versions of Azure as well as Azure FarmBeats, as its chief technology officer.

Kumar, a former General Electric Co. engineer whose ancestors were farmers, says he was distraught by a spate of suicides among India's debt-stricken growers and founded Cropin to help them. Back then, smartphone penetration was low, most phones were on slow 2G networks, and the bulk of the farmers and even lenders, seed retailers and fertilizer sellers operated with pen and paper. Kumar and his co-founder Kunal Prasad, a friend from middle school, wanted to tackle the poor information flow that hindered decision-making across the industry. By 2016, Cropin was collecting and processing data on 100 crops in dozens of countries, estimating for example, when rice fields in California—the biggest sushi rice-producing region in the US—would be so parched from drought that crops would be past the point of being salvaged.

Cropin works with Starbucks Corp. supplier Rainforest Alliance to predict disease attacks on cocoa farms in South America 15 days in advance, helping farmers avert losses; that model is now being rolled out to millions of tea, coffee and cocoa growers around the world. The company also assists Bayer AG's corn growers in Brazil and cucumber growers in the US by predicting irrigation needs, pest attacks and yield. In bread-consuming Nigeria, Cropin has helped map total wheat acreage, predict annual production and forecast required imports; the predictions last year were within 8% accuracy, according to Cropin, and Nigeria has contracted the startup for an additional two years. In India, which runs the world's largest farm insurance program covering 140 million farmers, Cropin's data is used in a central region to arrive at an accurate yield benchmark; farmers in villages below the benchmark get a full payout. The company has been contracted to cover a quarter of the country in 2023.

Among hurdles facing agtech startups is the difficulty of connecting directly with farmers who can't afford technology or don't have the time or confidence to use it. Of the more than 580 million farmers globally, over 85% of those are smallholders working less than 4 acres, according to Kumar. To reach them, Cropin markets its technology—priced per user or per hectare—to companies that sell seed or fertilizer, lend money to farmers, or buy produce. In India, Suresh is among some 15,000 farmers contracted by Syngenta to grow its patented hybrid corn, rice, sunflower and wheat seeds; Syngenta pays for the Cropin service and provides it to the growers, who are currently advised by Cropin representatives rather than an app.

Growers stung by microlenders in the past could also be wary of signing up for agtech offerings, says Paul Miller, vice president and principal analyst at Forrester Research Inc. "Farmers need to enter these relationships with their eyes open, insisting for example that they retain ownership of their data," he says. They should also keep expectations in check, he adds, because agriculture data models are easy to build but hard to adjust for specific geology, weather, climate and crops.

Cropin's database, Kumar says, contains information going back almost 13 years from 92 countries on 10,000 varieties of 500 crops. "With countries facing population and climate change pressures, technology is on the agenda of every farm business to help improve processes, efficiency and yield," he says. "Technology will impact the massive industry and every mainstream investor is looking at it."