

Monsanto verses Mother Nature

By Rich Duprey

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They say you can't do anything about the weather, but don't tell that to Monsanto. It's spending nearly \$1 billion to buy privately held big data weather shop Climate Corp., which uses supercomputing strength to predict the weather and generate agricultural analytics it uses to sell crop insurance to farmers.

While the genetic modification of seeds has been Monsanto's main means of controlling the food chain, and it's easy to see the deal as a means of tying the farmer closer to the seed giant - - bundling the sale of seeds with a weather-based crop insurance policy -- there's a broader trend melding Big Data with Big Agriculture, and we're likely to see it grow more pervasive.

Using data from the National Weather Service, Climate analyzes hyper-local weather measurements from 2.5 million locations and forecasts on a daily basis, processing the data along with 150 billion soil observations ripped from Department of Agriculture surveys. It then crunches the data to generate 10 trillion "weather simulation data points," which are used in the company's weather insurance pricing and risk analysis systems.

With the acquisition, Monsanto will gain insight into every single one of the 20 million parcels farmed in the US, including what their yields were and their soil's water-holding capacity. Valuable information indeed, but information others have used before; DuPont introduced a subscription service earlier this year through its Pioneer division that combines field-by-field data with real-time agronomic and weather information to help growers make informed planting decisions.

Even outside of the industry, big data firms recognize the fertile field agriculture represents. Oracle is cross-pollinating its systems with dairy and agriculture giant Land O' Lakes, which is using it to drive profits higher through cost savings of some \$4 million. Monsanto says data science could be a \$20 billion market beyond its core focus.

What sets Monsanto apart from the competition is the insurance component of Climate, whose policies are underwritten by Swiss RE, which is coupled with data gleaned from freely available sources and crunched on Amazon.com's Amazon Web Services computers. While the insurance component by itself is not necessarily a novel turn -- the World Bank has promoted weather index-based policies globally -- it could be a catalyst for future growth.

In Kenya, for example, the World Bank's International Finance division partnered with Syngenta to offer such index policies to farmers in the event of drought or excessive rainfall, while in Malawi, insurance policies are bundled with loans to farmers to cover the cost of higher quality seed, and the premium for the policy is added to the interest payment for the loan.

Monsanto does have global ambitions to expand its insurance business, and says Brazil and Argentina are prime targets as insurance availability in both is currently limited. They'd likely find a receptive audience, too. This past summer, analysts at Celeres estimated Brazil will plant 14% more GMO crops this year, up from its previous 12% forecast, following the worst drought in 56 years. Monsanto's seeds and insurance could be a lucrative opportunity.

The seed company says at heart it is a data business helping farmers extract more yield and higher profits from their crops. With intimate knowledge of local weather patterns and crop data, its previous purchase of Precision Planting -- which can enhance a crop's yield through variable plant spacing -- and a new insurance business, Monsanto might just harvest the bumper crop of the 1-billion-acre, \$20 billion sales opportunity it foresees.