AgTech: Agriculture's New Force of Nature

(and what crop protection companies can and should do about it)

by Dani Harari, SVP Strategy and Resources, Adama Agricultural Solutions

With the great advantages presented by technology to the world of farming, the face of agriculture today is undergoing a revolution. Technology is the driving force behind precision agriculture as farmers continue to seek more efficient farm management tools and deepen their use of sensors and drones, just to name a few examples, in order to increase yield while maximising resources in new ways.

These changes are particularly exciting in the area of crop protection. The development of advanced drones and imaging, robotics, sensors and software is transforming crop protection, as well as other areas in agriculture. With ag-tech solutions, farmers can receive real-time input on where they may be facing issues in the field. Using technology, all a farmer needs to do is send out a drone or take a satellite image and add sensors to see if crops lack water or fertiliser, as well as get an early warning for manifestation of pests.

Crop protection companies that want to stay ahead of the curve cannot ignore this trend, and it is important to be proactive and leverage the opportunities provided by technology. To keep up, they need to be able to provide a more holistic offering that delivers even greater value to farmers and that addresses their main pain points for increasing yield while maximising required resources. Technology can also support stricter regulation and environmental requirements.

The top technologies farmers need today

Farmers are seeking out technologies in several key areas:

Plant stress: Farmers need to know in advance that a plant is stressed, as by the time they observe external signs, it might be too late to nourish it. Sensors such as spectrometers and dendrometers can analyse and measure multiple factors such as soil and the inner stem of a plant, and provide early detection of stress level and cause.

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Weather forecast: Technology is critical to effective irrigation, fertilisation and application of crop protection products. With local weather stations that can calculate humidity and temperature, process this data and translate it to actionable insights, farmers can use inputs with greater efficacy. An example for such a technology is Adama Clima, an app we developed for growers in Brazil, which uses micro-climate stations that alert farmers to changes in weather conditions typically known to encourage an outbreak of disease.

Crop protection: Technology can make crop protection more efficient and

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effective. With advanced sensors and GPS-based systems, farmers can make sure that they are not over-applying, that they are applying only within the required area and at the right speed, and even where in their field application is required. This is especially relevant in countries with very large fields, such as in the US, Brazil, and Australia.

Another example comes from the use of pheromone-based traps equipped with sensors and cameras for capturing insects. Images or video from the trap sensors may be sent back to the farmer online with the information on which pests are located where, and what is the level of infestation, alerting them when it is time to apply crop protection products.

An effective strategy for capitalising on technological trends

For crop protection companies to capture the opportunities presented by ag-tech, several strategies can be pursued.

Innovation

Technology innovation can come from several sources. Companies may choose to foster innovation in-house, developing and investing in new capabilities within the company. An additional path to innovation is collaboration with technology startups or companies, capitalising on the strengths of each side to the partnership. Young companies may bring into the partnership their innovative technology, while established companies provide the much sought after market access and domain expertise.

Whichever path to innovation is chosen by a company, it is important to bear in mind that technology is not a goal in itself. With that understanding, we at Adama have decided to focus on technologies that bring clear value to farmers and create simplicity in their work. Solutions that do not bring value or are too complex to use, will not be adopted by farmers. So a company looking to incorporate technology into its offering must see before its eyes the needs of the grower, above all else.

The bridge between technology and the farmer: mobile

Due to the nature of agriculture, farmers need services that can be used from wherever they are. They need to monitor and care for their fields when they are away from their farm or plot, or when they are in a remote part of it, or from home. Hence crop protection companies will benefit from favouring technologies and services that can be accessed from mobile phones. Mobile apps allow the farmers to receive real-time information on the condition of their crops, as well as recommendations about what product they should use, when, where, and how much – which creates tremendous value. Mobile apps designed for farmers need to be easy to use and accessible at all times, even offline.

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One example of focus on mobile at Adama is the Tierra Digital app, which enables farmers to find information about crops and the Adama solutions for various pests. Through this app, we share knowledge in an open, instant, and collective way, initiating conversations with our customers. The app is also available offline, which means that even out in the field – where connectivity is often limited – farmers can use the app to identify pests and receive an input about which products and product mixtures they should use and when.

Focusing on services complementary to the company's offering

Companies looking to capitalise on the opportunities offered by ag-tech will have much to gain by focusing on their core products and competencies, while amplifying, or complementing, those with technology. When the service makes it easier to use a product and enables a better informed, more efficient application of the product, it brings incremental value to the farmer. Furthermore, efficient usage means less waste, and reduced costs for growers.

We have partnered with tech and agritech companies in order to offer services complementary to our core business offering - crop protection products. One example of such a collaboration is our work with SwarmFarm, an Australian robotics company. The agricultural robots developed by SwarmFarm work in groups to perform key agricultural tasks, with high precision. These capabilities are very valuable to farmers, enabling them to reduce costs, and we are examining the possibility of crop protection application with the use of these "swarming robots".

Adama also collaborates with sensor companies that monitor the plant's levels of stress. These data are analysed, enabling farmers to make informed decisions and actions for better crop management and increased yield. In addition, we have also chosen to partner with several drones and UAV companies to introduce their technology into agriculture.

Technology is not the future

Technology is bringing great value to farmers who are constantly seeking to improve yields while maximising resources. It is no longer a matter of preparing for the future - the future is here and it is now. Innovation in the form of drones and imaging, robotics and sensors is already delivering new capabilities for more effective and efficient use of crop protection products, and for precision agriculture overall.

However, the name of the game is not the technology itself but optimisation and simplicity that creates value for the farmers.

The opportunities within ag-tech abound, and companies that aim to offer value to their customers must capitalise on these opportunities by integrating technological services into their offering. A selective approach to technology, while focusing on the value potential each service holds and on mobile interfaces, will ensure that crop protection companies manage to enhance their offering and stay ahead of the curve.