

# The Incredible Ways John Deere Is Using Artificial Intelligence To Transform Farming

Pesticides are currently an essential ingredient of big agriculture in order to ensure we can continue to feed the ever-growing global population of our planet.

However, pesticides also carry inherent risks, such as the damage they can do to the environment and local ecosystems, and the hazards that over-exposure can pose to human health. Their production and distribution also has environmental costs, as well as financial costs to the farmers. For this reason, when they must be used, there are a lot of good reasons that they should be used efficiently, and accurately.



Computer vision specialist [Blue River Technology](#) has developed a solution for exactly that, using advanced machine learning algorithms to enable robots to make decisions, based on visual data (just as we would do ourselves) about whether or not a plant is a pest, and then deliver an accurate, measured blast of chemical pesticides to tackle the unwanted pests. Given that traditionally such decisions are made on a field-by-field basis, rather than plant-by-plant basis, the opportunities for efficiency are clear.

Farm equipment and services giant John Deere saw the potential of this development and acquired the start-up late last year and added it to the catalogue of high tech, data-powered services it already [offers its customers](#).

It is just the latest move in John Deere's push to put data-driven analytical tools and automation in the hands of farmers. With the rate of global population growth, the company – established in 1837 as a tool manufacturer – understands that they serve an industry where small efficiencies quickly add up to big competitive advantages.

Already the firm enables automated farm vehicles to plough and sow, under the control of pinpoint-accurate GPS systems. On top of that its [Farmsight system](#) is designed to enable data-driven insights to inform agricultural decision making, based on shared user data from subscribers all around the world.

With so much data now available and an ever-growing number of sophisticated tools to crunch through it, it's no surprise that agriculture is staking its claim to a slice of the AI-driven tech revolution. And it's a good job too - the industry which provides us with our most basic necessity for survival is heavily affected by weather patterns, climate change, water availability and human migration patterns. And that's before

you even get into the impact that economic and political activity can have.

Luckily infrastructure for gathering data which can be used to predict the effects of these influences is increasingly available. Satellite imagery – previously often prohibitively expensive – is more affordable than ever with one person I spoke to recently comparing the cost of launching a satellite to [launching an app](#). Visual data is also available from unmanned aerial vehicles such as quadcopter drones, which can be used to monitor the growth and spread of pest through crops in real-time.

One company specialising in analysis of satellite imagery last year came within 1% of accurately predicting corn and soya yields by applying machine learning algorithms to their data. It has already released its [predictions](#) for this year's season, which it claims will be more accurate.

The large-scale mechanisation of agriculture means that accurate data is available from the machines which spread seeds and harvest crops. Robots – such as those developed by Google Funded [Abundant Robotics](#) which suck ripe fruit from branches with vacuums – naturally record everything they do and every parameter of their operation. This structured machine data meshes well with unstructured data from meteorological or satellite imagery, and when filtered through AI algorithms will provide insights that more accurately predict yields and losses.

Of course, getting on-board with all these possibilities could prove challenging to some farmers who are more accustomed to running their businesses on grain silos than data silos. And even in the developed world, it's generally acknowledged that the [slow rollout of fast broadband](#) services to rural areas has had a constricting effect on business. In the developing world the situation is worse with local farmers often reliant on slow, shared internet connections provided by community cooperatives or charities.

But it's problems like this that agricultural technology plans to overcome, and with the world population expected to grow by another billion by 2030 while the amount of available agricultural land is expected to shrink, it is in all our interest to make farming as efficient as we can.



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