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Farmers Embracing Technology to Improve Agriculture

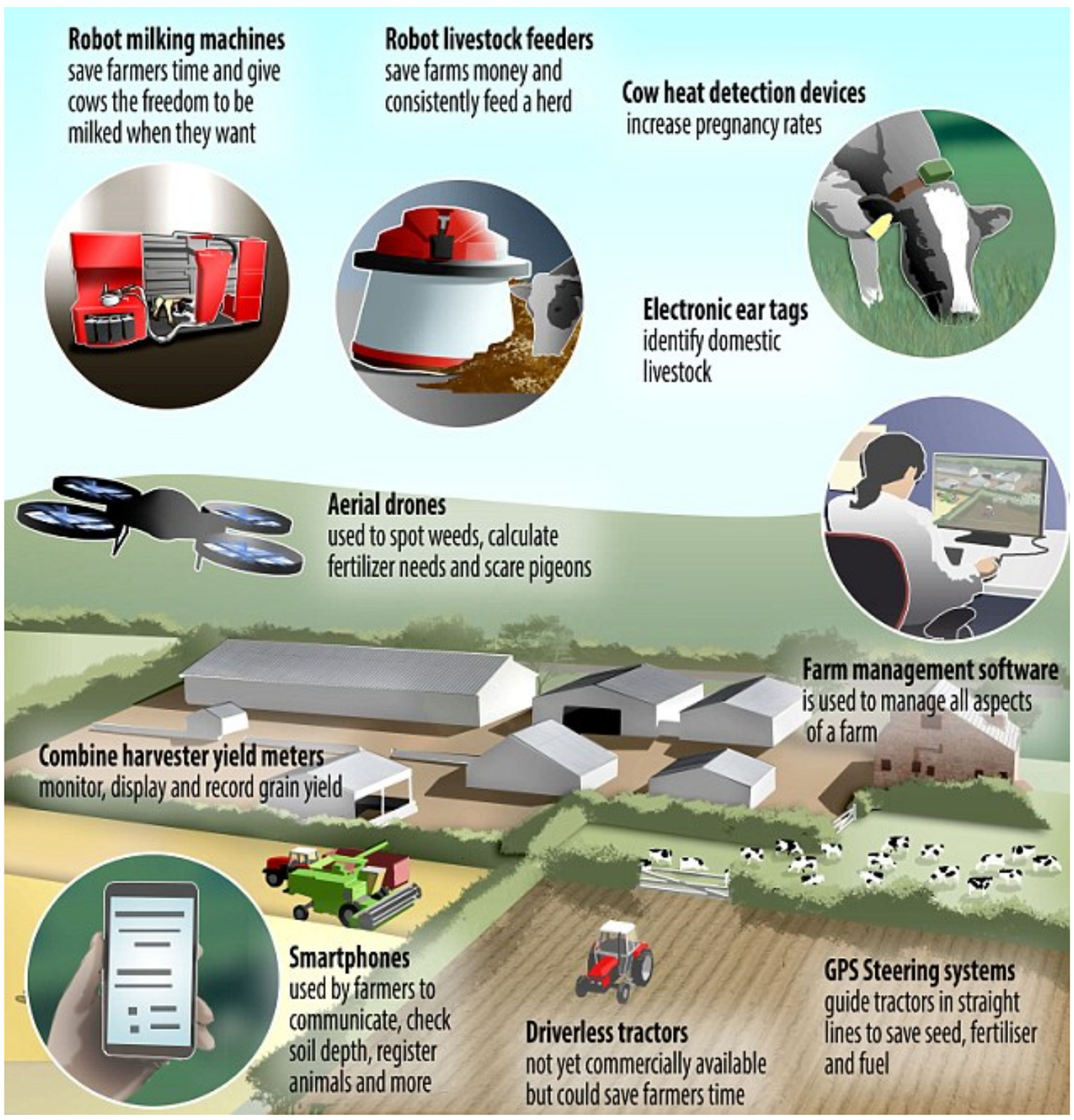
by Neal Leavitt

Tractor cabs that look like airplane cockpits. Cow heat detection devices. Crop-monitoring drones. Robot milking machines. Sensors that continuously measure everything from nitrogen content to livestock biometrics.

Farmers worldwide are rapidly adapting 21st Century to technology to increase crop yields and improve efficiencies.

“Farming is becoming increasingly technical and high-tech machines allow farmers to be more accurate, decrease wastage and boost productivity and their profit margins, which are increasingly light these days,” said James Andrews of *Farmers Weekly*, a United Kingdom-based agriculture trade publication.

And the tech world has noted the potential. Venture capitalists, according to the *New York Times*, have invested $2.06 billion in farm startups this year, almost equaling last year’s $2.36 billion invested. *Fortune* recently reported that the *Farmer’s Business Network* has raised $15 million to date from Google Ventures, Kleiner Perkins and DBL Investors to expand its social network for independent farmers. Farmers use the platform to collaborate and discuss an array of farming issues with each other – from irrigation tools to water use.



Lance Donny, who founded startup *OnFarm* and grew up on a Fresno, CA family farm, says agriculture is now

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entering what he calls 'Ag 3.0' – utilizing data from varied sources – satellite images, weather tracking, and sensors on farm equipment and plants. Donny added that soon both water and fertilizer will also be carefully measured and monitored, sometimes on a plant-by-plant basis.

"It's a totally different world than walking out on the farmland, kicking the dirt and making a decision based on intuition," he said.

OnFarm also just launched a new update to its farm data management software – it now has new tools for water management for drought-stricken farmers. Farmers can track irrigation scheduling, check out real-time soil moisture, and more.

A few other examples –

Cayuga County in west central New York State (count seat is Auburn), has a number of large dairies, many of which milk more than 500 cows. As reported on *Auburnpub.com*, a number of these dairies are using transponders and rumen detectors to help herd managers. The transponders track a cow's activity; the data is collected, sent to a computer and the herd manager can immediately check the cow's activity level.

The rumen detectors are necklaces draped around a cow's neck; they collect data about how often the cow's rumen is turning over. The data is helpful in deciding if a cow has any stomach ailments.

On the other side of the world in New South Wales, Australia, the New South Wales Department of Primary Industries launched series of apps that farmers can download on their iPhone or iPad. The apps provide real-time info and data on crop choices, weed control, water storage information, weather information, even alerts on invasive weed species near farms.

The Department also created a number of farm management apps to help farmers with:

- Sharing information between farmers, contractors, consultants;
- Informing farmers of spray applications;
- Recording and accessing cropping, livestock and machinery operations

Big data and smart technologies will continue to play an important role in ratcheting up agricultural production in the U.S. and abroad.

And with the world's population on target to reach nine billion by 2050, Stratfor, an Austin, TX-based geopolitical intelligence firm, said yields must increase by as much as 25 percent over the next 35 years:

"The agriculture industry will once again adapt through the use of new technologies. The incorporation of robotics and other automated technology will be vital to improving yields and to maintaining profit margins in the coming year and decade."

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