

Smart Farming

By Alice Devlin

Welcome to Farming 4.0 –the buzz word in European agriculture right now. No longer is it about Precision Agriculture and all that this encapsulates, the talk is now of Smart Farming, and in Europe, Farming 4.0. Buzz words aside, Smart Farming has morphed from Precision Agriculture for good reason, because the space has evolved and broadened to a realm beyond just GPS and yield monitors.

Professor David Lamb of the Precision Agriculture Research Group (PARG) at the University of New England admits that whilst

it is a catchy title, the rapid evolution of precision agriculture is very real, "Google search trends around smart farming are growing faster than searchers for precision agriculture and climate change. It really is the catch phrase of the day."

After GPS guidance and yield monitors became common practice, precision ag moved into remote sensing because it was the only affordable way to get information from around the whole farm. Now we can scatter sensors all around the landscape - we're moving toward an on ground dimension of precision ag, with connected sensors in situ in soils, in crops and on animals. This is where smart farming comes in, it's the connectedness of information."

"It is this connectedness on-farm that Professor Lamb sees as the exciting next frontier in smart farming, and this is a focus of the SMART Farm at UNE. As a demonstrator landscape on which to conduct research, the SMART Farm allows the PARG to look at what it takes to create this connection to the outside world.

"What does it take to connect up the landscape, be it soil moisture, plants or animals, to get data flowing back to the farmer to use to make decisions. This is what they call Farming 4.0 in Europe," Professor Lamb explains.

Sensors have been collecting on-farm data for some time now. Soil moisture probes, weather stations and even cameras are well established as useful tools for decision making.



Professor Lamb points out that a soil moisture probe that used to cost \$5000 can now be down to \$100 and eventually even less. “The real revolution has been in the telemetry, this has always been the expensive part. But we are no longer limited by mobile phone connectivity over the farm, or even the NBN. Effectively what’s created is an on-farm network.”

Professor Lamb explains. “There is even a global standard for these sensors so they are all compatible, which allows for a variety of sensors to be used on a farm and these can be changed over time.”

Of course collecting data is all very well, but it is the interrogation of the information that is important. Using the on-farm network, the sensors can be accessed via a mobile phone

from anywhere, allowing the farmer to monitor an array of conditions without even being on the farm. The Precision Agriculture Research Group is continuing to develop sensors for monitoring a number of on farm conditions and assets, in particular soil moisture and livestock sensors, and more recently even trees and bee hives, and the connectedness will allow for affordable and reliable access to information.

For more information on the UNE SMART Farm please go to <https://www.une.edu.au/research/research-centres-institutes/smart-farm>



“To explain how it works, a gateway can be set up at the farmhouse or office, which can talk to an array of sensors up to 20 or 30kms away. The data transferred by these sensors is small bit stuff, so you don’t need a large data allowance to transfer it to the cloud. And the long range means that networks of a number of farms could be created, with the gateway located on the neighbouring farm that has mobile phone coverage or a broadband connection.”

Smart farming is not a concept of the future, service providers and networks are already appearing that are catering for the need to move small bits of data around via terrestrial radio links. “And they all talk to each other,”



Disclaimer: CFI disclaimer: This publication has been carefully prepared, but it has been written in general terms and should be viewed as broad guidance only. It does not purport to be comprehensive or to render advice. No one should rely on the information contained in this publication without first obtaining professional advice relevant to their own specific situation.