

# Huge project to demonstrate how the Internet will fundamentally change farming



The EU Framework Programme for Research and Innovation is investing a two-figure million amount in a major demonstration project that will show how farming can make use of smart IT solutions such as Big Data, Artificial Intelligence and the Internet of Things (IoT).

Although it may not always occur to you when you see farmers painstakingly trundling their tractors up and down the fields casting long shadows in the red glow of sunrise, many technologies have been developed in recent decades that aim to streamline and automate agricultural production once they have been fully implemented. These include optimised route planning for farming machines, automatic steering and web-based monitoring of soil humidity.

However, even though the agri-food sector has generally been willing to adopt technologies such as Big Data, Artificial Intelligence and IoT, their use is currently still fragmented and the technologies are mainly used by early adopters. This inadequate use of new technologies has an impact on both productivity and sustainability. The challenge is to nurture a development where farmers embrace these technologies – which are precisely tailored to farming.

A major new EU project will speed up this development. "This is a paradigm shift. It's a new way of going about farming, which will be transformed into a web of connected objects that can be identified, measured, controlled and remotely operated. There are so many advanced technologies that aren't really being used. This project will show the world how to go about using them," says Senior Researcher Claus Grøn Sørensen.

## What is in it for me

The project is called the Internet of Food & Farm 2020, and it aims to demonstrate via 19 different case studies how IoT can drastically improve productivity and sustainability in European farming as we know it today. The case studies will present concepts such as data exchange between machines, smart crop management and intelligent logistics. The project will also demonstrate business models for the relevant technologies. Both machines and farms have become significantly larger (and continue to grow) as a result of the ongoing structural development in the industry. Labour costs have gone up, and product prices are being squeezed all the time, which means there is an ever-increasing need for efficient production management. If farmers are to be sure of making a profit, this includes ensuring farm machines that work seamlessly with each other.

It is possible that new technologies have therefore been welcome but, in most cases, this has also involved a considerable investment, making it difficult to spot the benefits. "A typical farmer will ask what he's going to get out of it. And for many years, this has been hard for researchers to actually demonstrate. The problem has often been that technologically advanced systems have been developed, but that they've simply been too complicated. If there's too much user interaction – i.e. if the farmers themselves have to spend a lot of time keeping track of the systems – it just doesn't work. They don't have time for that. But if we can demonstrate that the systems are easy to

use, and that there's an advantage – a sensible business model – the farmers will take it to heart," says Senior Researcher Sørensen.

## A glorious story of autonomy

In other words, there has been a lack of completeness. What has been lacking is the impression of how machines that work together smoothly can create coherence, quality and profit in production. However, this is now possible with the breakthroughs provided by information technology. There are many countries in which farming has had a glorious history for millennia as the most predominant industry and as the guarantor of economic progress. This is no longer the case, but farming is still very important for the food industry and export.

And it will no doubt continue this way. However, farmers of the future are unlikely to sit behind the steering wheel of the tractor when it trundles up and down the fields. It will drive itself as part of fully automated and autonomous farming when IoT seriously catches on in the industry.