

A sensor of excitement

It's 7am on a damp Lincolnshire morning a few years in the future. A farmer is finishing his second cup of coffee when his mobile phone rings. "Hi," says a voice on the other end of the line, "this is your wheat plants. We're being attacked by *Septoria tritici* spores – you better get over here and spray us!"

It might sound far fetched, but that's the sort of amazing technological future envisaged by scientists at the new Syngenta Sensors University Innovation Centre (SSUIC) based at the University of Manchester. Opened at an official ceremony in November, the SSUIC will act as a gateway to senior academics in sciences outside of Syngenta's traditional skill sets, particularly in electronic systems. The aim is to bring advanced electronic sensor and wireless telemetry technologies

to bear on agricultural applications, developing breakthrough products and services that could revolutionise our industry.

SSUIC Director, Dr Bruce Grieve, is in charge of bringing this incredible future to life.

"Of course in that particular scenario the farmer's wheat plants wouldn't play quite such an active role," Bruce laughs. "But in-field microsensor networks capable of detecting and reporting the presence of crop pathogens are a real possibility. Farmers receiving early warning of problems could take action appropriately."

Immediate targets in terms of projects for the SSUIC include sensing of enzyme based output traits, for example in support of Syngenta's corn amylase project. Other possible early targets include tracking produce through the

retail chain, and sensing for agricultural water usage, maximising yield and the use of a precious resource.

Bruce: "The possible applications are incredibly exciting. In terms of project priorities, it's a matter of identifying where local and remote sensing technologies can make the most impact, building on existing Syngenta capabilities and product offers. Until recently, battery size and power usage have been limiting factors for sensors, but recent advances in power scavenging technology mean that microsensors can effectively power themselves."

The first recruits to the SSUIC team are Research Associates Dr Paul Kidd (Control Engineering) and Dr Richard Holmes (Microfluidics and Analytical Instrumentation). Graduate researchers Tien Xuan Doan (Datamining) and Sim Zhi Wei (Power Harvesting) also joined within the last two months. They will work closely with top academics in the field, including their new neighbours in the Faculty of Engineering and Physical Sciences. The University of Manchester has an outstanding reputation for collaboration and business development and the UIC model is proving to be an effective way for industry and academia to work together. The Dean of the Manchester Faculty, Professor John Perkins, concluded that the Syngenta Sensors UIC was "in danger of being highly successful."



At the SSUIC Opening Ceremony - Director Dr Bruce Grieve (2nd from right), with Syngenta's Dr John Windass and Dr Mike Bushell, and Professor John Perkins of the University of Manchester