

# Taking full control of crop trials



*“It’s a fast-fail process which facilitates speed and focus; improving the efficiency of what we take to the field.”*

DR RUTH MANN

A new state-of-the-art glasshouse facility has been opened at Agrii’s Throws Farm Technology Centre in Essex to help the company fast-track its trials activities and therefore speed up the adoption of alternative crop inputs. *CPM* joined the team to find out more.

By Janine Adamson

**O**n the face of it, a 480m<sup>2</sup> technology-driven glasshouse might not appear so relevant to the world of arable crop production. After all, such structures are mostly associated with either the fresh produce industry or ornamentals sector.

However, this is a glasshouse with a greater ambition – to enable the screening of the latest alternative crop inputs across a breadth of scenarios, from broadacre combinables through to amenity applications.

In doing so, it’s hoped products can be trialled not only faster and more robustly, but with greater focus too, says Agrii’s head of integrated crop technologies, Dr Ruth Mann. And the ultimate aim? To enhance the knowledge of the company’s agronomists which in turn, will support growers to future-proof their businesses.

“Agrii is already undertaking hundreds of field trials across the country, annually. But as the R&D pipeline steers more towards biosolutions – whether that’s biostimulants or biocontrol

agents – it’s becoming increasingly difficult to bring those products together to formulate an integrated pest control strategy,” explains Ruth.

## INTEGRATED APPROACH

“We have to understand how to stack these new innovations together for the best result, as well as how we might integrate them within traditional regimes, both plant protection and nutrition.”

The problem with relying on field-based trials, she adds, is that nothing is guaranteed, for example, the presence of disease to test a specific product claim. Coupled with the fact trials are becoming increasingly expensive to undertake, means in many ways, they’re high risk.

By switching to a glasshouse-based regime for initial screening, this means Agrii can hand-pick which products are then taken to the field, streamlining the entire process. “With the capacity to conduct trials year-round in a very focused manner, we can evaluate products in isolation or

bring them together to understand the cumulative effects of those stacks and programmes of the future.

“Being a contained environment, we have full control of what’s happening including the ability to ensure disease infection at specified timed intervals. You simply can’t achieve that level of control in the field,” adds Ruth.

This isn’t the death of field trials though, she stresses. “It’s more of a fast-fail process which facilitates speed and focus; improving the efficiency



## External variables

The problem with relying on field-based trials is that nothing is guaranteed, for example, the presence of disease to test a specific product claim, says Agrii’s Dr Ruth Mann.



### Quick off the blocks

Agrii's Jodie Littleford has already used the glasshouse facility to conduct a trial looking at adjuvant efficacy and herbicide stress.

of what we do take to the field.

"Equally, the glasshouse enables us to undertake 'look-see' type activities without having to wait for the next season of field or on-farm trials. With much uncertainty at a regulatory level and changes occurring regularly in Europe, we can use the facility to scenario plan and identify potential routes forward."

In terms of the structure itself, the glasshouse has five bays and is powered by LED lighting and an air source heat pump. An intuitive Tomtec control system automates aspects such as light levels, temperature and humidity, whereas PAR (photosynthetic active radiation) sensors ensure plant photosynthesis is optimised for ideal growing conditions.

Using the latest, sustainability-focused technology is important to reduce energy waste and therefore minimise Agrii's carbon footprint, notes Ruth.

Although the facility at Throws Farm was officially opened at the end of May following £1M of investment during its construction, the team has been using it for the past three months in its bedding in period. Technical manager for combinable crop trials, Jodie Littleford, has used this opportunity to get work underway including a project looking at adjuvant efficacy and herbicide stress.

"The trial involved mimicking field conditions for a crop of spring barley, applying a strong herbicide tank mix to replicate what growers may be using in the face of new available chemistry. This was applied with and without Agrii's preferred cereal adjuvant product to highlight the role it may be playing in mitigating leaching," explains Jodie.

"The difference between the trays



### Grand opening

The 480m<sup>2</sup> technology-driven glasshouse was opened at Agrii's Throws Farm Technology Centre last month.

was like chalk from cheese – without the adjuvant you could clearly see herbicide damage, therefore confirming the adjuvant's importance."

This trial also enabled the team to use the glasshouse's spray booth to evaluate coverage pattern on the leaf. The booth can also be used to test application technology more generally, including nozzle choice, water volumes and application speeds.

### KNOWLEDGE TRANSFER

Once trials have been completed in the glasshouse and results evaluated, the subsequent information is then disseminated to Agrii's agronomists.

"We perceive this as adding value to our agronomy service," comments Ruth.

"In a world where a significant proportion of pipeline R&D is biological-based, we're no longer going to have the breadth of traditional crop protection solutions that we once had. It's critical we find ways to enhance what an agronomist can offer.

"So, we want to support growers in knowing exactly what biological products are doing within plants, and therefore understand when within a crop's life cycle they should be used."

Ruth highlights that the team isn't finished yet either. "We're currently installing a hyperspectral imaging scanner in the glasshouse. This will enable us to see inside a plant, beyond what's possible with the human eye.

"This transformative technique can detect abiotic and biotic stresses, well before visible symptoms are present," she explains.

But with a specialist facility comes the demand for specialist expertise. Acknowledging this wasn't something



### Controlled environment

By switching to a glasshouse-based regime for initial screening, Agrii can hand-pick which products are then taken to the field, streamlining the entire process.

Agrii could address using its existing personnel, the company took the decision to invest in new team members including glasshouse manager, Darlington Tenkorang.

In addition to this, a new trials manager will then oversee specific projects undertaken by the wider Agrii trials team.

However, an added benefit for arable customers, is that the glasshouse pulls together expertise and 'brains' from the entire Origin business – Agrii's parent company. This includes colleagues from its horticulture and amenity divisions, sectors where biosolutions have become long-established and integral management tools.

Jodie believes that in taking this fully-integrated professional approach, coupled with state-of-the-art equipment, Agrii will be perceived as an attractive partner for product innovators and SMEs. "We now have the tools required to screen and finesse new innovations, helping to increase their potential adoption rate on-farm," she concludes. ●