

# AGRONOMY

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## Key moment for closed transfer investment



Kerris Poland

Over recent years, the use of closed transfer systems (CTSs) for plant protection products and nutrients has grown considerably. As they gain traction, Frontier agronomist, Kerris Poland, emphasises the numerous benefits they're bringing to the sector.

Ms Poland points out that the many advantages of a CTS are becoming more apparent on farm as an increasing number of growers adopt the technology. Importantly, she believes those who invest now could be ahead of potential legislation in the future.

"A CTS reduces operator and environmental exposure as well as the risk of point source contamination, with less packaging and faster filling times," she says.

"There's also less strain on the operator as they aren't having to lift heavy containers, and the accurate measuring systems mean it's easy to calibrate, particularly when dealing with bulk products."

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Faster filling could allow one or two extra loads to be treated per day, while access to reusable, returnable IBCs could help mitigate the potential impact of the Plastic Packaging Tax for both farms and manufacturers.

This could eventually see CTS use influencing the approval of new or existing plant protection products, delivering for operator health and safety and environmental considerations.

Technologies like CTS are now also part of National Register of Sprayer Operators (NRoSO) training, and Frontier has a live demonstration unit – the Wisdom Systems FasTran 850 - to support this.



There are some considerations when using a CTS though Ms Poland adds: “Some products don’t flow as well as others, and some need agitation which isn’t always easy with a large IBC.”

The industry-led easyconnect system can be fixed to the sprayer itself or based on a mobile unit which feeds into the sprayer’s induction system, whereas the Frontier CTS is usually attached directly to the venturi on the sprayer and connects to the hose from the IBC when in use.

“Although they might not be suitable for every product yet, more manufacturers are reviewing production processes to meet compatibility requirements. CTSs are the way the industry is going, there’s no doubt about the improved efficiency and safety they are delivering.”



Frontier’s closed transfer system

## Government Funding

The opening of Defra’s Farm Equipment and Technology Fund (FETF) in March acknowledged the value of CTS technology, with the grant now including funding for systems under its productivity category. There are two options available:

- 1 FETF419 for containers over 20L (such as the Frontier CTS)
- 2 FETF420 for containers under 20L

Both options will provide up to 60% of the total equipment cost and have a score of 67 under the FETF assessment. The easyconnect and Frontier CTS can be used on a single sprayer without issue, maximising flexibility for operators.

The first round of applications closed on 17 April, but two more rounds will open later this year. Claims must be accompanied by the serial number of the item purchased and this must also meet the required specifications of the grant scheme (as the Frontier CTS system does).

This includes having an IBC coupler that complies with ISO21191, flow meter accuracy greater than 99%, a minimum hose length of 3m and a rinse socket for flushing and cleaning the system.

**Full details of the FETF are available from the Defra website or a Frontier agronomist.**

# Using grain analysis to adjust N fert rates



Using field specific grain analysis provides powerful insights on how effective fertiliser programmes have been, allowing growers to make changes and then monitor for the following season. Edward Downing, Frontier national crop nutrition technical manager, explains the benefits.

“We’ve been using the technique for a couple of years now, but have recently developed it to provide even more certainty for growers,” he says.

“As well as the standard broad-spectrum grain analysis report, we have an additional nitrogen use efficiency (NUE) report focusing on the nitrogen application rates and programmes.

“We know the actual yield figures and the amount of N applied to each field from the grower, and we compare that with the grain protein figures to give information on NUE in terms of the balance between what was applied and crop nitrogen offtake.

“We can then calculate the kilograms of yield produced for each kilogram of N applied (irrespective of protein content) and the level of any potential surplus N remaining in the field after harvest. We also look at the yield in relation to the national average figure as a measure of productivity.”

Although there isn’t always a direct relationship between grain protein and NUE, because the report uses actual fertiliser and yield data it provides a robust indication of how the crop in each field used the applied nitrogen. To aid interpretation and see differences between fields, each value and score in the report is colour coded from orange (poor) to dark green (good) as demonstrated in the report below.

“We are not suggesting that you use this tool on every field straight away,” says Mr Downing.

“But perhaps initially on barometer wheat fields on different soil types, parts of the rotation, or where you have a concern of crop performance. Or you may have similar fields with the same fertiliser programme, producing different yields or grain quality.

“From these results both grower and agronomist can start to draw conclusions. For example, if proteins were above or below the ideal level, is it that too much or not enough nitrogen was applied?

“Or, maybe enough nitrogen was applied ‘on paper’, but it just hasn’t been taken up by the crop. Maybe soil conditions or the timing meant nitrogen was lost through leaching or volatilisation. Or, could it be that there’s a sulphur deficiency that’s affecting nitrogen uptake altogether?”

Field	Crop	Grain yield t/ha	N Applied	Grain protein			NUE - Nitrogen inputs / Output balance			KG yield / per kgN		Surplus N Kg		N yield offtake compared to national avg. yield		Score
				%	Interpretation	Score	%	Interpretation	Score	kg	Score	kg	Score	t/ha	Score	
A	Feed wheat	9.65	190	9.58	Low	3	73	Good	4	51	4	52	4	1.7	4	19
B	Feed wheat	6.17	190	10.26	Slightly low	4	50	Not great	1	32	2	96	2	-1.8	1	10
C	Feed wheat	5.06	211	11.80	Slightly high	4	42	Not great	1	24	1	122	1	-2.9	1	8
D	Feed wheat	9.55	190	10.89	Optimum	5	82	Great	5	50	4	35	4	1.6	4	22
E	Feed wheat	9.30	190	9.41	Low	3	69	Average	3	49	3	60	4	1.3	3	16
F	Feed wheat	8.50	209	11.00	Optimum	5	67	Average	3	41	3	70	3	0.5	3	17
G	Feed wheat	10.89	190	9.98	Slightly low	4	85	Great	5	57	4	28	4	2.9	4	21
H	Feed wheat	5.92	190	11.69	Slightly high	4	54	Ok	2	31	2	87	2	-2.1	1	11



Management decisions can be made with confidence based on these results and then monitored for success in the following harvest.



# Crop variability underlines the importance of T1 and T2 sprays



Paul Fogg

Given the wet weather in most areas since autumn, there is likely more diverse crop development across the country than ever before.

This makes assessing your crops and achieving adequate disease control at the right time crucial, says Frontier technical lead on crop production, Dr Paul Fogg.

“Getting the T2 flag leaf spray right is crucial for yield,” stresses Dr Fogg.

“Earlier in the season crops were carrying surprisingly high levels of disease and with limited spray days and tricky field conditions, getting crops treated proved a challenge for some.

“It was also vital to be vigilant in later sown crops, particularly with respect to mildew and yellow rust.”

It may be tempting not to add further cost to crops that have struggled to establish, but Dr Fogg points out that protecting potential yield is important.



“The yellow and brown rust risk is higher due to the mild winter and although 64% of the RL 2023/24 varieties offer young plant resistance to the yellow rust isolates tested, scores are based on adult plants so crops could still be at risk even when they have a high rating. Septoria levels are also high, particularly on early sown crops.”

With this in mind, new broad-spectrum fungicide Vimoy® from Bayer could be valuable for programmes.

“Frontier agronomists will have based T1 recommendations on individual crop condition,” he adds. “That will include new chemistry where appropriate, as you usually get the best return by adopting new technology early.

“They will also aim to stack different modes of action, such as triazoles alongside new generation SDHIs, as well as multi-site products like Folpet, to help manage



resistance and protect the new products coming through.”

The use of a spray at T1.5 is highly dependent on the season, local conditions and speed of development but may be required on varieties that are highly susceptible to rust – particularly where the window between T1 and T2 is extended – to avoid requiring curative action at T2.

For T2 applications, Inatreq™ remains the “obvious choice” says Dr Fogg. This is thanks to its different mode of action, excellent disease control and yield uplift.

“You’re only allowed one application of Inatreq™ so it makes sense at T2 where it has the greatest effect, but it’s important to add an appropriate partner to maximise rust control and resistance management.” Adepidyn® from Syngenta has recently gained approval so is also likely to feature later in the season.



# Reducing sugar beet stress



Ryan Overton

With weather and climate more variable, improving crop resilience and mitigating stress is increasingly important.

Frontier agronomist, Ryan Overton, recalls how using biostimulants has helped Simon Quince of P J Lee & Sons maximise the yield potential of sugar beet crops.

P J Lee & Sons farm around 5,000ha between Peterborough and Cambridge, including 1,100ha of beet, mostly intended for pre-Christmas delivery straight from the field.

Mr Overton has been their agronomist for five years and emphasises the proactive approach needed for biostimulants.

“You need to use biostimulants before any signs of crop stress appear, otherwise you don’t see the same level of a response,” he says. “Using them strategically and early helps negate some of the stress factors later on.

“We then find that fungicides work better as we have a naturally stronger plant. For example, we are finding less cercospora.”

The farm’s first use of IntraCrop’s biostimulant Status – containing the award-winning MTU® and pidolic acid - was in 2022 on various crops. It was applied around five days before record breaking hot weather in mid-July of that year.

Mr Overton adds: “We put it on with the fungicide application and the results were startling. While other nearby crops were heavily damaged with yield and quality



Simon Quince

depleted, the treated crops didn’t really show any signs of stress. In all we lost around 5% of the leaves, while others lost 50-75%.”

Mr Quince shares the subsequent changes they have made to their biostimulant strategy since. “After seeing those results, we’ve increased our usage and now apply Status with our insecticide.”

“We’re trying to get the young beet up and established before viruses become an issue. The product also helps with nitrogen use efficiency and in trials on other crops we’ve seen yields maintained while reducing nitrogen applications by 25%.”

“Not only do crops look greener in the field, but we’re seeing yield potential earlier as there’s more canopy and the crop can utilise more sunlight.”

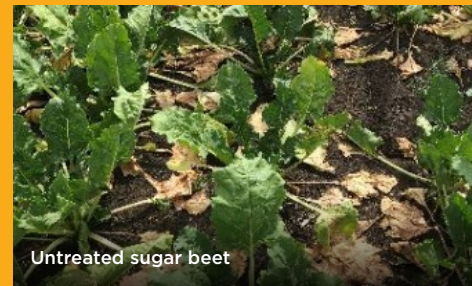
Mr Quince explains that they are getting to a sensible harvesting yield in September, with the potential to push that even later.

“Where we’ve left crops until October, we have seen around 10% increase in yield using Status. Depending on the season, the product gives us the ability not to overwinter the crop to obtain yield, as the risks associated with harvesting beet in the winter are increasing.

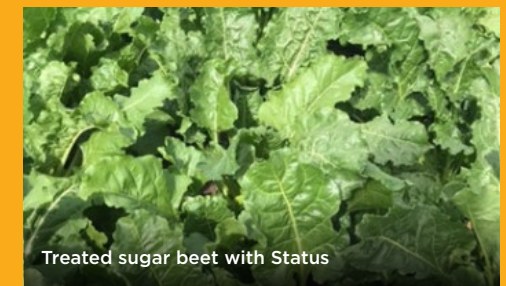
“This has allowed us on one of the most difficult autumn seasons to have all the beet out and the wheat established before the rain,” he says.



Ryan Overton and Simon Quince



Untreated sugar beet



Treated sugar beet with Status



# 3D thinking open days:

a holistic approach to farm research

frontier



Michelle Nuttall

Solutions that help to optimise production, boost farm resilience and deliver sustainable profit will be the key focuses at this year's Frontier 3D Thinking open days.

At 17 events in June and July across its UK-wide trials network, Frontier experts will share results, insights and recommendations across all areas of sustainable crop production, including variety selection, soil health, nutrition, crop protection, data capture and interpretation, environmental land management and farm-scale work on cultivation and rotations.

"Key to our open days is providing a forum for advisors, growers and industry partners to come together and assess the learnings from previous seasons in scenarios representative

of those on farm. It's a great opportunity to collaborate and explore the solutions available to help future-proof farm businesses," explains Frontier knowledge exchange manager, Michelle Nuttall.

Variety selection and crop performance, as well as nutrition and crop protection trials, have always been a core component to Frontier's open days. However, changing industry trends, policy and legislation around land use and environmental protection mean a holistic approach to crop production is more important than ever.

Ms. Nuttall continues: "We're keen to reflect this in any research we undertake. It's vital we challenge assumptions and typical approaches while evaluating the practical implementation of new solutions coming to market.

"This is even more important with the development of the Sustainable Farming Incentive and other such farm policy.

Growers have more to think about than ever before; wide ranging opportunities through both public and privately funded environmental land management schemes in the era of reduced BPS provide a lot of potential benefits – but only if undertaken with sound advice and careful planning. Our open days are a way to bring that 'bigger picture' thinking together so growers can effectively plan for the long-term."

Details for Frontier's summer open days can be found at [www.frontierag.co.uk/events](http://www.frontierag.co.uk/events)

BASIS

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Frontier has a UK-wide team of 130 BASIS qualified agronomists, including 44 Diploma holders and 70 experts on the environmental register, supporting growers with fully integrated agronomy advice on all aspects of profitable and sustainable crop production.

Find more technical news and advice from Frontier's experts at [www.frontierag.co.uk/blog](http://www.frontierag.co.uk/blog)

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