Planning for success

Nutrient plans

It's sometimes regarded as a compliance 'tick box' exercise, yet creating a nutrient plan can deliver tangible benefits on the bottom line for a business, with new technology set to make the task even simpler. *CPM* reports.

By Rob Jones

While there are many reasons to complete a nutrient plan including a fairly compelling legal obligation, investing the time and resources into really making it work can deliver significant benefits to an arable business, believes AHDB head of farming systems and agronomy, Ollie Johnson.

With a sharpening focus on NUE and the development of new farming practices designed to make crop nutrition work as hard as possible, efficient nutrient planning should be at the heart of every crop production system in the future, he suggests.

"There's obviously the environmental aspect with its emphasis on making sure applications are matched as closely as possible to crop requirements, so nutrients don't, for example, end up in water courses, but that's really just the start of it.

"One of the most important things for the grower is it allows them to target costs – nitrogen has reduced in price recently as gas prices have come down from the high of two years ago, but it's still an expensive input."

Ollie believes a comprehensive nutrient plan can help growers to get the most from every kg of nitrogen and other key nutrients applied, which is essential to future sustainability.

"Most growers have NUE very much on their radar and realise they may have been a little too focused on yield in the past, but what really matters is profit.

"Increasingly, considerations are being made regarding how to convert as much of the fertiliser that's applied into grain, rather than just applying a whole load of nitrogen which might increase the heap a little, but not necessarily improve profits."

> *"Good nutrient planning can fundamentally improve your business for the better."*

Beyond nitrogen

It's not just about nitrogen either, as much can be done to improve the efficiency of phosphate and other key nutrient use too, he suggests.

"If you have an index of 5 for P, for example, while many might perceive that as good, all it means is you've being paying into the bank without making any withdrawals which might not be the most cost-effective thing to do."

Chair of the RB209 arable technical group committee and independent advisor, Allison Arden, says such a mindset plays into the latest thinking on nutrient planning, with the new Sustainable Farming Incentive (SFI) helping to drive this.

"Every farm has a legal requirement to produce a nutrient plan, but growers have to move on from a simple 'compliance' mindset. People always think of it from an inspection point of view – whether it's the Environment Agency (EA) or Rural Payments Agency (RPA) – and that it's just about keeping nutrients out of water, clean air and managing the soil, which is important but not the only story."

Allison stresses that although RB209 is the initial step in nutrient planning, it serves as guidance only. "You have the flexibility to create your nutrient plan according to your farm situation, but it must be evidence-based. A basic plan may meet the requirements, but it might not provide valuable insights into enhancing productivity.

"Investing in a more comprehensive nutrient plan will, however, help you to reduce your cost of production, increase recovery of nutrients and achieve better management of the organic resources at your disposal such as muck, digestates and slurry.

"It's also a way of lowering the carbon footprint of production, which is a key aim of government in achieving its net zero targets while also likely to attract marketing premiums in the future as grain buyers strive to reduce their scope-3 emissions," she says.

According to Allison, SFI is a good mechanism to encourage farmers to engage with nutrient planning. "With £652 available for this, it's likely to go a long way to financing a plan – particularly on arable farms which tend to be simpler in this respect than livestock ones."

Ollie adds that a key part of responsible nutrient planning is safeguarding against the possible implementation of future legislation in the area of fertiliser use. "We're seeing more laws being introduced around protected ureas, for example, and

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that's all to be respected while meaning farmers are getting more out of their urea.

"But I think we're all keen that government doesn't create additional legislation around how we farm. Growers can play a key role in this by making the correct decisions themselves around fertiliser use and recognising the value isn't just to the environment, but also to them," he says.

Furthermore, Ollie adds that he sees this approach in the plant protection product sector through the Voluntary Initiative (VI), which fulfils this exact role and acts in lieu of additional legislation by encouraging best practice and demonstrating farming is capable of self-regulation and responsible use.

"It's the industry putting its hand up and saying, look, we don't always get it right but we're going to do what's necessary so you don't have to step in with additional legislation at this time."

RB209 is an opportunity for that to continue, he says, with continuous updates and a major review now underway. "Stakeholders in the industry were recently invited to submit their views and thoughts on how RB209 can be improved, with some early areas of interest being around biostimulants, cover crops and other new technologies.

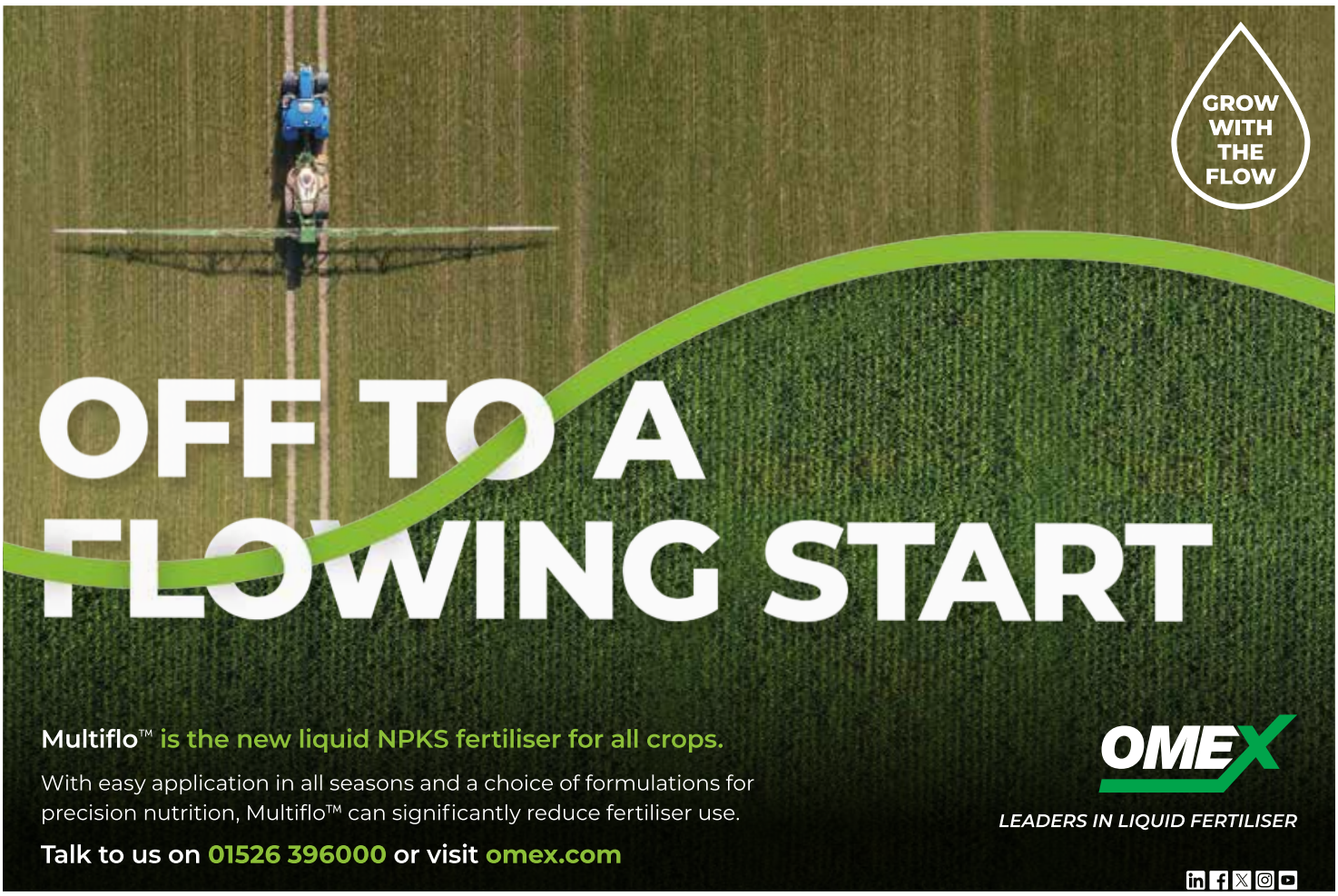
"Growers are definitely keen to make more use of organic sources too, and with this in mind we've already developed a new manure calculator for the AHDB website which will allow farmers to more easily calculate the financial value – this should be available for use in the coming weeks."

The calculator will rate the value of manures not only on the material used, but also how they're applied with other new technologies, he adds. "The increase in nitrogen prices did make people think when they realised they couldn't afford to use so much.

"Many decided the crop was going to have 150kgN/ha rather than 220kg of bagged N, with the difference being made up through biostimulants and long-chain methylated ureas. When it came to harvest, some were relieved and perhaps surprised that yields weren't that different. So, a lot of this new thinking is being taken onboard in RB209."

Allison says new technology can also be used to both simplify the process of nutrient planning and improve its overall value to the farming business. "If you've never done a nutrient plan or have but not really followed one in the past, using a simple digital system to take the complexity out of the process is a real benefit to growers. Simple to create, simple to action and simple to understand are key drivers of actually implementing a plan.

"NavigatePro, for example, digitally connects to RB209 so users can access all of the experience and research which goes into that, but they also have the flexibility to adapt their plan to match



their own farming situation," she adds.

According to Allison, who's also technical lead for software company Navigate Eco Solutions, if it's known a farm produces higher yields than RB209 suggests, for instance, and support is being provided by a FACTS trained advisor who can provide evidence, then plans can be tailored accordingly.

"While RB209 provides the default guidance, NavigatePro allows you to input specific data such as soil, manure, and fertiliser analyses so the resulting nutrient management plans are tailored specifically to meet farm or field requirements.

"That's perfectly acceptable, but you have to be sure of the process and be able to demonstrate how you've arrived at the decision that your crop needs 50kgN/ha more, for example, than RB209 suggests."

A good system should also show where excess might have been in the past, and how and where to save money on choosing the best products to fit the job in the future, she points out.

"With this in mind, we have functionality about to come online which analyses your cropping, soil analysis and system, and looks on the market for optimum products in the correct ratios to best match the nutrients required by the crop so you're not at risk of over or under supplying nutrients.

"It also ranks these on their carbon intensity so you can choose the best product analysis for the job as well as being able to select the ones with the lowest carbon footprints. We're also involved in a project called 'From Nitrogen Use Efficiency to Farm Profitability' (NUE-Profits)," continues Allison.

"The project's objective is to enhance nitrogen efficiency by providing farmers with a digital management system that utilises data from field measurements and sensors and crop and weather modelling to offer in-season real-time advice on the best approach to applying nitrogen for its optimal utilisation."

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Collaborative approach

While NavigatePro can be used by farmers that are FACTS trained, it's at its most effective when used in conjunction with an advisor, she says, with Zantra being amongst the first to arm their team with the system.

Zantra's Oliver Bennetts says the system helps him to optimise nutrition advice for his customers and is particularly useful in NVZs, which account for nearly 60% of all UK farmland. "NavigatePro calculates all the necessary farm and field limits for organic manure and fertiliser applications of N and optimal P and K.

"It then guides users through inputting the right data to calculate farm storage capacity with ways to enter manure/fertiliser values which are bespoke to each farm and even each pile or slurry store. It then determines if the farm is NVZ compliant or requires an alternative solution to stay legal.

"We can also ensure that recommendations meet the crop N-Max rules and closed period limits. Clear reporting really helps to understand whether operations are within the rules in advance of seasonal applications."

Andrew Clarke of C. E. Clarke and Sons near Inkberrow in Worcestershire, says the technology has enabled his business to target nutrients where they are required, resulting in substantial savings on fertiliser input costs. "At one time we'd have applied MOP routinely across the majority of the land we farm, but increases in prices and market volatility have meant we've been constantly reviewing our costs of production.

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"By using the results from strategic soil sampling of the home farm and the land we farm under contract, we've been able to make input savings and importantly target all nutrition applications, not just nitrogen.

"Trying to balance P and K inputs with offtake isn't something which we considered in the past, but NavigatePro calculates an overall balance by automatically accounting for nutrients removed in the crop at harvest and balancing them against those supplied by fertiliser, muck and imported biosolids," he says.

Andrew points out that because the system connects to RB209, his crop requirements are automatically kept up to date when recommendations are reviewed and updated by AHDB. "This means crops are optimally supplied with nutrients from the soil, the bag, and organic inputs.

"We now perceive the nutrient management plan as a living document, evolving through the spring. It allows me to quickly adapt when best made plans have to change."

Allison believes such knowledge is empowering. "Growers should take pride in producing a comprehensive nutrient plan knowing they're not just doing their bit for the environment, but also managing some of the most costly and carbon intensive inputs on their farms as efficiently as possible.

"And if you are uncompliant, don't bury your head in the sand, be brave. Work out where you're going wrong and remedy it. It's not the end of the world and there might even be a grant available to help you; the EA is usually very positive about such thinking and wants to work with farmers.

"Good nutrient planning can fundamentally improve your business for the better – it's not just about a tick box exercise to meet current legislation. It can have a major impact on your short-term profitability as well as long-term sustainability," she concludes. ■