

A strategic approach

“Crop nutrition is much more holistic than just nitrogen.”

Crop nutrition survey

As growers grapple for alternative strategies in light of sky-high fertiliser prices, optimising the benefits of foliar nutrition could be a welcome aid this season. CPM finds out more.

By Charlotte Cunningham

Fertiliser prices have dominated the headlines of agricultural press over the past few months, and with ammonium nitrate and urea prices sky high this season, many growers will no doubt be weighing up the options when it comes to optimising their yields and input costs via alternative means.

But what are the options and what's 'best practice' for doing just that?

This concept was explored in a recent CPM/FMC survey, which aimed to delve deeper into the challenges and opportunities with crop nutrition in a difficult season.

Nutrition planning and programmes depend on not only the crop type, but the end-market that crop is destined for.

Wheat-wise, most participants said

they're growing feed wheat only, while 35% said they'll be supplying both milling and feed markets. The outlook was similar for barley growers, with 37% of growers noting that they're aiming for feed specification only, while 29% said they'll be growing both feed and quality malting barley.

"Inputs like nitrogen fertiliser are clearly very important for growers targeting both feed and quality markets, and there's certainly been a lot of talk over the past few months over whether it's right or wrong to be thinking about cutting fertiliser rates this spring," says Chris Bond, commercial technical manager at FMC.

"As we move into the main spring window, the focus is on how to optimise what we do have to maximise output of yield and quality for those growing for premium specification."

Hardest hit

Richard Cromie, Crop Management Partners, says it's likely to be those growing for premium markets who will be hit the hardest. "With wheat, for example, ultimately this will depend on what the millers want — and will accept — in terms of a protein specification and whether growers are able to achieve this with the resources they have. It's going to be interesting to see where it goes over the coming season."

So what's the current outlook with regards to fertiliser supply?

While 75% of growers revealed they've been strategic with fertiliser (N and/or P and K) purchasing and have between 80-100% on farm already for the coming season, 14% said they only have enough for the first application and 5% said they have very little ready for the spring.

Price-wise, there was a significant gap between those who had forward



Optimum crop nutrition is about more than just nitrogen, says Chris Bond.



Richard Cromie warns that those growing for premium markets will be hit the hardest by suboptimal N rates.

► purchased and others who had been stung with the unprecedented high prices. While 48% noted that much of their nitrogen fertiliser had been purchased between £300-350/t, 52% of growers had paid over this price, with 2% shelling out more than £650/t.

"While it's positive to see so many growers in at the lower end of the spectrum as far as pricing is concerned, from industry conversations we know there are many who have paid — and will continue to have to pay — significantly over the odds this season," adds Chris.

As a result of the supply and demand challenges, some growers have been left with no option but to slim soil-applied nitrogen rates.

More than half (53%) of growers noted that they'll be dropping back by 10-30kg/ha, while 5% said this reduction is more likely to be around the 50kg/ha mark. A quarter (25%) said that they're planning to apply the usual amount recommended.

While cuts are going to be no doubt necessary for some, Andrew Stilwell — agronomist and technical manager for Bartholomews — warns of the potential impact this could have at harvest, urging growers to be mindful when it comes to decision making. "I think it's important to remember the

fundamentals of crop production in that decent yield and quality may not be achieved if a crop isn't fertilised properly."

It's been mentioned by leading bodies like NIAB that UK growers have historically overapplied nitrogen, meaning a rate reduction might not have as severe an impact on crops as anticipated (see *CPM* Feb 2022), and Andrew adds that it's important to take factors like seasonality, rainfall and previous cropping into consideration when contemplating application rates.

Rate reductions

"Our own research work over the past 3-4 years has been based around slowly massaging N rates down and the proposed reductions this year aren't a long way from where we feel comfortable. Therefore, any reductions this season might not be as radical as growers think."

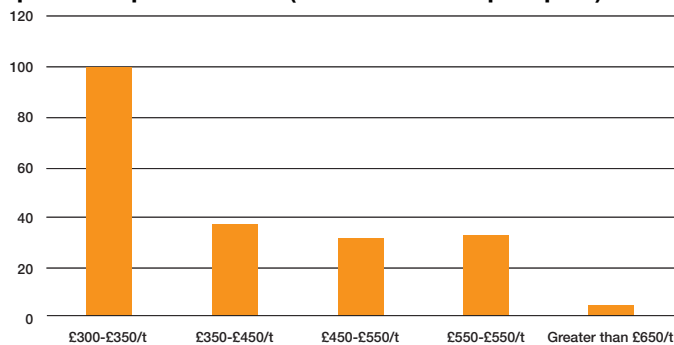
However, he adds that cutting rates is one thing, but suboptimal utilisation is another and in fact, this is where growers may have an opportunity to improve efficiency this season. "Dividing applications down into smaller amounts, applied more regularly, will often lead to marginal gains via nitrogen-use efficiency. Making sure every gram applied gets utilised by the crop is more important than ever this season."

When it comes to other key nutrients like phosphate and potassium, 57% of growers said they'll be reducing or not applying P and/or K this season, in comparison with 43% who said they'll be sticking to plans to apply the usual recommended amount.

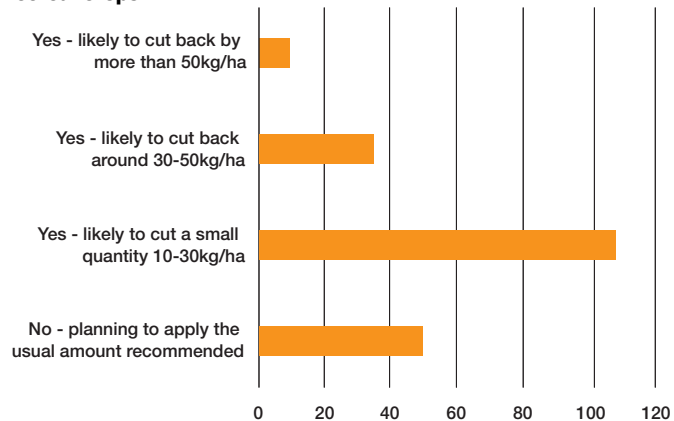
"I'm a firm believer in that getting the basics right is the key to growing the best crops," says Richard. "This includes excellent soil structure, drilling crops into good conditions and also ensuring the plant has adequate levels of essential nutrients — including P and K.

"It may be the case that some growers are able to take a P/K holiday this year in light of the

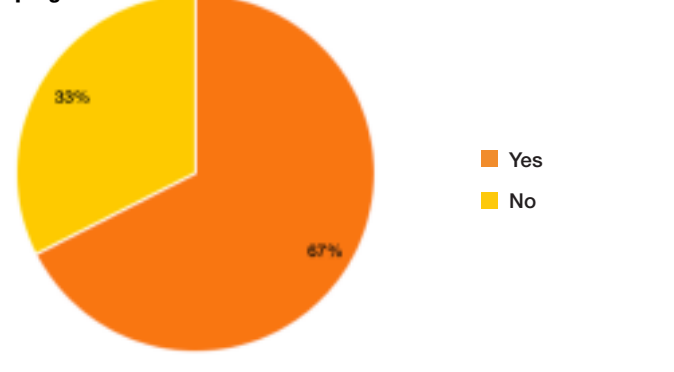
Around what price point was/is most of your nitrogen fertiliser purchased/placed on farm (ammonium nitrate price point)?



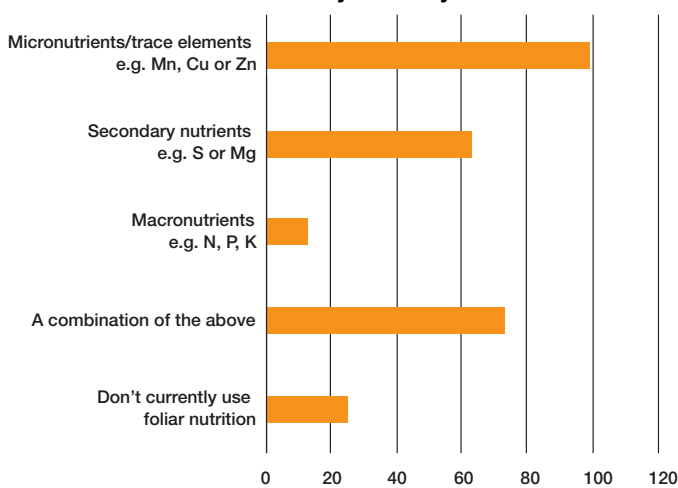
Are you likely to cut back on soil applied nitrogen in your cereal crops?



Is foliar nutrition a standard component of your overall program?



What kind of foliar nutrients do you usually use?



higher prices, but this can only be confirmed by a soil test, otherwise they may be taking an unnecessary risk.”

He adds that, particularly in a potentially lower nitrogen year, a good supply of these nutrients could actually prove to be beneficial. “We know that potash increases the nitrogen uptake in crops, for example, so it’s worth bearing this in mind before cutting rates.”

For anyone contemplating taking a P/K holiday this season, Andrew echoes Richard’s view and warns that it’s essential a soil analysis is carried out first. “Having an up-to-date analysis is vital. Once you know what you’re working with, a strategic decision can be made.

“Unknowingly having suboptimal levels and then cutting back or cutting out P and K this year could have a significant impact on crop health and the overall resilience of the plant.”

Suboptimal levels

Chris agrees: “The recently published ADAS/AHDB report on dealing with the current fertiliser situation actually specifically referenced the danger of cutting ‘non-nitrogen’ sources this year without the warranted grounds to do so. It warned that if they are cut, and significantly so to suboptimal levels, then yields will drop further and as will nitrogen-use efficiency.

“While nitrogen supply and rates may be down in some cases, there’s still a lot of other aspects and nutrients to manage and optimise to ensure yield and quality is maintained.

“We’ve done a lot of tissue analysis over the past four years or so and the general feeling has been that we’ve seen an upward trend in the number of samples coming back with suboptimal levels of P and K. If there are more growers planning to cut back this year, it becomes a question of whether crops have access to enough of



Andrew Stilwell warns that decent yield and quality may not be achieved if a crop isn’t fertilised properly.

the nutrients.

“What’s more, both P and K can get locked up in the soil, reducing this availability further, which is likely to have a negative impact on crop performance.”

With all of this in mind, Chris reckons there’s an opportunity for foliar nutrition to play a more important role this season.

Over half (68%) of growers said that foliar nutrition is a standard component in their overall programme — with the majority focusing on micronutrients like manganese, copper, and zinc. A third (35%) said they include a combination of micro and macro nutrients as well as secondary nutrients like sulphur and magnesium.

So how beneficial can foliar nutrition be?

“Though nitrogen is fundamental, crop nutrition is much more holistic than that and bringing in other elements via foliar nutrition gives growers an opportunity to improve the overall nutritional and health status of a plant,” explains Chris.

That’s the case in a ‘normal’ year, but in a season like this, these nutrients are really going to come into their own and play a more important role, he believes.

“Magnesium and manganese are critical for photosynthesis, for example. In the case of manganese, though it might not be directly involved in the nitrogen use process, it has ▶



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With most top-dressing applications well underway, global markets have forced some growers into applying sub-optimal rates. Applying a foliar dose of N can mitigate any shortfall of soil applied N, but think carefully about

product choice, rates and timing. If only foliar N is required then a foliar urea such as Folex N or the slow-release option of Folex MU 35 are both candidates, but if other nutrients are needed as well to ensure optimum performance from the applied N then consider other formulations in the range.

You will read many opinions over the coming weeks on what is the correct ratio when calculating the amount of foliar applied N to replace your soil applied shortfall. Ratios are likely to go from ultra-cautious foliar 1:4 soil to ultra-optimistic foliar 1:9 soil. Even when there is trials evidence to support the rates recommended, these come from a different crop under different circumstances. Choosing the middle ground would seem appropriate if supported by regular SAP testing to provide the evidence from the crop itself to adapt rates one way or the other.

Establishing a strong root structure will also help the plants ability to absorb the nutrients readily available in the soil. It is not too late to apply a root biostimulant like Kickstart if crops are struggling to build an adequate root system.

Lastly, as I highlight in all my columns, the importance of monitoring your crops is key. Ensure that your crops are receiving the correct doses of nutrition to meet your quality and yield requirements. With inputs and produce prices at such an enormous premium the balance of risk has never been so fine. Utilising a system such as SAP analysis alongside recommendations from FACTS qualified agronomists, will be invaluable this Spring.



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► been shown that manganese deficient crops don't utilise available nitrogen to its maximum.

"If you then think about foliar applications of P and K at key timings, while you're never going to replace all of the P and K the crop needs through the leaf, if you can do it at important growth stages (such as tillering and stem extension) where the crop is likely putting on a lot of biomass, there's a chance to give crops a boost.

Foliar applications

"Micronutrients have probably been the standard when it comes to foliar nutrition, but there's definitely scope for macro and secondary nutrients too."

To get the best from foliar applications, Chris adds that timing is critical, and applications should be approached with the mindset of trying to boost the performance of the crop.

And with fertiliser prices likely to remain high in the short term, 63% of growers said they'd consider the use of foliar N, P, K, Mg and/or S to offset soil input reductions and boost the crop at key timings this season.

But is this advised?

Andrew agrees that foliar nutrition gives growers an opportunity to 'fine tune' their programme, and can help address imbalances if formulated

correctly, however, he warns that it isn't a replacement for a solid macronutrient programme.

"Regular tissue analysis 7-10 days before a fungicide spray timing will help guide growers' foliar nutrition plans, but a good solid fertiliser programme should still be constructed efficiently as possible to get the best from crops.

"We're in a fortunate position that lots of crops have come out of the winter very strongly, so a clear plan before the main fertiliser window starts will help protect that potential."

Richard agrees: "With the main macronutrition, I still think that the majority of this should come from soil-applied sources and delivered to the plant via root uptake. However, foliar application can help to top this up and even out any little differences or discrepancies."

For those still on the fence, Chris stresses again the importance of tools like tissue analysis or sensors to monitor and measure nutrient content across the season. "The more aware growers are of what's going on within the plant, the more potential there is to react to any imbalances at an early stage in order to bring prosperous crops through to harvest." ■

Winner announcement

Congratulations to our winner Paul Cawood from Shropshire who responded to the CPM/FMC survey on crop nutrition and has won the fabulous prize of a 64GB 10.9" iPad Air — worth over £500.

Paul responded to the survey and completed the tie-breaker question, which asked respondents to detail their approach to achieving yield and quality potential in their crops this season, in light of variable fertiliser availability and rising prices.

His answer was: "I will use tissue testing and planned foliar

nutrition sprays to complement my nitrogen programme. The aim is to optimise nitrogen-use efficiency and achieve optimal yield with a balanced nutrition approach."

The answer demonstrated a clear understanding of the benefits of taking a pragmatic approach to crop nutrition and how additional tools — like tissue testing — can be particularly beneficial in a difficult season, which impressed the judges.

To take part in the next survey, make sure we have the correct details for you by emailing angus@cpm-magazine.co.uk