



PRIORITIES WITH PLANT NUTRITION

“Getting the basics right with plant nutrition will pay dividends”, says Dr Dawkins, Technical Director at ProCam.

The starting point, as ever, is to understand the role that important nutrients play in optimising crop yields.

Nitrogen, potash and phosphate are usually better addressed by most growers as these are routinely applied and the responses and reasons for applying the specified nutrients are well documented and well understood.

In terms of trace elements, there is always the question ‘do I really need to apply these?’

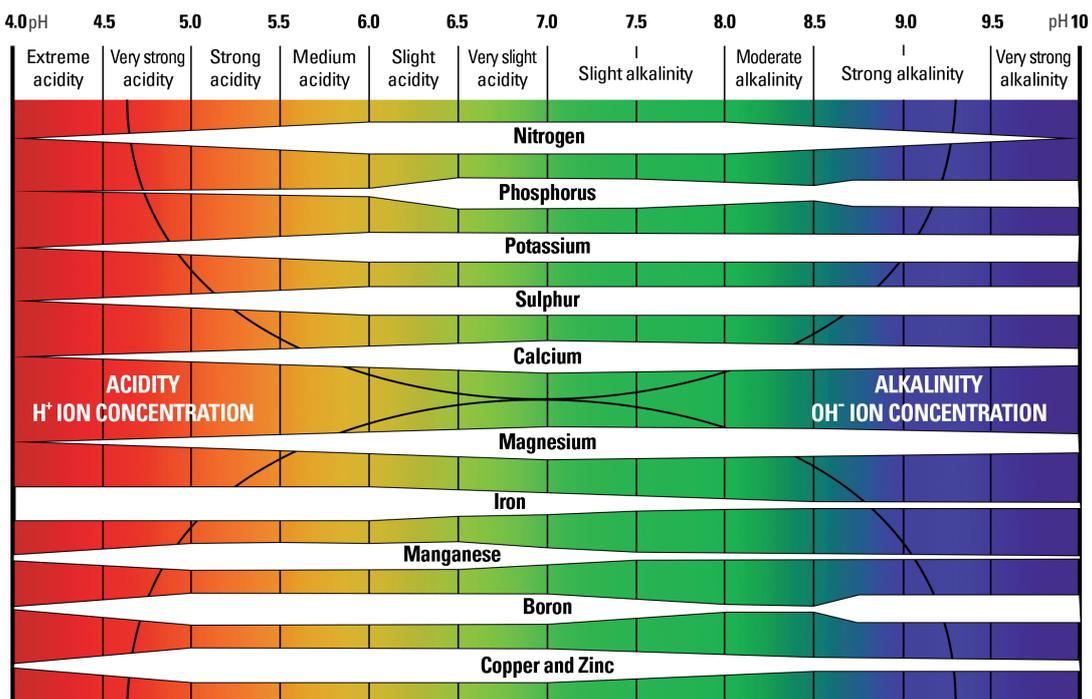
The starting point needs to be addressed by looking at a basic soil analysis for pH. Plant roots explore soils for both macro and micro nutrition but if the soil pH is outside the optimum range, additions can be wasted as pH influences the uptake of both macro and micro elements. For arable crops, the optimum pH should be around pH 6.5 and for grassland, the pH needs to be around 6. This results in optimum availability of the key nutrients.

Acidic conditions are addressed by applying lime to increase the pH. Alkaline conditions (chalky soils) are more difficult to adjust as soils have substantial buffering capacity. Indiscriminate application of nutrients to high or low pH soils can be wasteful as they may be ‘locked up’ as insoluble complexes, in the soil.

Deficiencies of nutrients are relatively easy to diagnose but, if visual symptoms are expressed, yield may already be compromised. It is recommended that regular plant tissue tests are conducted, especially during rapid phases of growth, in spring, to determine if any subclinical deficiency is present.

If deficiency is detected the application of an appropriate foliar product is recommended to correct the problem. Foliar applications can be more efficient in terms of a rapid remediation of the problem.

Influence of pH on nutrient availability



Courtesy of the Potash Development Association
www.pda.org.uk

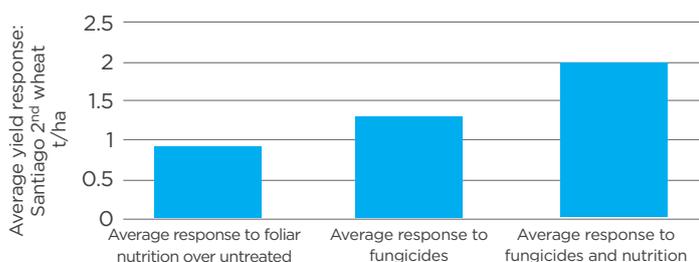
How rapidly can foliar nutrition be taken up by the plant?

Nutrient	50% absorption
Nitrogen	1 to 6 hours
Phosphorus	1 to 5 days
Potash	1 to 4 days
Magnesium	20% within an hour
Iron	8% within 24 hours
Manganese	1 to 2 days
Zinc	1 day

Uptake of nutrients by plant leaves. Source: BASF

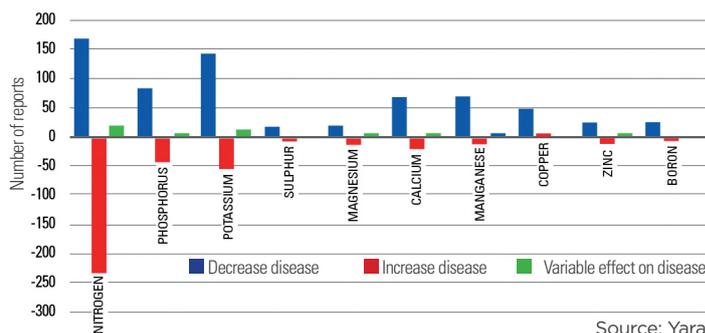
ProCam trials have also highlighted that the regular addition of trace elements with fungicides has also proved beneficial.

Interaction of fungicides and nutrients. ProCam trials 2015



Recent work by Yara highlighted the association of better plant health with trace element additions.

Literature reports - positive and negative effects of nutrition on disease



Source: Yara

By the same token, in ProCam trials, plots which received no fungicide were noticeably healthier when treated with a trace element mixture containing a biostimulant.

Untreated fungicide and nutrition ProCam trials 2015



No fungicide, no foliar nutrition No fungicide, foliar nutrition T1, T2 and T3

The increase in yield between the treated and untreated was 0.9t/ha with a margin over input of £93/ha.

CASE STUDY - A 'GAME CHANGER' ON AN ESSEX FARM



Under the watchful eye of ProCam Agriculture agronomist, Kevin Pearcy, Essex farmer Gavin Rowsell, of Brick House Farm near Maldon, is just one grower who has seen clear benefits from using a programme of trace elements.

Farming a total of 600 ha - most of which has been

reclaimed from the sea at some stage - he purposely tried it on his worst, low-lying land for the harvest 2016 season, using it on two different varieties of milling wheat.

On both fields he reckons he saw a yield increase averaging around an extra 0.5 t/ha.

"We've spent a fortune trying to improve this soil over the years," says Gavin Rowsell, "applying gypsum and manure, and incorporating straw ever since the straw burning ban.

"The land is getting better but you still hit blue or yellow

clay within a few inches if you dig into it, and can still smell the saltiness.

"We probably shouldn't be farming it really, but these are some of the best yields we've seen from these fields. We got around an extra 0.5 t/ha.

"We run a Claas Lexion and disregarded the headlands to ensure the figures were accurate and then measured yields from four full combine widths in both the untreated and treated.

"After cutting the first field I was a bit sceptical. But a few days later in the second field we saw almost exactly the same result. I was impressed."

In addition, Gavin Rowsell says the treatments were easy to apply and, following the results, he'll be repeating the programme in 2017.

"I'll probably use it on the bulk of the farm, and do some more trial work on our more productive fields."

Growers shouldn't neglect the important area of trace element nutrition, says Kevin Pearcy. "My growers are now seeing the benefits from adopting a programme which addresses the issue."