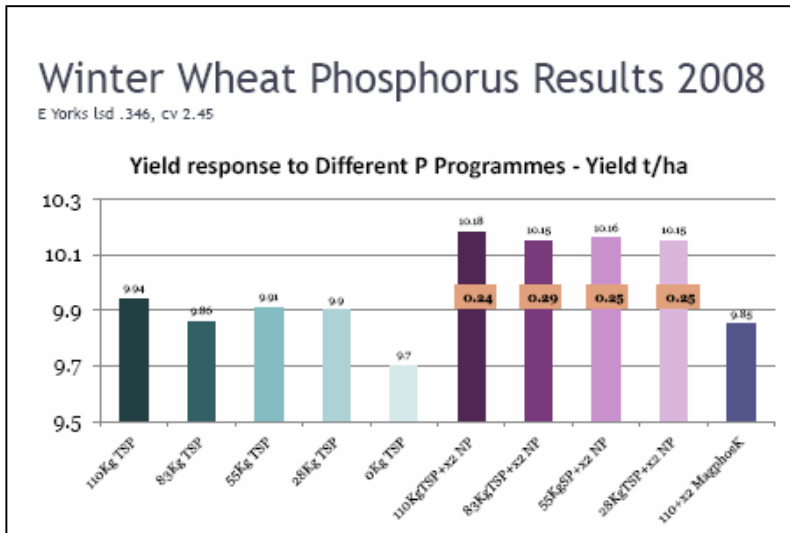


Phosphate Update

Although the price of some fertilisers has eased a little costs are still way above those for 2007/08. P & K in particular have seen the biggest rises and so far the smallest falls so farmers will be looking to cutback wherever possible. Some will be taking a 'P & K holiday' utilising the soil levels built up over the years, others may want to maintain some level of input without spending too much. The following notes hopefully will give some support to those trying to save money.



Summary of Results

1. Even at P index 0 the crop yielded well and showed only modest response to applied P especially to the higher application rates
2. The addition of Nutri-Phite appears to have added around 0.25 t/ha in addition to any response to applied P
3. Other forms of foliar phosphate did not increase yield over that achieved with TSP.

N.B. This results are from 1 trial in 1 year and more work is needed before drawing firm conclusions

Plant Syence carried out 1 trial in East Yorkshire in 2008 to look at wheat response to applied P and whether Nutri-Phite can have an additional nutritional benefit.

The soil was a sandy loam with following analysis:

PH	8.2	
P	5 ppm	- Index 0
K	305 ppm	- Index 3
Mg	56 ppm	- Index 2

At this P level and at a standard yield of 8 t/ha RB209 would suggest an application of 110-120 kg/ha depending on whether the straw was baled or incorporated.

Various rates of TSP were applied to supply from 28 to 100 kg/ha P. These treatments were also repeated with a 2 spray programme of Nutri-Phite. MagPhos K was included as a comparison where 110 kg/ha P was also applied.

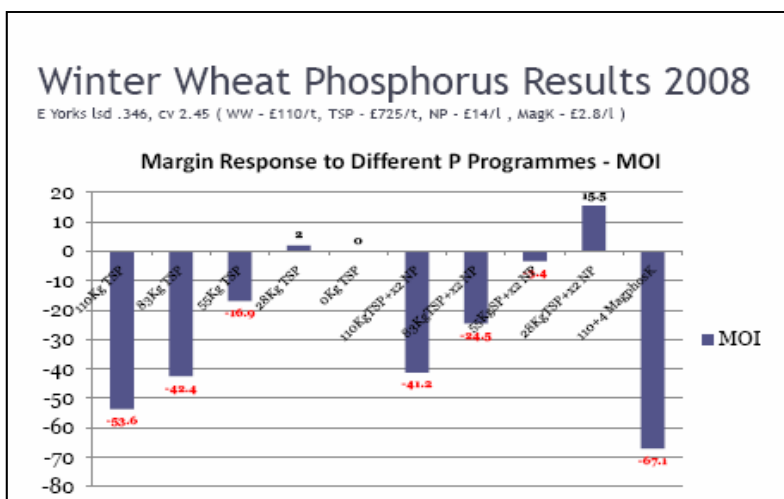
The differences between the treatments is exaggerated when the economic responses are included.

Due to the high cost of TSP and the low yield responses the margin over fertiliser costs was, in most cases, negative.

Only at the 28 kg/ha P level was an economic response achieved. This was further enhanced where Nutri-Phite was included.

These are early findings and too much reliance should not be placed on them but they do indicate a possible strategy to reduce costs but maintain and even enhance yield performance.

Slightly disappointing is the apparent lack of effect from MagPhosK. However, it would have been more interesting to see its performance without any soil applied P.



Nutri-Phite

Background Nutritional Information.: Nutri-Phite has the analysis 3:26:7

3% - Ammoniacal N

26% - P₂O₅ - although it supplies P as Phosphite it has to be described in this way

7% - K₂O to standardise comparisons.

0.5% - Mn & Zn as chelates

Nutri-Phite will supply around 0.4 kg/1 PO₄ (phosphate) available for plant uptake and utilisation.

Key timings: W Wheat & OSR 3-4 leaf & again at stem extension. In wheat further key timing is at ear emergence, not least for its potential effect at reducing mycotoxin levels in the grain

Other Evidence for the value of Foliar Phosphate

Research has been conducted to test the efficacy and efficiency of foliar applied P over higher rate of soil applied P. One set of work was carried out at the Department of Plant and Soil Sciences, Oklahoma State University.

As only around 16% of soil applied P is actually utilised by the crop it was anticipated that foliar P would be more efficiently taken up by plants. A series of trials at a variety of locations were carried out from 2002 to 2004 where foliar P was applied to wheat with and without the addition of TSP. The abstract of the research paper describes the results as follows:

1. Foliar application of P at GS 32 generally increased grain yields and P uptake versus no foliar P.
2. Use efficiency was higher when P was applied at GS 69 (flowering completed).
3. Results from this study suggested that low rates of foliar applied P might correct mid-season P deficiency in winter wheat, and that might result in higher P use efficiencies when compared to soil applications.
4. Foliar P appeared to be more beneficial when yield levels were lower, likely due to moisture stress that was restricting P uptake via the roots.

An example of the results from this series of trials is shown in the graph opposite. This shows the effect of foliar P applied as Potassium Phosphate to wheat at 1 site in 2002. This was a silt loam soil with low, index 0 levels of P.

The yields are modest by UK standards but statistically significant increases were achieved by applications of P between 2-4 kg/ha.

Similar results were also produced when foliar P was applied following a base application of 30 kg/ha P applied to the soil.

These results help to support the idea that small amounts of P applied to the plant leaf can go a long way to replace large amounts of traditional soil applied base fertiliser.

A full report of this trial series can be found at the website below.

