



Agronomy Solutions

Precision Nutrient Management Newsletter

Autumn 2013

Soil pH

Correctly identifying areas of low pH in paddocks is proving to be one of the greatest benefits of Precision Nutrient Management. Low pH is apparent in the majority of paddocks we have tested although it would be fair to say that on occasions we test paddocks that have no areas of low pH. Those paddocks would have areas that have excessive pH levels in certain parts, and this is usually a result of over liming areas of the paddock in the past.

Which paddock to sample?

Our preferred approach is to rotationally sample the farm on a 3-5 year cycle depending on soil type and texture. Lighter, sandy, free draining soils need sampling more often than heavier clay soils, 3-5 years respectively. Our first preferences would be to test paddocks where pH is the main concern and prior to sensitive crops being planted. Please plan ahead, and test in time to allow corrective action to be effective. Following on from that the aim is to complete the farm in such a way that all paddocks are covered at the most beneficial time in the rotation. The best approach for example, would be on a soil that needs testing every 5 years to complete 20% of testing each year.

With harvest well underway and looking forward to starting the new cropping season we felt it was timely to send out this newsletter to stimulate some thoughts around crop nutrition and requirements for future crops.

Planning of soil testing and getting the most out of our services requires forward thinking. Primarily as to which paddocks to test and at what point in the rotation. Please bear in mind that with regard to corrective liming prior to sensitive crops being planted the lime needs time to work and get into the soil to do it's job.



Plants from an area with acceptable pH

Plants from an area with low pH

Low pH linked to Take All

Growing wheat in acidic soil can impede root growth and give the Take All fungus a chance to infect the root hairs and get into the ends of wheat roots causing the typical black stunted roots associated with Take All disease. Take All is generally a secondary infection caused by the fungus catching up to slow growing roots. This can be caused by several factors: poor drainage, compaction, poor fertility and as previously mentioned acidic soil at depth. Over the past growing season we have taken several samples from areas in the paddocks where the wheat is showing symptoms of Take All and in most situations, but not all pH has had a bearing.

PHOSPHATE AND POTASSIUM

Over the past few years we have produced a significant number of P & K maps of paddocks and set out variable rate plans to correct many deficient areas. The approach we take is with the aim to only apply maintenance fertilizer to areas that are at the desired level and any areas that fall below the desired level have an element of build up of capital

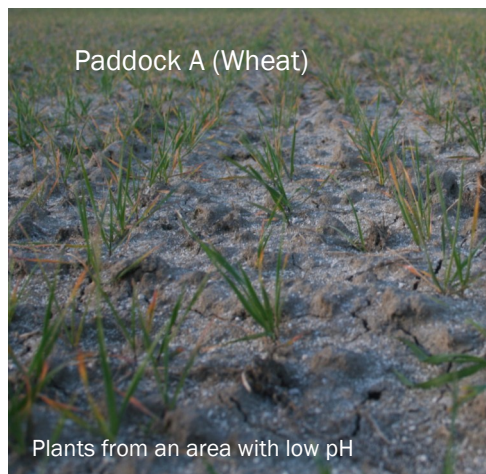
fertilizer to slowly raise levels to the target amount. Areas that are above target level have a reduced dose below maintenance to slowly draw down levels towards target. This approach will usually result in efficient use of fertilizer and in some situations significant savings. The comfort we get with this approach is that with a given spend you can achieve the

most efficient use of applied product. Our recommendations take into account expected crop yield and straw removal. Please do not expect to achieve a level soil test over a given area after a single application, changes are subtle and it may take a few years of variable rate application to even things up.

POOR GROWTH IN BARLEY

Over the last season we have responded to clients requests to sample ex barley fields that have shown poor performance at harvest. The poor performance has been apparent to header operators as well as being evident on yield maps. In a lot of cases the low performing areas show signs of low pH. Soil and yield

maps can often be aligned with pH nutrient maps to confirm this. Our comment to growers would be that whilst some of these are extreme cases we are seeing a lot of areas that are not at the same critical level but if caught earlier can prevent a problem occurring at a later date and as a result can maintain or increase crop performance.



BEET CROP-POOR GROWTH

Slow crop growth in patches can be observed in many beet fields. This again can be linked back to acidic soil and on occasions I have seen heavy rainfall after planting move lime away from small germination roots causing a temporary shallow pH issue on the surface. This is more difficult to correct but can be achieved by applying fine lime over the emerging small beet plants.

CARROTS

One of our leading seed companies has looked quite hard at crop performance of their seed crops and have observed a link between soil fertility and seed yield. Poorer performing crops have when investigated generally had some lower soil pH tests. Carrots are renowned for being highly sensitive to acidic soils so this comes as no great surprise. Our advice to anyone considering planting carrots would be to comprehensive soil test and be certain that all areas of the field are above 6.1. The correct advice would be to plan ahead and test the fields that are due to go into carrots a year prior to the crop being planted. This gives a chance for any corrective liming to become effective.

PREPARING FOR THE COMING SEASON

We aim to provide a prompt service and turn around samples fast, however we are governed by the speed and workload of the laboratory. To help us it would be good to have advanced warning of paddocks to be sampled, and access as soon after harvest as possible. Stubbles left after harvesting tend to go hard in the absence of rain, but within a few

days of heading the soils remain soft and are quicker and easier to sample.

Also please pay regard to any paddocks that we have sampled in previous years. We will need details of future cropping at the earliest opportunity, to enable us to have new spreading files and maps ready and waiting for you when you need them.

“In lots of cases the poor performing areas show signs of low pH.”

“Growing wheat in acidic soil can impede root growth and lead to infection from the Take All fungus.”

“Low levels of Potassium can cause lodging in cereals and reduced grain set.”

“Low levels of Phosphate can lead to poor or reduced establishment”

“Plan ahead and test paddocks a year prior to planting acid sensitive crops, as this gives lime time to take effect”