THE AGRONOMY COMMUNITY

Agronomic Insight

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Well planned and timely soil testing can maximise your fertiliser applications

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Research by Agriculture Victoria has shown that there are no pasture yield differences whether phosphorus fertiliser is applied in summer or autumn.[1]

The movement of water soluble phosphorus from single superphosphate granules into the soil is virtually complete within 24 hours of application, even when soil conditions are dry and rainfall does not occur. Light dews are enough for the P to move into the soil where it is quite immobile (won't leach). The granule left behind is basically gypsum (Calcium Sulfate), this will dissolve and move into the soil with the next rain event.

While the Agriculture Victoria work also showed that applying phosphorus fertiliser earlier than the traditional autumn application did not increase the likelihood of phosphorus loses through run off, it is still important to follow best practice :

- Avoid applying fertiliser when ground cover is less than 70%. Bare soils are prone to shedding water leading to erosion, taking valuable soil holding P and other nutrients
- Prevent fertiliser entering waterways and water storages
- Do not apply fertiliser if heavy rain is forecast within 4 days

Having phosphorus applied to the paddocks early allows for germinating annual grass and clovers and perennial pastures, to access fertiliser P ensuring a rapid uptake following the autumn break.

Clover plants growing nearer to a fertiliser granule were up to 4 times larger and contained 5 times as much P than those plants growing 2.5cm away.[2]

The same early application benefits apply for Lime – being quite insoluble Lime needs moisture and time to react in the soil to adjust pH. Generally 2-3 months prior to the autumn break.

Historically Lime and Super applications in pastures are skewed towards autumn and this causes –

- site dispatch delays
- road freight constraints
- contractor spreading constraints

Agronomically there are no penalties in applying early, and logistically there are benefits in getting the product applied in a timely manner, and often early dispatch incentives to take advantage of.

With confidence in when to time fertiliser spreading, the big question is what product, or suite of nutrients are required and at what rate.

The only way to determine these questions is with a well planned and executed soil testing program.

Spending time planning a soil test regime around soil type and topographic variations and understanding past fertiliser and management history will allow for a solid sampling program that provides critical nutrient management detail for allocating nutrients across the farm.

At least 30 soil cores should make up 1 soil sample from each zone identified on farm. Sampling depth needs to be consistent to 10cm, incorrect sampling depth will increase or decrease the nutrient concentration in the sample and give a false outcome.

Sampling in Spring is a great time of year to sample because soil moisture and temperature are typically constant, and any abnormal pasture growth is clearly visible, with urine & dung patches avoided.

With results available well before summer/autumn fertiliser and lime applications, this allows plenty of time for planning and organising your spreaders.

For more information,
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[1] McLachlan, KD. (1961) Time of application of superphosphate and the yield of pasture on an acid soil, Australian Journal of Experimental Agriculture and Animal Husbandry . Vol 1, 81-84.

[2] CH Williams, CSIRO Plant Industry, Canberra, ACT, "Effect of particle size on the availability of the phosphorus and sulphur in single super".