

June 2019



Advisory Note

Winter fertiliser P application

There has recently been some discussion on the interpretation of the Fertiliser Association Code of Practice for Nutrient Management and the guidance we release on nutrient requirements. The concerns have arisen in the context of audits of farmer practice in relation to good management practice principles. It has been asked whether it is appropriate to apply phosphate (P) fertiliser during the winter months, which we define as May to August inclusive.

Our approach in providing advice is to ensure that farmers and growers get the best return on their investment in fertiliser and that the environmental impacts of fertiliser use are minimised. Our Code of Practice for Nutrient Management provides a framework for the overall management of nutrients on arable and pastoral farms, horticulture and viticulture blocks, market gardens and forest plantations. Complying with the Code of Practice gives users the assurance they require that the nutrients used in New Zealand primary production are well managed to avoid or minimise adverse environmental impacts.

Regional Councils may also have specific requirements relating to management of nutrients so it is always important for farmers and growers to keep up to date with the latest requirements for their specific area.

We have also issued a series of booklets identifying the nutrient requirements for specific crops and pastoral systems. These booklets cover the principles and practices of soil fertility management. The booklets are targeted at balancing productivity, sustainability and environmental impact on New Zealand farms.

Our Code of Practice outlines best practices for phosphorus fertiliser use. In particular the code states that phosphorus should not be used when soils are saturated. Phosphorus can be lost in surface runoff (and on a limited number of soils by leaching) if you get rainfall on saturated soils in the period after application. The Code also notes that application should be limited when rain is forecast or when irrigation is planned, on lands with a steep slope, and during winter.

These principles are expanded in our nutrient management booklets. Advice to minimise the risk of loss includes splitting capital application of phosphate (splitting application where you are applying large amounts of phosphorus to build up soil P fertility). The booklets advise that maintenance applications can be applied at any time of year but caution against applying soluble phosphorus fertiliser during the high-risk winter months to reduce risk of run off or leaching, unless there are mitigating factors on individual properties which obviate the risk.

Both the code and the booklets are intended to give farmers and growers the information and tools to manage fertiliser responsibly. They help farmers to identify the potential risks relevant to their farm and inform the management actions chosen to minimise the risk.

The questions below are intended to help land managers step through a risk assessment process:

Is the paddock/area spread a potential hot spot (critical source area) for phosphorus loss?

What is the risk of surface runoff –

Is the land sloping

Does it drain towards a water body?

Are there tile drains on the property that could provide a direct connection to the waterbody?

Is there a high risk of leaching?

Do soils have low P retention?

Are the soils very sandy in texture?

Are they peat soils?

Are they stony soils?

Is the timing right for application?

Are the soils saturated

Is imminent rain forecast

Will predicted rain give rise to surface runoff? (Winter or Summer)

Is there increased risk of sub-surface flow from mole/tile drains to a water body following rain?

Is the application appropriate to the crop?

What is the crop requirement?

Has there been recent soil testing on the farm?

Is a capital or maintenance dressing required?

Maintenance dressings are only needed once soils are at the target Olsen P

Large capital dressings should not be considered at high risk spreading times or in critical source areas

Is the fertiliser product suitable for the crop and conditions?

Is application limited, per application, where there is risk of heavy rain giving rise to runoff soon after application (Winter or Summer).

Are rates of application limited per application on peat, sandy or stony soils or soil with low P retention?

Are rates of application limited where there are mole or tile drains on heavy soils?

How can a farmer or grower demonstrate that the risks of run off and leaching have been adequately considered and appropriately managed?

- Make sure your nutrient management plan/farm environment plan has documented critical source areas e.g., area to have winter P fertiliser applied has a slope $<7^{\circ}$; the soil has an anion storage capacity of $>25\%$; has $<65\%$ sand; is not bare soil; is not stony soil (i.e. <45 cm depth to a soil horizon that has more than 35% gravel).
- Where in practice it is not possible to stick to the plan, document differences.
- Keep results of recent soil testing and make sure applications in the nutrient management plan match requirements.
- Keep a record of where, what and when you spread, and at what rate.

- Keep a record of weather forecast at application to demonstrate that this has been considered before spreading e.g., there is no evidence of surface ponding for 1-3 days prior to application and no rain forecast within 5 days of application.
- Keep records of soil moisture monitoring to demonstrate application has been made in the right soil conditions.