

Phosphorus fertiliser is commonly applied to Australian dairy farms to maintain pasture production. However, recent studies such as the National Accounting for Nutrients project have shown that most dairy pasture soils have more phosphorus than is needed to maximise pasture growth. Some may view this store of phosphorus as money in the bank, but storing phosphorus fertiliser in the soil bank is inefficient, as like a bank, the soil has its fees and charges in the form of lock up processes. This means that there will be less phosphorus available over time and that means wasted money. The other problem with high levels of soil phosphorus is that it increases the risk of

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phosphorus lost in surface runoff. When water runs over the surface of soil (after heavy rain or when soils are saturated) this is called surface runoff.

A recent study conducted by TIAR on a red clay loam soil (ferrosol) found that phosphorus runoff increased as soil phosphorus levels increased (Fig 1).

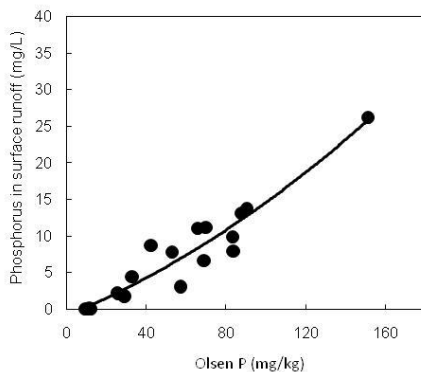


Fig 1. Phosphorus runoff increases as soil phosphorus level increases. Source: Burkitt et al. (2010)

These findings support other research done in Australia and overseas. The findings suggest that farmers should maintain their soil phosphorus levels close to the levels required to maximise pasture production, as this will reduce the risk of phosphorus loss in surface runoff.

A recent review of experimental data collected from around Australia as part of the Making Better Fertiliser Decisions for Grazed Pastures project has shown that the optimum soil Olsen P level for Tasmanian pastures sampled to a depth of 7.5cm is 16 to 20 mg/kg. This means that soil phosphorus levels above this range are more than are needed to optimise pasture growth.

The Making Better Fertiliser Decisions for Grazed Pastures in Australia project has shown that the optimum soil Olsen P level for Tasmanian pastures soils sampled to a depth of 7.5cm is 16 to 20 mg/kg.

Considering the risk of phosphorus losses in runoff increases as soil phosphorus levels increase, it is recommended to keep soil phosphorus levels as close to the target range as possible. This not only decreases the loss of phosphorus to soil lockup processes, but reduces the chances of losing phosphorus (and therefore money) off the farm, potentially polluting the environment.

Contact: Dr Lucy Burkitt, TIAR Dairy Centre, Burnie. Lucy.Burkitt@utas.edu.au
Ph: 6430 4972

