

Topsoil fertility status of dairy farms in New Zealand, 2009-2015

Dr. Danilo Guinto¹, Mr. Warwick Catto¹

¹*Ballance Agri-Nutrients*

The fertility status of topsoils (0-7.5 cm) from dairy farms in New Zealand was assessed during the period 2009-2015 with respect to Quick Test K (QTK), Olsen P, sulphate-S (SO₄-S) and pH, focusing on the proportion of farms in the optimum soil test range. The soils were grouped according to soil types, namely: Sedimentary, Ash, Pumice and Peat. For each nutrient, the optimum soil test range percentages over the 7-year period fluctuated as follows: QTK [Sedimentary (31-33%); Ash (22-26%); Pumice (20-24%); Peat (19-25%)]; Olsen P [Sedimentary (38-42%); Ash (33-36%); Pumice (25-30%); Peat (23-33%)]; and SO₄-S [all soil types had similar proportions (7-10%)]. For pH, the proportions in the optimal range were comparable in all the mineral soil types (25-32%) while it was much lower in the Peat soils (10-18%). Regardless of soil type, Olsen P had the highest percentage in the optimum soil test range (23-42%), followed by QTK (19-31%), then by SO₄-S (7-10%). Thus, there is scope to optimise S levels in dairy soils through regular S fertiliser application. For pH, 25-32% of the farms within the inorganic soil types are in the optimal range while for Peat soils it was below 20%. The proportion of farms in the above optimum range for Olsen P varied from 12-17% for all soil types except for Ash soils which had 23%. The proportions of farms in the high range were significant for Ash and Pumice soils (25-34%), less for Peat soils (16-26%) and considerably lower for Sedimentary soils (12-16%). Except for Sedimentary soils, a reduction in the amount of P fertiliser is warranted for the other soil types given the negative environmental impacts associated with excessive P application.