

# National Landcare Program: Smart Farms Small Grant – Fruit Growers Victoria

## FACT SHEET 8 Demonstration Plots

The use of demonstration plots is a common practice to support extension. The primary purpose for establishing demonstration plots is to show growers the likely outcomes of known practices, and in our case to support learning about how the soils respond to amendments.

However, the inability to perform statistical analyses on data from replicated plots makes these trials, if used alone, unreliable as tests of performance.

### Purpose

Second most common question arising during the workshops was why a targeted soil parameter, such as pH, didn't change as expected, either by speed of change or by desired outcome.

This raised the infrequently discussed soil characteristic of soil buffer capacity.

Soil buffer capacity is the soil's capacity to maintain a relatively stable parameter despite the presence of amendment to alter that characteristic.

### Plot Method

Demonstration plots were established on six soil types in various locations on established orchards. Two plots in each region; Cobram, Goulburn Valley, and the Yarra Valley.

Three characteristics were selected for inclusion as simple to observe and measure, and of value and interest to growers.

1. pH being a strong consideration from growers and a highly variable attribute of the soils analysis was included, with high rates of gypsum and limestone.

This was the equivalent of 5 tonnes of limestone and 10 tonnes of gypsum per Hectare.

2. A high application rate of a worm cast product was decided to be included as an alternate to conventional nutrients and to consider soil microbial change. Vermicast applied at 30 tonnes equivalent per Hectare.
3. A plot of ryegrass to demonstrate the work of Bruce Cockcroft. These plots were abandoned as herbicide treatment under canopy for routine orchard maintenance removed the plots after good initial germination.

### Observations

Buffer capacity of soils in these plots showed to be variable and important to learn.

While no statistical outcomes can be made due to single demonstration plots, review of the analysis showed how difficult it can be to change a soil characteristic, how much time it takes for change to occur, and how much amendment product may need to be applied to push the change in the direction desired by the grower.

Important to note that change occurred in pH and calcium content after 12 months post application.

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Example application of Vermicompost, equivalent to 30 tonnes per Hectare.