

## Canola Soil Ameliorant and Establishment Trials

As the soil on the ICC Trial Block is prone to slaking if overworked, this can become an issue when trying to establish canola, particularly when watering up. Calcium, either gypsum or lime, can assist in improving soil structure and hence reduce soil crusting and slaking. Gypsum is widely used as it is available locally, saving transport costs, does not affect soil pH and is relatively soluble compared with lime. In 2014, rates of gypsum, lime, gypsum/lime and PAM (polyacrylamide, which acts in a similar manner to calcium in that it helps aggregate the soil particles) were applied to the soil surface (which was crusting after pre-irrigation) and incorporated by sowing. Plant counts were taken as representing the success of the ameliorants in promoting establishment.

The 2014 results showed an improvement in establishment where gypsum was used at 3 t/ha over all other treatments. All other treatments except for the PAM were an improvement over the control.

To test if there was a lag in soil structure improvement from lime application, or if the gypsum treatment was only short-term, the site was spread in April 2016 with GT50 canola at approximately 3.5 kg/ha with 120 kg DAP/ha and watered up.

Treatment	Rate	Establishment
Gypsum	1.5 t/ha	35.8
Gypsum	3.0 t/ha	39.2
Gypsum + Lime	1.5 t/ha	32.9
Gypsum + Lime	3.0 t/ha	29.6
Lime	1.5 t/ha	34.6
Lime	3.0 t/ha	35.0
No treatment - control		36.7
PAM	5 kg/ha	23.3
	lsd	NS

Statistical analysis showed that there was no difference between any of the treatments, including the control.

Establishment was aided by rainfall, which kept the surface moist and prevented a hard crust forming post watering up.

The 2016 results are similar to those seen in 2015. No treatment provided an increased establishment rate. So apart from the results in 2014 when the treatments were applied, there has been no continuing effect. In 2014, gypsum applied at 3.0 t/ha gave the best establishment, followed by all other treatments which showed an improvement over the control (no ameliorant applied).