

Canola Establishment Trials

1. Soil Ameliorants Trial

As the soil on the 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.

Various 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. Canola was sown at 3.5 kg/ha with 120 kg DAP/ha and watered up.

Plant counts were taken as representing the success of the ameliorants in reducing soil crusting and aiding establishment.

Treatment	Rate	Establishment (pl/m ²)
Gypsum	1.5 t/ha	46.4 ^b
Gypsum	3.0 t/ha	54.4 ^a
Gypsum + Lime	1.5 t/ha	41.5 ^{bc}
Gypsum + Lime	3.0 t/ha	45.5 ^b
Lime	1.5 t/ha	43.5 ^b
Lime	3.0 t/ha	46.4 ^b
PAM	5 kg/ha	40.8 ^{bc}
No treatment		35.3 ^c
	p	0.026
	lsd	7.86
	cv	10.4

Establishment figures with a similar superscript are not statistically different.

Gypsum at 3 t/ha was the best ameliorant, having an establishment of 54.4 plants/m². All other treatments containing lime or gypsum did not perform as well as 3 t/ha of gypsum alone, but did significantly increase establishment over the “no treatment” establishment of 35.3 plants/m².

3 t/ha of gypsum may have worked the best due to supplying enough calcium quickly enough to improve structure both through volume (rate) and solubility (gypsum is more soluble than lime). The site will be re-sown in 2015 to test the longevity of the soil ameliorants.