

Fertilizer requirements of irrigated linseed at emerald iii fertilizer type and placement in the field

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Although linseed is not considered to respond well to direct fertilizer application (1), there may be circumstances in commercial production in which fertiliser should be applied at planting when residual soil nutrient levels are low. However, reduced emergence has been reported when fertilizer was banded with the seed (2, 3) or was broadcast at planting (4). This study was implemented to determine the effects of fertilizer type and placement on linseed emergence.

Methods

The experiment consisted of two fertilizer types and three fertilizer placements in a factorial design with three replicates. The rate of phosphorus selected (20 kg P ha^{-1}) was common to the two fertilizer sources - double super (DS) and diammonium phosphate (DAP), with the latter contributing 19 kg N ha^{-1} as well. The plots consisted of individual 2m rows on beds 1m apart. The three fertilizer placements were: broadcast and incorporated into the top 1 cm of soil, banded at 2.5 cm with the seed, and banded at 2.5cm below the seed. Linseed cultivar Glenelg was planted at 2g per row on September 5, 1983 on a heavy alluvial cracking clay soil (Ug 5.2) into a moist seedbed. Ideal soil moisture conditions were ensured by hand watering at planting and furrow irrigating on September 21. Emergence was recorded daily until complete.

Results and Discussion

Mean final plant numbers per 2m row are presented in Table 1. On average, reduced emergence resulted from banded fertilizer application or from the use of DAP. Emergence was reduced by banded applications of both fertilizers but the reduction was greater for DAP (20%) than for double super (5%). The position of the fertilizer band had no significant effect. Thus, as has been reported previously (2), nitrogen was more injurious than phosphorus. Linseed has been shown to respond well to a dressing of 20 kg P ha^{-1} (5), which may be applied at planting, although if banded close to the seed a slight reduction in emergence (2, 3, 4) may result. There is evidence (6) that the major soils at Emerald are likely to contribute about 55 kg N ha^{-1} (0-60 cm), of the 80 kg U ha^{-1} considered sufficient for the crop (5, 7). The application of OAP to contribute 20 kg P ha^{-1} and 19 kg N ha^{-1} would represent one likely alternative for supplying the crop's requirements. However banded applications of N close to the seed may reduce emergence severely (2, 3, 4). Should a dressing of both N and P be required at planting, the fertilizer should be broadcast or banded at more than 2.5 cm (2, 3) from the seed. Ideally the N requirements of the crop should be supplied by soil reserves following a well fertilized previous crop (1,5).

Table 1. Plant number per 2 m row

Fertilizer Type (T)	Fertilizer Placement (P)			Mean	Stat Sig.	LSD 5%	LSD 1%
	Broadcast	Band With	Band Below				
DS	16.0	15.2	15.2	15.5	p**	.8	1.1
DAP	15.2	12.1	12.7	13.3	T**	1.3	1.9
Mean	15.6	13.7	14.0	14.4	FxT *	.8	1.1

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