

Trial 25

Improving the Productivity of Sodic Soils in the Wimmera and southern Mallee 1995 Results

Craig Hobbs

Victorian Institute for Dryland Agriculture, Horsham

This experiment was established on a property owned by Mr Keith Barber and is located about 10 Kms West of Birchip. There are 48 plots each measuring 4 metres wide by 20 metres long. Four gypsum treatments were applied pre-sowing in May consisting of 0,2.5,5,10 t/ha. Stubble has been retained in blocks covering half the total number of plots, requiring wheat straw to be imported and spread by hand, due to the 1994 drought.

Meering wheat and Desavic chickpeas were sown on 21/06/95 using a modified minimum tillage drill incorporating 10" row spacings with a prickle chain covering the seed. Urea was pre-drilled into the wheat plots at the rate of 40 kg/ha on the same day with sowing conditions being very moist.

Weed control in wheat was achieved using Nu-Grass @ 1.5 l/ha and Banvil Broadside @ 750 ml/ha which proved to be a satisfactory combination. Immediately after sowing, the chickpeas were sprayed with simazine and atrazine, both at 1 l/ha providing excellent weed control for the season.

Abundant rains throughout the growing season ensured healthy crop growth despite the later than average time of sowing due to delays in the sourcing of gypsum and spreading equipment. Establishment counts on 28/09/95 and 19/09/95 for wheat and chickpeas respectively, depicted no real differences in plant numbers between any of the treatments. This lack of effect could be attributed to the gypsum spreading operation where the spreader had a top application rate of 2.5 t/ha, meaning that the 5 and 10 t/ha plots needed more passes with the machinery to achieve the desired rates which, at sowing time may have resulted in compaction of these fragile soils, lessening the positive effect gypsum may have on plant establishment.

Yield results in both wheat and chickpea (Table 1) indicate minimal if any differences between treatments, however, analysis of soils, grain and plant samples may reveal some interesting information. Preliminary soil tests indicate the presence of high amounts of salts in the root zone which may have confounded these results. In chickpeas, however, there is an indication of lower yields at higher rates of gypsum, which again, may possibly be caused by compaction.

Table 1 Yield (t/ha) of wheat and chickpea as influenced by gypsum rates and stubble retention

Gypsum t/ha	Wheat		Chickpea	
	With stubble	No stubble	With stubble	No stubble
0	2.69	2.63	1.21	1.10
2.5	2.98	2.55	1.13	0.94
5	2.72	2.70	1.13	0.93
10	2.58	3.63	0.69	0.71