Effect of terra-sorb on establishment of pastures

M.H. Campbell

Agricultural Research and Veterinary Centre, Orange, N.S.W. 2800

Terra-Sorb, a blend of starch and acrylic polymers, absorbs water rapidly, retains it and improves the water holding capacity of most plant environments (1). As it has been used to improve germination of seed (1) the prospect of it assisting establishment of surface-sown pasture species (2 sites) and direct-drilled pasture species (1 site) was ascertained in the central tablelands of N.S.W. in 1983.

Methods

Terra-Sorb 1005 was applied to pasture seed (Table 1) by shaking in plastic bags. Permethrin was applied to all seed to reduce losses due to seed- harvesting ants (2). At site 1, seeds of five pasture species *(Medicago sativa, Trifolium subterraneum, Dactylis glomerata, Festuca arundinacea, Phalaris aquatica)* treated with different rates of Terra-Sorb 1005 were surface-sown on July 14, 1983, after four separate herbicide mixtures had been applied on June 7, 1983. The soil was infertile, derived from slate and had little surface structure or litter. At site 2, treated seeds (Table 1) of the same species were surface-sown or direct-drilled on July 22, 1983, after four separate herbicide mixtures had been applied on June 2, 1983. Terra-Sorb 600, at 8 kg ha-I was added with the fertilizer in the drill run with the direct-drilled seed. The soil was fertile with a moderate surface structure.

There were four replications of each treatment in each experiment. Establishment was measured on both sites in September, 1983.

Results and Discussion

Coating surface-sown pasture seeds with Terra-Sorb did not improve their establishment at either site (Table 1). Similarly, the addition of Terra Sorb to seeds and to the fertilizer did not improve establishment of direct-drilled seeds. There was no significant interaction between Terra-Sorb and species.

Table 1. Establishment meaned for four herbicide treatments at each site.

Method of Spraying	Terra-Sorb 1005:Seed	Legumes	Grasses
		plants m^{-2}†	
Site 1			
Surface-sown	0:100	4.5a	8.0a
" "	1:100	2.5a	9.2a
" "	2:100	3.3a	8.1a
Site 2			
Surface-sown	0:100	15.9a	37.4b
" "	1:100	15.4a	38.9b
Direct drilled	0:100	7.5b	50.1a
" "	1:100	8.7b	49.5a

† Values in columns, for each site, not followed by a common letter differ (P<.05)

Coating seeds with materials (other than Terra-Sorb) improved establishment of surface-sown seeds in some instances in New Zealand (3,4) but not in Australia (5). Improved establishment in New Zealand was associated with the physical properties of the coat but there was no consistent effect (4). Results of my experiments indicate that the physical properties of Terra-Sorb are not those conducive to improving establishment of surface-sown seeds.

1. Nunday, V. (1982). Nursery Res. J. 7:22-27.

2. Campbell, N.H. and Cilmour, A.R. (1979). Aust. J. Exp. Agric. Anim. Husb. 19:706-11.

3. Vartha, E.W. and Clifford, P.T.P. (1973). N.Z. J. Exp. Agric. 1:39-43.

4. Scott, D. (1975). N.Z. J. Agr. Res. 18:59-67.

5. Dowling, P.M. (1978). N.Z. J. Exp. Agric. 6:161-6.