

THESIS SUMMARIES

THE EFFECT OF COATING AND PELLETING ON GERMINATION AND ESTABLISHMENT OF SOME GRASSES

(M.Agr.Sc. Thesis)

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THE USE of commercially coated or pelleted grass seed may improve establishment of oversown grasses. In this study, the effects of seed treatment on ballistics and on the physical and chemical environment during germination were examined. The following points emerged.

- (1) Under windless conditions, coated seed penetrated through a chemically killed sward twice as frequently as bare seed. However, any vegetation movement caused by wind or hand allowed the same total number of bare and coated seeds to reach the soil surface.
- (2) In a controlled environment cabinet under low moisture conditions, a coating to seed ratio of 1: 1 by weight improved germination three-fold compared with bare seed. The 1: 1 coating gave an improved germination over the 2: 1, and both of these treatments were superior to the $\frac{1}{2}$: 1 coating and bare seed treatments. Ryegrass was found to have three times the viability of prairie grass and almost twice that of cocksfoot.
- (3) Contrary to the results obtained from the controlled experiment, a field trial with three levels of standing cover showed that as the amount of seed coat increased so did germination and early seedling establishment. Ryegrass again showed superiority over cocksfoot in its ability to germinate and establish under conditions of moisture stress.
- (4) A field trial on a, Craigieburn silt loam soil showed that, in general, ryegrass seedlings from large pasture pellets survived competition from resident vegetation and a severe summer drought, whereas those from coated and blare seeds did not.
- (5) In a glasshouse pot trial, phosphate-coated seeds were found to possess a negligible phosphorus supplying ability to

establishing seedlings, when measured nine weeks after sowing. Large pasture pellets containing ryegrass seeds, measured at the same time, supplied phosphorus at a rate which gave the same dry matter yield as bare seed with 43 kg/ha of surface applied phosphorus (about 700 kg/ha reverted superphosphate).