CIRSIUM ARVENSE SELECTIVITY CONTROLLED IN PASTURE BY A *SCLEROTINIA SCLEROTIORUM* MYCOHERBICIDE

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Field trials were conducted in Canterbury, New Zealand, to test an experimental mycoherbicide against *Cirsium arvense*. A rudimentary mycelium-on-cracked-wheat preparation of *Sclerotinia sclerotiorum* applied to the foliage of pasture populations of *C. arvense* in the spring, caused catastrophic reductions in densities of both aerial shoots and root buds in the season of application. The two dominant pasture species (*Lolium perenne* and *Trifolium repens*) were unaffected by the pathogen. These results indicate that the potential of this pathogen as a control agent for this weed in grass/clover pastures is very high. However the crucial need for a energy source and hence considerable mass in any mycelial formulation of this pathogen presents a potential problem to the formulator. In the experiments in Canterbury, application rates of 370 to 500 kg/ha were used which were much too high to be commercially acceptable. Application rates were modelled using data on *in vitro* leaf infection success rates of mycelium-in-milled-wheat granules of varying size and varying mycelium concentration. This analysis revealed that field application of 20 kg/ha of granules 0.5 mm in diameter containing 1.5 to 3.6 g dry mycelium/kg (0.15 - 0.36% ai), would give one viable granule/cm^2 of treated surface area. The field success rates of such granules, and the density required to kill a shoot, are not yet known. The clear challenge to the formulator is to produce an inoculated energy source (granule) that has a very high probability of infecting the thistle in the field. Acceptably low field application rates, and commercialisation of the pathogen, would then be possible.

POST-EMERGENCE GRASS CONTROL IN LUPINS

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The relative effectiveness of post-emergent grass herbicides from both the aryloxyphenoxypropionate and cyclohexanedione families for the control of volunteer cereals and ryegrass was evaluated over three years near Rutherglen, North-East Victoria, Australia.

Results showed that haloxyfop (52 g/ha), quizalofop-p-ethyl (24 g/ha) and clethodim (60 g/ha) gave better control of wheat than fluazifop-p (53 g/ha), proquizalofop (40 g/ha), and cycloxydim (50 g/ha). For oats proquizalofop (40 g/ha), fluazifop-p (80 g/ha), cycloxydim (100 g/ha), quizalofop-p-ethyl (24 g/ha) and haloxyfop (52 g/ha) gave similar control to each other and better control than diclofop-methyl (563 g/ha). Barley was well controlled by clethodim (120 g/ha), fluazifop-p (80 g/ha), quizalofop-p-ethyl (24 g/ha) and haloxyfop (52 g/ha). The best control of triticale was given by clethodim (120 g/ha), cycloxydim (50 g/ha), quizalofop-p-ethyl (24 g/ha) and haloxyfop (52 g/ha). Sethoxydim (93 g/ha) and clethodim (60 g/ha) gave superior control of annual ryegrass (*Lolium rigidum* cv Wimmera) than haloxyfop (31 g/ha), proquizalofop (40 g/ha), diclofop-methyl (375 g/ha), cycloxydim (100 g/ha), quizalofop-p-ethyl (24 g/ha) or fluazifop-p (53 g/ha), listed in descending order of effective control.