CHEMICAL CONTROL OF *POA TRIVIALIS* ON NEW ZEALAND RACETRACKS

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ABSTRACT

Poa trivialis is a perennial grass weed commonly found in perennial ryegrass (*Lolium perenne*) racetrack swards throughout New Zealand. Its presence is undesirable as it does not tolerate high wear and is susceptible to dying out over the summer. Two pot trials at Massey University and one field trial carried out at the Awapuni racecourse were conducted during winter and spring 1995 to test the relative susceptibility of *Poa trivialis* and perennial ryegrass to a wide range of herbicides. A bioassay was also conducted to determine whether herbicide residues from the field trial could affect the germination of perennial ryegrass seed sown soon after treatment. Results showed that none of the chemicals at their chosen respective rates could completely remove *Poa trivialis* from a racetrack sward in the spring without some damage been caused to perennial ryegrass. Propyzamide and fenoxaprop at rates of 0.2 and 0.15 kg/ha respectively showed the most potential of the chemicals, severely damaging *Poa trivialis* (causing 50 to 75% reductions) with no adverse effect on perennial ryegrass 8 weeks after spraying. Propyzamide can also provide some control of *Poa annua*. Fenoxaprop was not improved by increasing the application rate or adding an oil. The performance of fenoxaprop was substantially reduced when applied with either MCPA or a picloram/triclopyr mix. Dalapon and asulam showed good potential to control *Poa trivialis* but at the high rates tested caused variable or harmful effects to perennial ryegrass. Ethofumesate and chlorpropham applied at rates of 2.0 and 2.5 kg/ha respectively gave inadequate control of *Poa trivialis*. None of the above herbicides, when used in the field trial, resulted in residues which reduced the germination of perennial ryegrass seed sown 3 weeks after spraying. Herbicides tested in the pot trials which showed poor control of *Poa trivialis* were atrazine, dicamba, isoproturon/diflufenican, linuron, mecoprop, methabenzthiazuron, metsulfuron, pendimethalin, prometryne, thifensulfuron-methyl, triclopyr, and trinexapac-ethyl. Diuron applied at 2.6 kg/ha provided good control of *Poa trivialis* but caused significant damage to perennial ryegrass. It is concluded that an integrated management approach that incorporates both cultural and chemical techniques will be required to control *Poa trivialis* on New Zealand racetracks. Future trial work should be carried out on propyzamide applied at rates of 0.2-0.3 kg/ha in autumn to establish the most appropriate time of year to apply this herbicide.

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1. INTRODUCTION

Poa trivialis, commonly known as rough stalked meadow grass, is a perennial grass weed frequently found in racetracks throughout New Zealand (Field & Murphy 1987). Its presence is undesirable as it does not tolerate high wear and is susceptible to dying back over summer. For high quality racing surfaces in New Zealand, it would be preferable if tracks were composed of 100% perennial ryegrass (*Lolium perenne*) (Fleming 1994). A shift in sward composition away from *Poa trivialis* can be aided dramatically by cultural control techniques. Attention to drainage, aeration, fertiliser treatments, sensible location of rails and fences, regular under-sowing and irrigation may all discourage *Poa trivialis* in a perennial ryegrass sward (Fleming 1994). However, in many situations, due to adverse climatic or edaphic conditions *Poa trivialis* can still form a significant proportion of the sward. As cultural methods alone seldom reduce populations of *Poa trivialis* to an acceptable level there is a need for direct chemical elimination of *Poa trivialis* from racetrack swards. Also for ease of management, it would be preferable if this weed could be removed from the racetracks using a herbicide.

It has proved relatively easy to find a chemical which will control *Poa trivialis* (Kirkham 1983; Mueller-Warrant & Brewster 1986). However, many effective treatments cause phytotoxicity to perennial ryegrass in the sward (Henderson & Brock 1976; Mueller-Warrant 1990; Jensen 1984).

Use has been made of ethofumesate (Nortron), though this is an expensive option ($440/ha) and not thought very effective at killing *Poa trivialis* (Harrington 1994). Other herbicides may be more effective, but such options need to be investigated with well-designed pot and field trials.

The objective of this research was to determine which chemicals, if any, can be used to effectively remove *Poa trivialis* from racetracks with minimal damage to perennial ryegrass.