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## Mycotoxins in New Zealand livestock production

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### INTRODUCTION

Mycotoxins, or fungal toxins, from pasture are a major source of contamination in the diet of grazing livestock in New Zealand. A number of conditions need to be satisfied before a particular mycotoxin may become a serious production problem. These are: the weather conditions for toxin production, the quantity of toxin intake by stock per day relative to what may be a toxic dose, and grazing without having alternative diets such as crop, silage or concentrates. These conditions appear to be met more commonly in New Zealand than elsewhere. As a result, New Zealand has more production problems associated with a range of mycotoxins than elsewhere, and it is unlikely that solutions to some of the mycotoxic diseases (especially facial eczema) will be found by science teams offshore.

The present Contract for the New Zealand Society of Animal Production has been arranged to review some areas of mycotoxic research and their relevance to livestock production in New Zealand.

With a limited time on the Conference programme, we cannot hope to review all subjects fully. Neale Towers introduces the whole area, with a general review describing facial eczema, ryegrass staggers, fescue toxicosis, paspalum staggers, zearalenone infertility, and other mycotoxic diseases. One of these, zearalenone infertility, is then reviewed in greater depth by Smith & Morris (2006). Two of the other main diseases have been reviewed by other authors in recent years: facial eczema (Smith & Towers, 2002) and ryegrass staggers (e.g., Fletcher, 1999, 2004).

Two short papers then follow in this Contract. The first is by Cullen *et al.* (2006), and gives an update on the animal genetic approach to facial eczema in dairy cattle, documenting the considerable increase in record collection in the last two years to rank dairy sires for resistance. The second is by Fraser *et al.* (2006), and describes some effects on milk quality from dairy herds where there was inadequate protection of grazing stock from facial eczema damage.

## Mycotoxin poisoning in grazing livestock in New Zealand

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### ABSTRACT

A number of mycotoxicoses including facial eczema, ryegrass staggers, paspalum staggers and zearalenone infertility affect grazing livestock, causing death and reducing productivity. While production losses associated with clinical disease are well recognised, losses associated with subclinical disease are not recognised and most farmers take few or no precautions against the diseases and consequently accept lower productivity levels as 'normal'. For most mycotoxicoses there are no antidotes. Long-term research projects, some lasting decades, have led to the development of a number of control measures for particular diseases, especially facial eczema and ryegrass staggers. These measures depend primarily on identifying and avoiding toxic pastures, or reducing their impact. Under the current funding regimes, where funders seek quick returns, it is unlikely that many of these now widely used control methods would have come to fruition.

**Keywords:** facial eczema; ryegrass staggers; zearalenone; disease; sheep.