DISEASES AND PESTS:

Preliminary survey of the incidence of perennial ryegrass (*Lolium perenne*) staggers in central tablelands of NSW

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Perennial ryegrass staggers is a muscular and nervous disorder of sheep, cattle, horses, deer, goats and camelids, that may result in death. It is the result of these animals consuming perennial ryegrass infected with the fungal endophyte *Acremonium lolii* (Fletcher and Harvey 1981). Producers in the central tablelands have experienced ongoing spasmodic problems of ryegrass staggers in sheep and cattle. The aim of this survey is to provide preliminary information on the incidence of ryegrass staggers in the central tablelands.

Methods

A list of livestock producers, who were deemed (by seed merchants, NSW Agriculture district agronomists or associated producers) to sow perennial ryegrass on a regular basis, was compiled within an area bounded by Molong, Cudal, Blayney, Bathurst and Orange. Information was gathered from 15 producers, within this area. Each producer was personally interviewed by way of survey questionnaire.

Samples of established perennial ryegrass and soil from the same paddock, were collected for laboratory testing. Plants were tested for perenniality by transplanting them into potting mix and watering. The dry top material was removed. Plants which did not produce vegetative growth from the crown were discarded. The presence of endophyte was determined under a microscope after taking plant scrapings from the leaf sheath and staining with 0.1% methyl blue solution (Quigley *pers. comm.*). Soil pH levels were determined using $CaC1_2$ dilution.

Results

Of the 15 producers surveyed, 13 ryegrass samples have been tested for perenniality and presence of endophyte.

- 47% have experienced perennial ryegrass staggers. Endophyte present in 12 of 13 samples.
- 13% knew what an endophyte is - 87% had never heard of it.
- Of the 47% who had experienced ryegrass staggers:

  Occurrence - once (29%); every 4 to 5 years (43%); every autumn (15%).

  Stock Losses - nil (42%); yes, but rare (29%); certainly (29%).

  Time of Year - always in the autumn after a dry spell (58%); January when heads partially green (14%); December, seedheads very dry (14%); spring and January, when sward lush and long (14%).

  Treatment - moved livestock onto other pasture species (57%); left alone, but supplementary fed (43%).
- Observations relating to 53% who have never experienced staggers:

  mixed pasture of which perennial ryegrass component was low (65%).

  moderate perennial ryegrass density (11%).

  perennial ryegrass very dominant across property (24%).
- *Soil pH*. There appears to be no obvious link between soil pH and the incidence of staggers.

Discussion

The results to date pose the following questions:

- When perennial ryegrass is dominant and endophyte is present, why do some producers experience staggers whilst others never have the problem?
- Why do some producers experience staggers in years when others do not, and vice versa?
- Why does one producer experience staggers every autumn with the problem *always* first in Paddock A, then in Paddock B and then in Paddock C.

- Management obviously plays a vital role in the occurrence of perennial ryegrass staggers.

References

Fletcher, L.R. and Harvey, I.C. (1981). An association of *Lolium* endophyte with ryegrass staggers. *New Zealand Veterinary Journal* **28:** 185 - 186.

Latch, G.C.M., Christensen, M.J. and Samuels, G.J. (1984). Five endophytes of *Lolium* and *Festuca* in New Zealand. *Mycotaxon* **20:** 535 - 550.