New Zealand Society of Animal Production online archive

This paper is from the New Zealand Society for Animal Production online archive. NZSAP holds a regular annual conference in June or July each year for the presentation of technical and applied topics in animal production. NZSAP plays an important role as a forum fostering research in all areas of animal production including production systems, nutrition, meat science, animal welfare, wool science, animal breeding and genetics.

An invitation is extended to all those involved in the field of animal production to apply for membership of the New Zealand Society of Animal Production at our website www.nzsap.org.nz

The New Zealand Society of Animal Production in publishing the conference proceedings is engaged in disseminating information, not rendering professional advice or services. The views expressed herein do not necessarily represent the views of the New Zealand Society of Animal Production and the New Zealand Society of Animal Production expressly disclaims any form of liability with respect to anything done or omitted to be done in reliance upon the contents of these proceedings.

This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.

You are free to:

Share — copy and redistribute the material in any medium or format

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

NonCommercial — You may not use the material for commercial purposes.

NoDerivatives — If you remix, transform, or build upon the material, you may not distribute the modified material.

http://creativecommons.org.nz/licences/licences-explained/
BRIEF COMMUNICATION

The Effect of Peramine Ingestion in Pen-fed Lambs

D.B. POWNALL, A.S. FAMILTON, R.J. FIELD, L.R. FLETCHER1 AND G.A. LANE2

Lincoln University, PO Box 84, Lincoln, Canterbury, New Zealand.

INTRODUCTION

Lambs grazing perennial ryegrass, (Lolium perenne L.), infected with the endophyte (Acremonium lolii) frequently exhibit diarrhoea within a few days of introduction to pasture (Eerens et al., 1992; Pownall et al., 1993). There may also be a link between this and unconfirmed reports of reduced feed intake. Several alkaloids are known to be associated with the endophyte, including the staggers-inducing lolitrem B, and the ergot alkaloid, ergovaline. Both of these tended to be concentrated toward the base of the vegetative plant while the factor(s) responsible appeared to be evenly distributed throughout the plant (Pownall et al., 1993). There was a possibility that the alkaloid and insect feeding deterrent, peramine, because of its even distribution, was responsible (Pownall et al., 1993; Keogh and Tapper, 1993). Peramine has been regarded as a non-toxic insect resistance factor in screening endophyte strains was considered to have limited relevance and the possibility of mycotoxin presence precluded ryegrass as an option. Acremonium lolii, Lolitrem B and ergovaline, were stabilized for 21 days prior to treatment application. The primary objective of this experiment was to deter- mine the effect of peramine when fed to lambs. It is acknowledged that the use of a dry feed diet was somewhat artificial and that the result obtained can only be applied to the conditions described. The use of fresh herbage other than ryegrass was considered to have limited relevance and the possibility of mycotoxin presence precluded ryegrass as an option.

MATERIALS AND METHODS

Wether lambs housed in metabolism crates, were fed ad libitum rations of 3:1 low energy sheep nuts: lucerne hay and were stabilized for 21 days prior to treatment application. Synthetic peramine (Brimble and Rowan, 1990) as the hydrochloride salt (82% peramine) was dissolved in 1:37 methanol:water giving a solution concentration of 1.0 mg peramine/ml (0.00038 mol/l) and confirmed by UV analysis. This was administered orally to 4 of the 13 animals twice daily, at a rate of 40 mg peramine/head/day for 5.5 days and at 80 mg peramine/head/day for a further 1.5 days. Control animals were given a 1:37 methanol:water solution at the same rate and frequency throughout. Feed intake, faeces output (g DM), and water intake and output including proportioning (faeces:urine), were monitored throughout the experiment.

RESULTS

Treated animals showed no differences from controls in feed intake, faeces output and resultant in-vivo digestibility. Similarly, water intake, urine output and faecal moisture were unaffected by treatment throughout the experiment. Although digestibility of the feed offered was only 50%, consumption averaged 1500 g DM/head/day and all animals gained liveweight.

DISCUSSION

The primary objective of this experiment was to determine the effect of peramine when fed to lambs. It is

1 AgResearch, Lincoln, Canterbury, New Zealand.

2 Palmerston North, New Zealand.

REFERENCES


