

Concurrent Session 7A: Micronutrients, Cereals and Milk

Dried distillers grains (wheat) in diets for broiler chickens

JC Naylor, IR Godwin, JV Nolan

School of Environmental and Rural Science, University of New England, NSW 2351

Background – Dried distillers grains, derived as a by-product of the ethanol industry are becoming more readily available as a protein and fibre rich feedstuff. There is a paucity of information on the use of dried distillers grains derived from wheat in poultry diets.

Objective – To examine the effects of increasing inclusion levels of dried distillers grains on the growth and feed conversion ratio of broiler chickens.

Design – One hundred and sixty eight broiler chickens were fed diets containing either 0, 10, 20, or 30% dried distillers grains for 21 days. Food intake, growth rate and feed conversion ratio were determined.

Outcomes – The feed conversion ratio was decreased when the inclusion rate was increased above 10%. However the growth rate of the birds was increased with inclusion of up to 20% dried distillers grains into the diet. Thirty per cent inclusion caused a reduction in growth rate.

Conclusion – Dried distillers grains derived from wheat can be included in poultry rations to a level of about 20% with little effect on growth, but with small but significant worsening of food conversion. Levels above 30% are likely to cause significant decrements in growth and feed conversion efficiency.

The effects of heat stress on rumination in sheep

B Starr, IR Godwin, C Lawlor

School of Environmental and Rural Science, University of New England, NSW 2351

Background – Severe heat stress in sheep often results in inanition. The mechanism driving the reduction in appetite is obscure, but probably involves the benefit of reduced fermentation heat load when an animal does not eat. Heat stressed animals increase their respiratory frequencies as high as 300 breaths per minute. Can a sheep still undergo rumination with such a high respiratory frequency?

Objective – To examine the effects of heat stress-stimulated respiratory frequency on rumen contractions and rumination in sheep.

Design – Four sheep with permanent rumen fistulae were maintained in metabolism crates at 20°C and 40°C and fed a roughage based diet. Measurements of rumination, respiration and rumen contraction rates and patterns were monitored electronically with implanted transducers.

Outcomes – There was a consistent interruption of respiration corresponding to rumination contractions. These interruptions accounted for about 5% of the total time. The cessation of panting prevents a major heat loss mechanism. The animals at 40°C had lower feed intakes and dry matter digestibilities than those at 20°C.

Conclusion – The cessation of panting during rumination prevents a major heat loss mechanism. It is envisaged that during very severe heat stress that rumination would effectively cease, leading to an exacerbation of the problem of inanition.