

Treatment with colostrum, intra-peritoneal glucose solution, and antibiosis for recovery of compromised neonatal lambs in grazing systems

Susan Robertson,^{a,b} **Allan Gunn,**^{a,b}

^a School of Agricultural, Environmental and Veterinary Sciences, Faculty of Science and Health, Charles Sturt University, Wagga Wagga, NSW 2678 Australia.

^b Gulbali Institute, Charles Sturt University, Wagga Wagga, NSW 2678 Australia

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Perinatal lamb mortality is an international production and welfare constraint, with losses of 10 to 30% considered normal. Failure to obtain sufficient colostrum, and hypothermia are key causes of mortality in extensive grazing systems. Administration of glucose and colostrum is a well-established intervention for hypothermic lambs in intensively managed systems. The aim of this [institutional animal ethics approved (AECA22065;A220421;A23557)] study was to determine whether hypothermic lambs could be salvaged through the provision of enteral cow colostrum and intra-peritoneal glucose solution in an extensive system.

Lambs identified at risk of perinatal mortality due to mismothering or hypothermia in a commercial grazing flock in SE Australia were administered 100 mL warm good quality (24%BRIX) cow colostrum via oesophageal tube, and 50 mL intra-peritoneal warm 25% glucose-0.45% saline solution. Lambs unable to stand (here labelled recumbent) or mismothered were warmed, treated with enteral colostrum and parenteral glucose-saline solution, and hand reared indoors. The median rectal temperatures of lambs capable of walking was 37.2°C, while the rectal temperature was below 32.3°C in 85% of recumbent lambs. All lambs capable of walking, administered colostrum and glucose-saline and left in the paddock with the ewe, did not survive (5/5) in continuing cool weather conditions. Lambs capable of walking and removed from the paddock had a lower rate of mortality (5/13) than those unable to stand or unconscious (7/10). Diarrhoea subsequent to retrieval was common in both these categories of hand-reared lambs, with 2/5 and 2/7 deaths respectively associated with severe diarrhoea. The remaining lambs were usually affected but survived.

Consequently, the treatment protocol was altered to include 150 mg oxytetracycline dihydrate administration intra-muscularly to all surviving lambs on the day after retrieval from the paddock. The resulting mortality rate declined to 3/12 lambs, with 2/8 lambs that were recumbent or unconscious due to hypothermia dying within an hour of paddock retrieval and treatment. Thus 1/10 died after surviving the initial colostrum, glucose-saline and warming regimen that were administered 150mg of 'long acting oxytetracycline' IM.

Mismothering was not the cause of hypothermia in 11/15 lambs which were found recumbent or unconscious, as the ewe was in close proximity to the lamb. The ewe was absent for 10/22 lambs which were not recumbent but showing hollow flanks or separated from the flock or dam, indicating mismothering. It may be easier to detect mismothered lambs than poorly fed or hypothermic lambs under extensive conditions which are not mismothered. It appears that intervention needs to more proactively target compromised lambs in the presence of the dam, before the ewe abandons them and/or before they become recumbent.

This study indicates the likely importance of sepsis as a sequel to neonatal compromise. Provision of nutrients, warmth, and the administration of appropriate antimicrobial therapy illustrates mortality could be avoided for the majority of compromised lambs. Treatment during the earlier stages of hypothermia would be desirable to minimise mortality and to avoid the need for hand-rearing of lambs which are not mis-mothered. Strategies to protect lambs from cold conditions during lambing remain a priority to minimise the need for intervention for compromised individuals.