# Epidemiology of red gut in lambs grazing lucerne

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Red gut is a disease in lambs grazing lush legume pastures, especially lucerne. Death is typically sudden with intense reddening and usually torsion of the intestines extending from the duodenum to the terminal colon (Gumbrell 1973). It accounts for up to 10% of mortalities in flocks in the upper south east of South Australia (Barrell et al. 1989). Predisposing factors are thought to include a lack of fibre in the diet and winter weed management (Gumbrell 1997). Prevention is achieved by avoiding conditions that encourage hind-gut fermentation predisposing to torsion such as feeding ad libitum hay and alternate grazing on lucerne and native pasture (Gumbrell 1997). It is also postulated that Timerite®, a management system that provides the best date for spraying in spring to control red legged earth mite, may reduce the prevalence of red gut (Ridsdill-Smith et al. 2008).

Fifteen producers were randomly selected from a list of commercial lucerne growers in the upper south east of South Australia and interviewed in person for a pilot survey of their lucerne and livestock management practices. Four producers growing lucerne on sandy soils observed ten or more red gut deaths in 2019, while 2 in the same category reported no deaths. Four producers who used Timerite® observed no deaths in 2019, while one observed more than ten deaths. In contrast five who did not use Timerite® observed ten or more deaths in 2019 (Table 1a). No cases of red gut were observed in four paddocks sown before 2016 and grazed in 2019, while one in the same category had more than 10 deaths. In contrast, no red gut deaths were observed in one paddock sown after 2017 and grazed in 2019 while four in the same category observed more than 10 deaths (Table 1b).

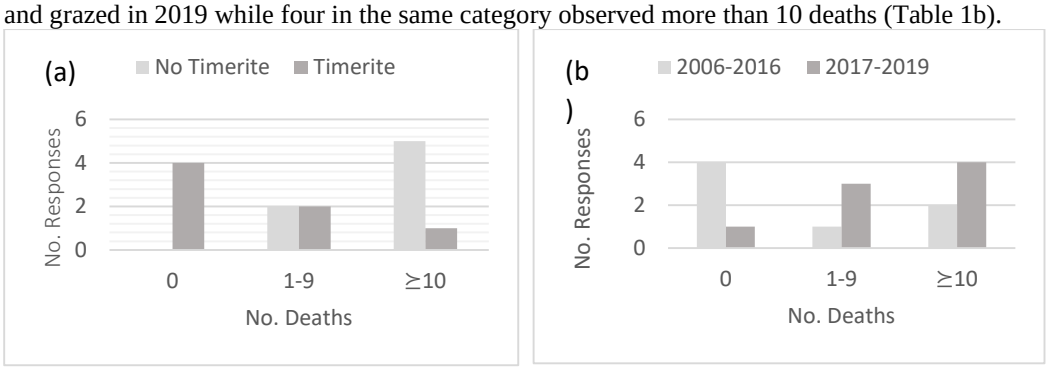


**Figure 1: Number of deaths due to red gut as reported by survey respondents with respect to (a) the use of Timerite®, and (b) the year in which lucerne was sown.**

The sample size was statistically too small but the survey did reveal some interesting trends. A higher prevalence of red gut on sandy soils could be explained by by their reduced nutrient holding capacity and predisposition to leaching. Leaching of calcium reduces plant available calcium leading to poor development of structural carbohydrates (Ochoa-Villarreal et al. 2012). The plant content of cellulose, hemicellulose and pectin is significantly increased by applying foliar calcium (Li et al. 2012). Further research is needed to see if foliar calcium applied to lucerne during the rapid growth phase is a potential preventative strategy and if there is a causal link between red legged earth mite infestations and the development of red gut. Herbicide is applied to newly established lucerne stands as lucerne is a poor competitor against weeds. Older stands become increasingly infested with weeds and grasses providing additional dietary roughage and slowing down the passage of ingesta. This reduces the risk of hypermotility of the hindgut and subsequent intestinal torsion which may explain the findings in Table1b. Limitations of the pilot study included sample size and relying on producer observation of red gut. However, the pilot study has revealed potential risk factors and management strategies for red gut providing the basis for further research.

**References**

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