Can we prevent alveld in lambs?

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The large loss of sheep and lambs during summer grazing on mountain pastures in Norway is an ethical challenge and prevents the exploitation of such resources for food production. Predators, disease and accidents cause losses on such pastures. The cause of death is seldom verified.

In a survey among sheep producers in four counties on assumed cause of lamb loss on rangeland, 13% of the respondents suggested that alveld was cause of lamb losses during summer grazing. In three of the counties alveld was reported as the main cause of loss in 2014 by 22-33% of the respondents.

The disease alveld is caused by toxins that cause liver damage and symptoms of photosensitivity. Saponins from bog asphodel (*Narthecium ossifragum)* and/or toxins from cyanobacteria have been found to be hepatotoxic and can cause photosensitization in mammals.

In this preliminary study we have looked at whether it is possible to develop a bolus with toxinbinding substances for use in the critical grazing period.

A testbolus in three different sizes (3 cm/8 g, 3,5 cm/13 g, 4 cm/ 24 g) was added in 6 lambs at 2 months of age (weight 16-22 kg) with a standard applicator. X-ray photography showed that all boluses were perfect placed in the reticulum immediately after posting and after 18 days. The lambs were autopsied at slaughtering. Residence time of bolus was about 4 weeks. Bolus did not damage the digestive system.

Precipitation of saponins was observed when adding a solution of saponins to a solution of a polymer compound in a simulated sheep stomach. The release of the polymer compound from a bolus was controlled by changing the diameter of an opening in the bolus.

A bolus with polymeric compounds and the size described above can be used for binding saponins. Further work should include studies on the suitability of this polymer on several relevant toxins and in vivo studies testing toxin binding bolus in lambs. Combining a bolus with toxinbinding substances and mineral supply can be an important measure in many pastures.