

Tannins to increase available silage protein for cattle and sheep?

Harper Adams University

Current Postgraduate Research Briefing



Why tannins?

Increasing locally-grown protein in feeds for cattle and sheep (ruminants) would be beneficial compared to importing expensive soyabean meal.

Different types of silage contain varying amounts of protein but this can be poorly digested by the ruminant animal. One way of allowing the protein to be digested more effectively may be to treat silages with plant extracts, known as **tannins**. These can alter the way that the protein is digested in the stomachs of the ruminant.

There has been limited research on tannins as silage supplements for cattle and sheep and the methods used to measure the protein digestibility are time-consuming and expensive.

Study aim

This study aims to investigate the use of tannins as silage additives in grass, pea, bean and lucerne silages to improve protein availability in ruminants.

Use of the Princess Margaret Laboratories

Equipment in **the Princess Margaret Laboratories** is being used to analyse:

- feed samples via **proximate analysis**;
- volatile fatty acids via **gas chromatography**;
- protein and urea in blood via **Western Blot analysis**.



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So far.....

The results have indicated that the tannins can help protect the silage protein and increase its value to the animal.

Further studies are needed using lab equipment to simulate conditions inside the main stomach of a ruminant. The accuracy and cost-effectiveness of this method for measuring protein digestibility and gases emitted could be compared with a standard method.

PhD programme

This briefing outlines the third-year work of a three-year PhD research programme by **Vahel Taha**, Postgraduate Researcher.

Director of Studies :

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Forage protein analysis

Vahel is also using **the Princess Margaret Laboratories** to pioneer the **Cornell Net Carbohydrate and Protein System (CNCPS)** in the UK. This equipment is used to analyse different types of protein.



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