



Feeding willow to lambs

Context

Cobalt deficiency, or ill thrift/pine, is common in weaned lambs. Cobalt is essential for producing vitamin B12, which supports lamb growth, and even subclinical deficiencies can significantly reduce growth rates.

Grass pastures often fall short of lambs' cobalt needs, especially in dry summer months when growth should peak. As a result, cobalt and/or vitamin B12 are typically supplemented, but boluses and drenches add costs in both product and labor, and free access supplements cannot guarantee consistent intakes in all animals.

Willow leaves, rich in cobalt and palatable to lambs, present a potential natural alternative. Browsing on willow could naturally improve lamb health while reducing reliance on costly supplements.

Field lab aims

- Evaluate the impact of forage willow on blood cobalt levels in weaned lambs.
- Identify impact of forage willow on growth rate of weaned lambs.
- Understand the practical consequences and considerations of using forage willow as a supplement.



Trial design

A 2-month trial was conducted at Mindrum Farming Company, where cobalt deficiency is a known issue. Starting at weaning on 25th July, 520 lambs were split into two groups of approximately 260 each: one control group (no supplementation) and one group given weekly access to willow branches. Both groups grazed together throughout the trial.

Blood samples were collected from 10 lambs per group at the start, mid-point, and end of the trial. Lambs were weighed weekly, and individual weights, mortality, morbidity, and any lambs leaving the trial (e.g., due to slaughter) were recorded.

Initial observations

Trial set up and field conditions:

The trial took place in a single field configured as rotationally grazed paddocks to ensure consistency. This field, in its 4th year of Red Clover/PRG/Herbal Ley, had previously shown cobalt deficiency, but rotational grazing improved nutrient availability through deeper rooting.

Willow as a supplement:

Lambs offered willow took it enthusiastically and deliberately but briefly. They consumed about 40g per sitting, treating it as a supplement rather than a primary feed. Willow was mainly provided from overhanging branches, with 30-50% typically left uneaten. They primarily ate leaves, with occasional minor bark damage. Non-trial lambs in set-stocked fields exhibited cobalt deficiency, which was addressed with an organic drench.

Palatability:

Leftover willow was fed to non-trial sheep, who fully consumed the leaves, indicating good palatability. Goat Willow (*S. Caprea*) was noted to be more bitter than the viminalis biomass hybrid, which was not part of the trial. By week 4, lambs showed noticeable improvement and more energy. This may be due to recovery from weaning but coincided with lambs going back onto rested grass/pasture ley on second cycle.

Lamb Behaviour:

When the lambs grazed on the red clover-heavy panels (around 80% clover), they seemed slightly less vigorous on the willow compared to the second-cycle paddocks, where the grass-to-clover ratio was closer to 50:50 after grazing. They were on the clover-heavy panels for the first four weeks.

Given the amount of “shuffling” as the lambs are brought into and through the forcing pens, it seems unlikely that individual lambs could consistently push their way to the front of the queue.



Project issues - variability

- In a regenerative model, there are many variables influencing grazing and nutrition like rainfall and temperature which affect pasture growth.
- Rainfall data shows significant differences in growing conditions compared to last year.
- This variation should inform trial design, so that prompt analysis of samples could indicate any welfare or nutritional concerns.



Farmer Comment

“Whilst we’re waiting for the main results to come through, initial data has already provided some fascinating insights into the links between nutrition and grazing strategies!”



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