Forage chicory within sheep production systems

The Challenge

Exposure to worms delays lamb finishing, and this is exacerbated by rising resistance to worming medication. Grazing alternative forages, including forage chicory, has been proposed as a way of improving growth rates despite worm exposure and contribute to accelerate lamb finishing.

The Research

Research was undertaken by SRUC’s Disease Systems Team which assessed production performance and gut health benefits of forage chicory over grass/clover.

The research studied -
(a) ewe and lamb performance,
(b) worm egg counts,
(c) drench use,
(d) carcass yield,
(e) sensory meat quality, and also
(f) tested for anti-parasitic properties of chicory extracts.

The Results

The results below were amassed from several SRUC/SAC projects over the last 15 years. Potential advantages include:

• Chicory was the best and most promising alternative forage for the Scottish climate.

• Short-term grazing on forage chicory (2-weeks approx.) resulted in a reduction in abomasal worms of growing sheep. This may be due to anthelmintic properties as observed from testing chicory extracts.

• Grazing on forage chicory reduced worm egg excretion in lambs but not in ewes.

• Grazing on forage chicory can improve lamb growth rates, both pre and post weaning, especially in the presence of worm challenge.

• Lambs reared on forage chicory required 40% less wormers than those on grass/clover.

• Grazing on forage chicory lifted ewe weaning weight and condition score.

• Grazing on chicory increased killing out percentage, and lifted carcass conformation scores.

• Taste panels scored meat from chicory-reared lambs as having greater lamb flavour.

Some provisos include:

• The quality of a conventional grass/clover sward can dictate the scale of any additional benefit achieved from use of chicory.
• Key challenges for adoption of chicory within existing sheep grazing strategies include management of weeds and overwintering.

• Chicory cannot be grazed in winter, meaning if the farmer is constrained by winter carrying capacity this may reduce farm stocking rate or require an alternative winter regime.

• The research projects undertaken only measured pure stands of chicory. Observations made on a few commercial farms suggest greater inclusion in grass mixtures results in some response - both in terms of health and growth - from ewes and lambs. However, further investigation would be required to determine whether chicory’s inclusion had any significant anthelmintic effect. It does, however, help trace element supply, which is around four times higher than a typical grass sward.

The Impact

Forage chicory has potential to lift sheep productivity.

It could have a useful role reducing reliance on wormer treatment and providing trace elements.

It may also benefit soil root structure. Chicory is deep rooted and therefore introduces an additional root profile.

If you would like to discuss sheep and grazing management contact your local consultant or SAC Consulting beef and sheep specialist at beefandsheep@sac.co.uk

Project Details

WORMCOPS - Worm control in organic production systems for small ruminants in Europe. Project start: [04/2001], finish date: [04/2004]. Project funded by EU.

Parasite control for organic systems. Project start: [04/2001], finish date: [06/2004]. Project funded by Defra.

Sustainable parasite control. Project start date: [04/2006], finish date: [03/2011].
Email: jos.houdijk@sruc.ac.uk Project funded by Scottish Government

Non-chemical worm control strategies. Project start date: [10/2006], finish date: [10/2009].
Email: jos.houdijk@sruc.ac.uk Project funded by MLC

Meat eating quality on chicory. Project start date: [06/2008], finish date: [06/2010].
Email: jos.houdijk@sruc.ac.uk Project funded by MLC

Plant-based parasite control strategies. Project start date: [11/2010], finish date: [05/2014].
Email: jos.houdijk@sruc.ac.uk Project funded by BBSRC/DFID/Scottish Government

Summary printed [03/2017].