



OWL FARM

Providing knowledge.



Growing Calves on Chicory – Year 2

Objectives:

- To ensure calves meet puberty growth targets which supports successful reproductive performance.
- To use an on-farm chicory crop, with silage and PKE, to achieve calf growth targets at similar cost or less than off-farm grazing.

Background

Previously, Owl Farm's heifer calves were grazed off, but a change in circumstances in 2020 meant the management team had to reassess the grazing arrangements. The decision was made to trial grazing them at home.

Key considerations:

- Preventing any impact on the milking herd.
- Factoring in the additional demands on labour and infrastructure (for handling and weighing).
- Providing summer feed with the correct composition i.e. containing sufficient protein and energy to meet targets.

Analysis of Opportunity

A number of possible feed options were identified, including: annual crops, such as Raphno or chicory; or a perennial crop, like lucerne. Pasture was discounted, as when growth rates were low over summer the calves would require an area of up to 13 ha. This would impact on the milking herd. Also, the pasture quality would not be high enough to meet the calves' requirements.

Chicory was selected as Owl Farm could lease a block next to the milking platform. The calves could rotationally graze this, in combination with supplementation with pasture silage (and PK if needed). The protective value against facial eczema spores and reduced need for worm drenching were also benefits. We estimated it would cost approximately \$7.50/hd/wk to graze the calves at home, compared to \$11/hd/wk at the grazier's.

Keep in mind

Your RPs have a wealth of expertise you can tap into. We regularly touched base with a variety of industry experts, including our partners, PGG Wrightson Seeds and Ballance Agri-Nutrients, along with our vets, to make sure we got the best results we could.



OWL FARM

Providing knowledge.

ST PETER'S SCHOOL & LINCOLN UNIVERSITY
DEMONSTRATION DAIRY FARM



St Peter's
Cambridge
NEW ZEALAND

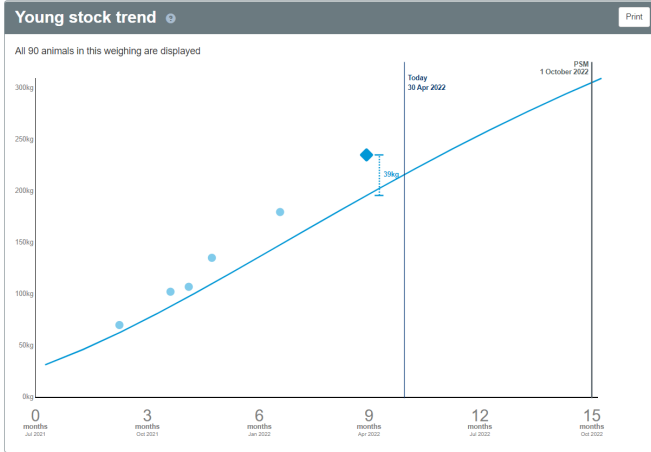


LINCOLN
UNIVERSITY
TE WHARE WAIKAKA O AORAKI



Results

Once again the heifer calves grew exceptionally well on this regime. They weighed 236 kg when nine months old (Figure 1), which was 39 kg above their target weight, and no calves were underweight. Average liveweight gain of 0.78 kg/hd/day.



From 26th November to 19th April the calves were offered 43.7 t DM chicory over seven grazings. The chicory was planted on 2nd October and its estimated yield (using Farmax) was 6.2 t DM/ha (vs 8.5t DM/ha for the 20/21 season). This could be attributed to 2 of these paddocks being chosen as they needed renovation and only 1 paddock receiving effluent irrigation this season. This along with dry soils in Jan and low rainfall impacting March/April growth rates.

We transitioned the calves onto the PKE once the calf meal was finished. However, they preferred the grass silage over the PKE, so the amounts of each of these were amended.

Once again over the summer the calves’ feed demand exceeded what the chicory crop could supply. Although this year we maintained our usual 25 day rotation and the calves were taken off the crop twice (30 days in total) to allow it to recover and were fed extra silage and pasture.

Table 1. Feed allocation (kg DM offered/hd/day).

| | Nov | Dec | Jan | Feb | Mar | Apr |
|------------------------|-----|-----|-----|-----|-----|-----|
| Chicory/Pasture | 3.5 | 4.0 | 4.4 | 4.0 | 4.0 | 5 |
| PKE | 0.9 | 0.9 | 1.1 | 1.7 | 1.9 | 1.2 |
| Grass silage | 0 | 0.4 | 1.5 | 2.4 | 2.4 | 1.6 |
| Total eaten | 4.0 | 4.3 | 4.4 | 4.8 | 5.1 | 5.7 |

Grass was sown into the chicory paddock on the 22nd April. Once the cost of leasing the block to grow the crop is included it became more expensive to graze the heifers on chicory than grazing them off when compared

Table 2. Cost analysis (actual).

| | | |
|-------------------------------|--------------------------|-----------------|
| Chicory | \$1,200/ha x 7.1 ha | \$8,520 |
| PKE | 17.8 t DM x \$342/t DM | \$6,087 |
| Grass silage | 20.3 t DM x \$380/t DM | \$7,733 |
| Pasture | 4.6 t DM x \$370/t DM | \$1,702 |
| Staff time¹ | 100 hr x \$25/hr | \$2,500 |
| Total cost | | \$26,542 |
| Cost/head/week | | \$14.09 |
| Cost/kg lwt gain | 100kg from 23/11 to 30/3 | \$2.91 |

¹ Shifting every second day and weighing three times.

However, maintaining close supervision of this stock class over a critical growth period during puberty, so they achieve their target weights, is highly beneficial, and well worth the extra labour required. Our 2020 born heifers achieved a not in-calf rate of 2% (compared to 6% and 10% in the years prior).

Owl Farm also gained benefits, particular to its demonstration role. It gave visiting groups easy access the calves and crop, and allowed the farm team to share the results with multiple industry groups.

Plan for Next Season

This trial has been successful at achieving weight gains for the last 2 seasons. But the cost of achieving this in increasingly dry summers has us concerned. Next season (2022/23) the plan is to grow 5+ ha of chicory for 70 heifer calves and to feed approx 330 kgDM supplement/calf using grass silage and PKE. The farm team will choose areas for chicory that can have effluent applied and that are close to hand so visiting groups can view the calves easily.

- In the first year the calves developed interdigital dermatitis from crowding around the feeding trailer after rain. In the second year care was taken to move the trailer more frequently if wet or just feed grass silage in the paddock.
 - To reduce wastage in the first grazing stagger plant half the crop 10-14 days later.
 - With clear effluent tests for Johnes we are trying to plant in some areas where we can use effluent irrigation to support summer growth – it responds well.
 - We used Gallagher 3 wire fence standards and portable water troughs to ensure an accurate feed allocation and prevent back grazing.

Further Information

- www.dairynz.co.nz/feed/crops/chicory/
- www.dairynz.co.nz/animal/heifers/heifer-feeding-and-nutrition/
- www.pggwrightsonseeds.com/crops/herbs/chicory/puna-ii