# Lucerne 4 Lambs

We investigated the impacts of changing some management practices with lucerne in Central Otago to see what the effects on the whole farm system might be, and how we might fill the gaps that may arise from those changes.

Lucerne is predominantly used to help fill the winter feed deficit so practices revolve around making hay first when yield is more assured, and grazing second, if the season allows.

- What are at the benefits of grazing first.
- How we cost-effectively fill the winter feed gap is approached in other ways for example:
  - by increasing the amount of lucerne to meet both hay-making and grazing requirements,
  - by using strategic irrigations of crops, or
  - by making sure all lambs are sold early and so all autumn growth is available for ewes, rather than finishing stock.

## Key messages from the last two years for Central Otago

### Summary

Lucerne provided a much more consistent result from year to year, with lower variability in stocking rate, lamb liveweight gain and overall per hectare production.

This is related to the relatively predictable nature of the amount of feed we can grow based on the available soil moisture. The use of the grazing rotation calculator to estimate the required stocking rates to achieve a set level of performance meant that consistency was maintained.

The use of rotational grazing also allowed farmers to identify surpluses early and harvest them, compared to the dryland grass grazing approaches.

## Total production

- Dryland lucerne provides 4 to 5 times the lamb production per hectare than dryland grass, while still using the same water resource (300-400 kg lamb weaned/ ha compared to 80-135 kg lamb/ha).
- Dryland lucerne may give a similar output of lamb weaned as irrigated pasture.
- Lucerne/grass mixtures give a result in between dryland grass and lucerne, so the decision to use mixtures needs to be second to the use of pure stands.

## Consistency

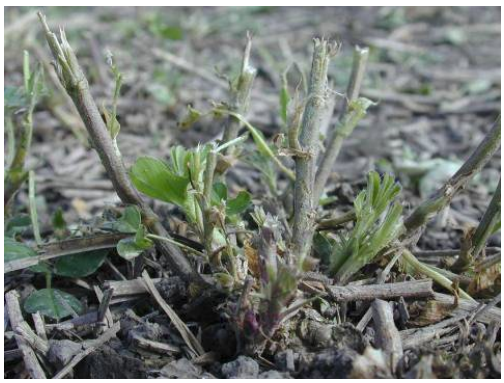
- Lucerne gives us a consistent high lamb growth rate (average 310 g/d over two years) and, along with a predictable stocking rate (approximately 10 ewes/ha) means that output per hectare can be optimised and predicted.
- Grazing on lucerne also means that ewes are weaned at good weights and in good condition, making summer management easier.
- Ewes are in a more consistent condition (82% CS 2.5 to 3.5) lowering our need to put intensive management on the ewes to maintain good reproductive performance ie less need to conserve feed for flushing.
- We can plan at the start of the season and predict our stocking rate much better than we can with dryland pasture. We can use the available soil water at the end of winter and the average rainfall as a reasonable guide.

## Planning

- The ease of using a grazing rotation calculator plus an estimate of potential growth provides a good forward planning tool to ensure a good result from spring grazing of lucerne.
- Dryland pasture relies too much on rainfall, so becomes much harder to predict and plan
- Irrigated pasture provides a much more reliable resource, but comes at significant cost.
- The compromise of water use by adding grass to lucerne means that it is harder to gain the greatest productivity from lucerne/grass mixtures, and creates less certainty when planning.

## Keys to lucerne grazing management

The best management for lucerne maximizes both its potential and growth pattern.



- Lucerne leaves grow from the top of each stem and after grazing new shoots develop from the crown which is above ground.
- **Spring** growth can be grazed when the crop is about 15-20 cm high
- The expected production from a clean (weed free) crop can be calculated from the amount of water available in the soil profile (soil type and depth). This is because the lucerne only uses the water when it is productive.
- This is also why lucerne should be sown on deeper soil profiles to get the greatest benefit from it deeper roots.
- When planning grazing the lucerne paddock area should be enough for 6 rotations (for a mob grazed at 10 ewes and lambs/ha). This allows the lucerne to regrow to the required 20-25cm between grazings.
- If the lucerne is getting ahead of the stock you can drop a break and take it for hay.
- Lucerne will continue to benefit from any additional rainfall and the potential production can be recalculated.
- **Always** provide stock access to **fibre** (straw) and **salt** blocks. Lucerne is sodium deficient for stock as it stores it in the roots. Stock may or may not use the fibre but it will prevent bloat and red gut issues.
- **Summer**— at some point allow the crop to flower and recharge root reserves although in dryland situations the crop may have been grazed out or run out of water
- **Autumn**– allow crop to reach 50% flowering if this hasn't been possible in summer or spell for 6 to 8 weeks, before an end of autumn/early winter graze
- **Winter**—the focus is weed management which helps reduce species competing for available water. This is also when the soil water is replenished.

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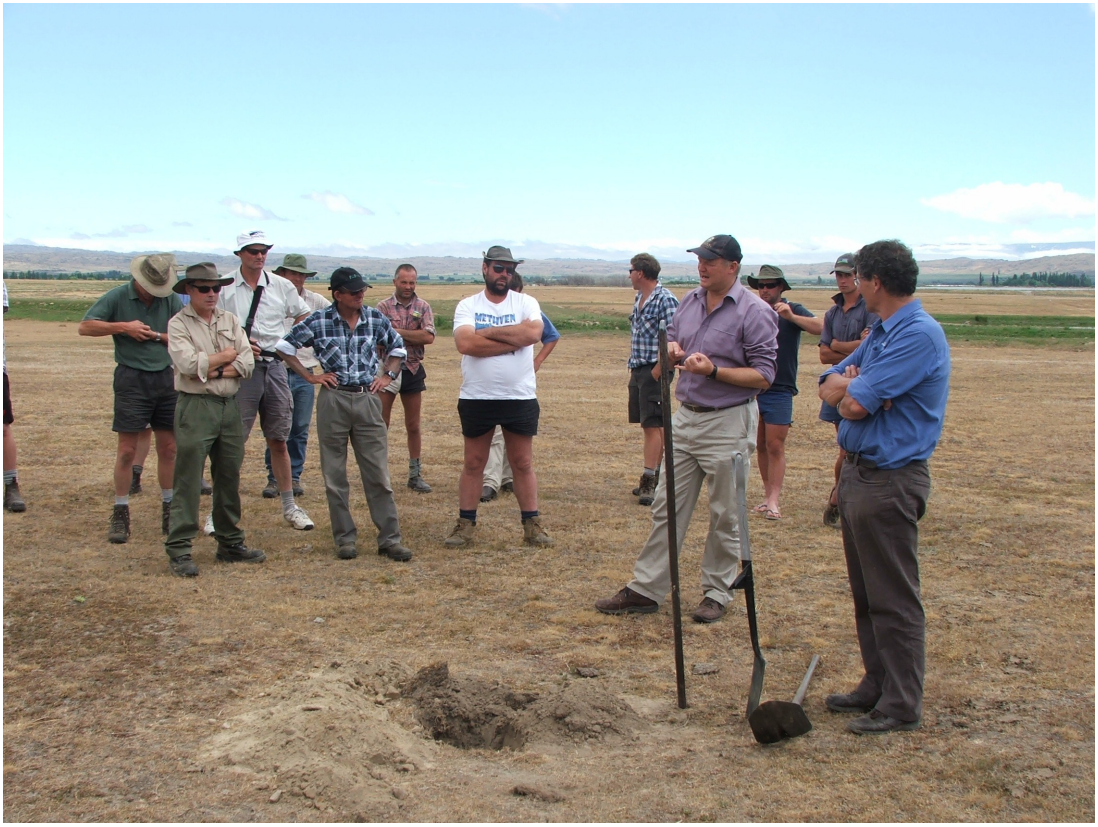

Farmers talk about the potential of a moderately deep fertile soil in the Ida valley with the native pasture in residence

Demonstrating the improvement when a moderately deep fertile soil in the Ida valley is sown in Lucerne