



NZ Forage Systems Fact Sheet

Lucerne - grazing management

Key Points

1. Lucerne grows by using its root reserves to produce shoots from the crown at the base of the plant. Once these shoots are mature, the plant replenishes its root reserves.
2. Lucerne stands should be rotationally grazed with typically a 5-7 day grazing period and then a 35-42 day re-growth period in spring.
3. Short period of set stocking in spring with very careful constraints may not do much harm.
4. A shorter rotation of 30-35 days is practised in summer
5. In autumn, lucerne needs to be allowed to flower. When fifty per cent of lucerne stems are flowering the plant is able to recharge root reserves.
6. In winter, graze hard then spray for weeds. Don't delay weed control.



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Understanding how lucerne grows is the key to managing it

Lucerne is a perennial plant that stores carbohydrates (sugars and starches) in the crown and roots. These carbohydrate reserves are used for regrowth after each grazing and following winter dormancy. Lucerne grows by using its root reserves to produce shoots from the crown at the base of the plant. Once these shoots are mature (typically 150-200 mm in height, the lucerne plant begins to replace depleted carbohydrates in the root and crown. Lucerne regrows by producing new shoots from the crown at the base of the plant. Removing these shoots (through set stocking) will delay regrowth and require more plant reserves. If lucerne is not allowed to replenish its reserves the stand will lose vigour, plants will die and weeds become dominant. This is the reason why lucerne can not normally be set stocked. Leaves have the highest nutritive value (ME >12, protein >24%) while stems have much lower quality (ME~8, protein <14%). Good grazing management on lucerne can produce 4-5 times the lamb production per ha than dryland grass (300-400 kg lamb weaned /ha compared with 80-135 kg lamb/ha. Beef + Lamb NZ have produced a very useful (longer) document on lucerne management—<http://bit.ly/2irBlq7>.

Grazing management—Introduction

- Lucerne must be rotationally grazed. Set stocking means roots do not have the opportunity to recharge and the life of the stand will be shortened by set stocking.
- High value stock (ewes and lambs) can be used to graze leaves first then follow with other stock (cattle) to clean up the stems. This management technique will maximize growth rates in the first group.
- Each grazing should be no longer than 5-7 days and typically 6 paddocks are needed for a rotation.
- Prior to autumn, 50% of lucerne stems need to be allowed to flower to encourage root re-charge.

Grazing management— The four seasons:-

Spring (Sept/Oct/Nov)

- No need to wait for flowering in spring before starting grazing. (Flowering is delayed due to short photoperiod, so graze based on yield and / or plant height).
- Start early spring grazing on stands that are nearing the end of their productive life with weed ingress. That way younger stands are spelled for a few extra weeks with consequent benefits in stand persistence and productivity.
- Begin grazing with ewes and lambs at crop height ~20cm (1500 kg/ha).

Spring (continued)

- Introduce ewes and lambs to lucerne when lambs are 2-3 weeks old and the lambs have started eating herbage.
- Aim for 5-7 day grazing break with 35-42 days for recovery. Manage break size / stock numbers to ensure grazing is no longer than a week.
- Professor Derrick Moot has shown that over 30 ha, 300 ewes with twin lambs can be rotationally grazed on six 5 ha breaks.
- Lucerne is low in sodium so offer salt licks.
- Post weaning - lambs eat lucerne leaves, follow up with ewes or cattle in a short clean up graze.
- High intakes of pure lucerne in spring can cause red gut, especially in lambs with sudden deaths occurring. Weedy stands, and / or access to straw can help reduce risk of red gut.
- Bloat can be reduced by use of salt blocks and never put hungry stock onto lucerne. If lambs are removed for weighing—don't delay, get them back on their feed asap.

Set stocking in spring with ewes and lambs—buyer beware!

Prof Derrick Moot of Lincoln University has summarised set stocking rules here—<http://bit.ly/2jenOiK> and these are summarised below-

- Set stocking is only recommended for farmers with more than 40% of their property in lucerne and who are following the optimum rotational grazing management system advocated by Moot and his team.
- Failure to follow guidelines can destroy a stand in just a couple of years.
- Planning is crucial. Start planning in Autumn. Paddocks to set stock in spring will be older, well sheltered stands, and will receive earliest clean up graze and herbicide control in winter.
- Lucerne must be 15-20 cm tall at start of grazing and the canopy must remain complete — and INCREASE in height during grazing. That will keep light from reaching the base of stand dark and reduce the ingress of problem weeds.
- Set stocking for a short period (4-5 weeks in spring with ewes and lambs) with a well established stand may provide good gains in animal performance — ewe liveweight and lamb growth. But beware — set stocking will likely harm the long term productivity of your lucerne stand.

Summer (Dec/Jan)

- In areas where water availability is a key constraint, lucerne grows more dry matter per mm of water used and has deeper roots than pasture. In the South Island lucerne produced just over 6 t DM / ha from 250 mm of water whereas the ryegrass based pasture achieved less than 3 t DM / ha.
- Use shorter rotations, allowing 30-35 day recovery.
- Water stress accelerates flowering but leaf is still high quality.
- If drought sets in it is wise to hard graze the lucerne to allow grazing of leaves that would otherwise drop.
- If irrigation is available, delay irrigation until lucerne shoots have started to regrow following grazing. This means the soil will be shaded and the water is less likely to stimulate weed seed germination.

Autumn recovery (Feb/Mar)

- Allow at least 50% of the lucerne stems to have an open flower sometime from mid summer to autumn to encourage recharge of root reserves.

Winter (Jun/July/August)

- Hard graze with a large mob once frosts stop growth. This grazing helps kill aphids that would otherwise overwinter.
- Apply appropriate contact and residual activity herbicides about two weeks after the hard grazing.
- No further grazing until first grazing in spring.
- Node accumulation on stems sets up spring potential.
- Spraying late for weed control OR grazing too early for a 'green pick' drastically delays spring growth and reduces yield. (Long term persistence and stand populations will be harmed).