

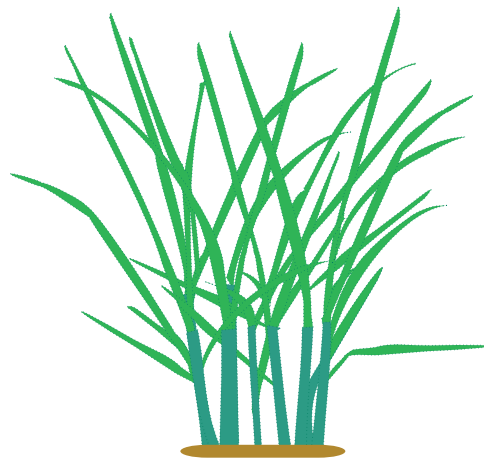
Maximising ryegrass growth

Summary

- Keeping the pasture cover in the optimal range will help achieve high growth rates without loss of quality.
- The correct time to graze ryegrass is when its tillers have 2.5-3 leaves.
- For fast regrowth after grazing, keep post-grazing residuals above 1450 kg DM/ha. As a general rule, graze pastures before they reach 3500 kg DM/ha and start losing quality in the base.

Ryegrass clump

A perennial ryegrass pasture is made up of a population of ryegrass tillers. Tillers are found grouped together in clumps, called ryegrass plants.

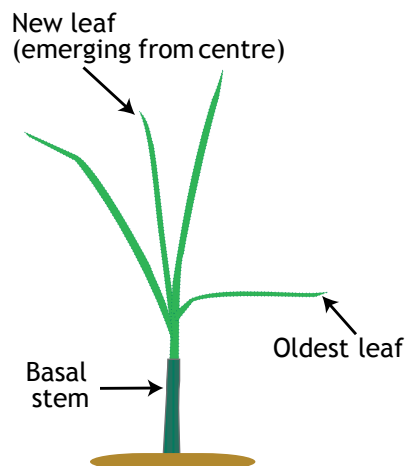


Tillers are largely individual although they do exchange nutrients to some degree.

Dairy pastures typically contain 3000-5000 tillers per square metre. Sheep pastures usually have more.

New tillers are produced year-round with peak production from November to January.

Ryegrass tiller



A tiller has a single basal stem, a leaf sheath and a number of leaves. It can maintain only three growing leaves at any one time.

When the tiller has three leaves it doesn't stop growing. A fourth (new) leaf is produced, and the first (oldest) leaf starts to die.

Then a fifth leaf is produced, and so on. If the pasture isn't grazed, dead matter (of little feed value) builds up in the base of the pasture.

How quickly do leaves grow?

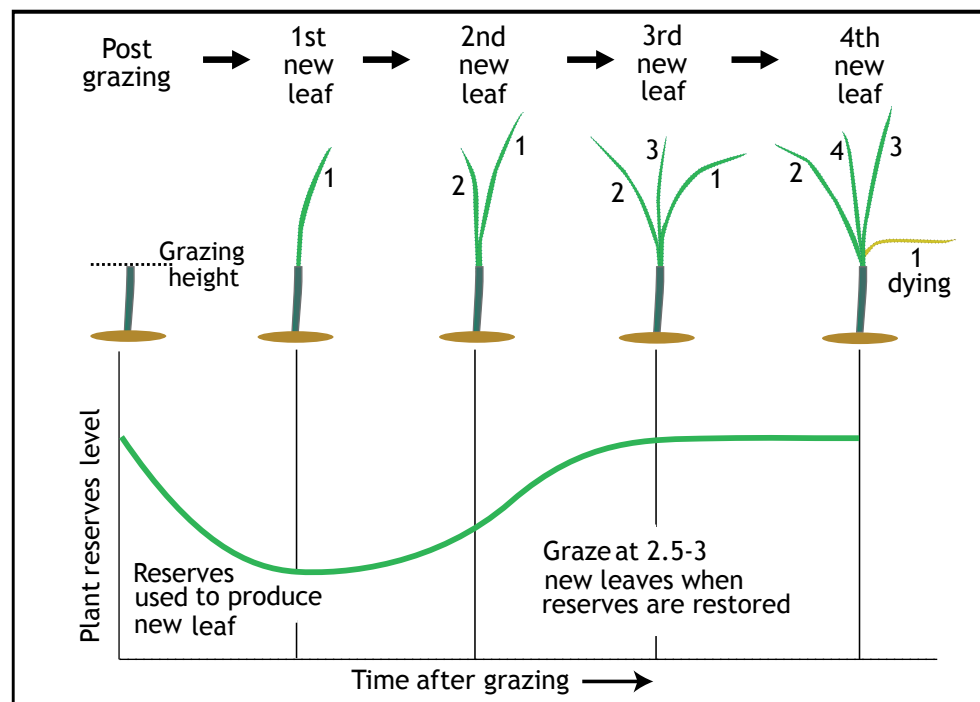
The time it takes for a tiller to reach the third new leaf varies. In mid-spring it may be 15 days, with a new leaf produced every 5 days. In mid-winter it may take 50 days to reach the third new leaf, with a new leaf produced every 17 days.

Maximising ryegrass growth (cont).

Grazing too early

Plants store energy as carbohydrate. This is used to initiate regrowth after grazing, and is built up by photosynthesis by the new leaves.

Grazing before the second new leaf appears (see diagram below) doesn't allow the plant reserves to be fully restored. Doing this repeatedly decreases yield and persistence. This principle is particularly important following drought, when plants are under stress. Nipping off the first new growth after rain, before tillers have 2.5 new leaves, can kill plants.



When to graze

Graze when tillers show an average 2.5-3 tillers per plant. At this stage many plants will have third leaf, on some this will be small, on others fully developed. At this stage the plant reserves will have recovered enough to graze.

Note: Ignore older leaves left over from the last grazing (e.g in dung patches) or that have been partly grazed.

Maximising ryegrass growth (cont).

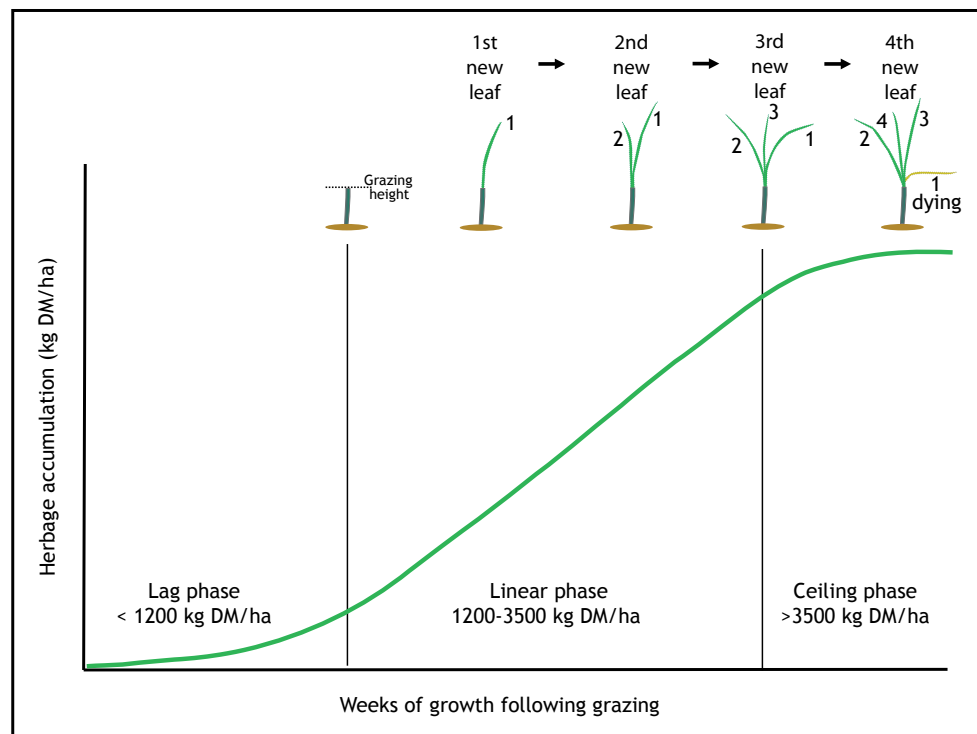
Phases of pasture growth

There are three phases of pasture growth; the lag phase; linear phase; and ceiling phase (see diagram below). Good pasture management aims to maintain pasture growth in the linear phase where, high net growth rates and high pasture quality are achieved.

Grazing too low

Grazing too low residuals puts a pasture into the lag phase, where growth rates are slower due to insufficient leaf area being left to initiate fast regrowth.

For maximum regrowth grazing should not go below 1200 kg DM/ha on sheep farms or below 1450 kg DM / ha on dairy farms.



Grazing too late

If pasture is left to grow too long (>3500 kg DM/ha) it will enter the ceiling phase of pasture growth. In this phase tillers continue to produce new leaves and growth rate remains high. However older leaves start dying, so the net growth is reduced. As older leaves accumulate this also leads to:

- lower ME - build up of dead leaves of little feed value.
- increased disease - rust and other diseases build up on dying leaves
- decrease pasture utilisation - due to the above factors.
- reduced clover content.