Rye grass—spring grazing management

Paddock guide
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How to use this booklet

This booklet provides information to enable you to answer key grazing management questions:

- Is this perennial ryegrass?
- At what leaf stage am I grazing pastures?
- Is my rotation right?
- Am I achieving target post-grazing residuals?
- Am I using a combination of animal and pasture indicators to make profitable feeding decisions?
Perennial ryegrass

- Leaves: hairless, defined mid-rib, ribbed on upper surface, shiny underneath.
- The emerging leaf is folded.
- Reddish/purple base.
  *Dead leaf material may need to be peeled back to see this.*
- Plants are made up of a number of tillers.
- Each tiller:
  - has its own leaves and roots
  - maintains three live leaves which develop from the growing point at the base of the tiller
  - is capable of producing new or daughter tillers
  - has one leaf growing at a time – as the fourth new leaf emerges, the oldest leaf dies
  - lives for about one year.
Spring and autumn are key periods of tillering - production/growth of new tillers.

Tillers can be classified as vegetative (leafy) or reproductive.

A reproductive tiller can be identified by looking for, or feeling for, nodes on the stem.

When tillers become reproductive the stem elongates and eventually, if the tiller is not grazed, a seed-head is produced.

Poa and Italian ryegrass are commonly mistaken for perennial ryegrass.
Leaf stage approach to grazing management

Leaf stage:
› is determined by the number of leaves per tiller
› can be used to identify when a paddock is ready to be grazed
› reflects the tillers energy status and ability to recover after grazing
› is only measured on vegetative (leafy) tillers.

Graze between the 2 and 3 leaf stages of regrowth to optimise production of high quality pasture; earlier if canopy closure occurs (see page 12):
› Grazing may occur closer to the 2-leaf stage when demand per hectare is low or when moving into surplus.

After the 3-leaf stage, older leaves die resulting in wastage and feed quality falls as dead material builds up.
Pasture mass (kg DM/ha)

% of high quality leaf growth

15–25%

35–40%

40–50%

Target grazing window

Plant energy reserves in the stubble

Energy for new leaves

Energy to roots

Energy for new tillers

Replenishment by photosynthesis

Leaf stage of regrowth

TIP: First leaf contributes less when using low N inputs or grazing below target residuals.
Steps to estimate leaf stage

To the nearest half leaf

1. Choose a perennial ryegrass tiller.
2. Check if the tiller is vegetative.
3. Check if the tiller has a remnant leaf (one that was grazed at the last grazing and has a blunt tip). If more than one remnant leaf just include the uppermost remnant leaf.

NOTE: Leaves are fully grown when the next leaf has begun to emerge. For the uppermost leaf you may need to unfold it along the mid-rib to check this.
How big is the remnant leaf compared with the leaf above it (first new leaf)?

- Less than half the size: Do not count it
- Greater than half the size: Count it as half

How many fully grown leaves with pointy tips are there?

1. Count it as 1
2. Count them as 2
3. Count them as 3

If uppermost leaf is not fully grown how big is it compared with the leaf below it?

- Less than half the size: Do not count it
- Half the size: Count it as half
- The full size: Count it as 1

Repeat for 10 tillers.
1-leaf stage

- 1st new leaf
- 2nd new leaf appearing
- Remnant leaf

2-leaf stage

- 1st new leaf
- 2nd new leaf
- 3rd new leaf appearing
- Remnant leaf

**TIP:** If blunt tips are visible across the paddock then not at 2-leaf stage.
3-leaf stage

- 1st new leaf
- 2nd new leaf
- 3rd new leaf
- 4th new leaf appearing
- Remnant leaf

4-leaf stage

- 1st leaf (dying/dead)
- 2nd new leaf
- 3rd new leaf
- 4th new leaf
- 5th new leaf

**TIP:** If decayed full leaves are visible in the base of the pasture, then it’s beyond the 3-leaf stage.

At the 4-leaf stage there is often no remnant leaf as it has decayed.
Canopy closure

If pastures are at or nearing canopy closure they need to be grazed or conserved regardless of leaf stage.

› Standing in the paddock you can’t see the base of the pasture and very little bare ground or soil.
› Grass leaves beginning to fold over rather than stand upright.
› Yellowing at base.

Canopy closure =

↑ shading
↑ tiller death
↓ new tiller growth
↓ clover content
↑ aerial tillers
↑ stem production

If canopy closure is happening repeatedly, re-assess nitrogen policy, check target residuals are being achieved and ensure rotation length is not too long.
3-leaf and canopy closure

Post canopy closure
Post-grazing residuals

Focus on the post-grazing residuals to optimise pasture utilisation and subsequent pasture growth and quality.

Target a post-grazing residual of 1500–1600 kg DM/ha or 4–6 cm

› Lower residuals will reduce regrowth.
› Higher residuals reduce pasture quality at subsequent grazings and increase pasture wastage.

Achieving target post-grazing residuals and good animal performance requires:

› grazing at 2.5–3 leaves and prior to canopy closure
› supplement allocation that matches pasture growth and cow demand
› use of corrective actions when targets are not met.

TIP: Think of a simple way to record residuals daily such as on the whiteboard in the farm dairy.
**Clumps**

› Use visual observation of clumps left behind in the paddock to help determine if your grazing pressure and feeding levels are right.

› The aim is to achieve residuals of 4–6 cm.

› Above 6 cm clumps tend to be smooth and rounded with little grazing of clumps occurring.

› Below 4 cm clumps tend to be well grazed with sharp shoulders on the edges and not obvious in the paddock.
1300 kg DM/ha or 3 cm – below target
› Very little to no leaf remaining in the paddock.
› Lots of bare ground or soil visible.
› Little herbage remaining around the clumps and the clumps are not obvious in the paddock.

**Residual below target/over-grazed**
1500 kg DM/ha or 4–6 cm – target residual
Very little leaf remaining between the clumps.

Clumps are small with a ‘sharp’ shape and are distinct across the paddock (dinner plate size).

Tops and sides of the clumps are well eaten into.

Clumps make-up ~15% of the area.

TIP: Cows will only willingly eat what’s grown since the last grazing.

Target residual 4–6 cm
1900 kg DM/ha or 6–8 cm – above target
Between the clumps is not grazed well.

Good quality, grazeable leaf remaining.

Very large, rounded clumps with some clumps completely un-grazed.

Little herbage is removed from around dung pads.

Clumps make-up ~30% of the area.
Wet weather management

Seek to minimise pugging and compaction damage

A decline in pasture utilisation may have to be accepted in order to minimise soil and pasture damage, resulting in higher than desired post-grazing residuals at this grazing event.

Corrective action must be taken at the next grazing to reset the post-grazing residual.
Management options

› Select drier paddocks or cropping paddocks.
› On/off grazing.
› Graze lower pre-grazing yield and therefore allocate a larger area per day for a short period.
› Accept higher residuals at this grazing event and use corrective action when able.
› Use back fencing to prevent repeated pugging.
› Use gateways and races effectively.
› Consider impact of reduced utilisation on feed offered.

Subsequent management

› Aim to promote tillering and pasture recovery by achieving target pre-grazing yields and residuals, and through the use of nitrogen fertiliser.
› Keep a record of wet/damaged paddocks.
› Avoid successive pugging events in individual paddocks.
## Decision support tool

Put a tick in the coloured cell that best describes your situation. Complete as many rows as possible.

Add up the ticks in each column – if you have a high number in the **green** column you are on target, a high number in **red** indicates you are off target.

<table>
<thead>
<tr>
<th>Assessing rotation length</th>
<th>Too short</th>
<th>Target</th>
<th>Too long</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-grazing pasture</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current leaf stage</td>
<td>1 per tiller</td>
<td>2–3 per tiller</td>
<td>More than 4 per tiller</td>
</tr>
<tr>
<td>Has canopy closure occurred in this paddock?</td>
<td>Can still see ground through pasture</td>
<td>No ground seen</td>
<td>Pasture beginning to lay over</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessing feeding level</th>
<th>Suggests inadequate feeding</th>
<th>Target</th>
<th>Suggests overfeeding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Post-grazing residual</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall height</td>
<td>Less than 3 cms</td>
<td>Just right</td>
<td>Greater than 6 cms</td>
</tr>
<tr>
<td>Grazing of clumps</td>
<td>Completely grazed</td>
<td>Small and sharp</td>
<td>Untouched</td>
</tr>
<tr>
<td>Grazeable leaf remaining</td>
<td>None</td>
<td></td>
<td>Large amount</td>
</tr>
<tr>
<td>Is supplement being wasted?</td>
<td>No</td>
<td>No</td>
<td>Lots</td>
</tr>
</tbody>
</table>
### Assessing Feeding Level

<table>
<thead>
<tr>
<th>Assessing feeding level</th>
<th>Suggests inadequate feeding</th>
<th>Target</th>
<th>Suggests overfeeding</th>
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</thead>
</table>

### Pasture Quality and Regrowth

<table>
<thead>
<tr>
<th>Paddock regrowth and quality at the next grazing</th>
<th>Reduced regrowth</th>
<th>Maximum regrowth and quality</th>
<th>Reduced quality</th>
</tr>
</thead>
</table>

### Cow Behaviour

<table>
<thead>
<tr>
<th>The herd on entering the paddock</th>
<th>Run and bellow</th>
<th>Graze quietly</th>
<th>Little grazing/lie down</th>
</tr>
</thead>
<tbody>
<tr>
<td>The herd leaving the paddock</td>
<td>Run home</td>
<td>Walk slowly</td>
<td>Hard to get out of the paddock</td>
</tr>
</tbody>
</table>

### Cow Performance

<table>
<thead>
<tr>
<th>Am I optimising production from pasture?</th>
<th>No, cows overgrazing</th>
<th>Hitting target production</th>
<th>No, lots of grazeable pasture left</th>
</tr>
</thead>
</table>

### Total Number of Ticks

<table>
<thead>
<tr>
<th>Total number of ticks</th>
<th></th>
</tr>
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</table>
Useful calculations

Leaf emergence rates

Leaf emergence rate = days since grazing/leaf stage

› If pastures are at the 2-leaf stage 20 days after grazing the leaf emergence rate is 10 days (20/2) (pastures will be at the 3-leaf stage in ~30 days).
› Leaf emergence rate will not be less than 8 days.
› Depends on temperature and moisture.

Estimating days since paddock was grazed

Leaf stage x leaf emergence rate

e.g. 2 x 10 = 20 days

Rotation length

Rotation length = total area ÷ area grazed

Area to graze = total area ÷ rotation length

Pasture quality

<table>
<thead>
<tr>
<th>Energy (MJ ME/kg DM)</th>
<th></th>
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<tbody>
<tr>
<td>Green leaf</td>
<td>10.5–12.5</td>
</tr>
<tr>
<td>Soft stem</td>
<td>10–11</td>
</tr>
<tr>
<td>Hard mature stem</td>
<td>6.5</td>
</tr>
<tr>
<td>Dead material</td>
<td>6.5</td>
</tr>
</tbody>
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Further support

For more support on grazing management contact your RDP

Dairy NSW
Ph: 02 9351 1737
dairynsw.com.au

Murray Dairy
Ph: 03 5833 5312
murraydairy.com.au

GippsDairy
Ph: 03 5624 3900
gippsdairy.com.au

DairySA
Ph: 08 8766 0127
dairysa.com.au

Subtropical Dairy
Ph: 0431 197 479
dairyinfo.biz

WestVic Dairy
Ph: 03 55571000
westvicdairy.com.au

DairyTas
Ph: 03 6432 2233
dairytas.com.au

Western Dairy
Ph: 0429 110 485
westerndairy.com.au
Post-grazing height target

4 cm

6 cm