RED MEAT UPDATES

TASMANIA

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Nitrogen use for irrigated pastures

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Overview

- Nitrogen application rates
- Grazing management
- Pasture response
- Responsible use of nitrogen

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Nitrogen (N) application rates

- There are two options for determining how much nitrogen to apply to irrigated pastures:
  - For one-off applications, rates range from 25–50kg N/ha (equivalent to urea at 55–110kg/ha).
  - For repeat applications rates equivalent to 1kg N/ha/day of the grazing rotation are ideal (i.e. on a 25-day grazing rotation, apply nitrogen at 25kg/ha—equivalent to urea at 55 kg/ha).

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Pasture response

- Typical 10:1 response (e.g. 10kg DM per 1kg N)
  - For example, a 10:1 response for urea @ 65kg/ha (i.e. N @ 30kg/ha) would be an additional 300kg DM/ha.
  - For urea at $600/t (applied at 65kg/ha), a 10:1 response, spreading at $10/ha, the extra pasture costs $0.15/kg DM.
- Does not increase the leaf emergence rate.
- To maximise the pasture growth response:
  - provide adequate soil moisture
  - apply nitrogen ASAP after grazing
  - adopt the correct grazing interval.

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Grazing management

- Adopt a leaf-stage based grazing strategy:
  - Graze ryegrass at the 2.5–3 leaf stage.
  - Based on a summer leaf emergence rate of 7 – 8 days per leaf, this means a grazing rotation of 21–24 days
- The minimum grazing interval should be once two leaves have grown (roughly 14–16 days).
  - Grazing before two leaves increases the risk of nitrate toxicity, reduces the dry matter response and the pasture is nutritionally imbalanced.
- Ensure a sufficient stocking rate to maintain a leafy pasture, rather than allow stemmy low-quality pasture to develop.

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Responsible use of nitrogen (N) fertiliser

- Avoid applying nitrogen:
  - to warm waterlogged soils, due to the risk of denitrification
  - where surface water is present
  - during hot windy conditions, due to the risk of volatilisation losses.
- Irrigate nitrogen-treated pastures ASAP:
  - Use urease-inhibitor-treated urea (e.g. ‘green urea’) if there is a delay in irrigation and/or hot windy conditions are present.
  - Do not under irrigate pastures during summer, perhaps a schedule of 15–20mm every 3–4 days.

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Top three take-home messages

1. Nitrogen (N) fertiliser offers a cost-effective option to supply additional pasture during summer.

2. Graze nitrogen-fertilised ryegrass pastures based on a 2.5–3 leaf stage and ensure sufficient stocking rate pressure to maintain a leafy growth habit.

3. Ensure you adequately irrigate your pasture to optimise the pasture dry matter (DM) response.

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Tools, resources and training

- www.mla.com.au/news-and-events/industry-news/busting-common-fertiliser-myths/
- www.tasfarmingfutures.com.au/articles2/tag/nitrgoen
- For irrigation scheduling decision support use ‘The Yield’ app on your smartphone
- Pasture Principles grazing management course, Macquarie Franklin

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