

# Overseer

## Farm Summary Report

Printed date: 18 Nov 2025, 1:06PM

Printed by: Antoinette Archer



**LINCOLN UNIVERSITY - DAIRY FARM**

1505 Shands Rd, Lincoln 7674, New Zealand

Year ending 2025

Analysis type

Year end

Model version

6.5.12

**DISCLAIMER:** This Report has been prepared solely for registered users of Overseer who download it from the Overseer application, and have accepted Overseer's Terms of Use. While reasonable efforts have been made to ensure that the Overseer software model used to prepare this Report keeps up with the latest scientific research, Overseer Limited gives no warranties, representation or guarantees, express or implied in relation to the quality, reliability, accuracy and/or fitness for any purpose of the Report. Overseer Limited expressly disclaims and assumes no liability whatsoever arising directly or indirectly from the use of, or reliance on this Report.

**COPYRIGHT:** With the exception of user-supplied data, this Report is © 2025 Overseer Limited. All rights reserved. You may copy and distribute this Report in its entirety, as long as you do not mislead anyone as to its origin or implications, and provided you do not remove or alter the disclaimer above or this copyright notice.

Overseer © 2025 | v6.20.0

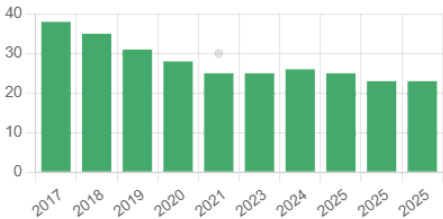
## Farm map



## Farm trends

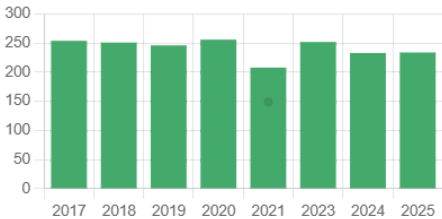
The farm value represents the farms Year End analyses results for each year. The median value represents the current mid-point of the data from Year End analyses in the OverseerFM database.

N loss (kg/ha)



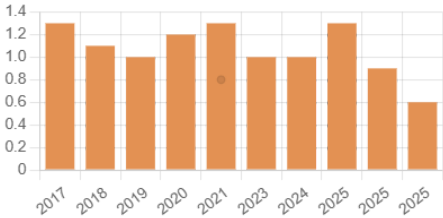
| Year | Farm | Median |
|------|------|--------|
| 2017 | 38   |        |
| 2018 | 35   |        |
| 2019 | 31   |        |
| 2020 | 28   |        |
| 2021 | 25   | 30     |
| 2023 | 25   |        |
| 2024 | 26   |        |
| 2025 | 25   |        |
| 2025 | 23   |        |
| 2025 | 23   |        |

N surplus (kg/ha)



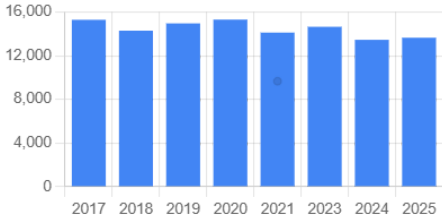
| Year | Farm | Median |
|------|------|--------|
| 2017 | 254  |        |
| 2018 | 251  |        |
| 2019 | 246  |        |
| 2020 | 256  |        |
| 2021 | 208  | 149    |
| 2023 | 252  |        |
| 2024 | 233  |        |
| 2025 | 234  |        |

P loss (kg/ha)



| Year | Farm | Median |
|------|------|--------|
| 2017 | 1.3  |        |
| 2018 | 1.1  |        |
| 2019 | 1    |        |
| 2020 | 1.2  |        |
| 2021 | 1.3  | 0.8    |
| 2023 | 1    |        |
| 2024 | 1    |        |
| 2025 | 1.3  |        |
| 2025 | 0.9  |        |
| 2025 | 0.6  |        |

GHG (kg CO2e/ha)



| Year | Farm   | Median  |
|------|--------|---------|
| 2017 | 15,285 |         |
| 2018 | 14,289 |         |
| 2019 | 14,954 |         |
| 2020 | 15,303 |         |
| 2021 | 14,113 | 9,662.5 |
| 2023 | 14,644 |         |
| 2024 | 13,452 |         |
| 2025 | 13,645 |         |

Greenhouse gas emissions

|                              | Year ending 2025 |
|------------------------------|------------------|
| Total GHG emissions (t CO2e) | 2,538.0          |
| Methane (t CO2e)             | 1,744.1          |
| Nitrous oxide (t CO2e)       | 528.6            |
| Carbon dioxide (t CO2e)      | 265.2            |

CO2e footprint

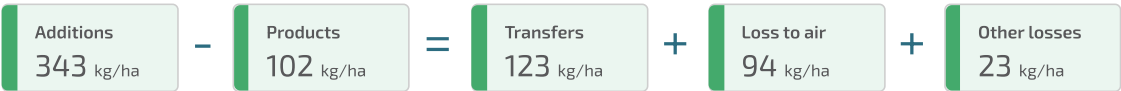
|                       | Year ending 2025 |
|-----------------------|------------------|
| Dairy (kg/cow)        | 3,518            |
| Dairy grazing (kg/SU) | 438              |

Nutrients

|            |                        | Year ending 2025 |
|------------|------------------------|------------------|
| Nitrogen   | Total loss (kg N)      | 4,275            |
|            | Average loss (kg N/ha) | 23               |
|            | NCE (%)                | 32               |
| Phosphorus | N Surplus (kg N/ha)    | 234              |
|            | Total loss (kg P)      | 168              |
|            | Average loss (kg P/ha) | 0.9              |
|            | P Surplus (kg P/ha)    | 18               |

Nitrogen

Nutrients are brought onto the farm and taken up by plants that are eaten by animals. Animals move around the farm and deposit nutrients in the form of urine and dung. Nutrients are removed in the form of products (meat, crops and milk). The difference between the nutrients added and products removed is the nitrogen surplus. Remaining nutrients undergo various biological processes, are lost to the atmosphere and when drainage occurs may leach or runoff from the farm.



- 1 - Nitrogen surplus is total additions minus product removed (241 kg/ha)
- 2 - The numbers in the nutrient budget have been rounded and so may not balance exactly

Nitrogen brought onto farm

Nutrients added to the farm via supplements, climate, fertiliser and effluent.

| Additions (kg/ha)          |                                                                                                                | Year ending 2025 |
|----------------------------|----------------------------------------------------------------------------------------------------------------|------------------|
| Fertiliser, lime and other | Nutrients added to the farm in fertiliser. Includes synthetic, organic, lime and imported pig/dairy effluent.' | 148              |
| Irrigation                 | Nutrients from irrigation. Nutrient concentration is defined for each system.                                  | 11               |
| Supplements                | Nutrients from supplements imported onto the farm.                                                             | 31               |
| Rain/clover fixation       | Nutrients from rainfall and fixation of atmospheric nitrogen by legumes/clover.                                | 153              |
| Total                      |                                                                                                                | 343              |

Nitrogen removed as product

Nutrients removed from the farm as product and as supplements. The difference between this and nutrients added is then susceptible to leaching or runoff from the farm.

| Products (kg/ha) |                                                                 | Year ending 2025 |
|------------------|-----------------------------------------------------------------|------------------|
| As product       | Nutrients leaving the farm as product (crops, milk, meat etc.). | 102              |
| Total            |                                                                 | 102              |

Transfer of nutrients

The biological processes that change nutrients available on farm. These nutrients are not taken up by plants and so are removed from the nutrient pool. Also includes the balance of the nutrients in supplements that are transferred to/from storage.

| Transfers (kg/ha)            |                                                                                                                                                                                                                                                                                                                       | Year ending 2025 |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Organic pool                 | Mineralisation plus immobilisation. Mineralisation (decomposing organic nutrients from cultivation of crops) adds nutrients and so is a negative number, immobilisation (nutrients taken up by soil organisms) removes nutrients and so is positive. If more is mineralised than immobilised, the number is negative. | 117              |
| Change in supplement storage | Change in nutrients in supplements that are stored.                                                                                                                                                                                                                                                                   | 6                |
| Total                        |                                                                                                                                                                                                                                                                                                                       | 123              |

Nitrogen lost to the atmosphere

The nutrients lost into the atmosphere through volatilisation and denitrification.

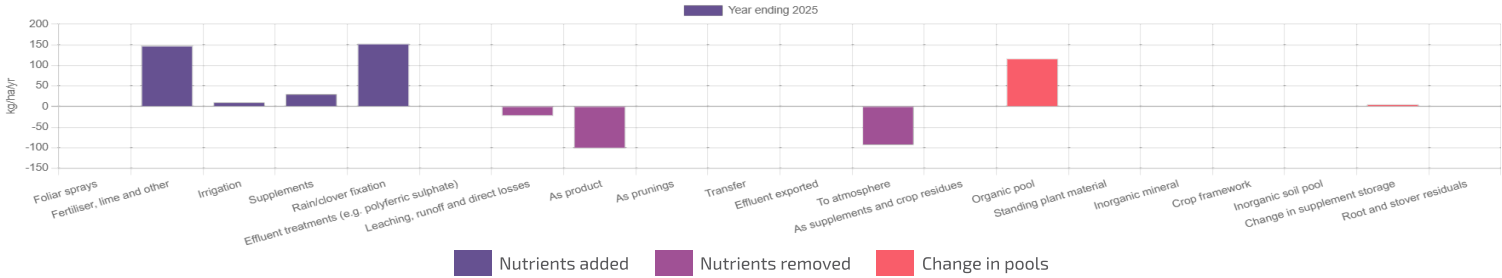
| Loss to air (kg/ha)          |                                                              | Year ending 2025 |
|------------------------------|--------------------------------------------------------------|------------------|
| Denitrification - background | Background conversion of nitrate to nitrogen gas.            | 2                |
| Volatilisation - other       | Background loss of nitrogen to the atmosphere as ammonia.    | 9                |
| Volatilisation - urine       | Loss of nitrogen in urine to the atmosphere as ammonia.      | 68               |
| Denitrification - urine      | Conversion of nitrate from urine to nitrogen gas.            | 10               |
| Volatilisation - fertiliser  | Loss of nitrogen in fertiliser to the atmosphere as ammonia. | 5                |
| Total                        |                                                              | 94               |

Other Nitrogen lost from the farm

The nutrients lost from runoff, leaching or directly into water. This is where the excess nutrients runoff or drain from the farm due to water movement (drainage), or are deposited directly into water ways.

| Other losses (kg/ha)     |                                                                                | Year ending 2025 |
|--------------------------|--------------------------------------------------------------------------------|------------------|
| Leaching - urine patches | Nutrients from urine that has leached below the root zone.                     | 19               |
| Leaching - other         | Nutrients from other sources (not urine) that has leached below the root zone. | 4                |
| Total                    |                                                                                | 23               |

Nitrogen movements



Phosphorus

Nutrients are brought onto the farm and taken up by plants that are eaten by animals. Animals move around the farm and deposit nutrients in the form of urine and dung. Nutrients are removed in the form of products (meat, crops and milk). The difference between the nutrients added and products removed is the phosphorus surplus. Remaining nutrients undergo various biological processes, are lost to the atmosphere and when drainage occurs may leach or runoff from the farm.

Additions  
36.0 kg/ha

-

Products  
18.0 kg/ha

=

Transfers  
18.0 kg/ha

+

Other losses  
0.9 kg/ha

- 1 - Phosphorus surplus is total additions minus product removed (18 kg/ha)
- 2 - The numbers in the nutrient budget have been rounded and so may not balance exactly

Phosphorus brought onto farm

Nutrients added to the farm via supplements, climate, fertiliser and effluent.

| Additions (kg/ha)          |                                                                                                                | Year ending 2025 |
|----------------------------|----------------------------------------------------------------------------------------------------------------|------------------|
| Fertiliser, lime and other | Nutrients added to the farm in fertiliser. Includes synthetic, organic, lime and imported pig/dairy effluent.' | 30.0             |
| Supplements                | Nutrients from supplements imported onto the farm.                                                             | 6.0              |
| Total                      |                                                                                                                | 36.0             |

Phosphorus removed as product

Nutrients removed from the farm as product and as supplements. The difference between this and nutrients added is then susceptible to leaching or runoff from the farm.

| Products (kg/ha) |                                                                 | Year ending 2025 |
|------------------|-----------------------------------------------------------------|------------------|
| As product       | Nutrients leaving the farm as product (crops, milk, meat etc.). | 18.0             |
| Total            |                                                                 | 18.0             |

Transfer of nutrients

The biological processes that change nutrients available on farm. These nutrients are not taken up by plants and so are removed from the nutrient pool. Also includes the balance of the nutrients in supplements that are transferred to/from storage.

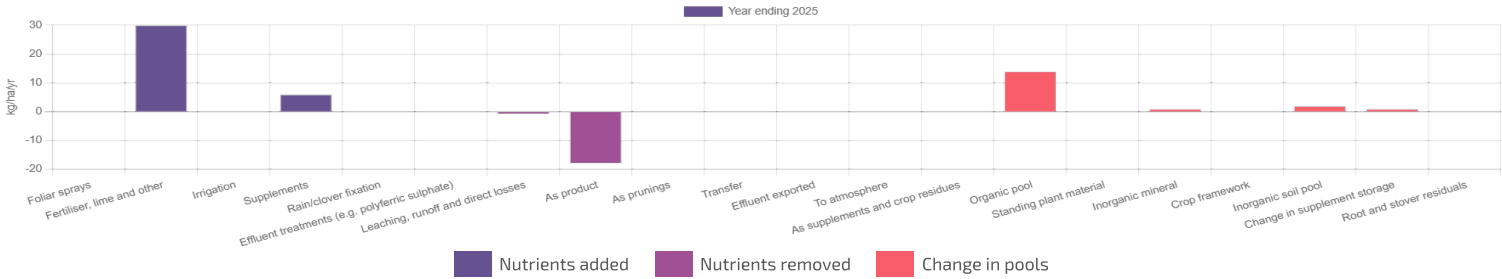
| Transfers (kg/ha)            |                                                                                                                                                                                                                                                                                                                       | Year ending 2025 |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Organic pool                 | Mineralisation plus immobilisation. Mineralisation (decomposing organic nutrients from cultivation of crops) adds nutrients and so is a negative number, immobilisation (nutrients taken up by soil organisms) removes nutrients and so is positive. If more is mineralised than immobilised, the number is negative. | 14.0             |
| Inorganic mineral            | Nutrients adsorbed on (adhered to) clay minerals and undissolved lime.                                                                                                                                                                                                                                                | 1.0              |
| Inorganic soil pool          | Change in plant available nutrients based on soil tests.                                                                                                                                                                                                                                                              | 2.0              |
| Change in supplement storage | Change in nutrients in supplements that are stored.                                                                                                                                                                                                                                                                   | 1.0              |
| Total                        |                                                                                                                                                                                                                                                                                                                       | 18.0             |

Other Phosphorus lost from the farm

The nutrients lost from runoff, leaching or directly into water. This is where the excess nutrients runoff or drain from the farm due to water movement (drainage), or are deposited directly into water ways.

| Other losses (kg/ha) |                                                                                | Year ending 2025 |
|----------------------|--------------------------------------------------------------------------------|------------------|
| Runoff               | Nutrients lost during runoff (over land).                                      | 0.4              |
| Leaching - other     | Nutrients from other sources (not urine) that has leached below the root zone. | 0.5              |
| Total                |                                                                                | 0.9              |

Phosphorus movements



Physical characteristics

|           |                            | Year ending 2025 |
|-----------|----------------------------|------------------|
| Land area | Total farm area (ha)       | 186.5            |
|           | Productive block area (ha) | 174.8            |
|           | Total grazing area (ha)    | 174.8            |
|           | Dairy grazing area (ha)    | 175.2            |
| Climate   | Average temperature (°C)   | 12.1             |
|           | Average rainfall (mm/yr)   | 607              |
|           | Average PET (mm/yr)        | 923              |
| Soil      | Average PAW at 60cm (mm)   | 106              |

Farm soils

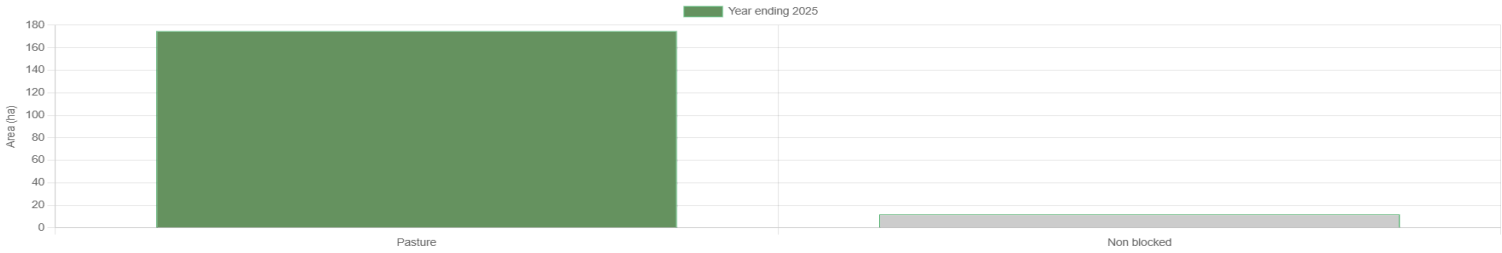
|                                  |                     | Year ending 2025 |
|----------------------------------|---------------------|------------------|
| Recent/YGE/BGE/Pallic Barr_5a.1  | Area                | 11               |
|                                  | Properties modified | No               |
| Recent/YGE/BGE/Pallic Barr_6a.1  | Area                | 1                |
|                                  | Properties modified | No               |
| Recent/YGE/BGE/Pallic Temp_1a.1  | Area                | 38               |
|                                  | Properties modified | No               |
| Recent/YGE/BGE/Pallic Temp_2a.1  | Area                | 11               |
|                                  | Properties modified | No               |
| Recent/YGE/BGE/Pallic Temp_3a.1  | Area                | 2                |
|                                  | Properties modified | No               |
| Recent/YGE/BGE/Pallic Temp_4a.1  | Area                | 4                |
|                                  | Properties modified | No               |
| Recent/YGE/BGE/Pallic Waka_1a.1  | Area                | 30               |
|                                  | Properties modified | No               |
| Recent/YGE/BGE/Pallic Waka_21a.1 | Area                | 6                |
|                                  | Properties modified | No               |
| Recent/YGE/BGE/Pallic Waka_3a.1  | Area                | 31               |
|                                  | Properties modified | No               |
| Recent/YGE/BGE/Recent Eyre_1a.1  | Area                | 1                |
|                                  | Properties modified | No               |
| Sedimentary/Gley Flax_4a.1       | Area                | 17               |
|                                  | Properties modified | No               |
| Sedimentary/Gley Temu_18a.1      | Area                | 22               |
|                                  | Properties modified | No               |

1 - Olsen P is calculated using soil test results, proportioned by the area of the farm that this soil covers.

Block types

|             |                                 | Year ending 2025 |
|-------------|---------------------------------|------------------|
| Pasture     | Area (ha)                       | 174.8            |
|             | Pasture grown (t DM/yr)         | 3,492            |
|             | Pasture intake (t DM/yr)        | 2,902            |
|             | Supplements harvested (t DM/yr) | 33               |
| Non blocked | Area (ha)                       | 12.0             |
| Total area  | (ha)                            | 186.5            |

Effective area by block type



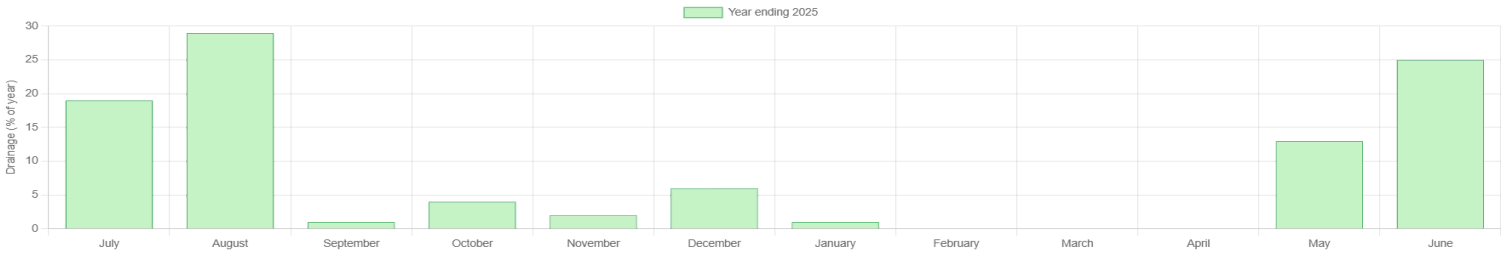
Drainage

! Drainage indicates the amount of water draining below the root zome of typical crops or pastures (60cm). Drainage occurs when the amount of water (from rainfall and irrigation) exceeds the water holding capacity of the soil. When water drains it can take any excess nitrogen below this root zome and so risks leaching from the farm into the water table below.

The model uses a 30 year average climate for each block's location. The following graph shows the percentage of annual drainage that occurs each month using this average climate. This provides an indication of when the highest leaching risk is for the farm when under average conditions.

|          |                                                       | Year ending 2025 |
|----------|-------------------------------------------------------|------------------|
| Drainage | Average drainage at 60cm (mm)                         | 184              |
|          | Average nitrogen concentration in water drained (ppm) | 13.9             |

When drainage at 60cm occurs



! There is no wetland information for this analysis

Crops

|                       |                          | Year ending 2025 |
|-----------------------|--------------------------|------------------|
| Ryegrass/white clover | Area (ha)                | 174.8            |
|                       | Pasture grown (t DM/yr)  | 3,492            |
|                       | Pasture intake (t DM/yr) | 2,902            |
|                       | Supplements (t DM/yr)    | 33               |

Animals

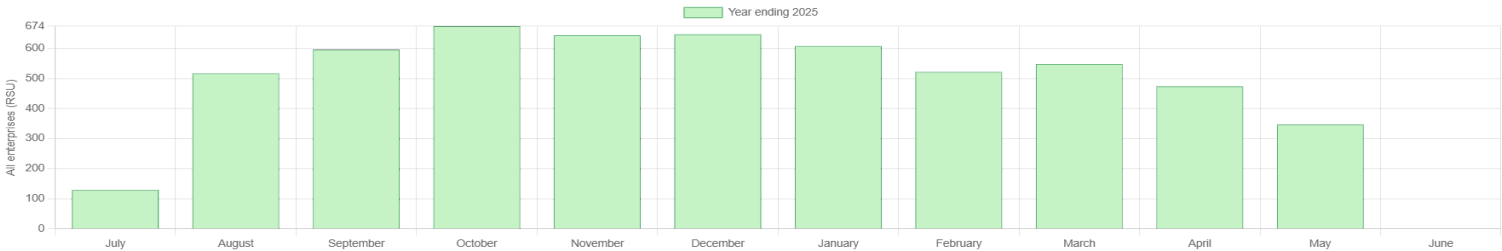
|                            |                                                         | Year ending 2025 |
|----------------------------|---------------------------------------------------------|------------------|
| All enterprises            | Total RSU (RSU)                                         | 5,708            |
|                            | Diet from pasture (%)                                   | 91.7             |
|                            | Time on pasture (%)                                     | 100.0            |
|                            | Total liveweight brought (kg/ha)                        | 394              |
|                            | Total liveweight reared (kg/ha)                         | 221              |
|                            | Total liveweight sold (kg/ha)                           | 734              |
| Dairy                      | Peak cows (maximum numbers)                             | 695              |
|                            | Milk solids (kg MS)                                     | 257,700          |
|                            | Milk solids per cow (kg MS/cow)                         | 370.8            |
|                            | Milk solids per hectare (total farm area) (kg MS/ha)    | 1,382.0          |
|                            | Milk solids per hectare (total grazing area) (kg MS/ha) | 1,471.0          |
|                            | Milk solids per hectare (dairy grazing area) (kg MS/ha) | 1,471.0          |
|                            | Milk volume yield (L milk)                              | 2,917,164        |
|                            | Milk volume yield per cow (L milk/cow)                  | 4,197.4          |
|                            | Cows per hectare (total farm area) (cows/ha)            | 3.7              |
|                            | Cows per hectare (total grazing area) (cows/ha)         | 4.0              |
|                            | Cows per hectare (dairy grazing area) (cows/ha)         | 4.0              |
| Dairy grass-fed percentage | Wet matter from grass-fed feed (%)                      | 100.0            |
|                            | Days on farm (day)                                      | 335              |
|                            | Grazing days (day)                                      | 335              |
|                            | Non-grazing days (day)                                  | -                |
|                            | Time grazing outdoors (%)                               | 100.0            |
| DairyNZ farm system type   | System type                                             | 2                |
|                            | Diet from imported feed (%)                             | 9.0              |

Enterprise RSU

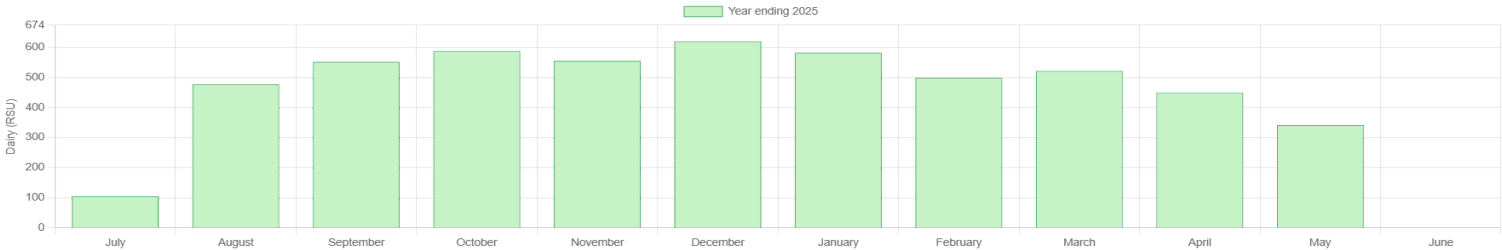
|               |             | Year ending 2025 |
|---------------|-------------|------------------|
| Dairy         | Total (RSU) | 5,293            |
| Dairy grazing | Total (RSU) | 415              |

Enterprise RSU by month

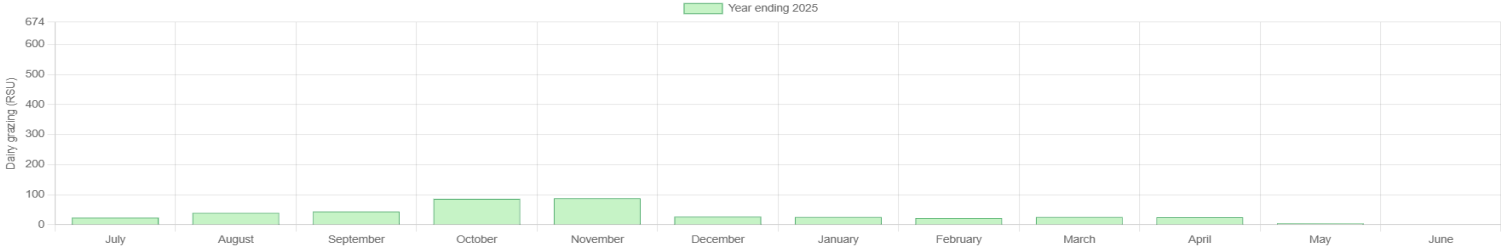
All enterprises (RSU)



Dairy (RSU)

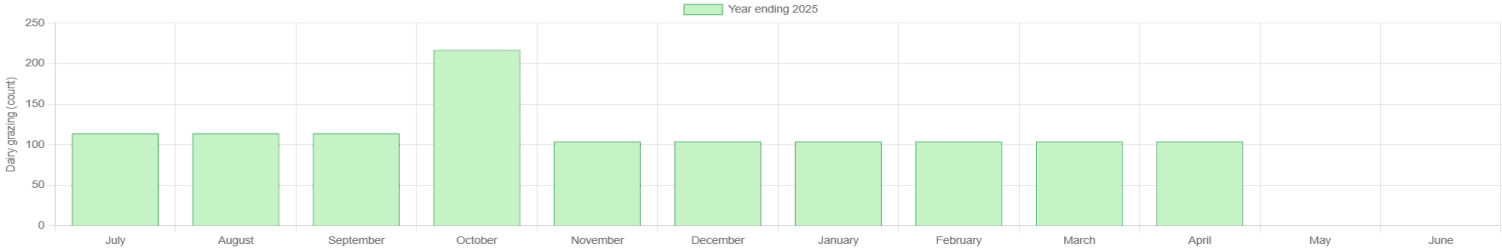


Dairy grazing (RSU)

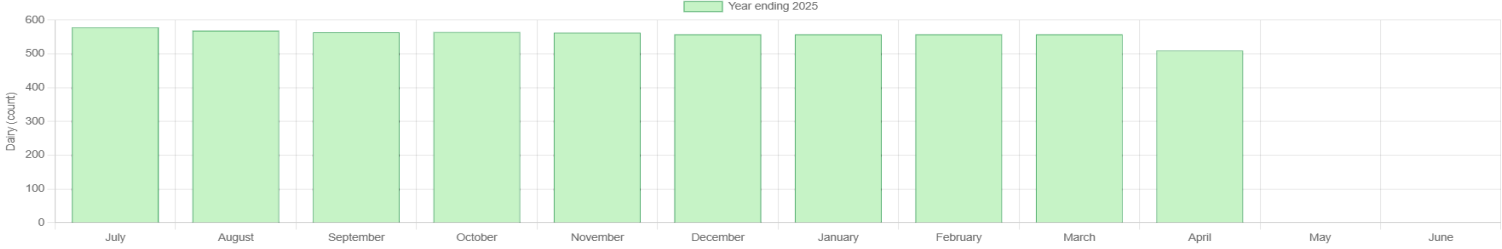


Enterprise stock numbers by month

Dairy grazing (count)



Dairy (count)

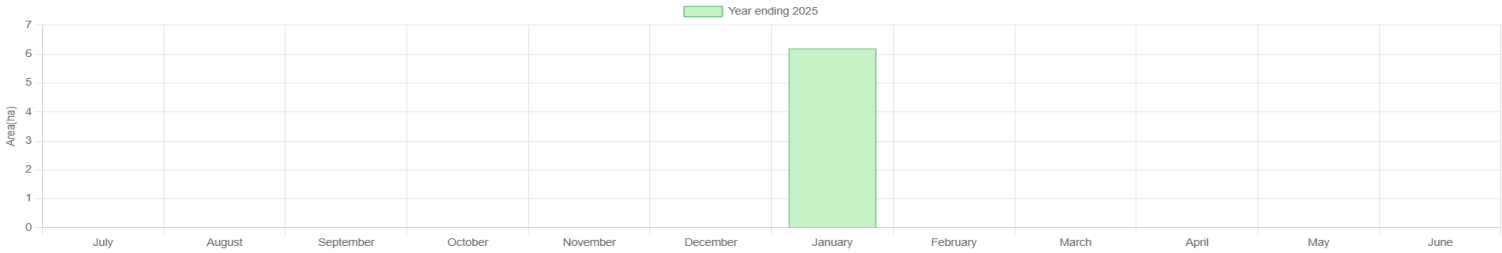


Effluent

|                                                        |                                     | Year ending 2025 |
|--------------------------------------------------------|-------------------------------------|------------------|
| Area receiving liquid                                  | Total area (ha)                     | 60.0             |
|                                                        | Pastoral area receiving liquid (ha) | 60.0             |
|                                                        | % of farm pastoral area (%)         | 34               |
|                                                        | Average liquid effluent (N/ha/yr)   | 84               |
|                                                        | Average fertiliser (N/ha/yr)        | 156              |
|                                                        | Average other (N/ha/yr)             | 13               |
| Source of N in effluent blocks                         | Effluent from farm dairy (%)        | 95               |
|                                                        | Solids (%)                          | 5                |
| Area of farm to apply all effluent to achieve rates of | 150 kg N/ha/yr - Liquid (ha)        | 34               |
|                                                        | 150 kg N/ha/yr - Solid (ha)         | 2                |
|                                                        | 150 kg N/ha/yr - Total (ha)         | 36               |
|                                                        | Maintenance K (ha)                  | 3,664            |
|                                                        | 100 kg K/ha/yr (ha)                 | 55               |
|                                                        | Maintenance K Warning (ha)          | 55               |

Effluent solids by month

Solids application area by month



Feed

|                 |                                     | Year ending 2025 |
|-----------------|-------------------------------------|------------------|
| All enterprises | Total (RSU)                         | 5,706            |
|                 | Pasture (RSU)                       | 5,231            |
|                 | Imported supplements - fodder (RSU) | 475              |

Enterprise RSU

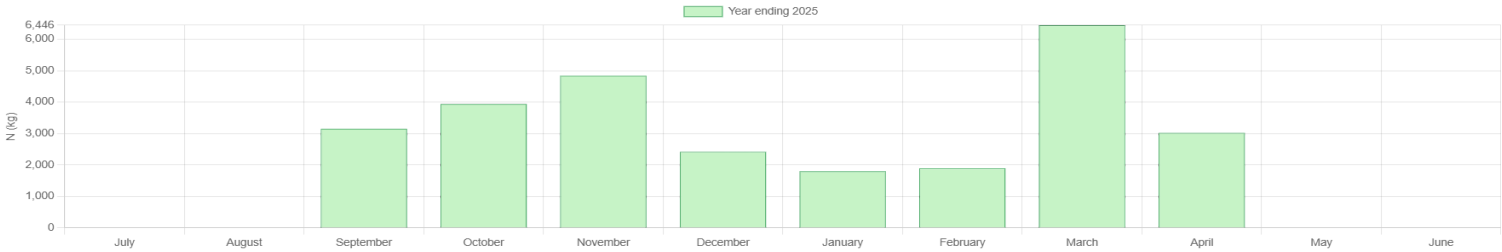
|               |                                     | Year ending 2025 |
|---------------|-------------------------------------|------------------|
| Dairy         | Total (RSU)                         | 5,292            |
|               | Pasture (RSU)                       | 4,817            |
|               | Imported supplements - fodder (RSU) | 475              |
| Dairy grazing | Total (RSU)                         | 414              |
|               | Pasture (RSU)                       | 414              |

Fertiliser

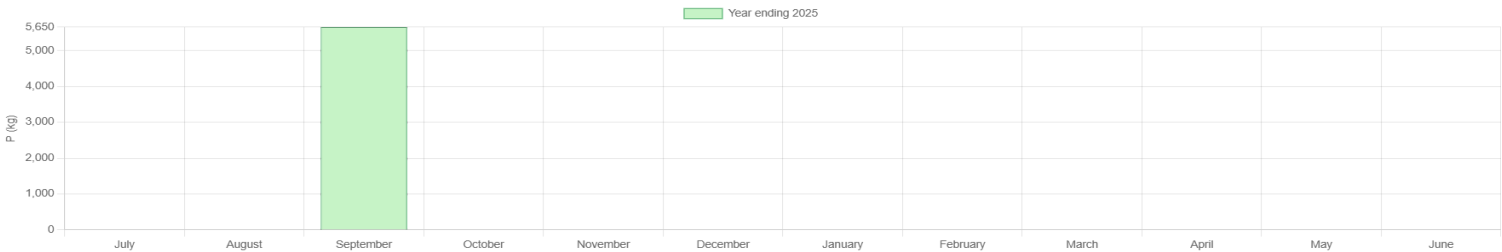
|             |                 | Year ending 2025 |
|-------------|-----------------|------------------|
| Synthetic N | Pasture (kg)    | 27,574           |
|             | Pasture (kg/ha) | 158              |
| Synthetic P | Pasture (kg)    | 5,628            |
|             | Pasture (kg/ha) | 35               |

Fertiliser nutrients by month

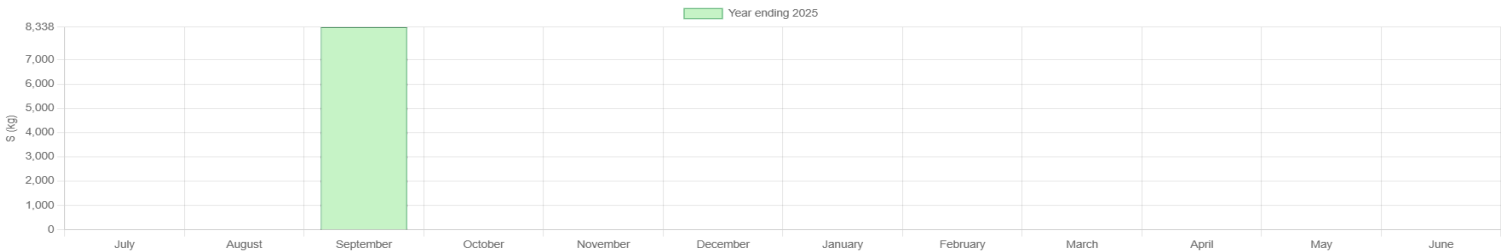
N (kg)



P (kg)



S (kg)



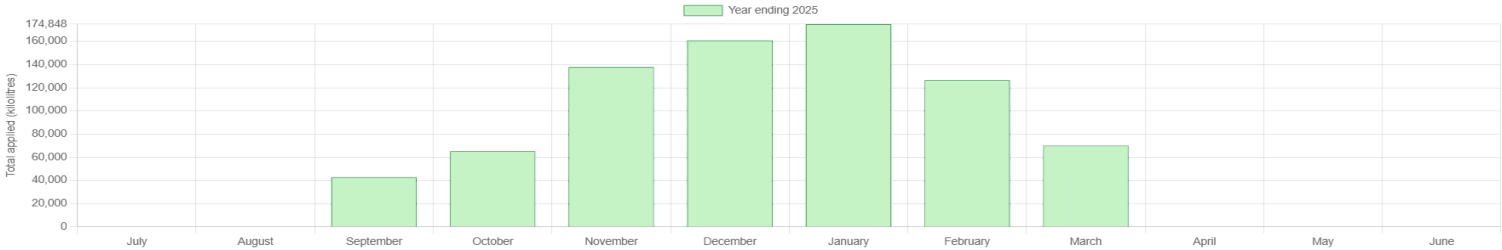
Irrigation

|                              | Year ending 2025 |
|------------------------------|------------------|
| Total irrigated area (ha)    | 174.8            |
| Linear and centre Pivot (ha) | 126.0            |
| Travelling irrigator (ha)    | 14.9             |
| Spraylines (ha)              | 19.3             |
| Solid set (ha)               | 14.6             |

| Soil moisture assessment type usage                             | Year ending 2025 |
|-----------------------------------------------------------------|------------------|
| Fixed depth and return period; visual assessment/dig a hole (%) | 50               |
| Trigger point; fixed depth applied (%)                          | 25               |
| Trigger point and depth applied to achieve target (%)           | 25               |

Irrigated amounts by month

Total applied (kilolitres)



Irrigated area by month

