Public Summary - *1 March 2023 – 31 May 2024*

N-Vision NZ [SFFF 20143]

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1. PUBLIC SUMMARY

1.1 Summary of progress during this quarter

N-Retain:

- Interim results continue to show large reductions (>70%) in nitrogen losses (nitrate leaching and nitrous oxide emissions) when the nitrogen inhibitors are applied to urea fertiliser and urine patches.
- Plans are underway to gather further data on the extent of reductions in nitrogen losses (nitrate leaching and nitrous oxide emissions) from the application of nitrogen inhibitors to urea fertiliser and urine patches, under a different soil type.
- Additional trials focusing on food safety and residues are planned to validate the safety of the nitrogen inhibitors and to collect the necessary data for registration purposes.

N-Test

A close-out report was received from Plant and Food Research. Despite a well-run science programme, the first-year results strongly suggested there was not a compelling value proposition for a variable rate N fertiliser application based on PMN data for each site. However, there were valuable scientific findings from the project:

-There was found to be a range of soil potentially mineralisable nitrogen (PMN) levels across each of the farms selected.

-The pasture dry matter response to fertiliser additions was greater where soil PMN was low compared to where PMN was high. Showing soils that are more deficient in N, respond better to N fertiliser.

-Pasture dry matter production increased with increasing PMN concentrations in surface soils on all farms, and in all seasons. Showing soils with more N cycling through them grew more pasture.

N-Bio Boost:

Experiments have been conducted investigating four key areas:

1. Annual dry matter production
2. Application frequency testing
3. Reduction of nitrogen losses from urine patches
4. Mode of action

The results from these trials will provide valuable insights into the potential benefits of applying the bio-inoculant for farmers. They will also shed light on the frequency of application required to achieve these benefits.

1.2 Key highlights and achievements

Key highlights include:

N-Bio Boost:
Significant reductions in ammonia emissions were measured under urine patches when the bio-inoculant treatment was applied. Testing showed that the bio-inoculant did not persist for 40 months at a site – this narrows down suggested application frequency.

1.3 Upcoming

N-Retain:

Additional food safety and toxicity results are anticipated to be received soon. These results are expected to contribute to the collection of necessary data for registration with ACVM and Codex. Once these results are returned further food safety and toxicity work will continue.

Further measurements will start quantifying reductions in nitrogen losses (nitrate leaching and nitrous oxide emissions) resulting from the application of the inhibitor for other soil types and conditions. Work will be done investigating rates for NI coating of urea.

N-Bio Boost:

Further work will be conducted to:
-Measure annual dry matter production.
-Assess bio-inoculant persistence.
-Investigate the efficacy of the bio-inoculant in reducing nitrogen losses resulting from urine deposition.
-Explore different application methods for the bio-inoculant.

1.4 Investment

Investment period	Co-investor contribution	MPI contribution	Total investment
Cash investment this quarter	$262,505	$382,471	$644,976
In-Kind investment this quarter	$145,400		$145,400
Cash investment in programme to date	$3,734,419	$3,246,264	$6,980,683
Total In-Kind investment in programme to date	$1,470,789		$1,470,789
Total investment (Cash + In-Kind) in programme to date	$5,205,208	$3,246,264	$8,451,472