

# ON-FARM PRACTICES FOR MITIGATING N LOSSES TO WATER

## – IMPACTS ON DAIRY FARM SYSTEMS IN

### THE SOUTHERN SOUTH ISLAND

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Implementing farm system change to reduce N losses to water is complicated. Failure to consider likely farm system changes can put both the achievement of reduced nutrient loss and the financial viability of the dairy farm business at risk. As part of the Southern Wintering Systems project, six case study farms, operating a range of wintering systems, were selected. Comprehensive baseline information was collected for each farm and used to parameterise the Farmax and Overseer models. Discussions with farmers and rural professionals were used to develop and model three or four alternative operating scenarios for each. Modelling and assumptions were tested with groups of farmers who operate aligned systems. The objective of the modelling was to identify farm management practices that could reduce N losses to water with minimal impact on farm profitability.

Optimising pasture utilisation and per cow production improved profitability on all farms, but reductions in N loss to water were small, (less than 5%). Farmer feedback raised issues around managing pasture quality and seasonal variation in growth patterns at lower stocking rates.

When significant amounts of supplement were imported onto the farm, either for lactation or winter feeding, increasing the effluent area decreased N loss to water by up to 7%; the impact on profitability was dependent on effluent infrastructure availability.

Using facilities for duration controlled grazing during autumn showed a significant reduction in N loss to water (6-39%), with a positive impact on operating profit (not including capital cost of infrastructure). The impact on business profitability will be dependent on the ability of the owner to ensure pasture utilisation and quality remain high and on the availability and cost of infrastructure.

Utilising off-paddock facilities to winter animals showed significant reductions in N loss to water (up to 28%) due to the removal of winter cropping from the farm system. The impact on production and profit will be dependent on the number of other farm systems changes made and the cost of the infrastructure.

**Editor's Note:** A manuscript has not yet been submitted for this presentation.