

Release Notes – Overseer version 6.5.2

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Introduction

OverseerFM model release 6.5.2 addresses minor defects in model implementation identified by feedback from our users and through our model review and governance processes. This release note details the changes which have been made and the impact of those changes on N, P and GHG results at the farm level.

Before releasing model updates to OverseerFM, each individual change is independently assessed, and all changes reviewed and approved by subject matter experts.

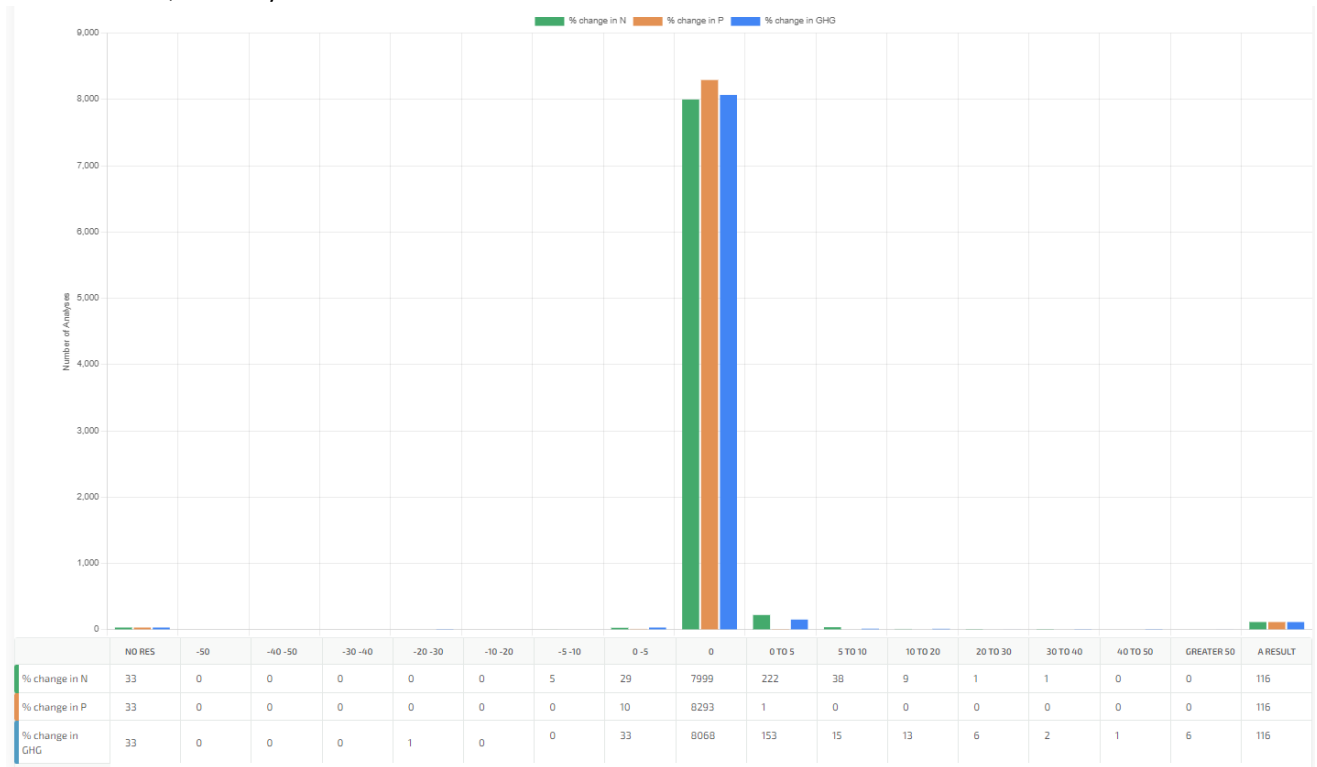
The impact on modelled results for each change is determined individually and collectively using the latest year end analyses for each farm account in OverseerFM. These results are outlined below.

Overall impact

Overall, the impact on the results is minimal with the changes made to the model in version 6.5.2.

We used the complete database of c.140,000 analyses to evaluate the effect of the model changes.

The following graph shows the impact of model release 6.5.2 on N, P and GHG results for the latest year-end analyses database of 11,600 analyses within OverseerFM.



Individual changes

1. N fertiliser spreading emissions for lime

The calculated CO₂-e kg/ha/year emissions for lime spreading were being represented within the N fertiliser spreading category of the GHG reporting - instead of being represented within the lime spreading category. This has been rectified. When lime is applied on the farm, the CO₂-e is now stored and displayed within the lime spreading category. The total CO₂ -e calculated by the model will not have changed.

Impact of change: No impact to N, P and GHG results. Changes to GHG reporting if lime has been spread on the farm.

2. Soil drainage class not used in urine patch denitrification calculations

Within the urine patch model denitrification calculation, the soil drainage class was not correctly used within the pugging factor calculations for soils whose drainage class was not overridden by the user. This has been rectified and the model now uses the correct soil drainage class in these calculations.

Impact of change: Minimal impact.

Analyses potentially impacted are those that have pastoral blocks with high pugging occurrences (“Winter or rain” or “Winter”). 10 analyses out of the 11,554 latest year end analyses show a variation in N loss greater than 10%. The largest variation is a change from 21 to 27 kg N/ha in the N budget.

3. Inclusion of liquid effluent rate for all block types

The average liquid effluent rate for pastoral blocks within the “Effluent Report” was including areas of other productive blocks that were receiving effluent in the calculation (i.e., crop and fruit blocks areas). The calculation should have included only pastoral block areas to determine the average liquid rate for pastoral blocks. This has now been rectified.

Impact of change: No impact to existing N, P and GHG results. Change to existing effluent report results if effluent was applied to crop and/or fruit blocks as well as pastoral blocks.

4. Exported crop residues not included in N-surplus and NCE results

Nitrogen from exported (removed) crop residues were not included in the calculations to determine farming systems N-surplus and NCE. This has now been included.

Impact of change: No change to N, P and GHG. NCE and N-surplus values will change if crop residues are exported.

5. GHG emissions calculation for non-farm animals grazing fruit blocks

Enteric methane emissions of non-farm animals grazing fruit blocks are proportional to estimated pasture growth. The estimates are meant to be calculated in kgDM/ha but used values in kgDM (total) in the GHG emissions calculations. The GHG emissions for enteric and dung from non-farm animals were not calculated correctly for fruit blocks.

a. Enteric emission for non-farm animals

The model assumes that all estimated pasture growth is eaten by non-farm animals on fruit blocks. The enteric CH₄ emission calculation is based on the total DM intake by the animals. During this calculation for fruit blocks, instead of summing the total DM intake for each block, the calculation was summing the DM per/ha values. This has been corrected.

b. Dung deposited for non-farm animals

The dung deposited on a fruit block is proportional to the DM intake on that block. The total dung deposited on a fruit block was also calculated by adding dung deposited per ha instead of the total deposited. This has been corrected.

Impact of change: No change to N and P. GHG values will change very slightly if an analysis has non-farm animals grazing on fruit blocks.

6. Additional defoliation months in post reporting year

In some cases where feed allocation for crops was required to be calculated for the final month of the crop rotation, the additional defoliations in the post reporting year were not taken into consideration. This occurred in some unique scenarios when a standalone grazed in-situ defoliation event was entered on the last month of a crop and additional defoliations were specified for the post reporting year. This issue has now been corrected.

Impact of change: Minimal impact.

Out of 11,554 latest year end analyses, 33 analyses now do not have a result due to feeding errors. 119 analyses now have results due to the fixing of feeding errors. 31 analyses out of 11,554 latest year end analyses have up to a 10% decrease in N and 22 analyses have up to a 10% or more increase in N.

7. Allow single defoliation events prior to the final month without a harvest

Users can now create a standalone defoliation event prior to the final month of the rotation on a crop that finishes in the post reporting year. Prior to this change, if a standalone grazed in-situ defoliation event was entered, prior to the last month of the rotation and there was no final harvest or defoliation event with additional defoliations stated on the final month of the rotation, then the model would throw an error. This scenario has now been catered for.

Impact of change: No change to modelled results.