

Release notes – Overseer version 6.5.13

Contents

1.	Introduction	2
2.	Overall impact on modelled results	2
3.	New features	3
3i.	Chemical Mitigation of Effluent Methane technology	4
3ii.	Flexible milking strategies	4
4.	Found and fixed issues.....	5
4i.	Correction to once-a-day milking interpretation during calving and drying-off	5
4ii.	Correction to double-counting of excreta on wintering pads and shelters	5

1. Introduction

OverseerFM model release 6.5.13 includes two significant feature updates:

- The full release of Chemical Mitigation of Effluent Methane technology (EcoPond™)
- Support for flexible milking strategies

This release also includes corrections to two issues that were identified during the feature development. The aim of these changes is to better represent real farming practices and to improve the accuracy and transparency of results generated by Overseer.

Each update has been reviewed by our in-house modelling team and independently tested to ensure that the changes function as intended. The potential impacts on modelled nitrogen (N), phosphorus (P), and greenhouse gas (GHG) results have been assessed both individually and collectively using the latest year-end analyses from the OverseerFM database.

Some users may observe small changes in nitrogen (N), phosphorus (P) losses or greenhouse gas (GHG) emissions following this release. These changes reflect improved modelling rather than changes in farm performance. The resulting impacts, individually and collectively, are summarised in these release notes.

2. Overall impact on modelled results

The updates introduced in version 6.5.13 of Overseer have had a low overall impact on modelled results.

To assess this the complete OverseerFM database was used comprising approx. 190,000 analyses with results available for almost 167,050 entries. This dataset includes predictive and scenario analyses, which may not always represent realistic farm systems, but provides a comprehensive basis for testing the model and comparing results between the previous and updated versions.

The following graphs focus on the subset of latest year-end analyses from real farms (approximately 8,800 analyses with results available). This subset was selected to provide a clearer and more representative view of the practical impact of release 6.5.13 on nitrogen (N), phosphorus (P), and greenhouse gas (GHG) results under real-world farm conditions.

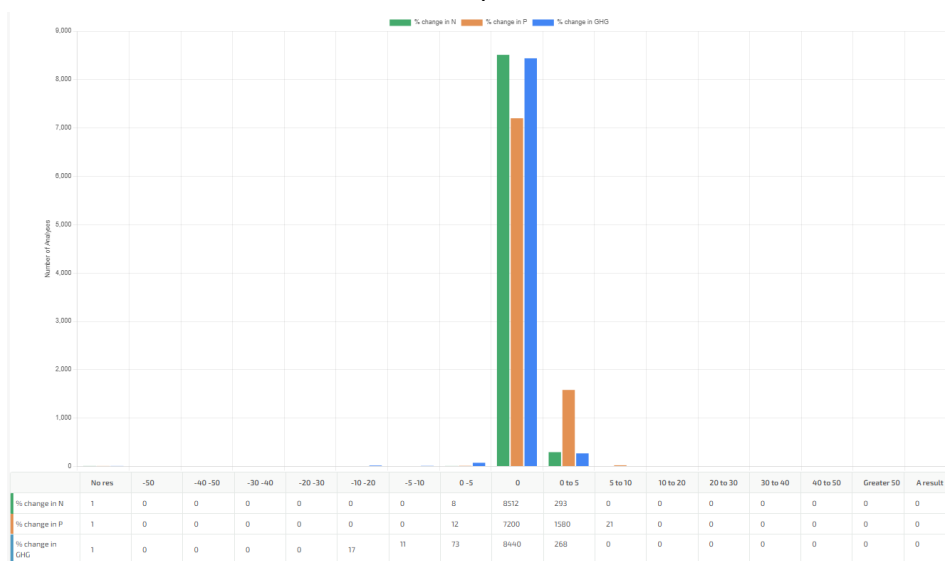


Figure 1: N, P and GHG results (kg N/ha) before and after version 6.5.13 update.

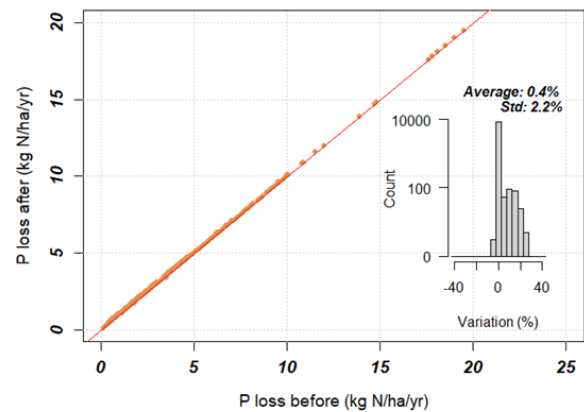
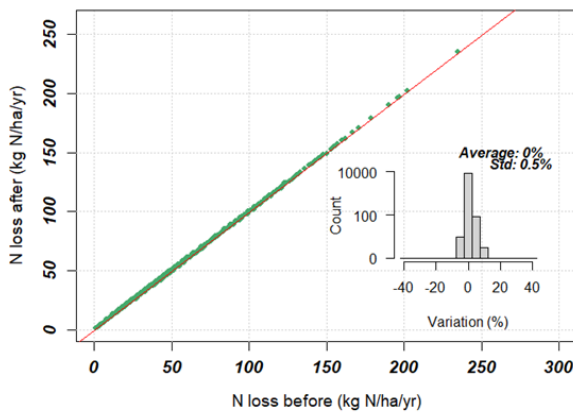


Figure 2: Comparison of N loss (kg N/ha) before and after version 6.5.13 update.

Figure 3: Comparison of P loss (kg P/ha) before and after version 6.5.13 update.

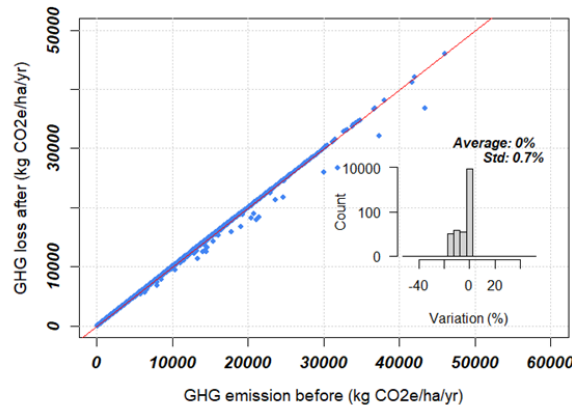


Figure 4: Comparison of total GHG emissions (kg CO2e/ha) before and after version 6.5.13 update.

3. New features

This release includes two new features designed to improve how Overseer represents real-world farming practices. The first is an update to the “Chemical Mitigation of Effluent Methane” application within the model. This represents a full release of EcoPond™ Generations 1 and 2, replacing the previous beta implementation with an updated and peer-reviewed model.

The second introduces improved support for flexible milking strategies, enabling users to better describe changes in milking frequency throughout the season.

All model updates included in this release were verified through comprehensive impact testing using a production copy of the OverseerFM database. This process ensures that each change functions as intended and every effort is made to not introduce unintended effects. Testing was undertaken across all latest year-end analyses, providing a representative assessment of how the updates perform against modelled farm systems. The results were used to confirm the accuracy of individual changes and to evaluate their collective impact on modelled nutrient and greenhouse gas outputs. The following sections outline each feature in detail, including the change introduced and the resulting impact on modelled results.

3i. Chemical Mitigation of Effluent Methane technology

Chemical Mitigation of Effluent Methane (EcoPond™) effluent pond methane-reduction technology is now fully released in OverseerFM. In line with Overseer policy of not including brand names within the model, the treatment is labelled as "Effluent is treated with chemical methane mitigation (acidification and ferric dosing)".

The mitigation technology, addition of Polyferric Sulphate to effluent systems, was added as a beta implementation in model update 6.5.7 while peer review and final parameter confirmation were still in progress. Generation 2 of this technology now replaces the beta version as the fully released implementation, using updated input parameters that reflect the most recent product specifications and application approach.

The modelled environmental outcomes remain consistent with the beta version. Chemicals-based mitigation of effluent methane delivers a 96% reduction in methane emissions from effluent ponds, aligned with the Agricultural Inventory Model (AIM) methodology. The model also accounts for additional nutrient inputs associated with the application approach, including sulphur (S), magnesium (Mg), and sodium (Na), as well as any consequential effects on P losses where applicable.

The underlying scientific framework remains unchanged from the beta implementation.

No user action is required if "Effluent is treated with polyferric sulphate (BETA)" has been selected in an analysis. Results are expected to be unchanged, apart from minor numerical differences related solely to parameter refinement. A full, peer-reviewed technical document describing the implementation and scientific basis can be found in the ["Reports & Science Papers"](#) section of the Knowledge base.

3ii. Flexible milking strategies

This release provides improved support for flexible milking strategies, enabling users to better describe changes in milking frequency throughout the season. This allows users to describe dairy farming systems more accurately where milking frequency varies during the season. In addition to the existing options of once-a-day (OAD) and twice-a-day (TAD) milking, 3-in-2 and 10-in-7 strategies have been added. It has also been made easier to change strategies during the milking season, for example transitioning from 10-in-7 to once-a-day milking.

As part of this update, Overseer now calculates excreta transfer factors on a monthly basis rather than using a single annual average applied uniformly across the year. This means the proportion of excreta deposited on farm lanes and races and the proportion collected by the effluent system now reflect seasonal variation in milking frequency and animal movement patterns. For example, farms using once-a-day milking during calving and twice-a-day milking later in the season can now be represented explicitly rather than averaged into a single annual value. This improves the alignment between farm practice, nutrient redistribution and emissions calculations.

All previously saved analyses using milking strategies have been automatically migrated and no user action is required. Some analyses may show small changes in N losses, P losses, or GHG emissions because of moving to the improved monthly representation of excreta distribution.

4. Found and fixed issues

This release also addresses two issues identified through internal review. The first corrects how once-a-day milking during calving and drying-off periods were interpreted by the model and the second resolves a double-counting issue in greenhouse gas emissions calculations for systems using wintering pads or shelters.

Both corrections have a low overall impact on modelled results, and any changes users may observe reflect improvements to calculation accuracy rather than changes in farm performance. The following sections outline each fix in detail, including the issue addressed, the correction implemented, and the resulting impact on modelled results.

4i. Correction to once-a-day milking interpretation during calving and drying-off

An issue has been corrected in how milking strategies were interpreted for milking herds. Previously, selecting once-a-day milking during the calving period and/or during drying-off was incorrectly interpreted by the model as once-a-day milking for the entire milking season. This has now been corrected so that once-a-day milking during calving and/or drying-off is applied only to those specific periods, as intended.

In some cases, users may notice a very small increase in P losses. This change reflects a correction to how milking periods are interpreted, not a deterioration in farm performance.

4ii. Correction to double-counting of excreta on wintering pads and shelters

A second issue has been corrected in the greenhouse gas emissions calculations. Previously, excreta collected by the effluent system when animals were on a wintering pad or shelter was mistakenly counted twice in the GHG emissions calculations. This has now been fixed so that excreta collected in these situations is counted correctly and only once.

Users may notice a small decrease in reported GHG emissions for analyses that include wintering pads or shelters. This change reflects a correction to the calculation method, not a change in farm management.