



***Sensitivity of values in Table 14.2 of the
‘One Plan’ to a change in the version of
OVERSEER®***

***Part C: Updating the nitrogen (N) leaching maximums by LUC
class using OVERSEER® version 6.3.0 (2018)***

[For *Parts A and B* refer to Report No. 2018/EXT/1571]

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MASSEY UNIVERSITY



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Introduction

Horizons Regional Council commissioned the Fertilizer and Lime Research Centre (Massey University) to investigate the extent to which cumulative N leaching maximums, by Land Use Capability (LUC) Class in Table 14.2, of their One Plan, are affected by a change in the version of OVERSEER[®], from v5.2.6 (2007 version) to v6.2.3 (2017 version), which was reported in Hanly et al., (2018a). This current report updates these values using OVERSEER[®] v6.3.0 (2018 version).

Methods

Details of the methods and assumptions used in the original analysis are provided in Hanly et al., (2018a). The same OVERSEER[®] files that were used to provide the N leaching maximums with OVERSEER[®] v6.2.3, using the v5.2.6 defaults, were opened with v6.3.0 to provide the new N leaching maximums for each LUC Class.

Results

The N leaching maximums obtained with OVERSEER[®] v6.2.3, using the v5.2.6 defaults, were 32.5 - 66.0% higher than the original One Plan Table 14.2 values (Table 2). Using v6.3.0 all the leaching maximums increased for LUC I to VII (Table 3). The largest increases were for LUC III to LUC VI, ranging from 4.7 kg N/ha for LUC III to 2.2 kg N/ha for LUC VI.

Table 2: Original and revised (v 6.2.3 using v5.2.6 defaults) N leaching maximums

	LUC I	LUC II	LUC III	LUC IV	LUC V	LUC VI	LUC VII	LUC VIII
Original (v 5.2.6)	30	27	24	18	16	15	8	2
Revised (v 6.2.3) v5.2.6 defaults	49.8	44.4	35.7	26.2	22.7	21.6	10.6	3.0*
Increase	66.0%	64.4%	48.8%	45.6%	41.9%	44.0%	32.5%	50.0%

*Native trees (pines are 2.5 kg N/ha loss to water)

(Correction: previous values were incorrectly reported as 3.3 kg N/ha for native trees and 2.7 kg N/ha for pines; Hanly et al. 2018a, 2018b)

Table 3: Original and revised (v6.3.0 using v5.2.6 defaults) N leaching maximums

	LUC I	LUC II	LUC III	LUC IV	LUC V	LUC VI	LUC VII	LUC VIII
Original (v 5.2.6)	30	27	24	18	16	15	8	2
Revised (v 6.3.0) V5.2.6 defaults	50.7	45.1	40.4	29.4	25.0	23.8	11.3	3.0*
Increase	69.0%	67.0%	68.3%	63.3%	56.3%	58.7%	41.3%	50.0%

*Native trees (pines are 2.5 kg N/ha loss to water)

References

Hanly J, Hedley M, Horne D (2018a). Sensitivity of values in Table 14.2 of the 'One Plan' to a change in the version of OVERSEER®. *Part A: Recalculation of nitrogen (N) leaching maximums by LUC class using OVERSEER versions 5.2.6 (2007) and 6.2.3 (2017)*. A report prepared by the Fertilizer and Lime Research Centre (Massey University) for Horizons Regional Council.

Hanly J, Hedley M, Horne D (2018b). Sensitivity of values in Table 14.2 of the 'One Plan' to a change in the version of OVERSEER®. *Part B: Recalculation of the nitrogen (N) transmission coefficient using N loss to water estimates from the current version of OVERSEER®(v6.2.3)*. A report prepared by the Fertilizer and Lime Research Centre (Massey University) for Horizons Regional Council.



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