

Wise Use of N-Fertiliser on Hill Country

What is the OVERSEER® Nutrient Budget Programme?

Frequently Asked Questions



What is OVERSEER®?

OVERSEER® is a nutrient budget programme designed to calculate nutrient budgets. Nutrient budgets provide estimates of all the inputs and outputs of N, P, K, S, Ca, Mg, Na and acidity from a block of land. A nutrient budget can be used as an auditing tool to ensure that nutrient outputs are being replaced by inputs or that excessive amounts of nutrients such as nitrogen and phosphorus are not being lost to the environment.

How Does OVERSEER® Work?

OVERSEER® works by estimating the amounts of all the major essential plant elements being supplied to a block of land, subtracts the estimated nutrient outputs and calculates the difference as the nutrient balance.

A budgeted surplus of any one nutrient indicates that the level of this nutrient will increase in the soil, while a deficit of any nutrient will mean that the soil level will decline over time.

While a zero balance indicates that inputs match outputs, this will only be appropriate where the desire is to maintain the current nutrient status.

(kg/ha/yr)	N	P	K	S	Ca	Mg	Na	H ⁺
Inputs								
Fertiliser	100	64	21	50	59	28	0	-0.2
Effluent added	0	0	0	0	0	0	0	0.0
Atmospheric / clover N	52	0	2	4	2	5	24	0.0
Irrigation	8	0	5	8	28	7	29	0.0
Slow release	0	3	28	0	1	2	3	0.0
Supplements	0	0	0	0	0	0	0	0.0
Outputs								
Product	13	2	1	2	5	0	0	-0.4
Transfer	0	0	0	0	0	0	0	0.0
Supplements sold	0	0	0	0	0	0	0	0.0
Atmospheric	37	0	0	0	0	0	0	-0.1
Leaching/runoff	16	1	9	52	45	5	7	-1.0
Immobilisation/absorption	93	18	0	7	0	0	0	-0.2
Change in inorganic soil pool	0	46	47	0	40	37	47	1.5
* acidity (affects lime requirements)								
Block effluent report		Change in soil tests		N status		P runoff status		Pasture
Comments			Interpretation					

Where low soil fertility is a constraint to production objectives, a surplus of one or more nutrients is required. Conversely, where soil fertility exceeds the economically optimal levels, a negative balance will be appropriate to ‘mine’ the nutrient or nutrients concerned.

In addition the nutrient budget estimates the amount of phosphorus and nitrogen lost from the soil on the

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block and estimates the nitrate-nitrogen concentration in the drainage water.

The rate of nutrient inputs and outputs that are entered into OVERSEER® are either taken directly from farm records (e.g. fertiliser) or estimated according to industry averages (e.g. nitrogen fixation in clover, nutrients in animal products leaving the block). Although some of the estimations will differ from actual block values, predictions made from the nutrient budget can still be used to determine a surplus/deficit situation and trends over time.

Whole farm report		Average NZ farm	Current	Reduce N
Inputs (farm average)				
Clover N	kg N/ha/yr		52	61
Fertiliser N	kg N/ha/yr		100	50
Other N	kg N/ha/yr		8	8
Environmental losses				
Leaching loss	kg N/ha/yr	5-20	16	14
Direct winter N losses	kg N/ha/yr		0	0
N loss from effluent pond to waterways	kg N/ha/yr		0	0
N ₂ O emissions	kg N/ha/yr		4	3
Indices				
Farm N surplus	kg N/ha/yr	30-80	146	106
N conversion efficiency	%	15-25	8	11
Average nitrate conc. in drainage (+/- about 30%)	mg N/L	2-7	7	6

How Should OVERSEER® Be Used?

OVERSEER® is a decision support tool i.e. the results assist the land user to make management decisions to improve or maintain productivity and minimise environmental impact

The prediction of a nutrient deficit or surplus from OVERSEER® can be validated by comparing it with the trends over time from soil testing. For example, if there is a predicted surplus of phosphorus, then soil Olsen P levels should have been increasing over the last 3-5 years.

Taking all this into account, a nutrient budget is a very useful tool for indicating where changes can be made to fertiliser inputs to increase the efficiency of nutrient use and increase profitability. It can also demonstrate the environmentally-safe use of nutrients on a farm to community stakeholders and overseas customers.

Who Should Use OVERSEER®?

OVERSEER® can be used by interested farmers, professional farm advisors and Ballance/Ravensdown fertiliser representatives. For accurate interpretation of the results it is best to consult a trained person who holds the Massey University Certificate in Sustainable Nutrient Management. For further information contact your Ballance/Ravensdown Fertiliser Representative or a qualified consultant.

For more information call Clare Johnston on 06 324 7033