



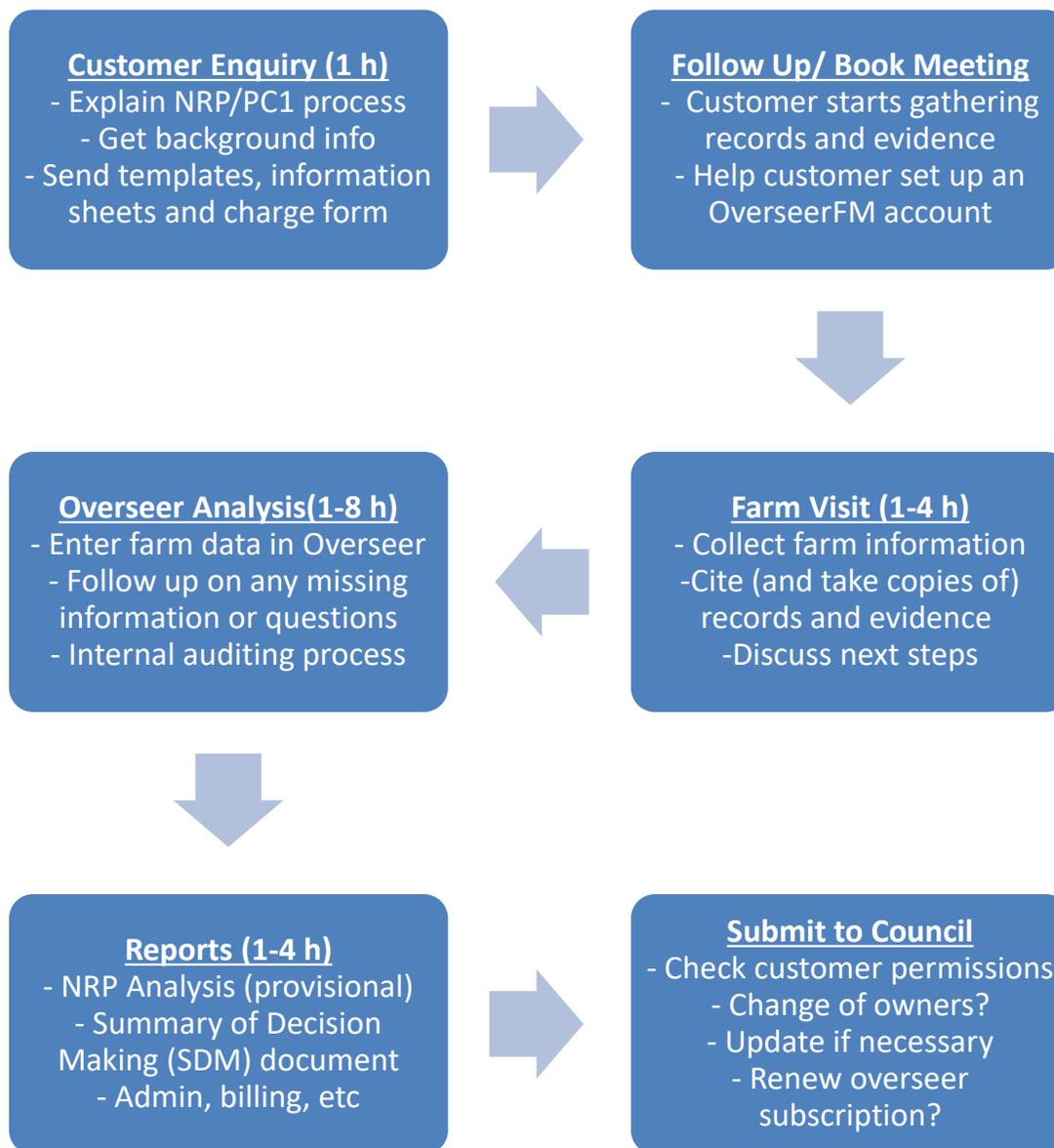
agri-nutrients
Ballance

Together,
Creating the Best
Soil and Feed on Earth

PC1 Submission Presentation

17 July 2019

NRP Process



Farm Information Needed

Verified with accounts, invoices, diaries, maps, receipts etc

- Basics (name, address, phone number, legal titles, area, etc)
- Management blocks
- Soil map and slope map
- Irrigation data (if applicable)
- Stock numbers (monthly, including age, breed, source and fate, any grazed off farm)
- Calving, lambing, weaning, dry-off dates
- Feed brought in and/or made on farm (type, amount, where made, stored, fed)
- Effluent system (storage, spread rate, area, solids, timing)
- Structures (feed pads, stand-off areas, barns, hours used, surface, effluent)
- Fertiliser (product, amount, date, area)
- Crops (type, area, yield, dates, cultivation, fertiliser, grazing, harvest, re sow)

DAIRY NUTRIENT BUDGET REPORTING YEAR _____

(Note: the nutrient budget year is from 1st July to 30th June of the reporting year) COMPLETED BY _____

FARM DETAILS	
Farm Name	
Farm Physical Address	
Dairy supply number	
Total farm area (ha)	Effective area (ha)

Please include a farm map with effluent, irrigation and crop paddocks highlighted

BLOCKS							
Block Name	Irrigation Type	Block Type (Crop/Pasture)	Topography (Flat, Rolling, Easy Hill, Steep Hill)	Receives Effluent (Y/N)	Artificial Drainage (%)	Pasture Block Productivity (%)*	Area (ha)

* Block productivity refers to different block pasture growth expressed as a percentage e.g. dryland (50%) vs irrigated (100%), steep hill (50%) vs flat (100%) or pivot (100%) vs line/sprinkler/gun/rotorailer (80%)

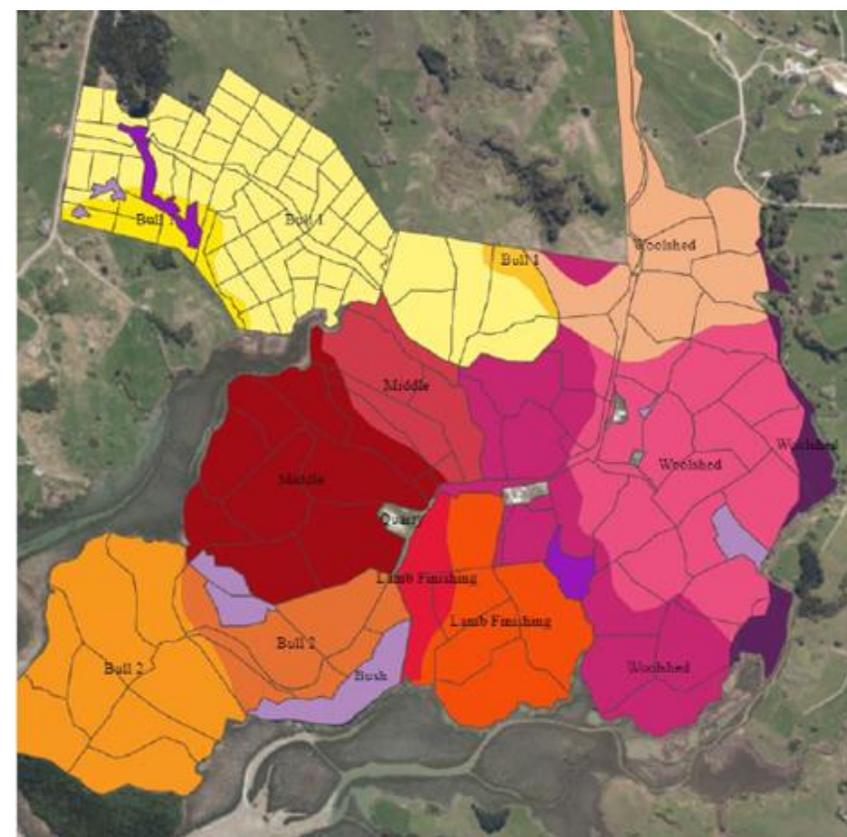
Balance Agri-Nutrients; Nutrient Budget Template – Dairy, Valid From Jan 2018 1

Examples

Block name	Total N lost kg N/yr	N lost to water kg N/ha/yr	N in drainage * ppm	N surplus kg N/ha/yr	Added N ** kg N/ha/yr
Non Effluent ?	1,654	27	5.6	269	223
Effluent ?	3,942	192	36.5	1,081	1,091
Maize 18 ha	1,561	87	13.2	-114	159
Other sources	194				
Whole farm	7,350	70			
Less N removed in wetland	0				
Farm output	7,350	70			

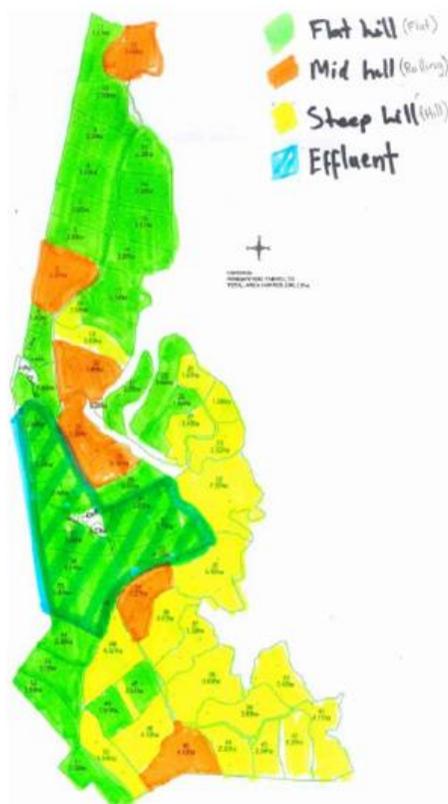


Block name	Total N lost kg N/yr	N lost to water kg N/ha/yr	N in drainage * ppm	N surplus kg N/ha/yr	Added N ** kg N/ha/yr
Bull 1 - Aponga	1,450	22	5.0	104	63
Bull 1 - Tanoa	142	20	5.1	103	63
Bull 1 - Arapohue	42	19	6.0	98	63
Bull 2 - Aponga	755	17	5.5	93	63
Bull 2 - Arapohue	304	16	N/A	89	63
Lamb - Aponga	459	18	6.0	92	63
Lamb - Arapohue	144	21	6.4	90	63
Middle - Aponga	157	9	N/A	60	26
Middle - Arapohue	458	10	N/A	59	26
Woolshed - Aponga	474	11	3.5	69	26
Woolshed - Arapohue	428	13	3.9	68	26
Woolshed - Konoti	717	13	3.9	68	26
Woolshed - Whakapara	122	17	3.9	69	26
Trees and Scrub 1	32	3	N/A		
Riparian 1	13	3	N/A		
Other sources	125				
Whole farm	5,822	15			
Less N removed in wetland	0				
Farm output	5,822	15			



Typical NRP Report

Blocks by Management and Legal Title



Overseer Block Nitrogen Report (2014/15)

Block	Total N Loss (kg/yr)	N Loss to Water (kg/ha/yr)	N in Drainage (ppm)	N Surplus (kg/ha/yr)	N Added (kg/ha/yr)
Effluent Orua_13a.1	2,188	81	11.4	342	315
Flat Orua_13a.1	3,228	63	9.3	243	196
Flat Ngak_6b.2	400	64	9.4	243	196
Rolling Orua_13a.1	982	58	8.9	241	196
Rolling Ngak_6b.2	462	56	8.9	238	196
Hill Orua_13a.1	2,032	56	N/A	239	196
Hill Ngak_6b.2	1,767	54	N/A	237	196
Fodder Crop Rape	1,707	213	27.2	-03	22
Trees and Scrub 1	74	3	N/A		
Other sources	450				
Whole farm	13,289	60			
Forecast TAND/NRP:	13,289	59.6			

Observations

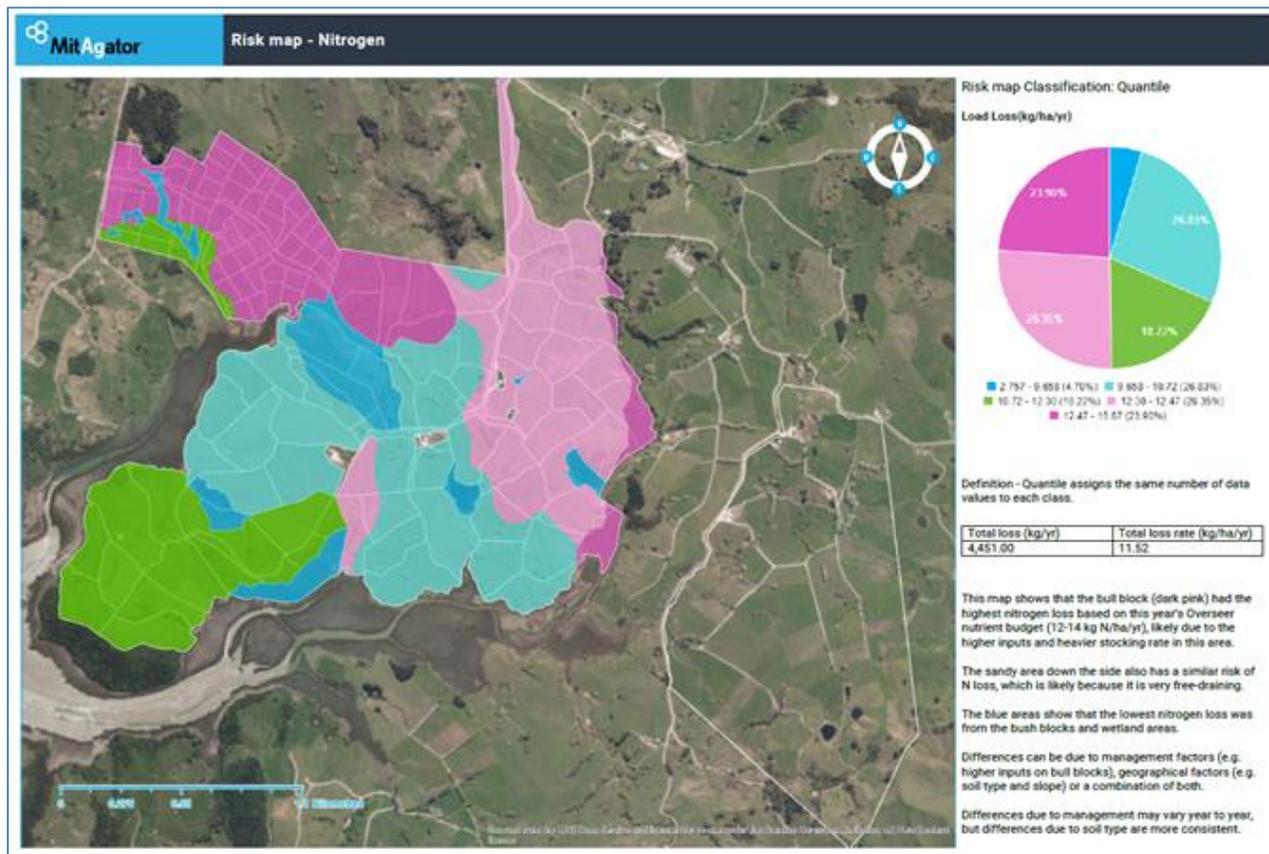
The NRP analysis is a starting point in terms of nitrogen management. Further analysis is recommended to assess possible mitigation strategies and develop a Farm Environment Plan (FEP). The following critical source areas (potential targets for future reduction) were identified:

- The fodder crop (rape) had the highest nitrogen loss (213 kg N/ha). This is likely due to cultivation breaking down N reserves in the soil, and the fallow period in early spring is likely to leave bare soil exposed to heavy rain, which increases the chance of nutrients leaching.
- Of the pastoral blocks, the highest N loss is from the effluent area (81 kg N/ha/yr), due to the amount of N added in effluent and the sump (no storage) meaning this area is likely to receive excess irrigation during wet periods. Potassium (k) levels are also increasing.
- The Pumice soils have a high risk of P loss, especially on the hills, as P run-off increases with slope, and in areas with high Olsen P values. Soil tests results from 2014 show Olsen P values of 88 in the non-effluent area, this is well above the agronomic optimum of 30-40.

According to Healthy Rivers Plan Change One, the FEP for this property is due 1 March 2022. Farm Sustainability Services would be happy to complete your FEP requirements for you, so please contact us for more information about this process. The FEPs we complete include MitAgator Risk Maps for Nitrogen loss as well as Phosphorus, Sediment and E.coli, the four contaminants requiring mitigation under PC 1. In the case of a farm sale, new owners or potential buyers can also contact Farm Sustainability Services to carry out scenario analysis for proposed farm system changes.

Next Steps:

Risk Maps, FEPs, Scenarios, Actions...



Sections of FEP:
Risks and Mitigations/Actions

Property Details/Map
Risk Analysis
LMU strengths/weaknesses

Effluent and Infrastructure
Biodiversity
Water Use and Management
Waste Management
Soil and Land Management
Nutrient Management
Cropping
Waterways
Irrigation



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Thank you