STAG modelling of Rotorua Catchment

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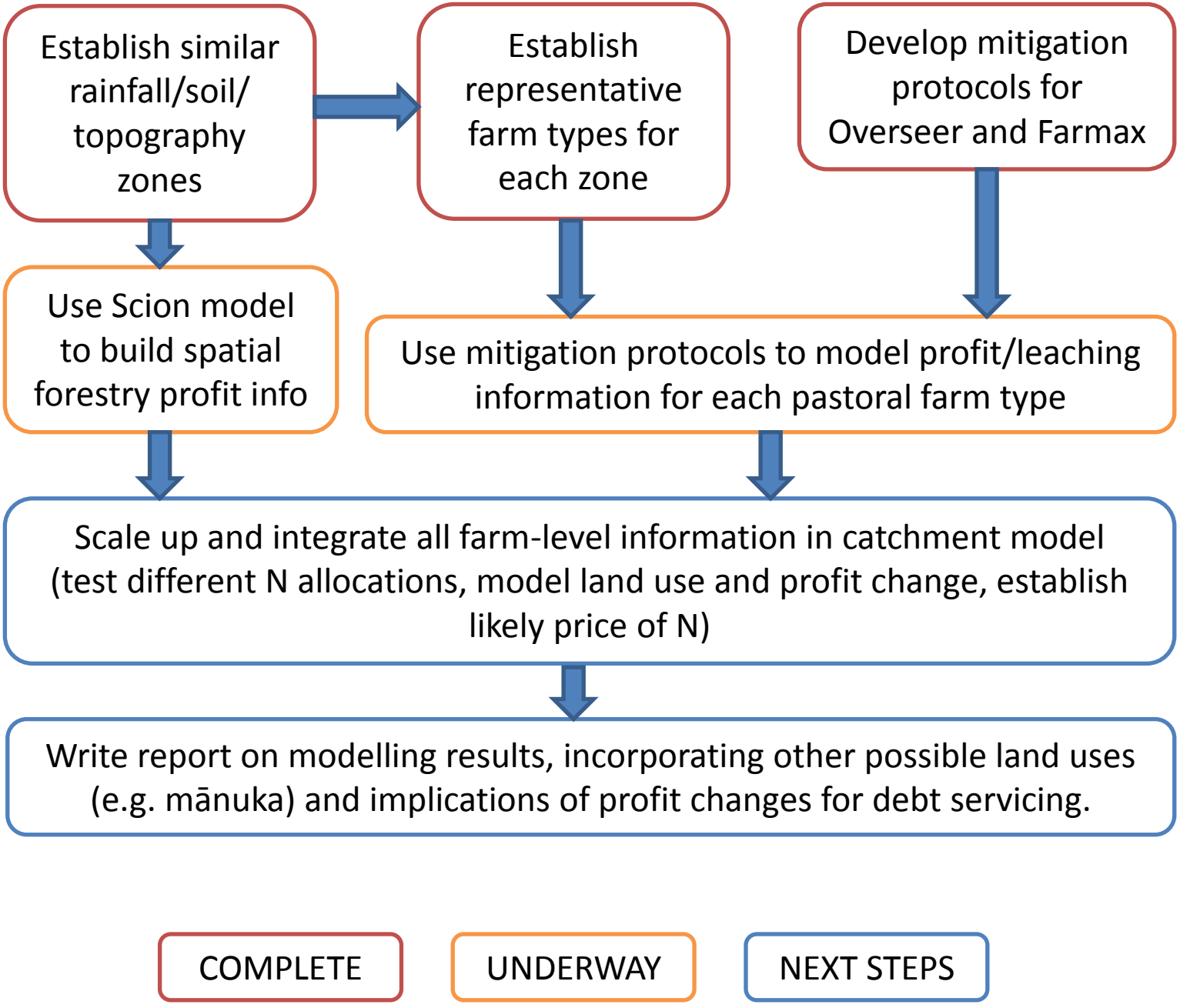
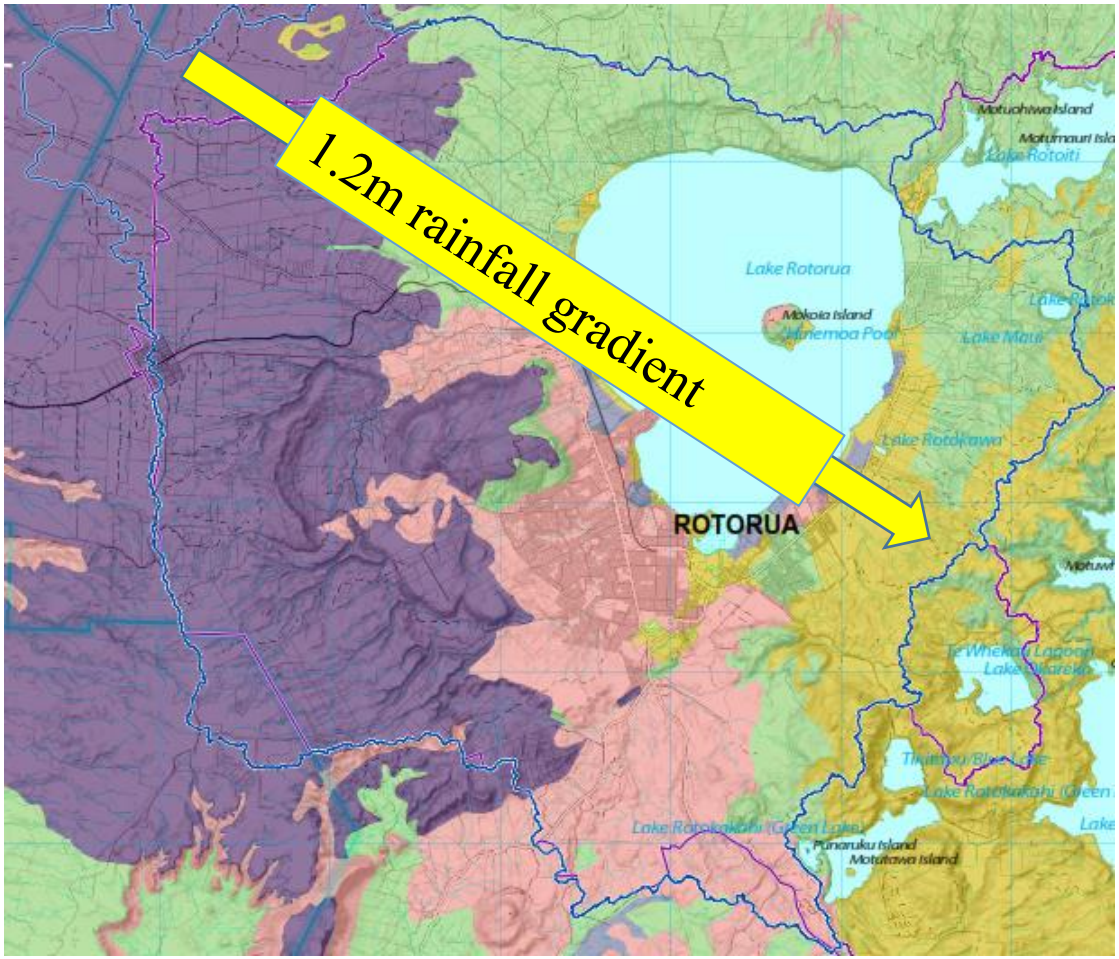
The gaps

- Farm heterogeneity and representativeness
- Separating management from geophysical drivers
- Realistic farm scenarios and mitigation behaviour
- Getting a realistic price of N
- Understanding market friction
- Debt servicing, equity
- Social disruption (e.g. likely amount of churn)
- A transparent, agreed, collaborative approach


Establish similar rainfall/soil/ topography zones
Establish representative farm types for each zone
Develop mitigation protocols for Overseer and Farmax
Use Scion model to build spatial forestry profit info
Use mitigation protocols to model profit/leaching information for each pastoral farm type
Scale up and integrate all farm-level information in catchment model (test different N allocations, model land use and profit change, establish likely price of N)
Write report on modelling results, incorporating other possible land uses (e.g. mānuka) and implications of profit changes for debt servicing.
COMPLETE
UNDERWAY
NEXT STEPS

Geophysical heterogeneity



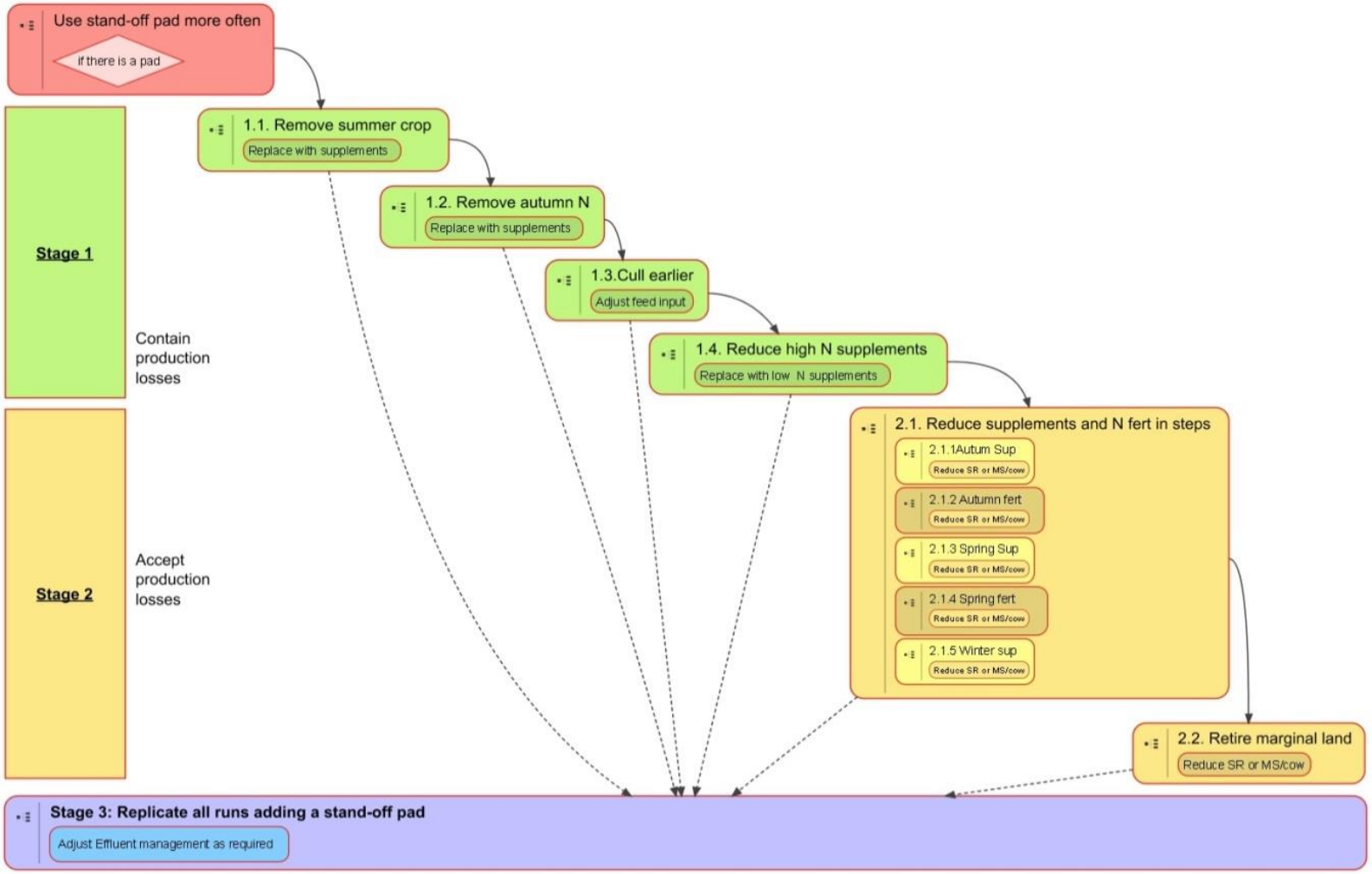
Representative farm systems

Soil	Rainfall	Slope Low (<16°)	Slope High (>16°)
Pumice	1700-1900mm	Dairy Pu1L – lower rainfall Overseer run (Hypothetical)	Dairy Pu2
	1900-2300mm	Dairy Pu1H – higher rainfall Overseer run	NA
Allophanic	≈1600mm	Dairy Al1	NA
Recent	≈1400mm	Dairy Re1	NA
Podzol	<2000mm	Dairy Po1L – lower rainfall Overseer run (Hypothetical)	NA
	2000mm<	Dairy Po1H – higher rainfall Overseer run	NA

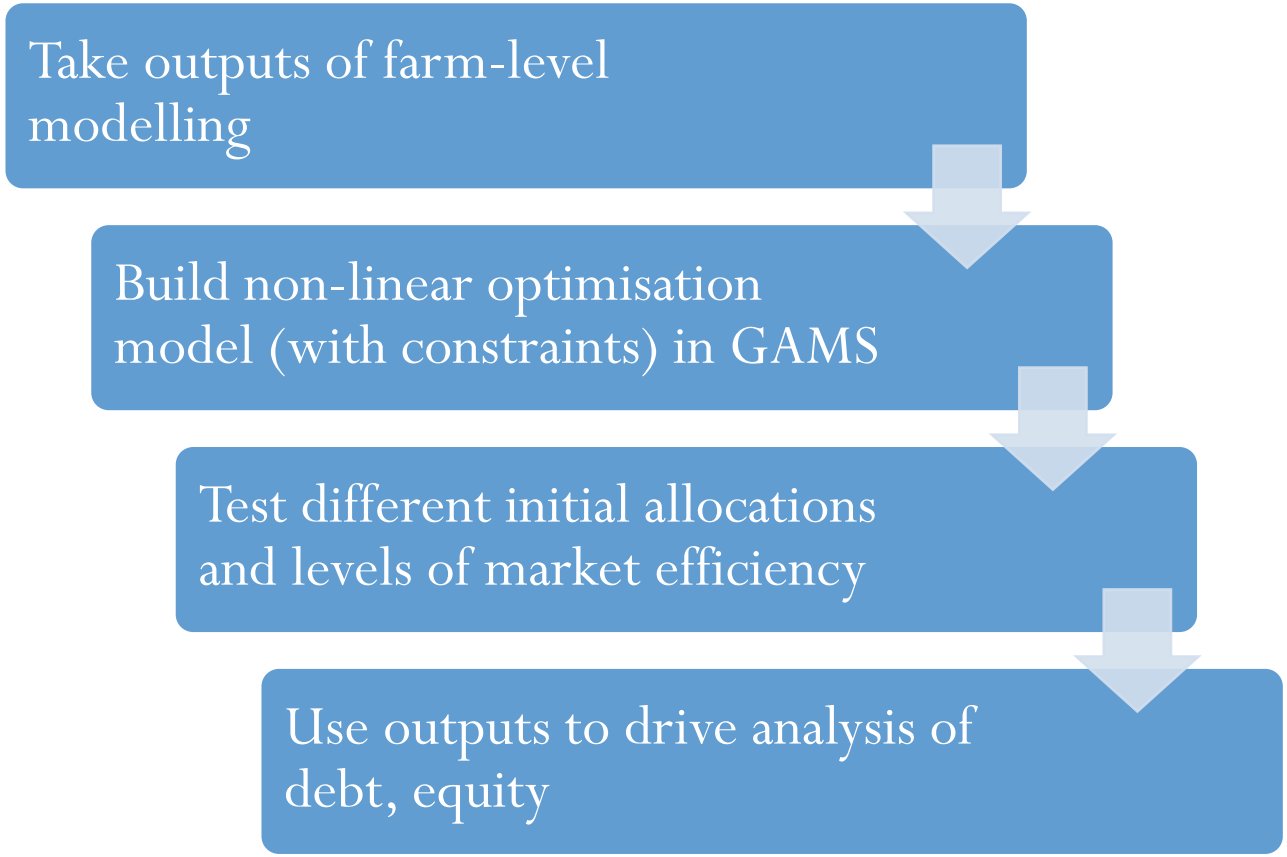
Expert judgement combined with industry datasets to define representative farm systems for:

- Dairy
- Large drystock
- Medium drystock
- Small block/lifestyle
- Forestry

Mitigation protocols



Catchment modelling



Challenges

- Drystock heterogeneity
- Small blocks
- Static analysis of dynamic relationships
- Counterfactual/frame of reference
- Timelines for project

Questions?