

Toolbox of mitigations in scenario modelling

About scenario modelling

Scenario modelling provides information on the changes on land required to meet various water quality scenarios the Collaborative Stakeholder Group (CSG) is exploring. It also provides information on the economic impacts of the changes.

Scenario modelling is one source of knowledge and information the CSG is using to develop the plan change. It informs the CSG's thinking and allows them to evaluate the relative economic impacts of a range of scenarios.

For more information on scenario modelling, refer to the *Scenario modelling* infosheet.

Mitigations used in the modelling

Each scenario modelled has defined water quality outcomes it's trying to achieve. The modelling seeks to achieve the scenario's water quality outcomes by using a combination of land management mitigations and land use changes.

The mitigations that have been incorporated into the modelling include the following:

Effluent	<ul style="list-style-type: none"> • 2 pond systems upgraded to land application of effluent • Deferred effluent application through greater storage capacity • Low rates of effluent application
Improved phosphorus management	<ul style="list-style-type: none"> • Optimum phosphorus fertiliser • Low-solubility phosphorus fertiliser
Soil conservation plans	<ul style="list-style-type: none"> • Soil conservation measures designed for each farm to reduce sediment (and phosphorus) loss
Dairy	<ul style="list-style-type: none"> • Reduce stocking rate • Reduce nitrogen fertiliser use • Use a stand-off pad • Reduce use of crops with high nitrogen loss
Sheep and beef	<ul style="list-style-type: none"> • Small lamb finishing farm - reduce stocking rate by 5, 10, 15, 20 or 25% • Traditional hill-country with lamb finishing - afforest 20, 40, 60, 80 or 100% of steep slope area and maintain original stocking rate elsewhere • Beef breeding with maize silage crops for dairy support - reduce maize area by 20, 40, 60, 80 or 100% • Beef breeding with maize silage crops for dairy support - increase sheep: cattle ratio to 30:70%, 40:60%, 50:50%, 60:40, 70:30% • Bull and prime beef finishing - substitute 30, 40, 50, 60 or 70% of 2 year or older cattle for less than 2 year old cattle at constant stocking rate

Horticulture	<ul style="list-style-type: none"> • Limit monthly nitrogen application to 80kg N/ha or less • Reduce total nitrogen applied by 10, 20, 30 or 40% • Active management of irrigation water • Wheel track ripping
Edge of field and collective area	<ul style="list-style-type: none"> • Fence out stock (dairy, dry stock) • Fence and include buffers of 5m widths • Detention bunds • Detention bund and wetland • Sedimentation pond and wetland • Small constructed wetland • Medium constructed wetland
Land use changes	<ul style="list-style-type: none"> • Dairy → Sheep and beef • Dairy → Forestry • Sheep and beef → Forestry • Horticulture → Sheep and beef

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