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Manatū Ahu Matua

MyFarm User Guide

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MyFarm User Guide

Alpha Release 1

A collaboration between

MyFarm User Guide

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Table of Contents

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1 Introduction

MyFarm is a web-based integrated land management decision tool developed by NZ Forest Research with input from AgResearch. The Ministry of Agriculture and Forestry (MAF) has provided funding for the development of a prototype version of MyFarm.

MyFarm helps farm landowners make strategic land management decisions on utilising land effectively and efficiently to increase financial returns and productivity with minimal impact on the environment. Users can easily locate farm properties, identify farm management units such as paddocks, and capture land management decisions and objectives. A simulation tool based on various models (e.g. Forestry and Sheep Models) is used to simulate the financial and environmental outcomes from land-use decisions, and enables farm land owners to make sound strategic land management decisions.

Through the use of MyFarm, farm landowners and other users can answer the following questions:
- How much money can I make from my land?
- What is the best use of my less productive land?
- What areas are better for forestry?
- How can I benefit from carbon trading?
- How can I balance economic and environmental objectives?

1.1 Terminology

Term	Description
Carrying Capacity	The maximum number of livestock that an area of paddock can support.
Decision Process	A set of business rules that assist the users to determine the management options that are most compatible with the paddock objective.
Digitized Paddock	Paddock converted into a digital form such as a spatial shape that can be processed by a computer.
Farm Property	An area of land and its buildings, used for growing crops and rearing animals.
Farm Resources	Elements related to the financial information on the farm (e.g. Income, Expenditure, Assets and Liabilities).
Farm Target	Quantitative farm-level goals used to guide future land use decisions.
Land Management Option	The specific type of management within a land use option primarily adopted for a paddock (ie. its major use, it may be grazed occasionally by other stock types).
Land Use Option	Description of the broad activity taking place in a paddock, eg. sheep/beef farming.
Paddock	An enclosed demarcated area of any size within a farm property defined by natural or user defined boundaries.
Paddock Target	Qualitative purpose of management for a given paddock (eg. to control erosion, or to maximise profit from grazing).
Scenario	A single combination of options for land use, land management, cost and prices for a farm.
Simulation	The analysis of a scenario
Spatial layers	Cartographic representation of related data features such paddock slopes, paddock soil types, etc. that can be visualised with GIS tools and technologies.

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1.2 System Requirements

The recommended system requirements for running MyFarm are:

- A dual core processor or higher;
- 4GB of RAM;
- A screen resolution of 1024x768 or greater.

The system will run on lower computer specifications but performance may not be optimal.

In order to access MyFarm, you need to have a computer running a web browser that is currently connected to the internet. We recommend that you have a broadband internet connection for optimal performance. The MyFarm prototype (Alpha release 1) has been tested using Internet Explorer version 8 (IE8). Use of other untested browsers may affect the usability and functionality of MyFarm.

Depending on whether the computer used to access MyFarm has Windows Updates enabled, you may be prompted to install Microsoft Silverlight the first time MyFarm is accessed.

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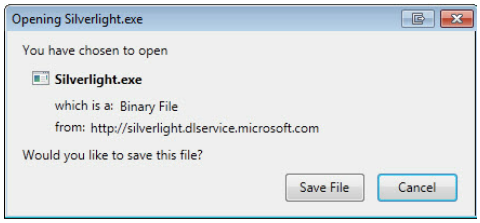
2 Getting Started

To register on MyFarm, browse to http://webapps.scionresearch.com/MyFarm/.

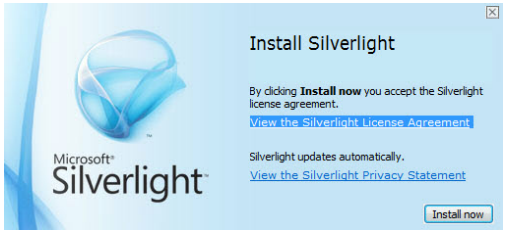
MyFarm has been designed using Microsoft Silverlight and if this has not previously been installed on your system, you will be prompted to install it.

Click on "Click now to install".

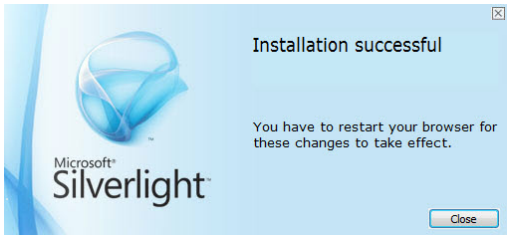


Click on "Save File" and browse to a suitable location to save the installer.

Browse to the saved location, and run Silverlight.exe.



Click on "Install now" to run the installation.



You should see an "Installation successful" message after the installation is complete. Click on "Close" and restart the browser for the changes to take effect.

Browse to http://webapps.scionresearch.com/MyFarm/ again.

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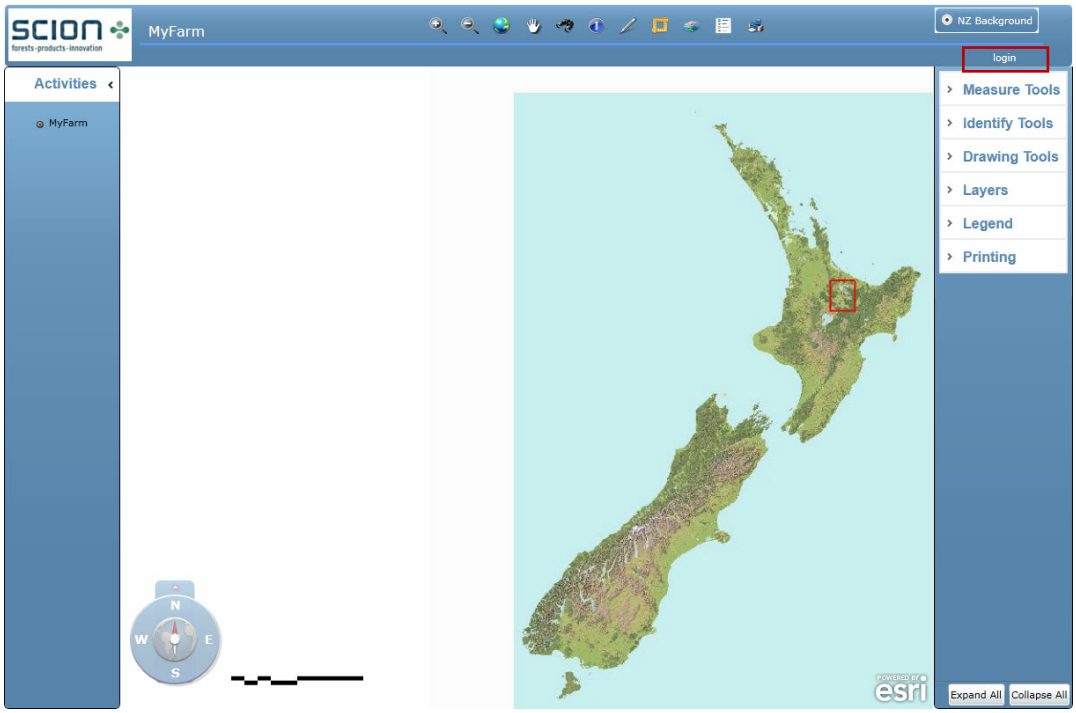
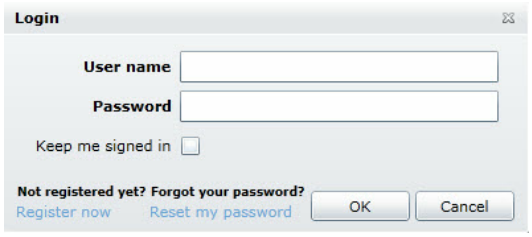


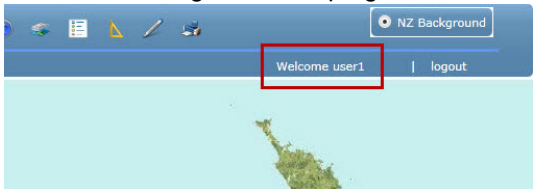
Click on "login" at the top right of the window to display the login window.



Click on "Register now", fill in the required details to create your account and click "Ok".

You will be logged in to MyFarm once the account is created.

To change settings for user registration, such as password and contact details, click on the welcome message on the top right of the screen.



The following screen will appear:

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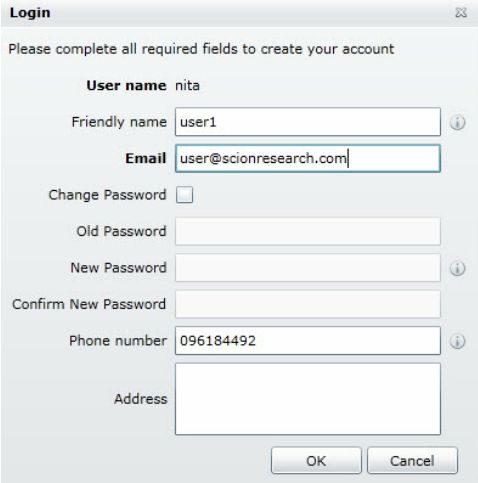
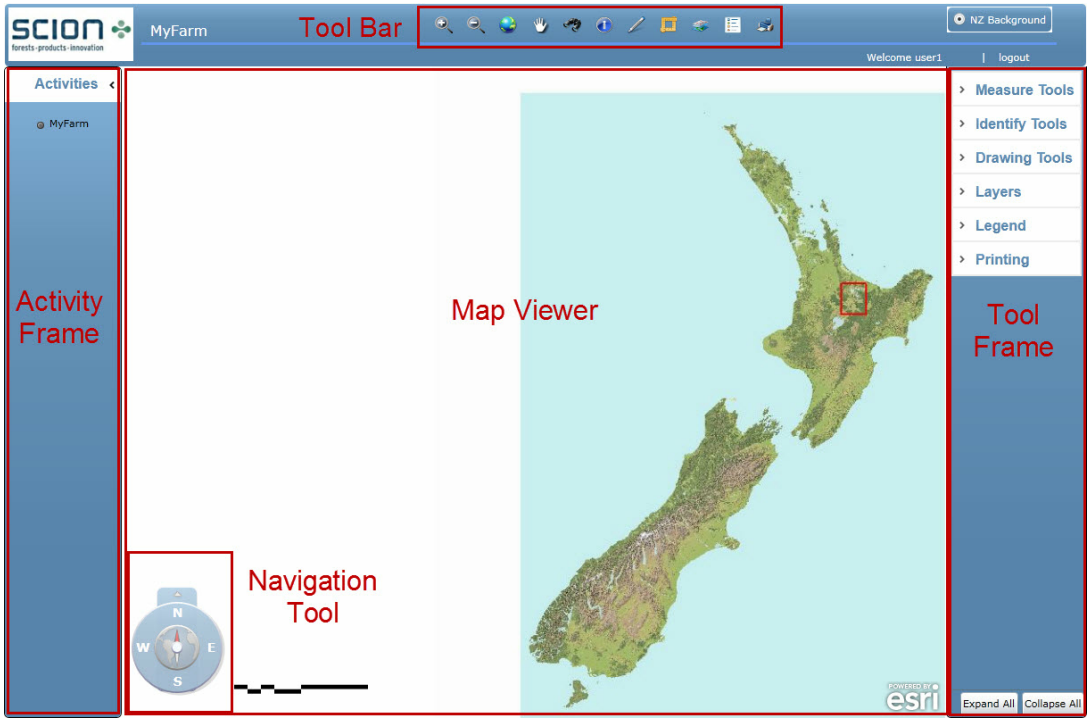


To change any of these fields, click in the particular field and retype the information. Once all the information has been updated, click OK.

To end your session, click "logout" on the top right of the MyFarm window. All the saved inputs and graphics will be available the next time you log in.

2.1 Main User Interface

The user interface for MyFarm has five main components:
- an **Activity Frame** for the advanced features of MyFarm;
- a **Navigation Tool** for navigating around the map of New Zealand;
- a **Tool Bar** for advanced features of the map viewer;
- a **Tool Frame** for displaying advanced features of the tool bar;
- a **Map Viewer** as the main display area.



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2.1.1 Navigation Tool

The compass navigation tool is designed to simplify navigating around the map of New Zealand.

Clicking on any of the direction points (N,S,E,W) moves the map viewer in that direction. Clicking and holding the pointer in the middle of the compass, while moving the mouse up or down allows you to rotate the map.

Hovering the mouse pointer over the arrow at the top of the navigation tool displays a pop up menu with four icons on it. These buttons and their functions are discussed in the following table.

Buttons on the Navigation Tool	Function
	Zoom in on map layers To use this tool, click on the icon with your left mouse button.
	Zoom to full extent of the map Click on this icon to return the map to the original view.
	Reset orientation of the map to the default setting Click on this icon to return the map to the original orientation.
	Zoom out on the map layers To use this tool, click on the icon with your left mouse button.
	Drag the slider bar (on the left of the icons) up or down to zoom in or out on the map layers

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2.1.2 The Tool Bar

Buttons on the Tool Bar	Function
	Zoom in on map layers. To use this tool, left click on the icon and click on the map with your left mouse button holding it down while you move your mouse. This allows you to draw a rectangle that defines the new extent to which the map will zoom in to once you release the left mouse button. This functionality can also be achieved by scrolling the mouse wheel forward on the map.
	Zoom out of map layers. To use this tool, left click on the icon and click on the map with your left mouse button, holding it down while you move your mouse. This allows you to draw a rectangle that defines the new extent to which the map will zoom out to once you release the left mouse button. The smaller the rectangle you draw, the more the map zooms out. This functionality can also be achieved by scrolling the mouse wheel backwards on the map.
	Zoom to full extent of map Click on this icon to return the map to the original view.
	Pan tool to let you move around on the map To use this tool, left click on the icon, click and hold pointer on the map, drag the mouse to move around on the map. Release the mouse button to stop panning. For faster navigation around the map, use the pan tool in conjunction with the mouse scroll wheel (note the mouse button does not need to be held down in order to zoom in and out with the scroll wheel).
	Search tool Click on this icon to display a search window. Enter the required address. Note that MyFarm will start the search as you enter each character so it is important that you enter the full address, for example entering "976 Te Ngae" will return the correct address whereas entering just "Te Ngae" will return no results. Click on  to zoom in to the entered address.
	Identify tool This tool identifies information on the map based on the area you select and the layer that you are searching for. Click on the icon to display the menu on the tool frame. Select the layer that you would like to search for (layers currently available include Addresses and Mean Annual Temperature) and select Identify by either Point, Polygon, Extent. The information returned is displayed on the Tool Frame. You may click on  to select the feature on the map viewer.
	Drawing tools This tool allows you to draw graphics on the map. Click on the icon to display the drawing tools on the tool frame. You must choose one of the following geometry types: Polygon, Line, Point, Text. Click on "Options" to display the set of options available such as fill colour, border colour, border width, font type, font colour and font size. To edit the items that you have drawn, click on  to edit the vertices of the graphic. To delete a graphic, select the graphic and click on  .

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Buttons on the Tool Bar	Function
	Measure tools This tool allows you to measure distances and area on the map viewer. Click on the icon to display the measure tools on the tool frame. Click on "Options" to select the area and distance unit. Click on the measure tool that you would like to use i.e. point, line or a polygon, and draw the required shape on the map viewer. The measurements appear straight after the shape is created. Units of measures provided: - Location of a point is given in decimal degrees. - Distance between 2 points is given in feet, kilometers, meters, miles, nautical miles and yards. - Area measurements are given in acres, hectares, square feet, square kilometers, square meters and square miles.
	Map layers control This tool allows you to make layers visible on the map, and control the transparency of the visible layers. Click on the icon to display the list of layers that are available. Click on the checkbox to make the layer visible. Next to the checkbox is a slider, drag the slider to make the visible layer more or less transparent. Some layers are only visible at certain scales.
	Map legend control This tool is designed to provide a legend for the layers that are currently visible. Click on the icon to display the list of legends associated with the layers that you are currently viewing.
	Printing tools This tool allows you to either print or capture a screenshot (in jpg or png format) of what is displayed on the map viewer. Click on the icon to display the options available. Note: the "Print" functionality is not fully functional in this prototype version.

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3 Using MyFarm

MyFarm allows the user to locate and capture details on a farm property, set annual farm targets and provide the resources available at the farm level. The user is able to set up scenarios that are linked to paddocks with defined land-use options and other associated information. The spatial interface of MyFarm enables the user to digitise a paddock and capture data from the underlying spatial layers associated with the paddock (such as altitude, mean annual temperature, 300 index and site index values etc.).

Based on these inputs, MyFarm runs a simulation for each land use for the simulation period specified. For each simulated period, MyFarm calculates the following:

- The annual production of stock and wool related to sheep land use;
- The carbon yield at a given paddock age based on the selected regime;
- The annual cashflow related to sheep production and carbon forestry;
- The measures of sheep, forest value and profitability derived from a discounted cashflow analysis.

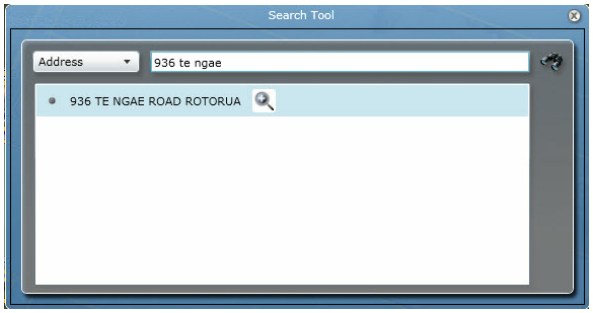
The simulation results provide the user with dollar values for annual gross revenues, costs, net revenues and net present values for the various land use options. Based on these financial outputs, the user is able to compare the land use options to determine the optimal land use, that is, one that provides the highest yield and economic outcome for the farm.

The following pages guide the user in creating and defining the required inputs, such as farm property, scenarios and paddocks.

Note that the prototype version has only the sheep production and carbon forestry models implemented, and the reporting of the simulation results are limited to summary reports and graphs.

3.1 Farm Property

To search for an existing farm property, click the Search tool  on the Tool Bar and enter the address.



Click on the zoom in icon to zoom to the specified location.

Click on MyFarm in the Activity Frame on the left of the screen to add a farm property.

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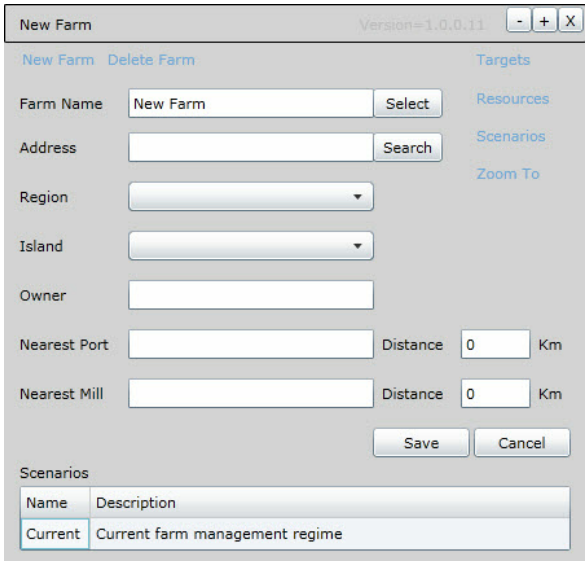
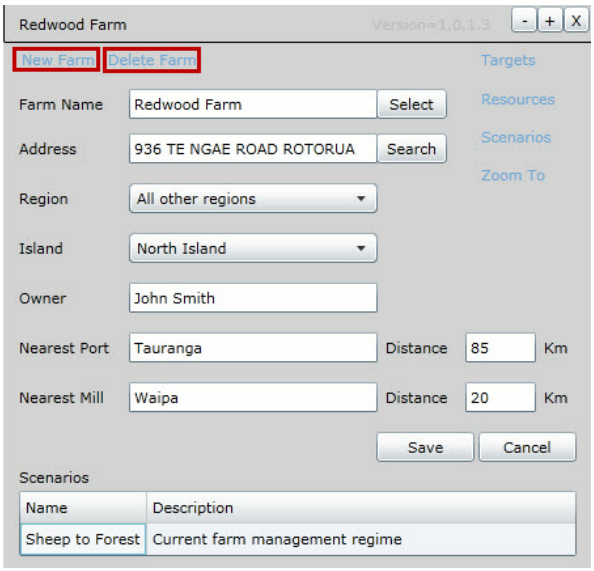


Enter Farm Name or click on "Select" to select an existing farm.

Enter the address of the farm property. You may also click on "Search" to search for the farm address. Type in the required address in the field, once the correct address is displayed in the search results, click on the arrow icon  to select the address.

Enter the rest of the necessary information such as Region, Island, Owner, Nearest Port and Nearest Mill. Once the information is entered, click Save to save the farm property details.



You may create a new farm by clicking on "New Farm". Existing farm properties may be deleted by clicking on "Delete Farm" and then clicking "Save".

To modify existing farm properties, click "Select" to display the list of saved farm properties. Select an existing farm and click ok. Modify the necessary fields and click "Save".

3.2 Farm Targets

To enter annual farm targets, click on "Targets" on the Farm window:

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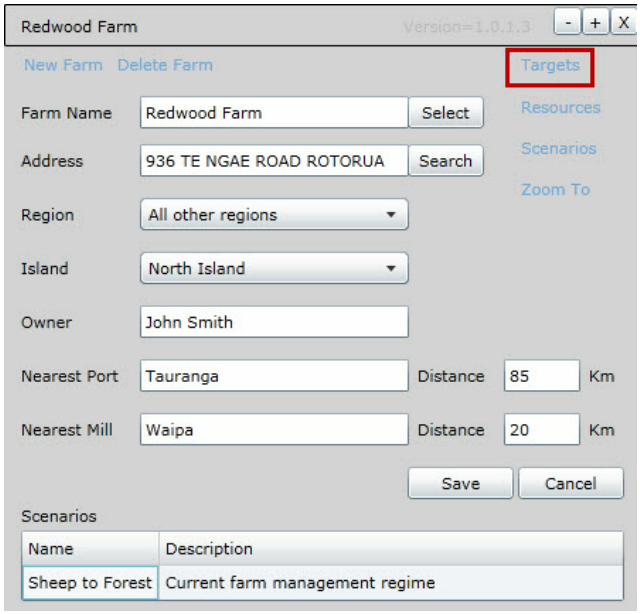
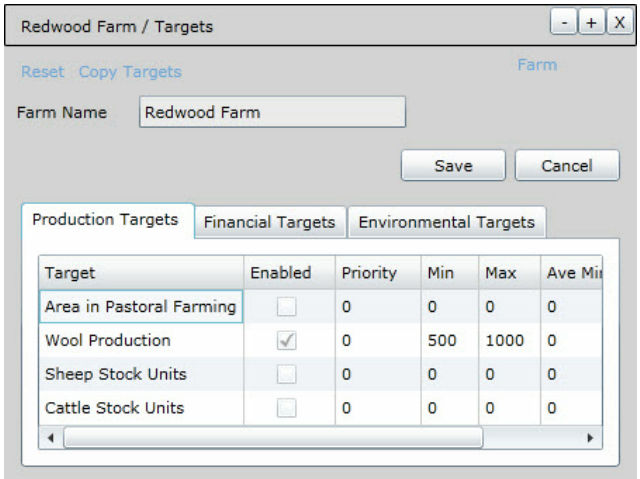


Farm targets are available at 3 levels:

Target Level	Targets	Unit	Definition
Production	Area in pastoral farming Wool production Sheep stock units	ha/yr kg/yr SU/yr	Area of farm in pastoral farming Amount of wool produced Number of sheep stock units
Financial	Net cash income Farm working expenses Cash operating surplus Profit before tax Economic farm surplus Net present value	$/yr $/yr $/yr $/yr $/yr $	Revenue less stock purchases Total working expenses including labour and overheads Net cash income less farm working expenses Cash operating surplus adjusted for interest etc. Farm profit less wages NPV of cash operating surplus
Environmental	Net CO_2 emissions	t CO_2-e/yr	CO_2-e emitted minus sequestered

Enter the desired targets and click "Save".



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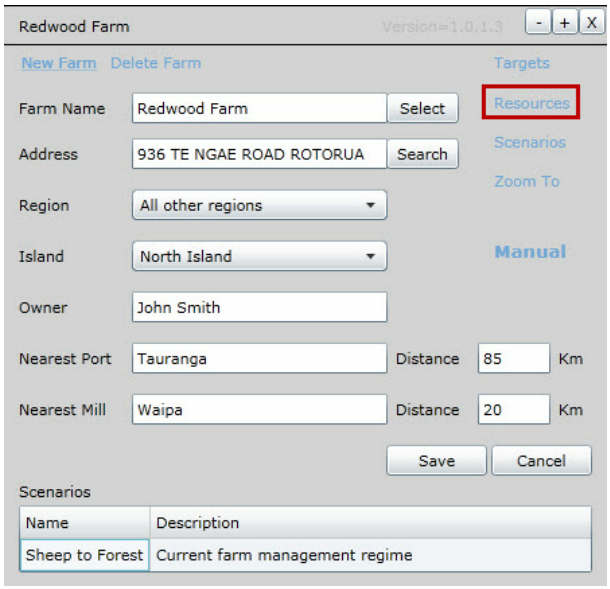
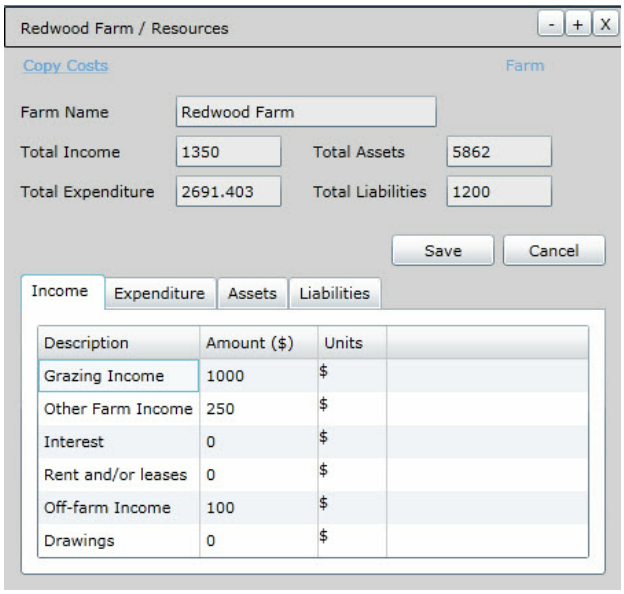
3.3 Farm Resources

To enter any financial information related to the farm, click on "Resources" on the Farm window.



Financial related information can be added as Income, Expenditure, Assets and Liabilities in the screen below. The entered values are summed up in the Totals fields on the Resources form.



3.4 Scenarios

To enter farm scenarios, click on "Scenarios" in the Farm Property window.

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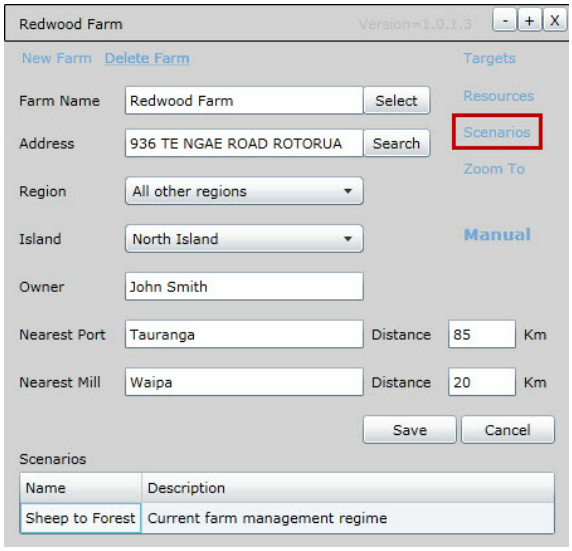
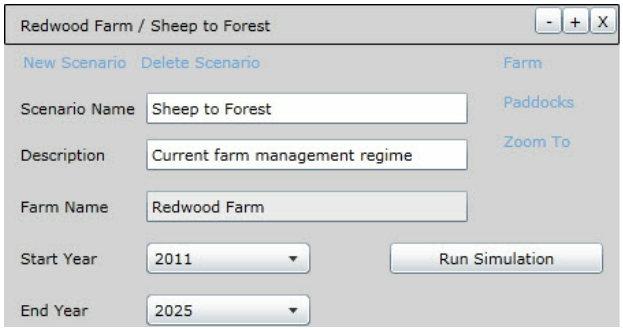
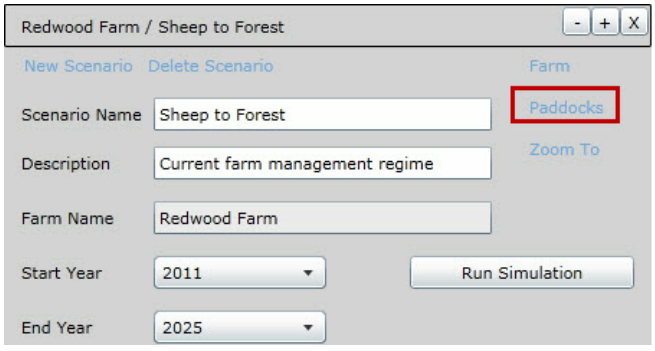


Enter the required information and click "Save". The years entered under "Start Year" and "End Year" define the analysis period when the simulation is run.



3.5 Paddocks and their Land Use Options

To enter farm paddocks, click on "Paddocks" in the Scenario window. Each scenario can be linked to several paddocks with various land use options.



Enter a Paddock Name and click "Digitise" to draw a paddock on the map viewer. Once a paddock has been created, the fields on the Paddock Details form will be populated based on the information obtained from the underlying surfaces.

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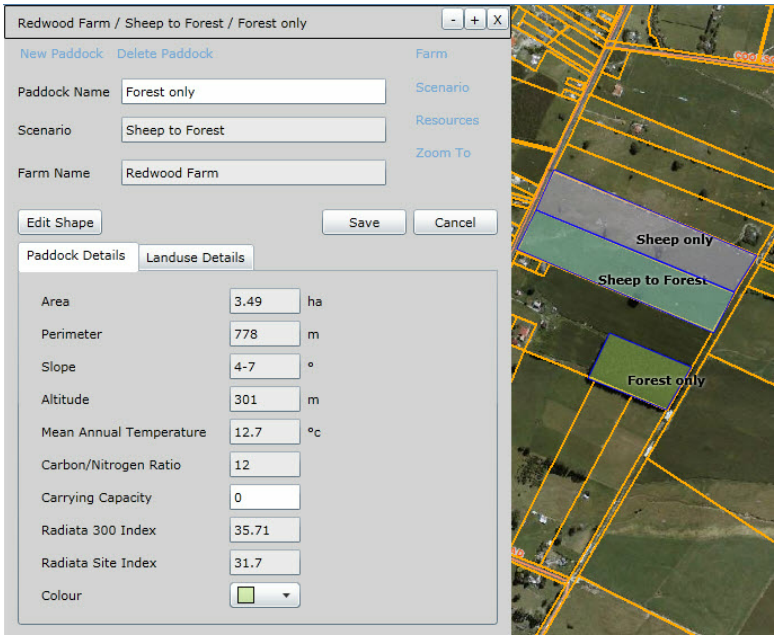
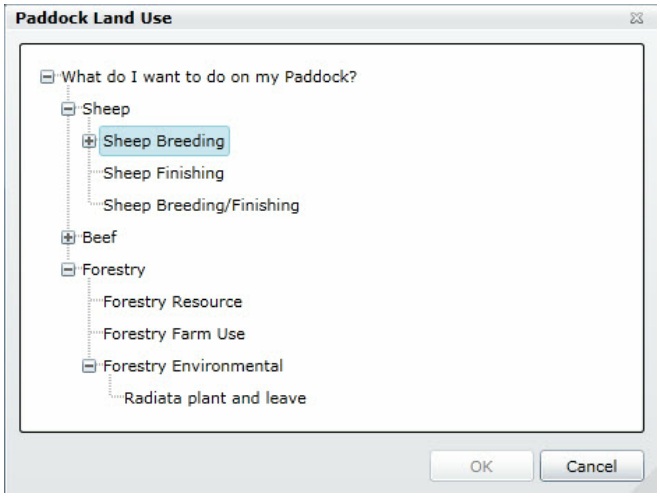


Click on "LandUse Details" tab to enter information on current and new land use. Clicking on either the "Current Land Use" or the "New Land Use" button displays a land use decision tree (Note: Sheep Breeding (sell as store lambs) and Forestry Environmental (Radiata plant and leave) are the only models available in the prototype version).



Once the required land use has been selected, a form displaying the paddock's production details is displayed. The displayed values are pre-defined but the user has the ability to overwrite these values as required.

Click on "Scenario" to return to the Scenario form. You will notice that the Paddock field are now populated.

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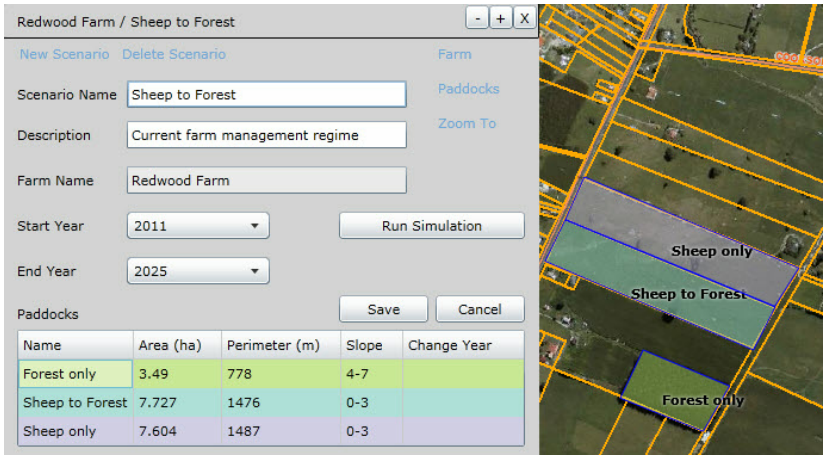
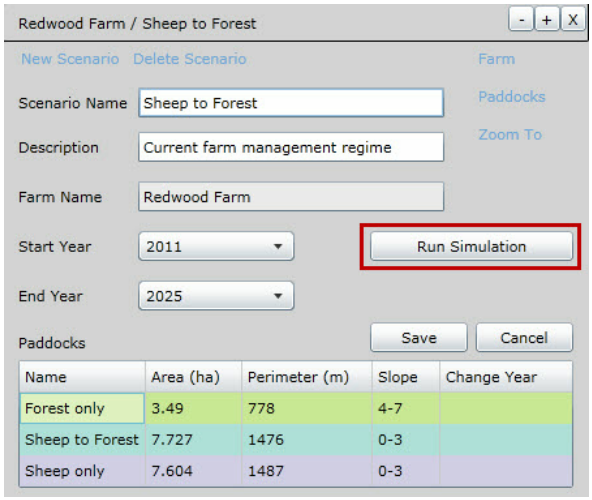


3.6 Simulation of scenarios

Click on "Run Simulation" to simulate the scenarios.



The simulation results in the prototype version are presented in the form of a summary report and several graphs showing the revenue, wool production, sheep production and carbon outputs for the simulation period defined.

These results can be accessed via the results form that appears straight after the simulation.

An example of the summary report and the range of graph options available are illustrated in the following.

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MyFarm Scenario Summary Report - Redwood Farm / Sheep to Forest

	Units	Total
Year Ended 2011		
Area	ha	18.821
Breeding Ewes	head	128
Stocking Rate	SU/ha	6.80
Total Wool Produced	kg	588.5
Total Carbon	kg	0.05
Total Revenue	$	1,633.00
Total Expenses	$	139,525.12
Total Assets	$	953,064.13
Total Liabilities	$	1,200.00
Year Ended 2012		
Area	ha	18.821
Breeding Ewes	head	148
Stocking Rate	SU/ha	7.86
Total Wool Produced	kg	653.5
Total Carbon	kg	1.94
Total Revenue	$	1,652.00
Total Expenses	$	139,825.12
Total Assets	$	956,101.13
Total Liabilities	$	1,200.00

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