

Farming Landscapes for the future tool (FLFT) tutorials



What will your farm look like in the future?

A tool to help you develop new enterprise combinations.

1. Sandalwood vs Cropping (Wheat)
2. Brushwood vs Cropping (Wheat) Pasture + Sheep Rotation
3. Oil Mallee with Carbon vs Cropping (Wheat)
4. Cropping (Wheat) Pasture + Sheep Rotation vs Cropping (Wheat) and (Canola) Rotation
5. Baseline Climate (Cropping (Wheat) Pasture + Sheep Rotation) vs 2030 Climate Prediction (Cropping (Wheat) Pasture + Sheep Rotation)

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Introduction

These five tutorials are designed to help you become familiar with the FLFT scenario tool and give you a further understanding what the tool can deliver.

Before you start these tutorials you will need to make sure you have installed the FLFT scenario tool (the program) correctly, the program can be downloaded from www.wheatbeltnrm.org.au/flft

Further detailed information on the downloading process can be found on pages 7-9 of your FLFT User Guide which can be downloaded from www.wheatbeltnrm.org.au/flft

We also recommend that you use your FLFT User Guide when completing these tutorials and throughout these tutorials there are page number references to the User Guide.

1. Sandalwood vs Cropping (Wheat)

In this tutorial you will be developing a twenty year Sandalwood scenario and comparing this with a twenty year Wheat scenario. In this tutorial you will learn how to compile a customised tree crop /paddock scenario and a customised cropping paddock. You will then learn how to make financial comparisons between the two paddock options.

Develop your Sandalwood scenario

In this particular tutorial we will be 'excluding the carbon payments'. This means you can skip updating the 'Carbon Icon-C' and go straight to developing your Sandalwood scenario.

STEP 1: Click on the tree icon.

STEP 2: Select your Available Scenario '*Sandalwood 20 year TEMPLATE*' (harvest the trees in 20yrs)

STEP 3: Click on the 3PG menu and click *Load in 3PG Growth Predictions* a new window will open.

STEP 4: Choose options from the different drop down **menus**:

1 Select Species:

This needs to replicate your initial choice of tree eg Sandalwood + Host as it won't default

2 Climate Station:

This is your choice, but it is important to remember you need to replicate this in your comparison enterprise eg. Cropping

3 Select Climate scenario:

Baseline (is the average of 1975-2007) or you can choose future weather predictions 2030, 2070

4: Management:

Here you need to select the different options under your tree management, as you have selected Sandalwood 20 years you need to select this management here

5: Soil Texture:

Choose which soil type replicates your chosen area and you need to make sure this is replicated in your comparison enterprise eg. Cropping

6. Soil Fertility:

Here you choose either 0.3 for less fertile ground or 0.7 for very fertile ground.

STEP 5: Click *Show Scenario Results*.

STEP 6: Click *Add* to select that model run.

STEP 7: Click *Transfer Model Runs to Scenario* (window then closes).

STEP 8: Leave default values in the *Harvest Products* window for this example, click *Ok*.

STEP 9: In the *Tree Scenarios* window modify the costs and revenue by typing into each box to reflect your project. E.g. Add the cost of harvesting nuts to the *Other Costs* row: \$100 per year from Year 5, then add the nut sales revenue to the *Other Revenue* row, \$300 (based on 100kg/ha @\$3/kg) from Year 5 onwards, then press *Enter*.

STEP 10: Then go to *File* and *Save as a New Scenario*, save as *Sandalwood 20yr (your name/location)* and then press *Ok*. It is important to remember to select 'save as' not 'save' as this will modify the actual 'Sandalwood 20 years TEMPLATE'.

Develop your Cropping scenario (Wheat)

STEP 1: Click on the wheat icon.

STEP 2: Select your Available Scenario *Wheat TEMPLATE*.

STEP 3: Click on the *APSIM* menu and click *Obtain Yield from APSIM*, a new window will open.

STEP 4: Choose options from the different drop down menus. Remember you need to replicate your choices from your comparison scenario here.

STEP 5: Click *Get Model Results*.

STEP 6: Click *Copy Average to Scenario* (window closes).

STEP 7: Then go to *File* and *Save as a New Scenario*, save as *E.g. Wheat (your name/location)* and then press *Ok*.

It is important to remember to select 'save as' not 'save' as this will modify the actual 'Wheat TEMPLATE'.

Comparison

You have now created a multiyear Sandalwood Scenario and a single year Wheat Scenario.

The next step is to compare the financial performance of these two scenarios.

STEP 1: Click on the graph icon on the main page.

STEP 2: Click on the drop down box under '0' 'Scenario B' select your *Sandalwood 20yr (your name/location)* and then press enter.

STEP 3: Click 'Manage Scenarios' click 'Scenario B', 'Save as a new Scenario' and save as *Sandalwood 20yr (your name/location)*.

STEP 4: Click 'Manage Scenarios' select 'Scenario A', 'Set length Years' and a new window will pop up and type '20' years and then enter.

STEP 5: The next step is to set up your wheat template for the 20 years -Scenario A ('*Wheat 20yr (your name/location)*'). Click on the drop down box under Scenario A for each year of the 20 years and select you Wheat Scenario (*Wheat (your name/location)*). Once each of the years have the scenario selected then press enter.

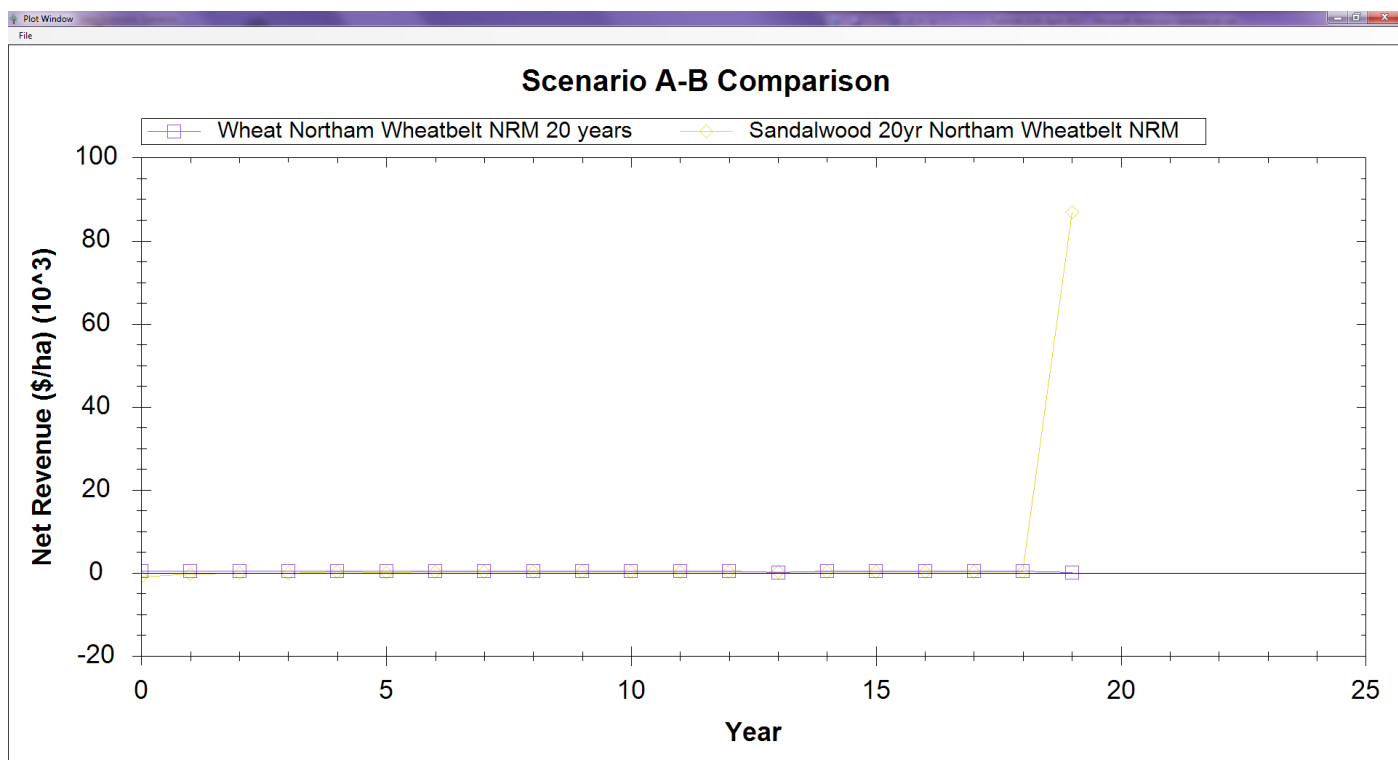
STEP 6: Click 'Manage Scenarios', click 'Scenario A' and then click 'Save as a new Scenario' and save this as *Wheat 20yr (your name/location)* ****For further explanation of the icons and headings please refer to page 28-30 of your FLFT User Guide.****



Comparison by Chart

In this tutorial you have developed a 20 year Sandalwood Scenario 'Sandalwood 20yr (your name/location)' and a 20 year Wheat scenario 'Wheat 20yr (your name/location)'. You have produced the data in a table format and now you will compare the results in a graph.

STEP 1: Click 'Chart' and then click on 'Scenario A vs Scenario B- Net (Scenario A Wheat 20yr (your name/location) versus Scenario B ('Sandalwood 20yr (your name/location)) Net)



This graph is showing the net revenue for Sandalwood 20 year scenario in comparison to a 20 year Wheat scenario. This is an example of what the graph will look like; your graph may look slightly different depending on the certain variables you chose.

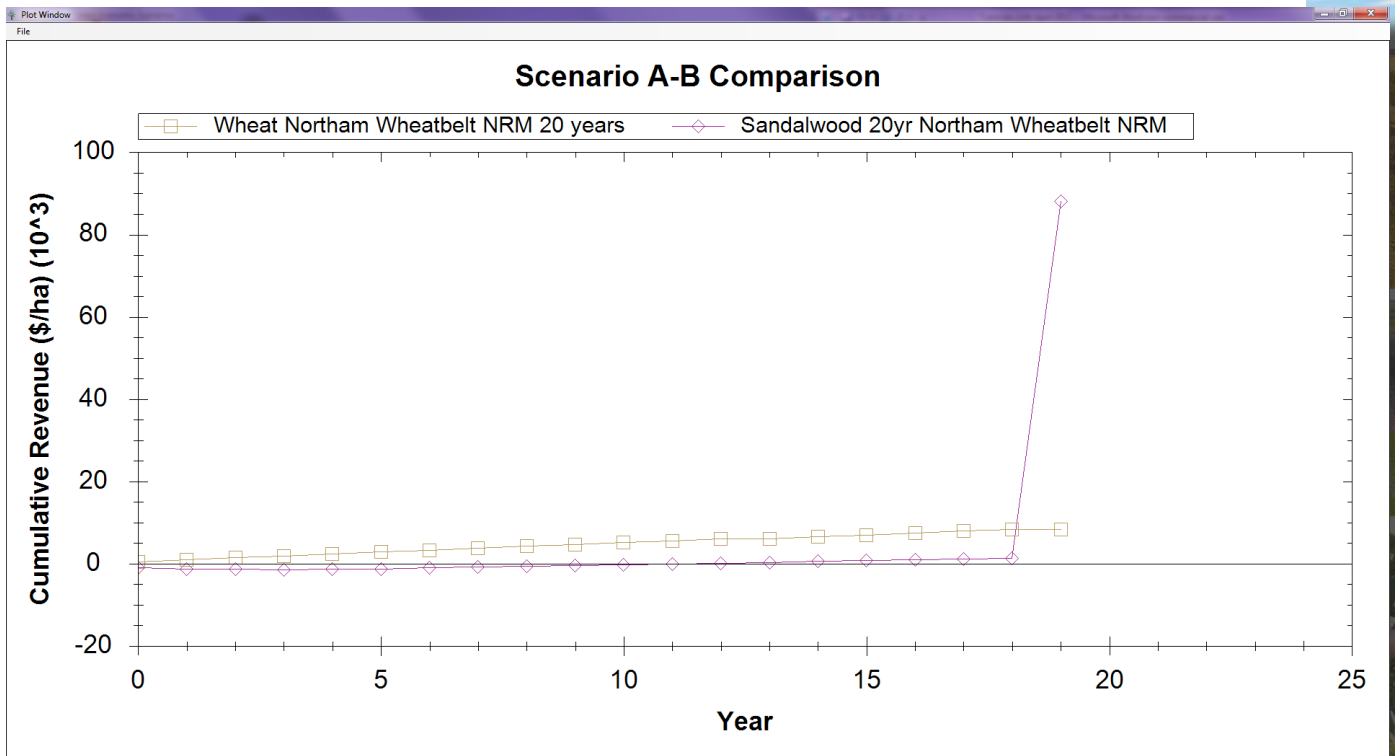
The net revenue is the annual income the scenarios are making. You can see the Wheat Scenario is receiving a steady three hundred dollars per year (roughly). This is more than what is received by the Sandalwood Scenario each year, up until the final year when the Sandalwood is harvested.

Then a large amount is received for the Sandalwood harvest (roughly ninety thousand per hectare). Therefore although you wait a long time to get your money, the cumulative income is more from the Sandalwood Scenario.

STEP 2: Click 'File' and 'Print'. Then 'X' from this graph window once finished.

We will now look at the difference in cumulative value of the 20 year Wheat and Sandalwood scenarios.

STEP 3: Click 'Chart' icon and then click on 'Scenario A vs Scenario B- Cumulative (Scenario A ('Wheat 20yr (your name/location)) versus Scenario B ('Sandalwood 20yr (your name/location)) Cumulative)



STEP 4: Click 'File' and 'Print'. Then 'X' from this graph window once finished.

This graph is showing the cumulative revenue for Sandalwood 20 year scenario in comparison to a 20 year Wheat scenario. This is an example of what the graph will look like; your graph may look slightly different depending on the certain variables you chose.

This graph shows the cumulative revenue is the revenue the scenarios are making each year added with the previous year. Net is the profit that would be received each year, e.g. for Scenario A the wheat scenario the graph shows \$300 (approximately) plotted for every year. Cumulative adds the net profit each year together for the life of the project e.g. for wheat, year 1 = \$300, year 2 = \$600, year 3 = \$900 up to a cumulative profit of \$7500 received over a 20 year project.

The net and cumulative graphs show the same thing, but just expressed differently, so the net graph shows a farmer what profit he/she might receive in any one particular year of a project, while the cumulative shows how this profit adds up over the life of the project.

Therefore the first year of the Net and Cumulative graphs is exactly the same but then it will change from year two as the cumulative graph is showing the income since the beginning of the comparison.

2. Brushwood vs Cropping (Wheat)/Pasture & Sheep

In this tutorial you will be developing a seven year Brushwood Scenario and comparing this with a seven year Wheat, Pasture + Sheep rotation Scenario. In this tutorial you will learn how to compile a customised Brushwood Scenario, a Cropping Scenario (Wheat), a Pasture + Sheep Scenario and also develop a rotation scenario. You will then learn how to make financial comparisons between these two paddock options.

Develop your Brushwood Scenario

In this particular tutorial we will be 'excluding the carbon payments'. This means you can skip updating the 'Carbon Icon' and go straight to developing your Brushwood Scenario.

STEP 1: Click on the tree icon.

STEP 2: Select your Available Scenario 'Brushwood 7-5 year TEMPLATE' (harvest the trees at 7 & 5 years).

STEP 3: Click on the 3PG menu and click Load in 3PG Growth Predictions a new window will open.

STEP 4: Choose options from the different drop down **menus**:



STEP 5: Click *Show Scenario Results*.

STEP 6: Click *Add* to select that model run.

STEP 7: Click *Transfer Model Runs to Scenario* (window then closes).

STEP 8: On the main table, go to 'Class 1 Timber' and under this heading there is 'Timber Price \$/t or m3' in the box next to this type in '400' and then enter.

For this tutorial it assumes there is only one price for Brushwood timber but there are drop down options for different classes of timber and price allocations depending on the market you sell to.

STEP 9: Then go to *File* and *Save as a New Scenario*, save as *Brushwood 20yr (your name/location)* and then press *Ok*.

Develop your Cropping (Wheat) Scenario

STEP 1: Click on the wheat icon.

STEP 2: Select your Available Scenario Wheat Template

STEP 3: Click on the APSIM menu and click *Obtain Yield from APSIM*, a new window will open.

STEP 4: Choose options from the different drop down menus. Remember you need to replicate your choices from your comparison scenario **here**:



STEP 5: Click *Get Model Results*.

STEP 6: Click *Copy Average to Scenario* (window closes).

STEP 7: Then go to *File* and *Save as a New Scenario*, save as E.g. *Wheat (your name/location)* and then press *Ok*.

It is important to remember to select 'save as' not 'save' as this will modify the actual 'Wheat TEMPLATE'.

Develop your Pasture & Sheep scenario

STEP 1: Click on the sheep icon.

STEP 2: Select your Available Scenario *Pasture + Sheep Template*

STEP 3: Click on the *APSIM* menu and click *Import APSIM Scenario*, a new window will open.

STEP 4: Choose options from the different drop down menus. Remember you need to replicate your choices from your comparison scenario here.

STEP 5: Click *Get Model Results*.

STEP 6: Click *Copy Average to Scenario* (window closes).

STEP 7: For this particular 'Pasture + Sheep Scenario' you are going to increase the price for the rams. Go to 'Flock Structure- Sources and Uses', 'Rams', Value (\$) and change this value to '\$1000' and then press enter.

STEP 8: Then go to *File* and *Save as a New Scenario*, save as E.g. *Pasture + Sheep (your name/location)* and then press *Ok*. It is important to remember to select 'save as' not 'save' as this will modify the actual 'Pasture+ Sheep TEMPLATE'.

Comparison

In this tutorial you have created a multiyear tree growth scenario (Brushwood 7-5yrs), a single year Wheat Scenario and a single year Pasture + Sheep Scenario. The next step is to develop the Wheat, Pasture + Sheep rotation and then compare the financial performance of the Brushwood Scenario with the Wheat, Pasture + Sheep Scenario.

STEP 1: Click on the graph icon on the main page.

STEP 2: Click on the drop down box under '0' 'Scenario B' select your *Brushwood 7 -5 Scenario (your name/location)* and then press enter.

STEP 3: Click 'Manage Scenarios' click 'Scenario B', 'Save as a new Scenario' and save as *Brushwood 7 5 yr (your name/location)*

STEP 4: Click 'Manage Scenarios' select 'Scenario A', 'Set length Years' and a new window will pop up and type '7' years and then enter.

STEP 5: We now need to select our specific wheat sheep rotation for the 7 years using ('Wheat Scenario) and ('Pasture + Sheep Scenario) to develop the 7 year rotation to make up Scenario A. This is done by clicking on the drop down box under each year

The specific rotation for tutorial 2 for Scenario A will be;

- i. **Year 1: Wheat**
- ii. **Year 2: Wheat**
- iii. **Year 3: Pasture + Sheep**
- iv. **Year 4: Wheat**
- v. **Year 5: Wheat**
- vi. **Year 6: Pasture + Sheep**
- vii. **Year 7: Wheat**

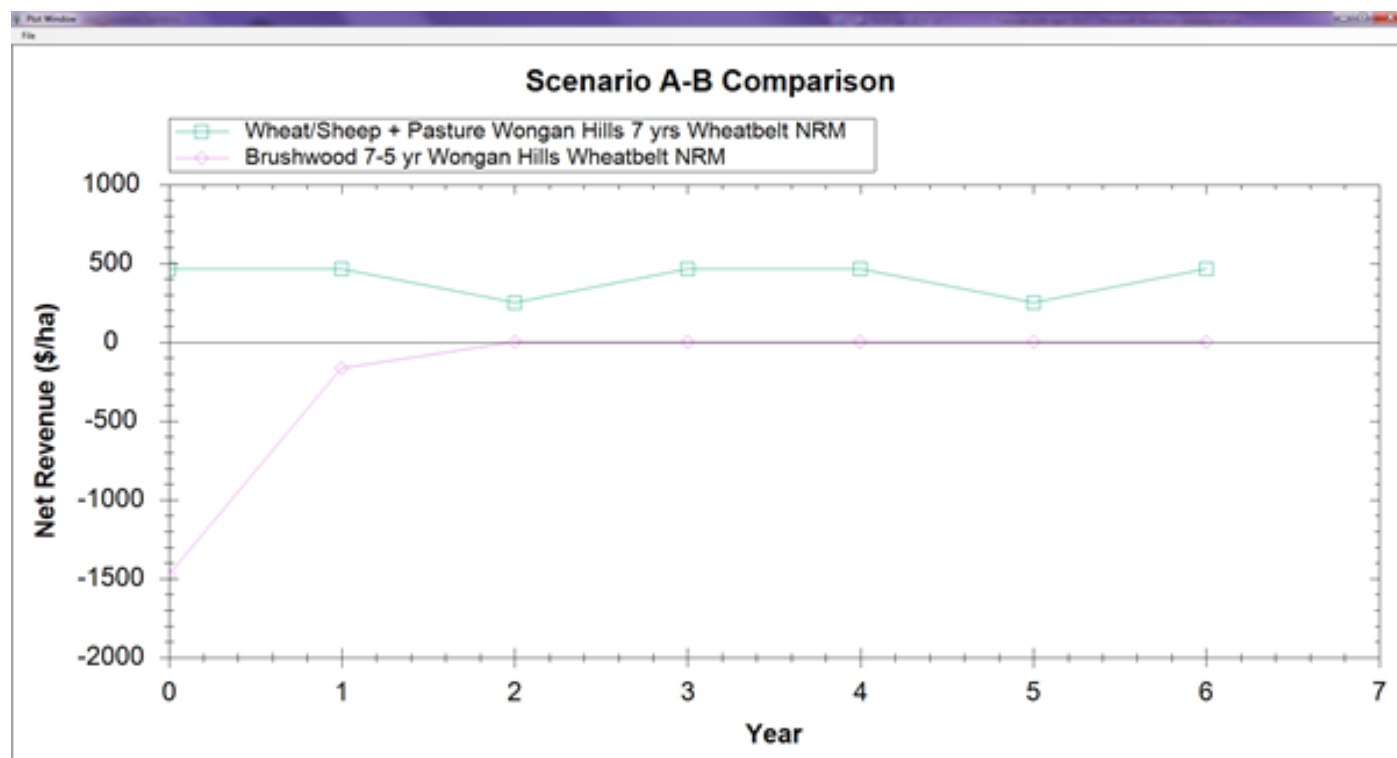


STEP 6: Click 'Manage Scenarios', click 'Scenario A' and then click 'Save as a new Scenario' and save this as *Wheat/Pasture + Sheep 7yrs your name/location*) ****For further explanation of the icons and headings please refer to page 28-30 of your FLFT User Guide.****

Comparison by Chart

In this tutorial you have developed a 7 year Brushwood Scenario 'Brushwood 7- 5- yr (*your name/location*)' and a 7 year Wheat, Pasture + Sheep Rotation Scenario 'Wheat, Pasture + Sheep (*Your name/location*)' now we will compare their results in a graph.

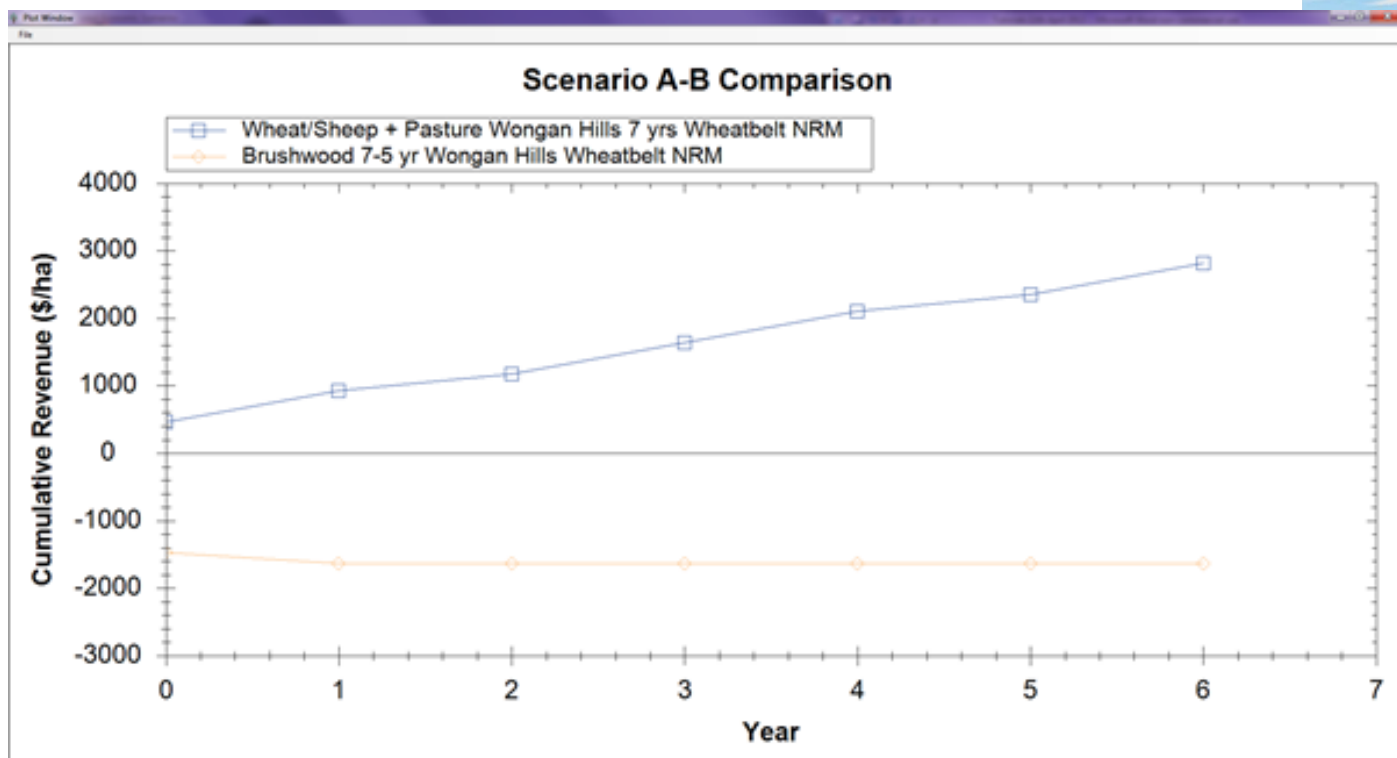
STEP 1: Click 'Chart' and then click on 'Scenario A vs Scenario B- Net (Scenario A ('Wheat/ Pasture+ Sheep (*your name/location*')) versus Scenario B ('Brushwood 7- 5- yr (*your name/location*')) Net)



This graph is showing the net revenue for Brushwood 7-5 year scenario in comparison to a 7 year Wheat, Pasture + Sheep scenario. This is an example of what the graph will look like; your graph may look slightly different depending on the certain variables you chose. This graph shows that the net revenue (Net revenue is the annual income the scenarios are making). You can see with the Wheat, Pasture + Sheep Scenario is receiving just under five hundred dollars per year (roughly) for the Wheat rotation and around three hundred per year for the Pasture + Sheep years. This is more than what is received by the Brushwood Scenario each year, you can see there is a large cost to the owner to set up the Brushwood planation and from year two it is only just starting to break even.

STEP 2: Click 'File' and 'Print'. Then 'X' from this graph window once finished.

STEP 3: Click 'Chart' icon and then click on 'Scenario A vs Scenario B- Cumulative (Scenario A ('Wheat, Sheep + Pasture (*your name/location*')) versus Scenario B ('Brushwood 7- 5- yr (*your name/location*')) Cumulative)



This graph is showing the cumulative revenue for Brushwood 7-5 year Scenario in comparison to a 7 year Wheat, Pasture + Sheep Scenario. This is an example of what the graph will look like; your graph may look slightly different depending on the certain variables you chose. This graph shows the cumulative revenue, this is the revenue the scenarios are making each year added with the previous years. The net revenue is the profit that the farmer would receive each year, e.g. for the Wheat Scenario, the graph shows \$500 (approximately) plotted for every year and Pasture + Sheep Scenario is making roughly \$300 per year. Cumulative adds the net profit each year together for the life of the project e.g. for wheat, year 1 = \$500, year 2 (wheat= \$500) \$1000, year 3 (Pasture + Sheep = \$300) \$1300 to add up to a cumulative profit of \$3100 received over a 7 year project. The net and cumulative graphs show the same thing, but just expressed differently, so the net graph shows a farmer what profit he/she might receive in any one particular year of a project, while the cumulative shows how this profit adds up over the life of the project. We can see in this graph due to the large outlay in setting up the brushwood the scenario is actually costing the farmer around \$1200.

STEP 4: Click 'File' and Print'. Then 'X' from this graph window once finished.

3. Oil Mallee with Carbon vs Cropping (Wheat)

In this tutorial you will be developing a thirty year Oil Mallee Scenario with Carbon Credits and comparing this with a Wheat Scenario for thirty years. In this tutorial you will learn how to compile a customised tree crop scenario with carbon included and compare this with a customised cropping scenario. You will then learn how to make financial comparisons between the two scenarios.

Develop your Oil Mallee scenario with Carbon

STEP 1: Click on the Carbon Icon

STEP 2: Click on the drop down box next to 'Forest Vegetation' and under the 'Include/Exclude Carbon' text select 'In'.

STEP 3: Under the '% Counted' text type in '90' and then 'X' this window. This will automatically save your changes.

STEP 4: Click on the tree icon

STEP 5: Select your Available Scenario “Oil Mallee Carbon 30yr TEMPLATE

STEP 6: On the main table, go to ‘Class 1 Timber’ and under this heading there is ‘Timber Price \$/t or m3’ in the box next to this type in ‘400’ and then enter.

STEP 7: Click on the *3PG* menu and click Load in *3PG Growth Predictions* a new window will open.

STEP 8: Choose options from the different drop down **menus:**

Select Species:

This needs to replicate your initial choice of tree eg Oil Mallee as it won't default

Management:

Here you need to select the different options under your tree management, as you have selected Mallee CO2e you need to select this management here.

STEP 9: Click *Show Scenario Results*.

STEP 10: Click *Add* to select that model run.

STEP 11: Click *Transfer Model Runs to Scenario* (window then closes).

STEP 12: Go to ‘File’ and ‘Save as a New Scenario’, you will save this as ‘Oil Mallee Carbon 30 year (your name/location)’ and then press ok. **It is important to remember to select ‘save as’ not ‘save’ as this will modify the actual ‘Oil Mallee TEMPLATE’.**

Develop your Cropping scenario (Wheat)

STEP 1: Click on the wheat icon.

STEP 2: Select your Available Scenario *Wheat Template*

STEP 3: Click on the *APSIM* menu and click *Obtain Yield from APSIM*, a new window will open.

STEP 4: Choose options from the different drop down menus. Remember you need to replicate your choices from your comparison scenario **here:**

Land use:

If you are choosing wheat remember that you need to select wheat here as it won't default to this

STEP 5: Click *Get Model Results*.

STEP 6: Click *Copy Average to Scenario* (window closes).

STEP 7: Then go to *File* and *Save as a New Scenario*, save as *E.g. Wheat Carbon (your name/location)* and then press *Ok*. **It is important to remember to select ‘save as’ not ‘save’ as this will modify the actual ‘Wheat TEMPLATE’.**

Comparison

In this tutorial you have now created a multiyear tree scenario (Oil Mallee Carbon 30years) and a single year Wheat Scenario. The next step is to compare the financial performance of the two scenarios

STEP 1: Click on the graph icon on the main page.

STEP 2: Click on the drop down box under ‘0’ ‘Scenario B’ select your *Oil Mallee Carbon 30yr (your name/*

location) and then press enter.

STEP 3: Go to 'Manage Scenarios' along the top horizontal axis and click 'Scenario B', 'Save as a new Scenario' and Save as 'Oil Mallee Carbon 30 year (your name/location)'.

STEP 4: Click 'Manage Scenarios' click 'Scenario A', 'Set length Years' and a new window will pop up and type '30' years and then enter.

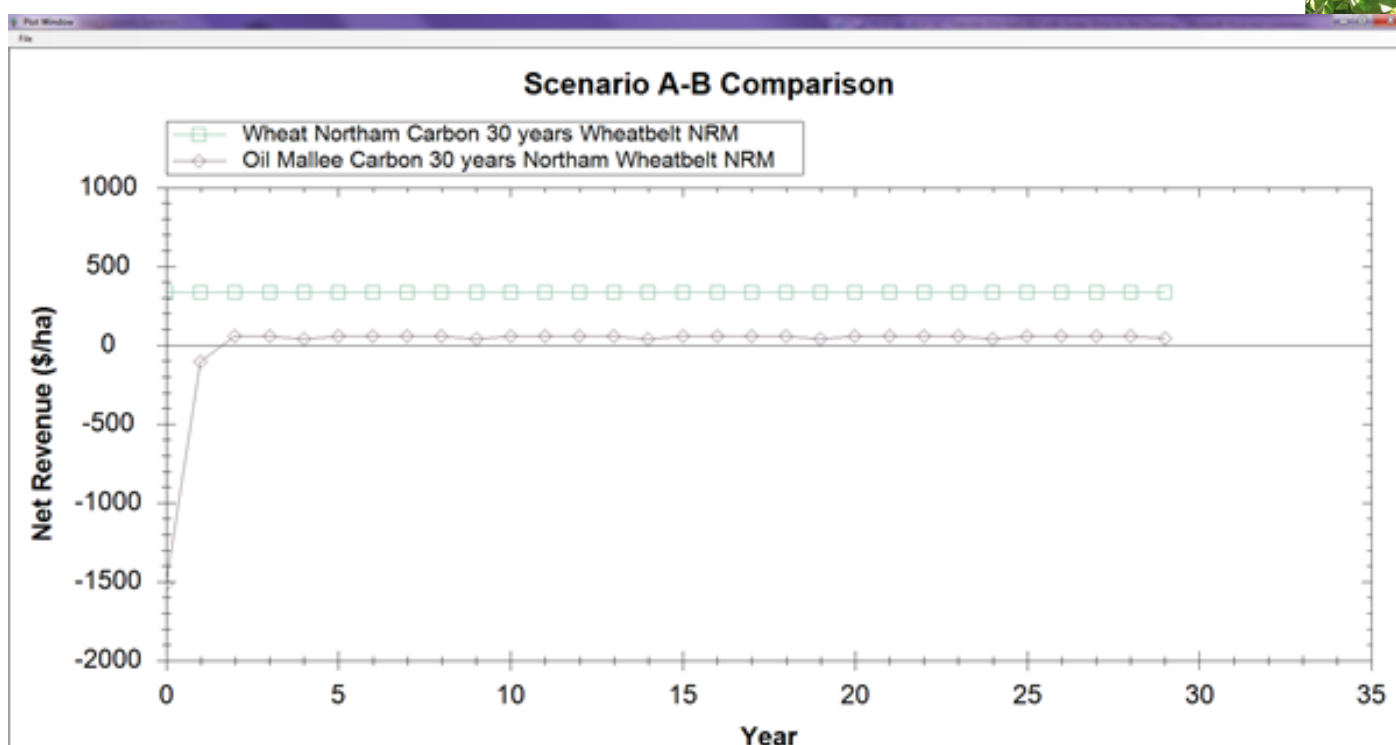
STEP 5: We now need to select our specific wheat template for the 30 years with Scenario A ('Wheat Carbon 30yr (your name/location)'). This is done by clicking on the drop down box under each year for 30 years.

STEP 6: Click 'Manage Scenarios', click 'Scenario A' and then click 'Save as a new Scenario' and save this as *Wheat Carbon 30yr (your name/location)* ****For further explanation of the icons and headings please refer to page 28-30 of your FLFT User Guide.****

Comparison by Chart

In this tutorial you have developed a 30 year Oil Mallee Scenario 'Oil Mallee Carbon 30 years (your name/location)' and a 30 year Wheat Scenario 'Wheat Carbon 30 years (your name/location)' and now we will compare their results in a graph.

STEP 1: Click 'Chart' and then click on 'Scenario A vs Scenario B- Net (Scenario A ('Wheat Carbon 30yr (your name/location)') versus Scenario B ('Oil Mallee Carbon 30 year (your name/location)') Net)



This graph is showing the net revenue for Oil Mallee with Carbon 30 year Scenario in comparison to a 30 year Wheat Scenario.

This is an example of what the graph will look like; your graph may look slightly different depending on the certain variables you chose.



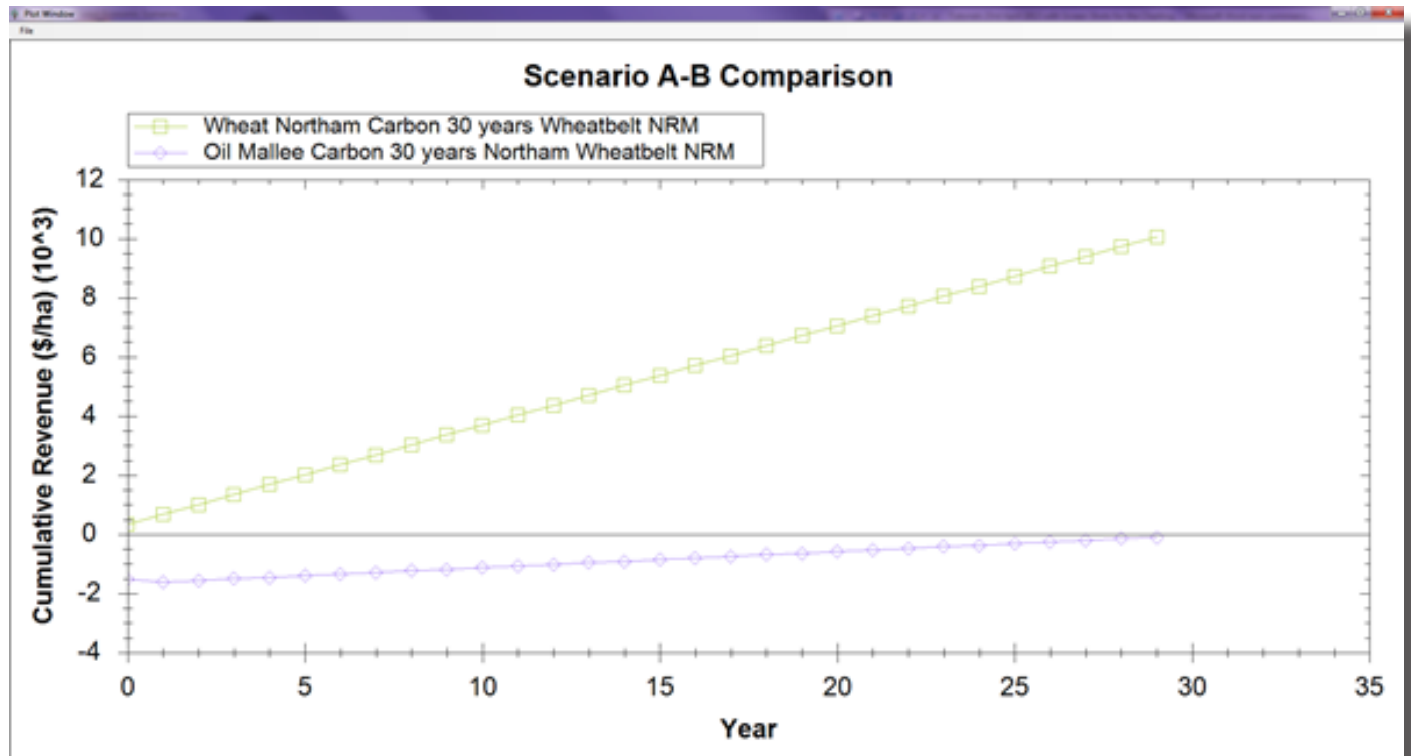
This graph shows that the net revenue (Net revenue is the annual income the scenarios are making).

You can see with the Wheat Scenario you are receiving a steady three hundred dollars per year and the Oil Mallee with Carbon is earning just under one hundred dollars per year (roughly). The Wheat is therefore earning more annually than what is being received by the Oil Mallee Carbon Scenario each year.

You can also see in year one there is a large cost to the owner to set up the Oil Mallee trees and from year three it is only just starting to make just under one hundred dollars per year.

STEP 2: Click 'File' and 'Print'. Then 'X' from this graph window once finished.

STEP 3: Click 'Chart' icon and then click on 'Scenario A vs Scenario B- Cumulative (Scenario A ('Wheat Carbon 30 yrs(your name/location)) versus Scenario B ('Oil Mallee Carbon 30yr (your name/location) ') Cumulative).



This graph is showing the cumulative revenue for Oil Mallee with Carbon 30 year Scenario in comparison to a 30 year Wheat Scenario. This is an example of what the graph will look like; your graph may look slightly different depending on the certain variables you chose. This graph shows the cumulative value (Cumulative revenue is the revenue the scenarios are making each year added with the previous year).

The net revenue is the profit that would be received each year, e.g. for the wheat, the graph shows approximately \$300 plotted for every year. Cumulative adds the net profit of each year together for the life of the project e.g. for wheat, year 1 = \$300, year 2 = \$600, year 3 = \$900 etc up to a cumulative profit of \$9000 received over a 30 year project.

The net and cumulative graphs show the same thing, but just expressed differently. The net graph shows a farmer what profit he/she might receive in any one particular year of a project, while the cumulative shows how this profit adds up over the life of the project. Therefore the first year of the Net and Cumulative graphs are the same but then the cumulative graph is showing the revenue from the beginning of the comparison.

We can see in this graph that the Oil Mallee just breaks even over the thirty years of the scenario, due to the large input cost to establish the trees.

STEP 4: Click 'File' and 'Print'. Then 'X' from this graph window once finished.

4. Cropping (Wheat)/Pasture + Sheep vs Cropping (Wheat/Canola)

In this tutorial you will be developing an eight year Wheat, Pasture + Sheep rotation and comparing this with a rotation of Wheat and Canola over eight years. In this tutorial you will learn how to compile customised Wheat, Pasture + Sheep and Canola scenarios and then how to form these into different rotations. This will therefore show you how to make financial comparisons between the two paddock options.

Develop your Cropping scenario (Wheat)

In this particular tutorial we will be 'excluding the carbon payments'. This means you can skip updating the 'Carbon Icon-C' and go straight to developing your Sandalwood scenario.

STEP 1: Click on the wheat icon.

STEP 2: Select your Available Scenario Wheat Template

STEP 3: Click on the *APSIM* menu and click *Obtain Yield from APSIM*, a new window will open.

STEP 4: Choose options from the different drop down menus.

STEP 5: Click *Get Model Results*.

STEP 6: Click *Copy Average to Scenario* (window closes).

STEP 7: Then go to *File* and *Save as a New Scenario*, save as E.g. Wheat (your name/location) and then press *Ok*. **It is important to remember to select 'save as' not 'save' as this will modify the actual 'Wheat TEMPLATE'.**

Develop your Pasture & Sheep scenario

STEP 1: Click on the sheep icon.

STEP 2: Select your Available Scenario *Pasture + Sheep Template*

STEP 3: Click on the *APSIM* menu and click *Import APSIM Scenario*, a new window will open.

STEP 4: Choose options from the different drop down menus. Remember you need to replicate your choices from your comparison scenario here.

STEP 5: Click *Get Model Results*.

STEP 6: Click *Copy Average to Scenario* (window closes).

STEP 7: For this particular 'Pasture + Sheep Scenario' we are going to increase the price for the ewe lambs. Go to 'Flock Structure- Sources and Uses', 'Ewe-Lambs', Value (\$) and change this value to '\$70' and then press enter.

STEP 8: Then go to *File* and *Save as a New Scenario*, save as E.g. Pasture + Sheep (your name/location) and then press *Ok*. **It is important to remember to select 'save as' not 'save' as this will modify the actual 'Pasture+ Sheep TEMPLATE'.**

Develop your Cropping scenario (Canola)

STEP 1: Click on the cropping icon.

STEP 2: Select your Available Scenario Canola Template

STEP 3: Click on the *APSIM* menu and click *Obtain Yield from APSIM*, a new window will open. Remember you need to replicate your choices from your comparison scenario here.

STEP 4: Choose options from the different drop down menus.

STEP 5: Click *Get Model Results*.

STEP 6: Click *Copy Average to Scenario* (window closes).



STEP 7: Then go to *File* and *Save as a New Scenario*, save as *E.g. Canola (your name/location)* and then press Ok. **It is important to remember to select 'save as' not 'save' as this will modify the actual 'Canola TEMPLATE'.**

Comparison

You have now created a single year Wheat scenario, a single year Pasture + Sheep Scenario and a single year Canola Scenario. The next step is to develop the Wheat, Pasture + Sheep rotation, the Wheat, Canola rotation and then compare the financial performance of the two scenarios (You can refer to page 25-32 in your FLFT User Guide).

STEP 1: Click on the graph icon on the main page.

STEP 2: Click 'Manage Scenarios' then 'Scenario A', then 'Set length (years)' and then enter '8' years and press 'ok'.

STEP 3: The next step is to change Scenario B to a cropping/pasture scenario (as currently it only offers you tree scenarios in the drop down box). Click 'Manage Scenarios', 'Manage Scenario B', 'Change Type', and then 'Change to Livestock/Crop Scenario' and press ok.

STEP 4: Click 'Manage Scenarios' then 'Scenario B', then 'Set length (years)'. Then enter 8 years to match. Both Scenario A and Scenario B will now show 8 year duration.

STEP 5: The next step is setting up the specific rotations; Scenario A will be Wheat, Pasture + Sheep rotation for the 8 years using (*'Wheat (your name/location)'*) and (*'Pasture + Sheep (your name/location)'*) to develop the 8 year rotation. This is done by clicking on the drop down boxes under each of the eight years.

The specific rotation for Scenario A will be;

- i. Year 1: Wheat
- ii. Year 2: Wheat
- iii. Year 3: Pasture + Sheep
- iv. Year 4: Wheat
- v. Year 5: Wheat
- vi. Year 6: Pasture + Sheep
- vii. Year 7: Wheat
- viii. Year 8: Wheat

STEP 6: Once each year has the data selected, press enter and then go to the 'Manage Scenarios', click 'Scenario A' and then click 'Save as a new Scenario' and save this as 'Wheat/ Pasture + Sheep 8yrs (*your name/location*)'.

STEP 7: The next step is to select the specific rotation for Scenario B. Scenario B will be a wheat canola rotation for the 8 years using (*'Wheat (your name/location)'*) and (*'Canola your name/location'*) to develop the 8 year rotation. This is done by clicking on the drop down box under each of the eight years.

The specific rotation for Scenario B will be;

- i. Year 1: Canola
- ii. Year 2: Wheat
- iii. Year 3: Wheat
- iv. Year 4: Canola
- v. Year 5: Wheat
- vi. Year 6: Wheat
- vii. Year 7: Canola
- viii. Year 8: Wheat

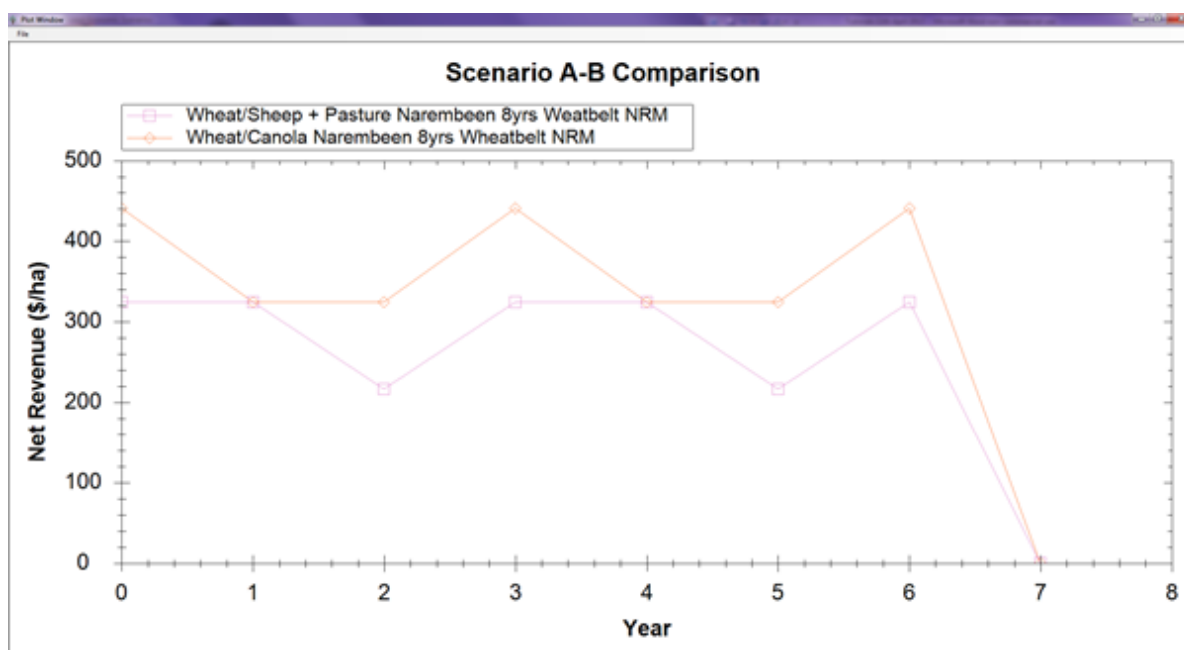
STEP 8: Once each year has the data selected you then press enter and then go to the 'Manage Scenarios', click 'Scenario A' and then click 'Save as a new Scenario' and save this as 'Wheat/Canola'

8yrs (your name/location')**For further explanation of the icons and headings please refer to page 28-30 of your FLFT User Guide**

Comparison by Chart

In this tutorial you have developed an 8 year Wheat, Pasture + Sheep Scenario 'Wheat, Pasture + Sheep 8yr (your name/location') and an 8 year Wheat, Canola Scenario 'Wheat/Canola 8yrs (your name/location') now we will compare the results in a graph.

STEP 1: Click 'Chart' and then click on 'Scenario A vs Scenario B- Net 'Wheat, Pasture + Sheep 8yrs (your name/location') versus Scenario B 'Wheat, Canola 8yrs (your name/location') Net.



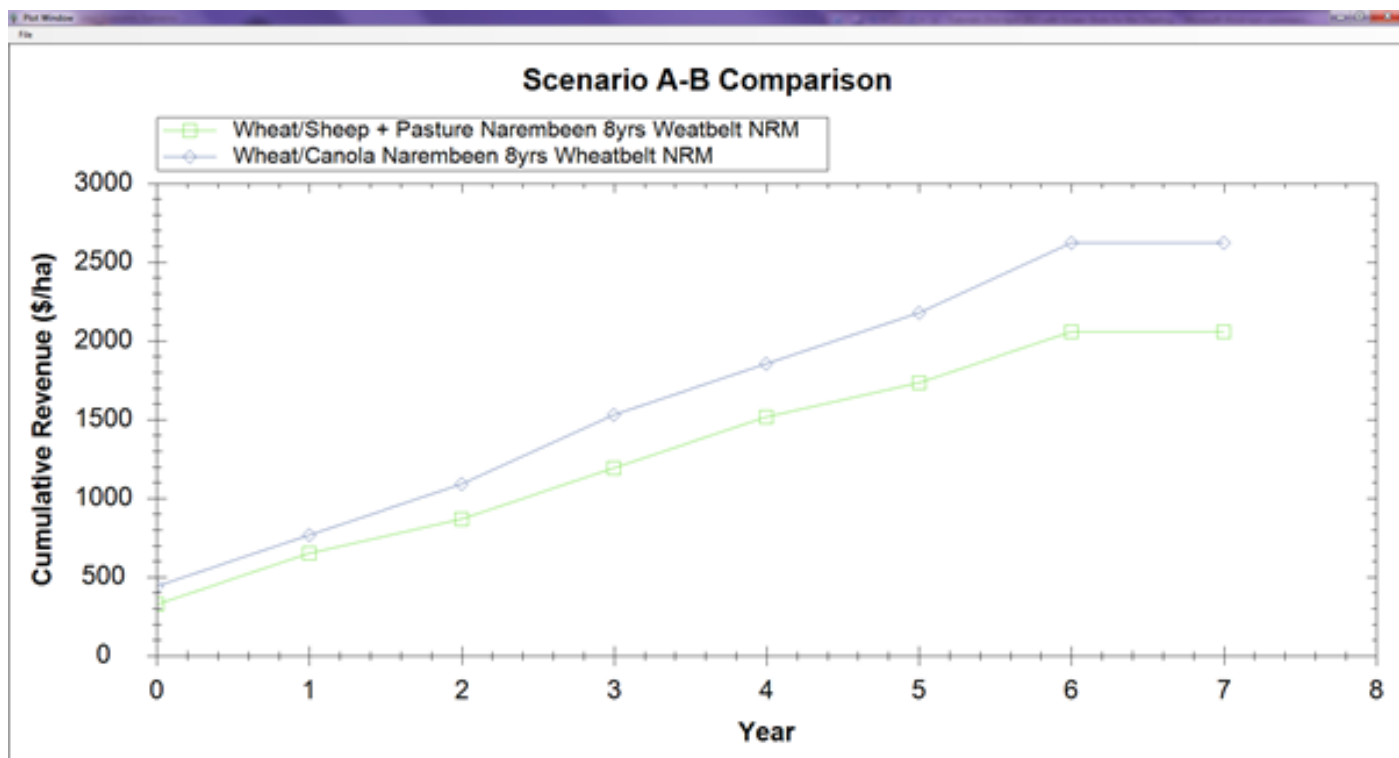
This graph shows the net revenue for Wheat, Pasture + Sheep 8 year Scenario in comparison to an 8 year Wheat and Canola Scenario. This is an example of what the graph will look like; your graph may look slightly different depending on the certain variables you chose. This graph shows that the net revenue (Net revenue is the annual income the scenarios are making).

You can see with the purple line represents the Wheat, Pasture + Sheep rotation and the Wheat years (years 1, 2, 4, 5 & 7) of this rotation is making roughly \$320 per year. The Pasture + Sheep years (years 3 & 5) are roughly making \$240 per year. If we then look at the red line which represents the Wheat and Canola Rotation again you can see the Wheat years of the rotation (years 2, 3, 5 & 6) is making roughly \$320 per year and the Canola years (years 1, 4 & 7) is making roughly \$440 per year.

STEP 2: Click 'File' and 'Print'. Then 'X' from this graph window once finished.

STEP 3: Click 'Chart' icon and then click on 'Scenario A vs Scenario B- Cumulative (Scenario 'Wheat/ Pasture + Sheep 8yrs (your name/location)) versus Scenario B 'Wheat/Canola 8yrs (your name/location) Cumulative.





This graph is showing the cumulative revenue for Wheat, Pasture + Sheep 8 year scenario in comparison to an 8 year Wheat and Canola scenario. This is an example of what the graph will look like; your graph may look slightly different depending on the certain variables you chose. This graph shows the cumulative value (Cumulative revenue is the revenue the scenarios are making each year added with the previous year. Net is the profit that would be received each year, e.g. therefore depending on the year in the rotation, the wheat roughly \$320, Pasture + Sheep scenario is making roughly \$240 per year and Canola scenario making \$440 per year.

Cumulative adds the net profit each year together for the life of the project e.g. for example if we look at the Wheat Pasture + Sheep rotation; wheat, year 1 = \$320, year 2 (wheat)= \$640, year 3 (Pasture + Sheep)= \$880 etc up to a cumulative profit of \$2400 received over a 8 year project. As you can see the cumulative profit for the Wheat and Canola rotation over an 8 year project is \$2900. Therefore the Wheat and Canola Scenario (Scenario B) is financially a better option.

The net and cumulative graphs show the same thing, but they are expressed differently, so the net graph shows a farmer what profit he/she might receive in any one particular year of a project, while the cumulative shows how this profit adds up over the life of the project.

STEP 4: Click 'File' and 'Print'. Then 'X' from this graph window once finished.

Baseline Climate (Cropping (Wheat)/Pasture + Sheep) vs 2030 Climate Prediction (Cropping (Wheat)/Pasture + Sheep)

In this tutorial you will be comparing the baseline climate with the 2030 climate predictions with a Wheat, Pasture + Sheep rotation. You will develop two six year Wheat, Pasture + Sheep rotations. In this tutorial you will learn how to compile customised Wheat, Pasture + Sheep Scenarios and then how to form these into rotations. You will also learn how to compare scenarios with different climate predictions. This will therefore show you how to make financial comparisons between the long term performances of cropping programs with changing climatic conditions.

5. Develop your Baseline Cropping Scenario (Wheat)

In this particular tutorial we will be 'excluding the carbon payments'. This means you can skip updating the 'Carbon Icon-C' and go straight to developing your Sandalwood scenario.

STEP 1: Click on the wheat icon.

STEP 2: Select your Available Scenario *Wheat Template*

STEP 3: Click on the *APSIM menu* and click *Obtain Yield from APSIM*, a new window will open.

STEP 4: Choose options from the different drop down menus. In this scenario you need to select Baseline as your climate scenario.

STEP 5: Click *Get Model Results*.

STEP 6: Click *Copy Average to Scenario* (window closes).

STEP 7: Then go to *File* and *Save as a New Scenario*, save as E.g. Wheat Baseline (your name/location) and then press Ok. It is important to remember to select 'save as' not 'save' as this will modify the actual 'Wheat TEMPLATE'.

Develop your Baseline Pasture & Sheep Scenario

STEP 1: Click on the sheep icon.

STEP 2: Select your Available Scenario *Pasture + Sheep Template*

STEP 3: Click on the *APSIM menu* and click *Import APSIM Scenario*, a new window will open.

STEP 4: Choose options from the different drop down menus. In this scenario you need to select Baseline as your climate scenario. Remember you need to replicate your choices from your comparison scenario here.

STEP 5: Click *Get Model Results*.

STEP 6: Click *Copy Average to Scenario* (window closes).

STEP 8: Then go to *File* and *Save as a New Scenario*, save as E.g. Pasture + Sheep Baseline (your name/location) and then press Ok. It is important to remember to select 'save as' not 'save' as this will modify the actual 'Pasture+ Sheep TEMPLATE'.

Develop your 2030 Cropping scenario (Wheat)

STEP 1: Click on the wheat icon.

STEP 2: Select your Available Scenario *Wheat Template*

STEP 3: Click on the *APSIM menu* and click *Obtain Yield from APSIM*, a new window will open.

STEP 4: Choose options from the different drop down menus. In this scenario you need to select 2030 as your climate scenario. Remember you need to replicate your choices from your comparison scenario here.

STEP 5: Click *Get Model Results*.

STEP 6: Click *Copy Average to Scenario* (window closes).

STEP 7: Then go to *File* and *Save as a New Scenario*, save as E.g. Wheat 2030 (your name/location) and then press Ok. It is important to remember to select 'save as' not 'save' as this will modify the actual 'Wheat TEMPLATE'.

Develop your 2030 Pasture & Sheep scenario

STEP 1: Click on the sheep icon.

STEP 2: Select your Available Scenario *Pasture + Sheep Template*

STEP 3: Click on the *APSIM menu* and click *Import APSIM Scenario*, a new window will open.



STEP 4: Choose options from the different drop down menus. In this scenario you need to select 2030 as your climate scenario. Remember you need to replicate your choices from your comparison scenario here.

STEP 5: Click *Get Model Results*.

STEP 6: Click *Copy Average to Scenario* (window closes).

STEP 7: Then go to File and Save as a New Scenario, save as E.g. Pasture + Sheep 2030 (your name/location) and then press Ok. It is important to remember to select 'save as' not 'save' as this will modify the actual 'Pasture+ Sheep TEMPLATE'.

Comparison

You have now created two single year wheat scenarios (one baseline and the other 2030 climate predictions) and two single year pasture + sheep scenarios (one baseline and the other 2030 climate predictions). The next step is to develop the Wheat, Pasture + Sheep rotation baseline, the Wheat Pasture + Sheep rotation 2030 for a 6 year comparison and then compare the financial performance of the two scenarios

STEP 1: Click on the graph icon on the main page.

STEP 2: Click 'Manage Scenarios' then 'Scenario A', then 'Set length (years)' and then enter '6' years and press 'ok'.

STEP 3: The next step is to change Scenario B to a cropping/pasture scenario (as currently it only offers you tree scenarios in the drop down box). Click 'Manage Scenarios', 'Manage Scenario B', 'Change Type', and then 'Change to Livestock/Crop Scenario' and press ok.

STEP 4: Click 'Manage Scenarios' then 'Scenario B', then 'Set length (years)'. Then enter 6 years to match. Both scenario A and scenario B will now show 6 year duration and will have cropping template selection options.

STEP 5: The next step is to select our specific rotations for the scenarios. Both the scenarios will have the same rotation; start with Scenario A and you will be developing the Wheat, Pasture + Sheep rotation Baseline for 6 years using ('Wheat Baseline (*your name/location*)') and ('Pasture + Sheep Baseline (*your name/location*)') to develop the 6 year rotation to make up Scenario A.

The rotation for tutorial for both scenarios will be;

- i. Year 1: Wheat
- ii. Year 2: Wheat
- iii. Year 3: Pasture + Sheep
- iv. Year 4: Wheat
- v. Year 5: Wheat
- vi. Year 6: Pasture + Sheep

STEP 6: Once each year of the six years have been selected for Scenario A press enter and then go to the 'Manage Scenarios', click 'Scenario A' and then click 'Save as a new Scenario' and save this as 'Wheat and Pasture +Sheep Baseline 6yrs (*your name/location*)'

STEP 7: Then replicate this process for Scenario B, you will use the 'Wheat 2030 (*your name/location*) and Pasture+ Sheep 2030 (*your name/location*) to develop the 6 year rotation. This is done the same way as Scenario A by clicking on the drop down box under each year (the horizontal axis is 'Annual Scenario').

STEP 8: Click 'Manage Scenarios', click 'Scenario B' and then click 'Save as a new Scenario' and save this as 'Wheat and Pasture+ Sheep 2030 (*your name/location*)' ****For further explanation of the icons and headings please refer to page 28-30 of your FLFT User Guide****

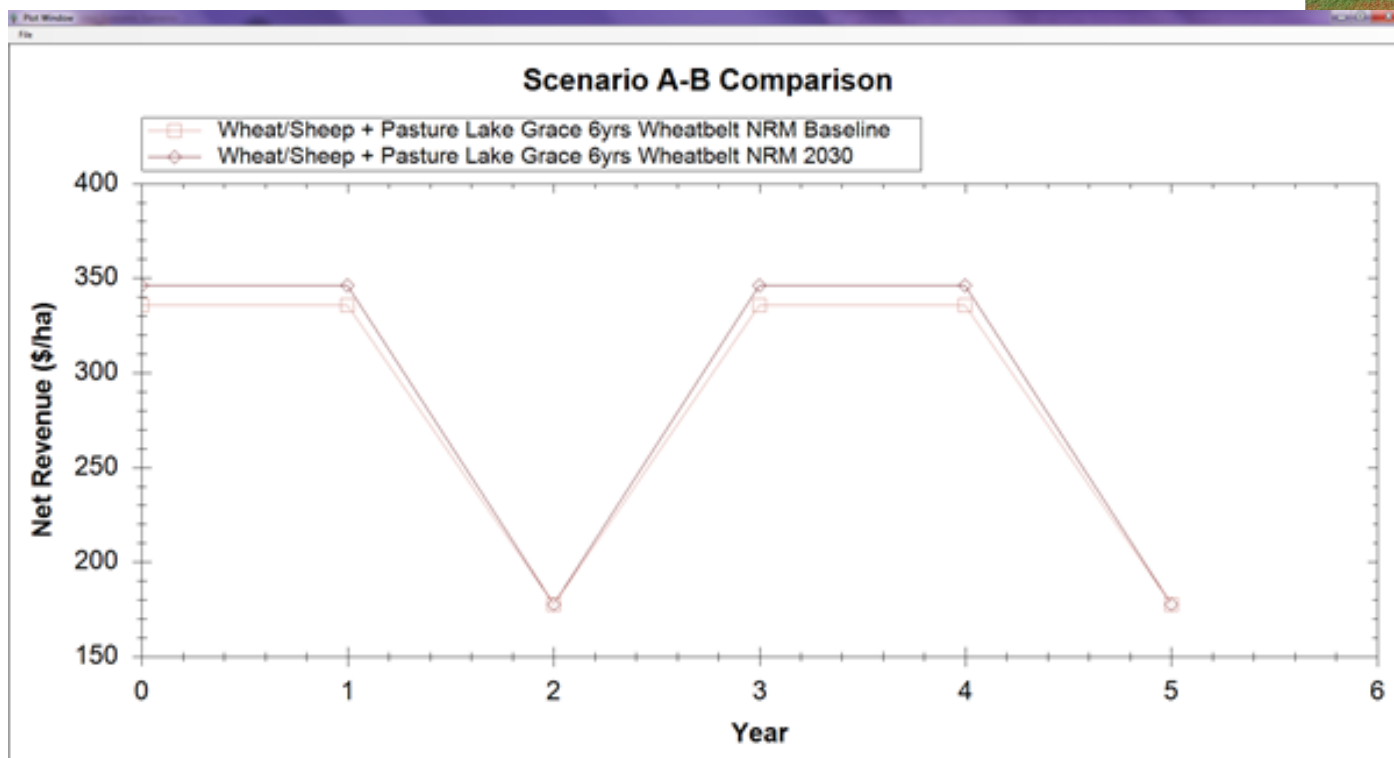
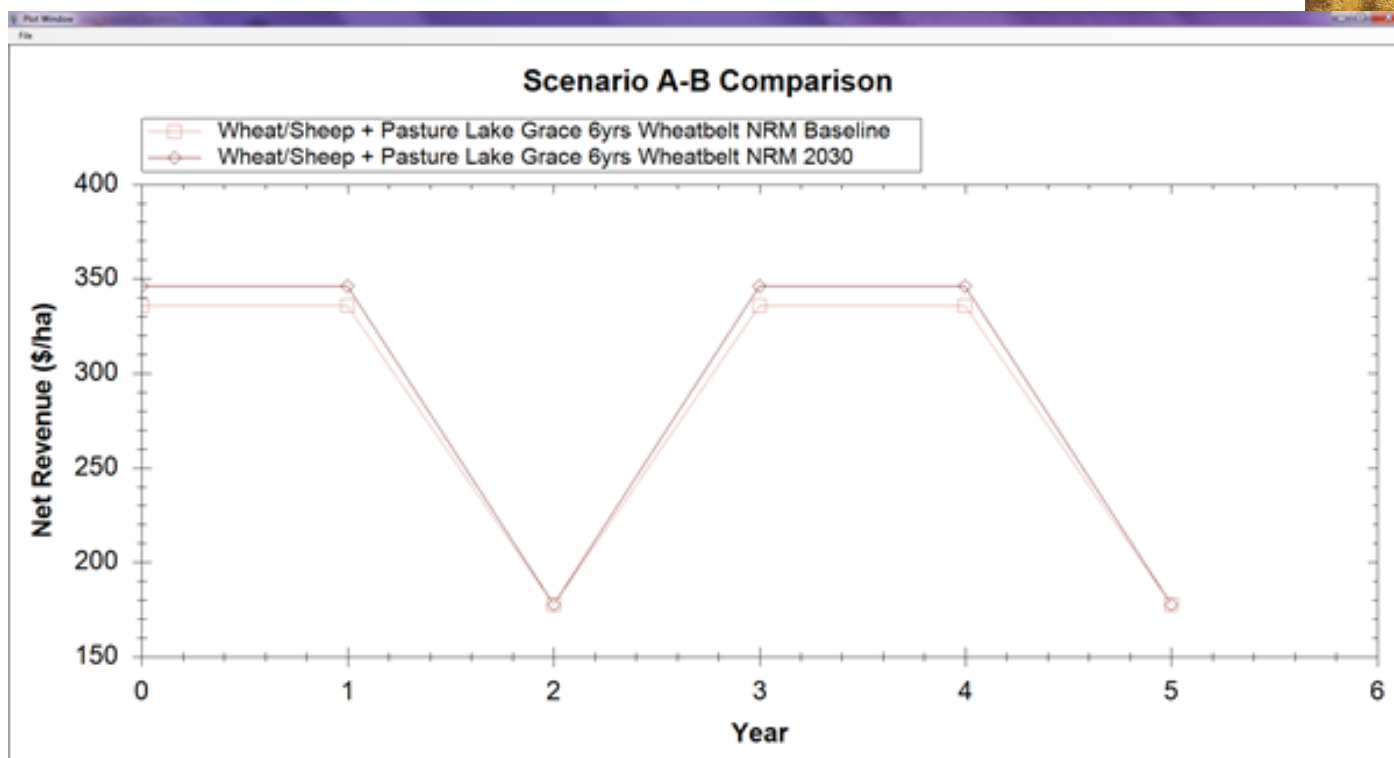
Comparison by chart

In this tutorial you have developed two 6 year Wheat, Pasture + Sheep Scenario rotations 'Wheat and Pasture

+ Sheep 6yr Baseline' and an 6 year Wheat and Pasture + Sheep Scenario rotation

'Wheat, Pasture + Sheep 6yrs 2030' now we will compare their results in the charts.

STEP 1: Click 'Chart' and then click on 'Scenario A vs Scenario B- Net 'Wheat and Pasture + Sheep 6yr Baseline' (your name/location') versus Scenario B 'Wheat/Sheep + Pasture 6yrs 2030' (your name/location') Net.



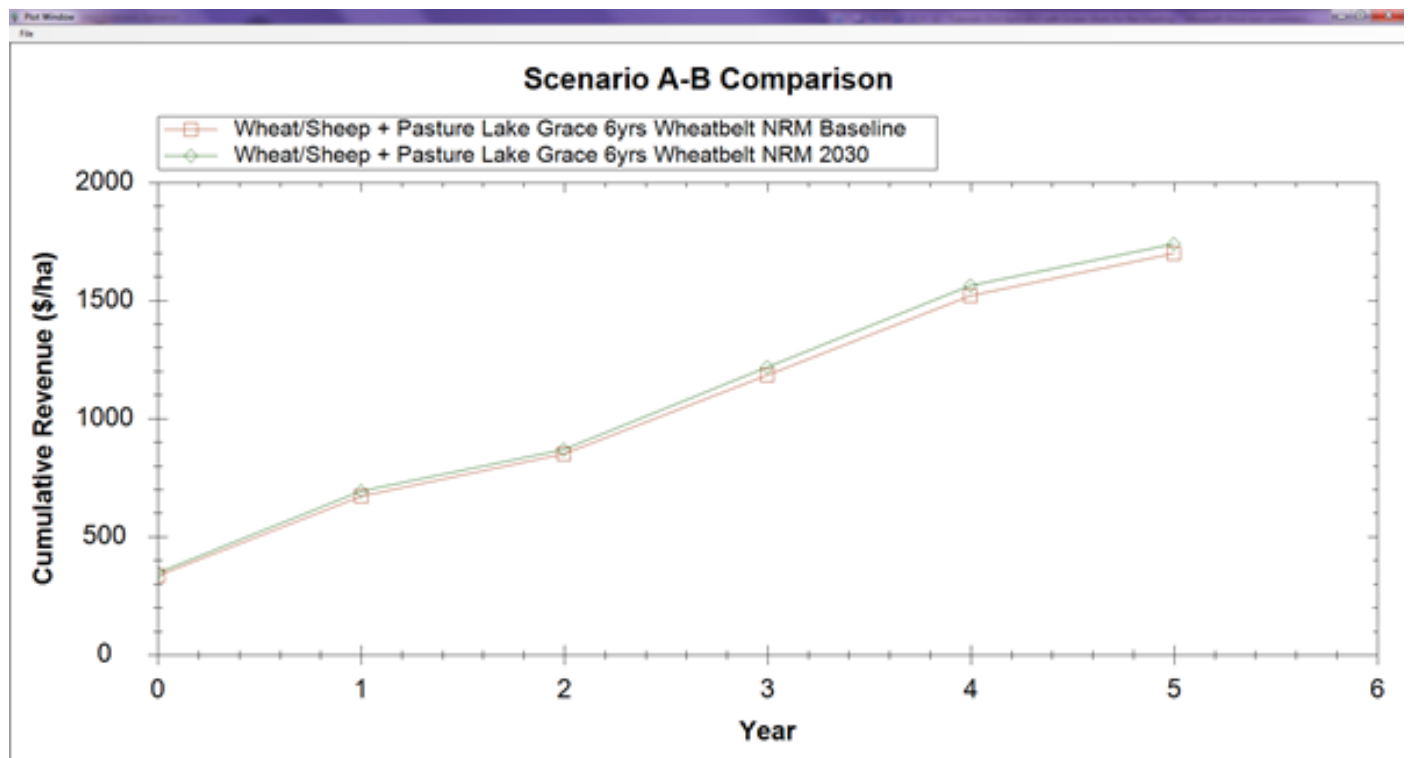
This graph is showing the net revenue for Scenario A (Wheat, Pasture + Sheep 6 year Baseline Scenario) in comparison to Scenario B (6 year Wheat, Pasture + Sheep 2030 Scenario). This is an example of what the graph will look like; your graph may look slightly different depending on the certain variables you chose.

This graph shows that the net revenue (Net revenue is the annual income the scenarios are making). You can see with the red line represents the Wheat, Pasture + Sheep Baseline Scenario rotation. The Wheat years (year 1, 2, 4, & 5) of this rotation is making roughly \$340 per year and then the Pasture + Sheep years (years 3 & 6) are roughly making \$180 per year.

If we then look at the red line which represents the Wheat and Pasture + Sheep 2030 Rotation you can see the Wheat years of the rotation (year 1, 2, 4, & 5) is making roughly \$350 per year and the Pasture + Sheep years (years 3 & 6) are roughly making the same (\$180) as the Baseline rotation.

STEP 2: Click 'File' and 'Print'. Then 'X' from this graph window once finished.

STEP 3: Click 'Chart' icon and then click on 'Scenario A vs Scenario B- Cumulative 'Wheat and Pasture + Sheep 6yr Baseline' (your name/location') versus Scenario B 'Wheat/Sheep + Pasture 6yrs 2030' (your name/location') Cumulative.



This graph is showing the cumulative revenue for Scenario A (Wheat, Pasture + Sheep 6 year Baseline Scenario) in comparison to Scenario B (6 year Wheat, Pasture + Sheep 2030 Scenario). This is an example of what the graph will look like; your graph may look slightly different depending on the certain variables you chose. This graph shows the cumulative value (Cumulative revenue is the revenue the scenarios are making each year added with the previous year).

Cumulative adds the net profit of each year together for the life of the project e.g. for example if we look at the Scenario A Wheat Pasture + Sheep rotation; wheat, year 1 = \$340, year 2 (wheat) = \$680, year 3 (Pasture + Sheep - \$180) = \$860 with an overall cumulative profit of \$1680 received over a 6 year project. As you can see the cumulative profit Scenario B for a 6 year Wheat, Pasture + Sheep 2030 project is \$1720.

The net and cumulative graphs show the same thing, but just expressed differently, so the net graph shows a farmer what profit he/she might receive in any one particular year of a project, while the cumulative shows how this profit adds up over the life of the project.

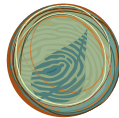
You can see in this graph that the Scenario A (Wheat, Pasture + Sheep 6 year Baseline Scenario) cumulatively is earning roughly fifty dollars less than Scenario B (6 year Wheat, Pasture + Sheep 2030 Scenario). Therefore the predicted climate estimation for 2030 shows a mildly positive impact on these rotations.

STEP 4: Click 'File' and 'Print'. Then 'X' from this graph window once finished.





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