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GPFARM USER'S MANUAL

Version 2.6 GPFARM “Express”



USDA-ARS, Great Plains Systems Research Unit and Colorado State University

GPFARM: Great Plains Framework for Agricultural Resource Management

USDA-ARS, Great Plains Systems Research Unit and Colorado State University



GPFARM is a simulation model computer software package. It incorporates state of the art knowledge in agronomy, animal science, economics, weed science and risk management into a user-friendly, decision-support tool. Users of GPFARM can test alternative management strategies that may lead to improvements in economic and environmental sustainability of their agricultural operations. GPFARM Express contains default projects to allow users to quickly set up their operations.

GPFARM Decision Support System (DSS) Objective:

- Develop decision-support system (DSS) tool that is capable of simulating and analyzing 10-50 year farm/ranch production plans with respect to crop and livestock growth, water, nutrient, and pest management along with their associated economic and environmental risks.

GPFARM DSS Benefits

- GPFARM integrates state of the art agricultural science knowledge with economic and environmental analysis into a whole-enterprise evaluation. Results from the DSS provide the user with information for making management decisions that promote sustainable agriculture.
- GPFARM provides feedback on management and technology and assists in determining areas requiring further research and development. This is an evolutionary process that ties farm management, research and technology transfer closely together.
- GPFARM serves to bring together scientists from different disciplines with producers and consultants to solve complex problems in agriculture.

Products within GPFARM

- A user-friendly, farm/ranch simulation model that produces output for various agricultural production systems and management options with respect to economics, environmental impact and sustainability.
- A detailed whole farm/ranch economic analysis package (PAL Budgeting Program).
- A web based, agricultural information system.
- A stand-alone weed management model (WISDEM).
- Tools to analyze weed pressure effects and N fertilizer requirements.
- Analysis tools including graphics, economics, and risk analysis.
- GIS tools.

A Note About 'Simulation'

- Simulation is a common computer programming term and is used throughout this document. In the computer programming world it means “The process of imitating a real phenomenon with a set of mathematical formulas. Advanced computer programs can simulate weather conditions, chemical reactions, atomic reactions, even biological processes.” (From: Webopedia an online dictionary. The URL is <http://www.webopedia.com/>). In this context, simulation does not mean fake, counterfeit or unreal.
- A forecast is “to calculate or predict (some future event or condition) usually as a result of rational study and analysis of available pertinent data especially to predict (weather conditions) on the basis of correlated meteorological observations.” (From: Webster’s New Collegiate Dictionary, 1981, G & C Merriam and Co. 1532 pps.)
- GPFARM is a computer program that runs the components of the model and produces a simulation (output) of what is likely to happen with the given set up inputs to the program. In this sense a simulation is similar to a forecast in that the output or results of the model are used to predict what is likely to happen given a particular set of circumstances. Therefore, simulation and forecast can be used rather interchangeably.

Important Notes

- **It is very important to never use any character keys in naming a file, project, scenario, field or management unit.**
- Use only upper and lower case letters as well as the digits 0 – 9.
- If you are installing under Windows XP Home, after installing GPFARM go to the GPFARM directory and right click. Go into properties and click on sharing. The GPFARM directory needs to be shared on Windows XP Home for GPFARM to function normally.

Contacting GPFARM

- For information about the GPFARM project, please contact the Great Plains Systems Research Unit (970) 492-7300 or write us using electronic mail (de627syl@ars.usda.gov). You may also wish to visit our Internet web site <http://gpsr.ars.usda.gov>
- [Click here to send comments to the GPFARM team.](#)
- Direct mail inquiries to:
USDA, ARS, GPSR
GPFARM
2150 Centre Ave.
Bldg. D, Suite 200
Fort Collins, Colorado USA, 80526
Phone Number: (970) 492-7300
Fax Number: (970) 492-7310

Minimum System Requirements

Hardware

- Pentium/200 with 64 Mbytes of RAM (128 Mbytes RAM recommended)
 - Note: A faster Pentium or Pentium 2 CPU computer with 64+ Mbytes of RAM would enable faster processing of the program.
- 200 Mbytes free hard disk space
- CD-ROM
- SVGA monitor set at a resolution of 800x600 and small fonts
- 100 - 200 Mbytes of disk space for the Information System or historical climate databases

Software

- Microsoft Windows® 98, 98SE, NT4, 2000, ME or XP.
- Microsoft Access 97 or 2000 (optional but recommended)

Installation Options

Install GPFARM

- Install GPFARM from the GPFARM distribution CD.

NOTE: If you already have a version of GPFARM on your hard drive be sure to un-install it before installing a new version or re-installing an old version.

NOTE: If you are installing under Windows XP Home, after installing GPFARM go to the GPFARM directory and right click. Go into properties and click on sharing. The GPFARM directory needs to be shared on Windows XP Home for GPFARM to function normally.

Install GPFARM Information System

- You can install the GPFARM Information System from the GPFARM CD and save it to your hard drive. However, the Information System is quite large! Instead you may want to access it from the GPFARM CD whenever you need it.
- You can access the GPFARM Information System from the web at <http://gpsr.ars.usda.gov> and select the GPFARM Information System.

NOTE: Please see the [Online Help](#) for more detailed instructions for installing and un-installing GPFARM.

Tools in GPFARM

- Several “**Tools**” have been included with GPFARM to assist users. These include:
 - An Online Help System. An extensive online Help System has been packaged with GPFARM to provide assistance in using GPFARM.
 - An Internet based Information System. This is a tool to aid users in accessing pertinent information on the World Wide Web. It is packaged with GPFARM and is also available on the Web at the following URL: <http://infosys.ars.usda.gov/>
 - Herbicide Links. This is a table contained in the Help System that provides links to the labels and Material Safety Data Sheets (MSDS) for each herbicide used in GPFARM. However, there are, some herbicides for which labels and MSDS’s could not be found. Therefore there are no links for these herbicides even though they are still active (used and registered with the EPA).
 - Weed Images. This is a section found in the Help System with images and information about common weeds to aid the user in identifying weeds and to provide additional information about the growth of each weed.
 - A [FAQ \(Frequently Asked Questions\)](#) is included with this User’s Manual.

Online Help System

- GPFARM has an online Help System available from the menu bar. Click on the Help icon to access the system.



- Here you will find detailed help for each screen and topic in GPFARM.
- Many pages have links to web sites that are relevant to the topic.

Disclaimer

- The use of trade, firm, or corporation names in the GPFARM Help System, the GPFARM DSS or the GPFARM Information System is for the information and convenience of the reader. Such use does not constitute an official endorsement or approval by the U.S.D.A. Agricultural Research Service, of any product or service to the exclusion of others that may be suitable.
- Internet Explorer 5.0
 - * GPFARM is using Microsoft Internet Explorer Administration Kit to redistribute Internet Explorer 5.0.

FAQ - Frequently Asked Questions

3/05/04

GPFARM Main Window

- Q: What do I do when I get here?
- A: Either Load a saved project, a default project or create a New project. Click on the Load icon or on the Farm/Ranch/Load menu item to access a previously saved project or one of the default projects. To create a New project click on the New icon or use Farm/Ranch/New.

- Q: How do I delete an existing project or a scenario within a project?
- A: Click on the Manager icon or select the Manager menu item. The project manager dialog box will open. Select the project (blue icon) or a scenario within a project (yellow icon) and add to the list to delete. To select more than one item at a time use Shift and click to select a block of items or CTRL and click to select non-adjacent items.

Tips for naming your new Farm/Ranch project:

- Use names that identify the farm/ranch, field or management unit (mu) and that are meaningful to you. For example:
 - Project name = family name or the farm name
 - Scenario name = rotation name, location name

- **Do Not use any character keys; use only letters or numbers**

FAQ - Frequently Asked Questions

3/05/04

GPFARM Farm/Ranch Window CLIMATE

- Q: How do I select a climate?
- A: Click on the climate icon and the [Climate screen](#) will appear. Select either generated or historical by clicking on the radio button. Then press either the Generate Climate button for generated climate or the Get Historical button to access the historical climate. The Climate Station Selection screen will appear. Select the location from the map for which you wish to get climate data.

- Q: When I click on the [climate map](#) nothing happens.
- A: You must click on the check mark icon to turn on the selection tool and then click on the area of the map for which you want climate data. Click on a red dot or on the location of the farm and the nearest climate station will be selected.

- TIP: Try to name the climate data with the climate station name and the years of data you have selected. For Example: Akron8099 = Akron station and the years 1980 through 1999.

- Q: How can I enlarge or zoom in on area of the Climate map?
- A: Click the left mouse button, hold and drag over the area you wish to enlarge.

- Q: How do I zoom back out if I zoomed in to far on the Climate map?
- A: Click on the Extent icon (the third button in the upper left hand corner) to zoom back out.

FAQ - Frequently Asked Questions

3/05/04

GPFARM Farm/Ranch Window EQUIPMENT

- Q: How do I customize a piece of equipment from the default equipment list?
- A: Double-click on the piece of equipment in the list that you want to customize or edit. Also, you can click the View Costs button and edit the View Costs table at the annual level. Look at the total costs at the hourly level to see if they are correct and if adjustments are needed edit the values at the annual level. NOTE: values can only be changed at the annual level.
- TIP: The View Costs table should be the last item edited for equipment. Otherwise, changes made in the View Costs table will be lost if other equipment changes are made after editing the View Costs table.

FAQ - Frequently Asked Questions

3/05/04

GPFARM Farm/Ranch Window RESOURCES

Soil Information

- Q: The soil survey I selected does not have my soil type.
- A: Not all surveys are complete. Go to a neighboring county survey and search for your soil type. The soil types are alphabetized.

- Q: My field has more than one soil type. Which soil do I choose?
- A: There are two ways to handle this. Either break up the field into several mu's and then make each mu a different soil type or pick the most dominant soil in the field and use that soil type for the entire field.

Weed Population

- Q: I have weeds that are not listed. What should I do?
- A: Only annual weeds are listed. Select all that you have. Not all possible weeds are included in this current version of GPFARM.

FAQ - Frequently Asked Questions

3/05/04

GPFARM Farm/Ranch Window LAYOUT

- Q: How do I name my Fields and Management Units?
- A: Use descriptive names for fields and management units. For example a field name can be a township, section and range i.e., T12R53S25. A management unit name could be the previous landowner's name, i.e. a commonly used name for the area. Or it could be a location within the section, i.e., S2NW. Some people use the NRCS ID for the field. Remember: **do not use character keys**. For example, do not use NW1/4 rather use NWquarter.

FAQ - Frequently Asked Questions

3/05/04

GPFARM Farm/Ranch Window OPERATIONS

- Q: How do I fertilize and plant in the same day or the same operation?
- A: Enter the planting operation and equipment, properties, and materials as you normally would. Then enter the commercial fertilizer as another operation type with the same date and check the custom operation box. No equipment is needed for this custom rate but enter properties and costs. Under materials/custom zero out the custom rate costs because these application costs are already included with the planting operation.

- Q: How do I enter a custom hauling rate for harvest?
- A: Only one harvest operation can be entered per crop. Enter hauling rates, insurance costs and any other miscellaneous costs under Materials/custom for the Harvest operation.

- Q: How do I enter additional costs such as consultant fees, or insurance fees?
- A: On an operation type, select Materials/Custom and enter the values there. It doesn't matter which operation type you choose, but make sure it is for the crop with which the cost is associated.

FAQ - Frequently Asked Questions

3/05/04

GPFARM Farm/Ranch Window GENERAL QUESTIONS

- Q: What is the difference between the CLIMDB, climate data base and climate file?
- A: The CLIMDB is the climate database in which the user's climate data selection is stored. It is comprised of three tables which holds generated or historical climate. The CLIMLONG table holds the actual climate data such as temperature and precipitation. The CLIMSTN table holds information about the climate station from where the data was collected. The WIND table holds wind data for the field being defined.
- The climate file holds the climate information that was selected in the setup for the scenario. It may include only a portion of the climate selected from the database if the user did want all 100 years, for example.

- Q: How can I turn the drawing tools on again?
- A: Click on the Help icon on the menu bar.

- Q: Why does the program lock up?
- A: Several things could have occurred. Any screen that is open must be closed before moving on. You cannot toggle back and forth between screens. For example, if the Operations screen is open and you click on the Main GPFARM background the program will lock up. Also, if a single click on the mouse is required to open a screen and a double click occurred, the program will lock up. Usually, at this point you must restart GPFARM by ending the program using CTRL-ALT-DEL. Select End Task and select the program you want to close, in this case select GPFARM.

Save the Scenario

- To save the current scenario click the save scenario icon or click on the Scenario\Save menu item.
- You will be asked if you want to save it as the current scenario. Answer Yes if you do; answer No if you want to name it something else.
 - The Save Scenario screen will appear where you can give the scenario a new name and, thereby, save a different version of the scenario. If you don't want to save another version of the scenario press the Cancel button.
 - You will then be asked if you want to overwrite the current scenario? If you do, answer Yes. If you do not want to overwrite the current scenario but still want to save this version answer No and you will be returned to the Save Scenario screen. If you simply want to get out of this screen and continue working press the Cancel button. Keep in mind that nothing has been saved if you Cancel out of the screen.

Save the Project

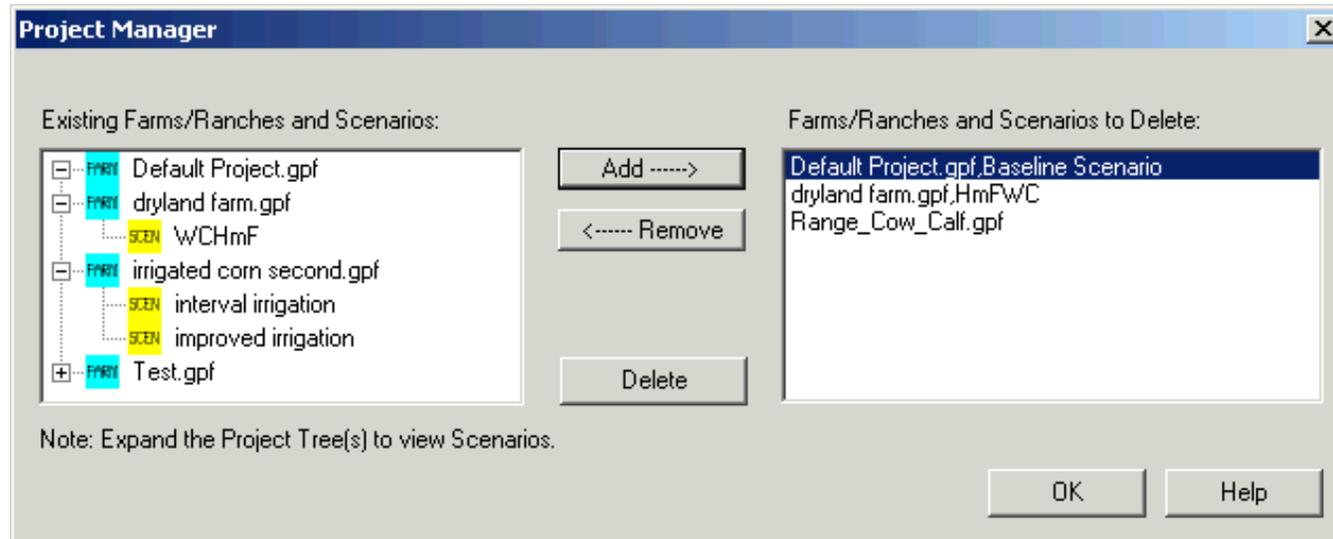
- Save the Farm/Ranch – this will save the project and overwrite what was already saved. You will be asked if you want to overwrite the current scenario. If you answer No the current project will not be saved and you will lose any changes you made.
- Save As Farm/Ranch – this will save the current project under a new name. You will be asked to name the project which will create a new .gpf file. This is good to do if you want to keep the project with the current practices intact. Then you can create a modified version of the current operation and compare the output of the two projects.

Close the Project

- Close the Farm/Ranch – use this to close the project. You will be asked if you want to save the current scenario. Be aware if you answer No you will lose any changes you made. If this is a new scenario and you do not save it you will lose the entire scenario.

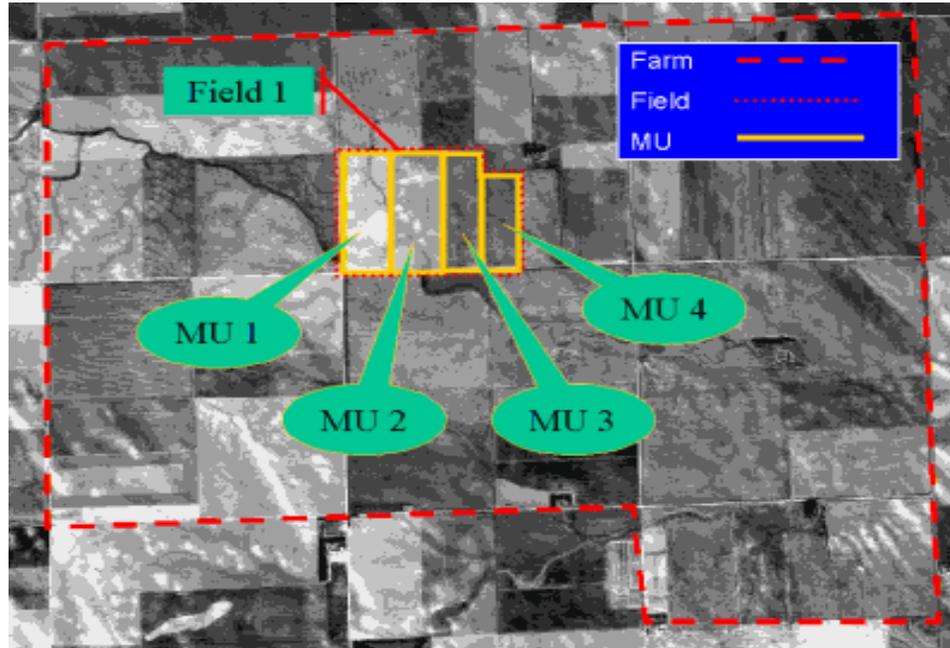
Delete a Project/Scenario

- To delete a project press the Delete icon or access the Farm/Ranch/Delete menu item. The entire project will be deleted.
- You can use the Project Manager to delete projects, or scenarios. Press the Manager icon or access the Project Manager menu item.
 - Expand the projects to see the scenarios within the projects by clicking on the '+' next to the project name. Select a project or scenario and press the Add button. It will be written to the Delete list.
 - If you decide not to delete a selection click on the name and press the Remove button and it will be removed from the delete list and written back to the available list.
 - When you have selected all that you want to delete, press the Delete button.
 - You will be asked to confirm that you want to proceed with the deletions.



Farm/Ranch Overview

- This is an example of how GPFARM looks with an existing Farm/Ranch project.
- The Farm/Ranch, which is the Project, is the main level in GPFARM.
- The Farm/Ranch is composed of fields and must have at least one field defined.
- Fields are composed of one or more Management Units (MU). Every Farm/Ranch must have at least one Management Unit defined with a climate.
- There is a maximum of 60 MU's and therefore 60 fields.
- You may want to name each field with township, range and section and give a descriptive name to the mu(s) within the field. Be careful not to use any character keys in the names.



Projects and Scenarios

- Projects are the way GPFARM organizes the Farm/Ranch information to run the simulation.
- A project has only one Farm/Ranch and is therefore equal to the Farm/Ranch.
- A Project is composed of one or more scenarios.
- A scenario is one set of management or resource schemes for a particular Farm/Ranch.
- A farm/ranch can have more than one scenario and most likely should have at least two: the baseline and another version with changes to the baseline for comparing the changes in management or resources.

Management Units

- A Management Unit (MU) is a land unit that has one and only one type of management or system of management. It is the basis for the simulation and can have only one soil defined on it.
- An MU is either cropland or rangeland. It has a unique combination of resources (soil, slope, residues, etc.) and management operations (rotation, events) on it.
- An MU is the smallest, unit in GPFARM. The maximum number of MUs GPFARM can handle is 60. NOTE: The maximum number of years you can run in a simulation is 50.

Setup Overview

1. Determine the number of fields on the Farm/Ranch and the number of management units per field.
2. Select the Climate for the Whole Farm from either historic or generated data. (See [Climate](#), page 43, for an example)
3. Create the Layout of the Farm/Ranch. (See [Farm/Ranch Layout](#) for an example). This is optional – you can set up the Farm/Ranch without creating a pictorial view of the Farm/Ranch.
4. Choose the [Resources](#) for each Management Unit.
5. Choose the [Operations](#) for each Management Unit.

Simulation Dates

- GPFARM can start or end on any day of the year. GPFARM will check before running the simulation to insure that the chosen climate covers the number of years determined by start and end dates of the simulation.
- Input variables with the word 'Initial' should reflect the state of that variable on the starting date of the simulation.
- The maximum simulation period is 50 years. Although, the simulation can start on any day, it must start before a planting or calving event. If the end date occurs before the last day of the year, there will be no output for that year.

Whole Farm/Ranch Inputs

- Some inputs to GPFARM are Whole Farm inputs. That is, they apply to the entire farm/ranch and do not change between management units.

- These include:
 - Climate
 - Economics - which includes the default values supplied with GPFARM and investments. Note: the cost of specific investments can be allocated to specific land units or applied to the whole farm/ranch so investments may not always be a whole farm type of input.
 - Equipment
 - Irrigation Systems
 - Range/Livestock – the entire herd moves from one management unit to another and therefore is always managed as one unit.

Farm/Ranch Setup

- A Farm/Ranch Setup Wizard is available to aid you in setting up the Farm/Ranch.
- Three setup items are checked by default and are required to be completed for most simulations. Three additional items are available in the wizard.
- A climate must be specified. Default economic values should be checked and changed if necessary. Equipment should always be setup for the Farm/Ranch.
- Additionally, you may want to define Investments, Range/Livestock and Irrigation Systems. By checking those boxes, GPFARM keeps track for you of the information you intend to enter.
- If you don't use the wizard you will need to enter all the information.



Climate

- GPFARM can use generated or historical climate. Select one of the red dots on the [Climate Map](#) (See Page 44) and based on whether you choose to Generate Climate or to Get Historical Climate GPFARM will generate or obtain historical climate data for your region.
- If you choose one of the default projects, several generated and historical climate files have already been created for you. To use one of these supplied climates select one from the dropdown list under Available Climate Files.
- You may also enter your own historical climate for your farm/ranch. Microsoft Access 97 or better is required to enter your own climate to the database.
- Climate is required for GPFARM to run the simulation. (NOTE: If a simulation won't run check to see if a climate has been defined.)

The screenshot shows a dialog box titled "Climate" with a close button (X) in the top right corner. The dialog has three tabs: "Load Climate" (selected), "File Manager", and "Nitrogen in Rainfall".

Under the "Load Climate" tab, there are two main sections:

- Climate File Input:** Contains two radio buttons: "Generated" (selected) and "Historical". Below "Generated" is a "Generate Climate" button. Below "Historical" is a "Get Historical Climate" button.
- Available Climate Files:** Contains a dropdown menu with "Test Farm Climate" selected. Below this is a table with the following data:

Start Date:	01/01/1990
End Date:	12/31/1999
Number of Years:	10

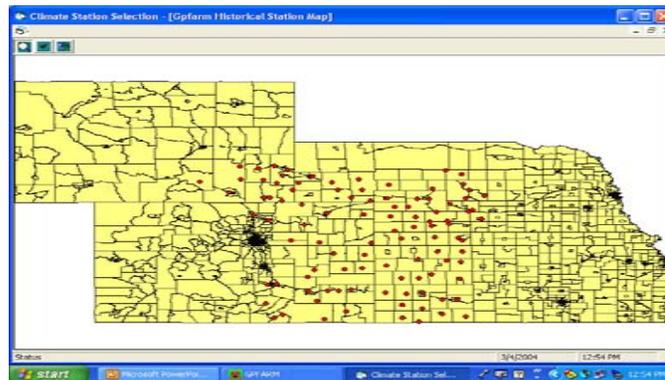
Below the "Available Climate Files" section, there are several text input fields:

- State: Colorado
- Station: AKRON CAA AP
- Type: Generated
- Wind Station: AKRON CAA AP

At the bottom of the dialog are four buttons: "OK", "Cancel", "Apply", and "Help".

Climate Map

- This map will appear when you push the Generate Climate button or the Get Historical Climate button.
- Click on the Select Point icon  to enable you to select a dot on the map. Click on the location (dot) that you want to use for your climate data.
- By Default, the Zoom icon  is selected. If you want to enlarge a section of the map and see the names of the stations each dot represents, hold the left mouse button down and drag the area you wish to zoom in on.
- To zoom back out, click on the Extent icon  and the map will go back to it's original view.



Economics – Default Values

- Default Values costs or rates are provided for the following:
 - [Irrigation](#)
 - [Machinery](#)
 - [Crops](#)
 - [Labor](#)
 - [Investment Interest](#)
- Be sure to check each of these values and modify them to suit your operation.

The screenshot shows a dialog box titled "Economic Default Values" with a tabbed interface. The "Irrigation" tab is selected, and the "Irrigation Energy Rates" section is active. A "Reset to Defaults" button is located to the right of the input fields. The input fields contain the following values:

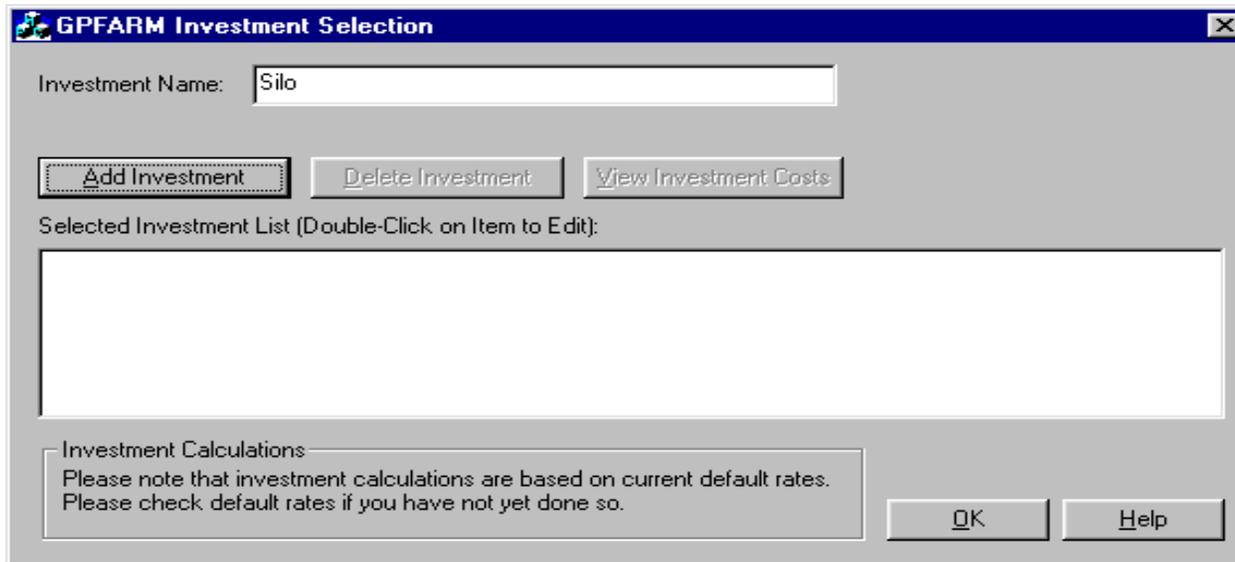
Field	Value
Customer Charge (\$ Per Month) :	7.50
Meter Charge (\$ Per Meter Per Month):	6.20
Demand Charge (\$ Per HP of Connected Load):	1.50
Demand Charge (\$ Per Max. KW Per Summer Month):	1.85
Demand Charge (\$ Per Summer Month Peak KW):	1.70
Demand Charge (\$ Per Max. KW Per Winter Month):	1.25
Demand Charge (Average \$ Per KW):	0.10
Average Energy Charge (\$ Per KWH):	0.50
State Surcharge (\$ Per KWH):	0.0002

NOTE: These rates apply to electric pumps only. For fuel driven pumps, please enter fuel prices in the Machinery default section.

Buttons at the bottom: OK, Cancel, Apply, Help.

Economics- Investments

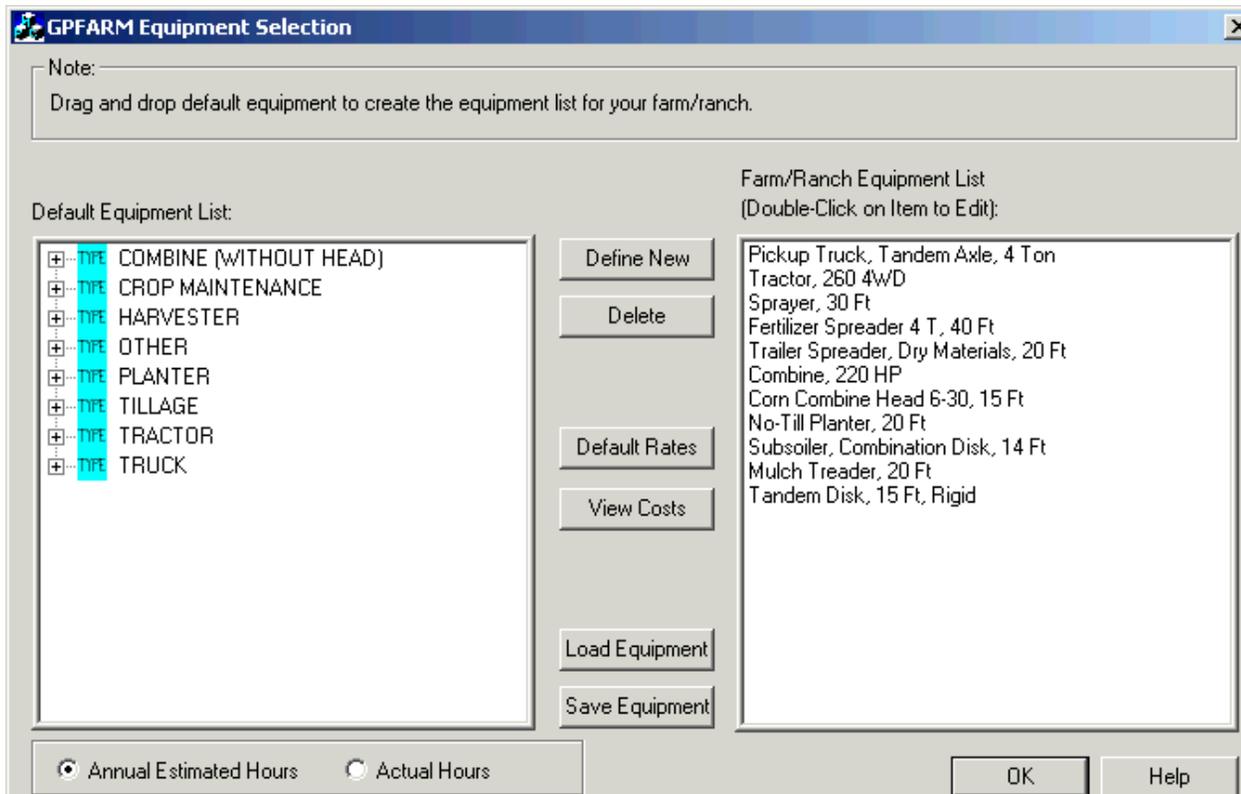
- Investments made in the Farm/Ranch need to be defined at the whole farm level.
- These are generally capital improvements and the cost can either be applied to a single Management Unit or it can be dispersed across all Management Units.
- Examples include buildings, storage facilities, grassed waterways, etc.



The screenshot shows a Windows-style dialog box titled "GPFARM Investment Selection". It features a text input field for "Investment Name" containing the word "Silo". Below this are three buttons: "Add Investment" (highlighted with a dashed border), "Delete Investment", and "View Investment Costs". A section labeled "Selected Investment List (Double-Click on Item to Edit):" contains an empty list box. At the bottom, there is a text box with the following text: "Investment Calculations
Please note that investment calculations are based on current default rates.
Please check default rates if you have not yet done so." To the right of this text are "OK" and "Help" buttons.

Equipment

- Equipment for Farm/Ranch operations must be set up for the whole farm.
- You should build the equipment list for the farm/ranch and then choose the appropriate pieces of equipment for each operation. (See [Operations](#), Page 93)
- A [default equipment database](#) is provided with GPFARM. You can select equipment from this table, modify pieces of equipment to more accurately match your own, or define new equipment. An equipment list is also provided with the default projects available. (See page 120)
- Click on the piece of equipment on the left list and drag it to the right list to include it in the equipment list for the project.
- Click on View Costs to see an annual or hourly cost for each piece of equipment on the Equipment Costs screen. You can edit these values by choosing the annual view. NOTE: Make these changes after you modify or create a piece of equipment otherwise the changes made in Equipment Costs will be overwritten by changes made in modifying/creating equipment.



Irrigation Systems

- Irrigation systems must be defined by naming the system and entering information about the system.
- If the irrigation system is powered by a pump, information is required for the pump as well.
- Describe the irrigation system, specify the water supply, how the system efficiency is determined, the condition of the system and the method of application. Also, enter labor requirements.
- NOTE: Sprinkler irrigation is the only one currently available.

Irrigation System Setup - www

System Information

Enter information describing the Irrigation System (enter text continuously with no line returns):

General System Condition: Excellent

Labor Requirements

Hours/Day	\$/Hour
6.00	\$6.00

Water Supply

Gravity

Pump

System Efficiency

User-Defined

GPFARM Calculated

Method of Application

Sprinkler

Surface

Drip

Moved Lateral

OK Cancel Help

Range/Livestock

- Define the Range/Livestock component at the whole farm level.
- Currently, only cow/calf operations are allowed.
- There are several tabs requiring information about your livestock operation. Enter information for the following:
 - Herd Information – breed, sex, number, etc.
 - Feed Sources – hay, grains, etc.
 - Livestock Expenses – vaccination, castration, etc.
 - Revenue
 - Financial/Capital
 - Annual Labor
 - Machinery/Equipment (related to livestock operations)
- The costs are calculated per cow. That is, the cows bear the cost of the livestock expenses.

Livestock/Range Information

Breed Characteristics

Breed Type:

Maximum Supplement (Lbs/Day):

Daily Animal Requirement (Lbs/Day):

Milk Production:

Heifer Daily Gain (Lbs/Day):

Female Calf Mortality (No. of Animals):

Male Calf Mortality (No. of Animals):

Bull Information

Time with Cows (Days):

Purchase Price (\$):

Selling Price (\$):

Useful Life (Years):

Bull Weight (Lbs):

Weaning Weights (Lbs)

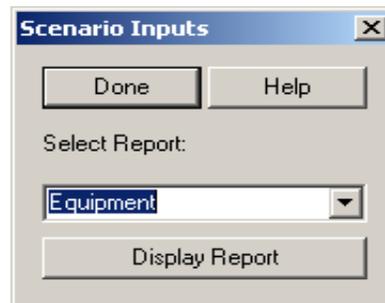
	200 Day	Adjusted
Female:	<input type="text" value="450"/>	<input type="text" value="414"/>
Male:	<input type="text" value="430"/>	<input type="text" value="394"/>

Initial Herd Class Distribution

Type	Bulls	Open Cows	Bred Cows	Yearling Heifers	Heifer Calves	Steer Calves	Stocking Rate
Number of Head	5	0	75	7	0	0	87
Yearling Heifer Replacement[%]				20			

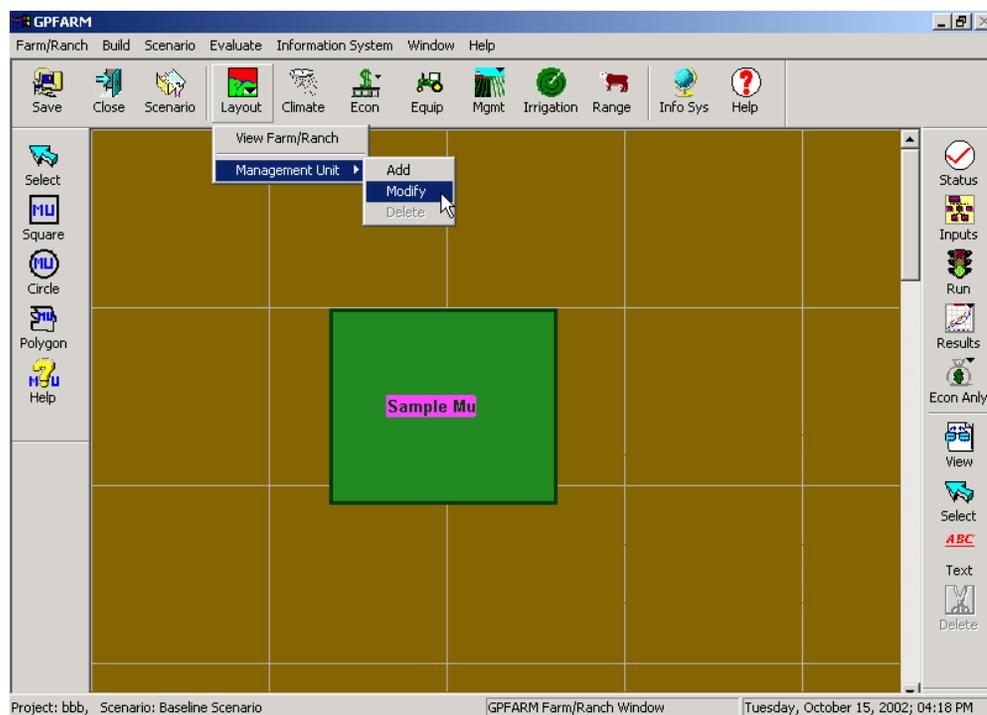
Input Reports

- Several reports are available to view the inputs that you have entered.
- Select View Inputs from the Inputs icon or from the Scenario/View Inputs menu item.
- On the Scenario Inputs screen, choose the report you would like generated.
- You must have entered information or that report will be blank.
- You can view reports for:
 - Climate Graph
 - Climate Table
 - Equipment
 - Investments
 - Operations
 - Range
 - Resources



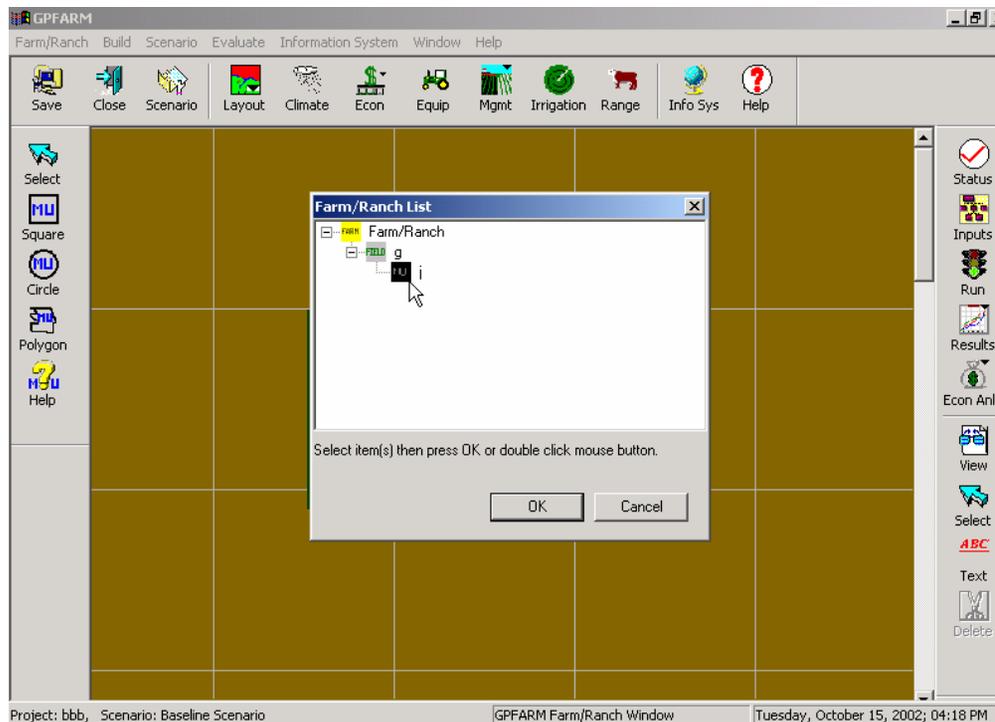
Menu to Modify Management Units

- To modify the information about an MU, select Layout, Management Unit, Modify from the drop down menu.



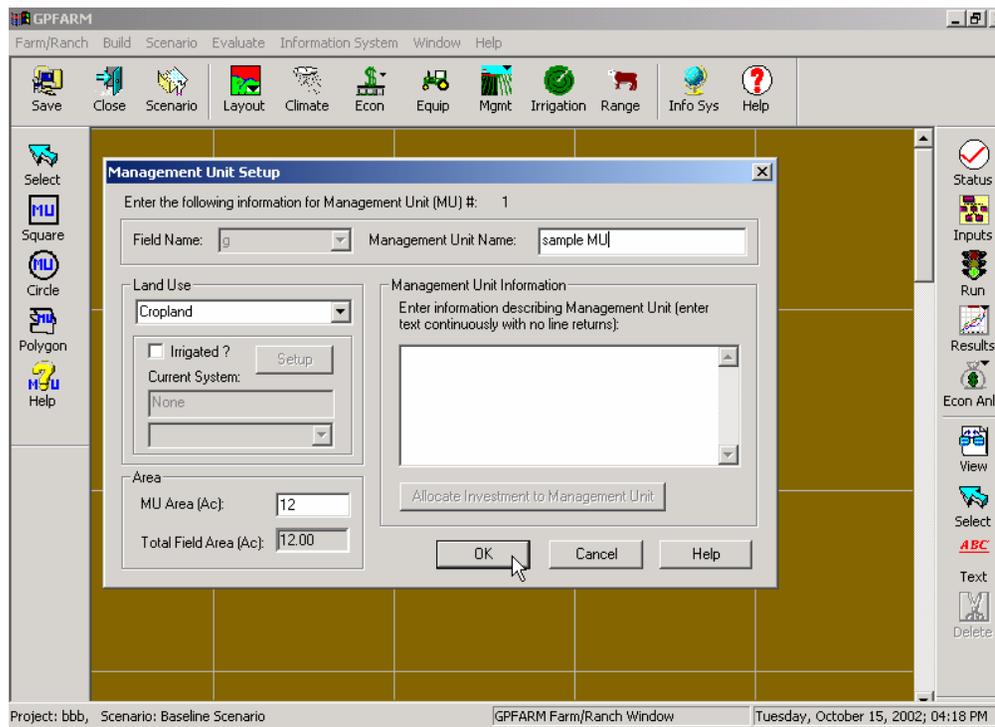
Select a Management Unit

- To modify the information about an MU, select Layout, Management Unit, Modify from the drop down menu.
- Select the MU to be modified from the Farm Ranch List and click OK.



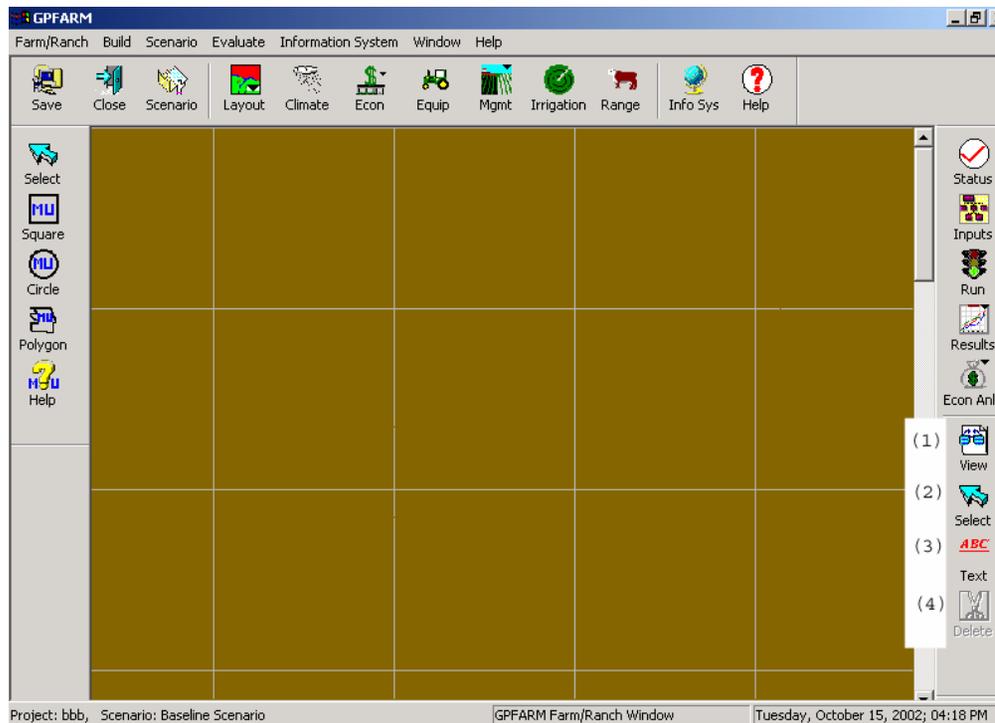
Modify Management Unit Setup

- The next screen will show information about the MU.
- You can edit the MU name, Cropland/Rangeland designation, irrigation, and acreage.
- The Field Name cannot be modified without deleting the whole MU and drawing it again.
- Use the Layout, Management Unit, Delete option to remove the MU and begin again.



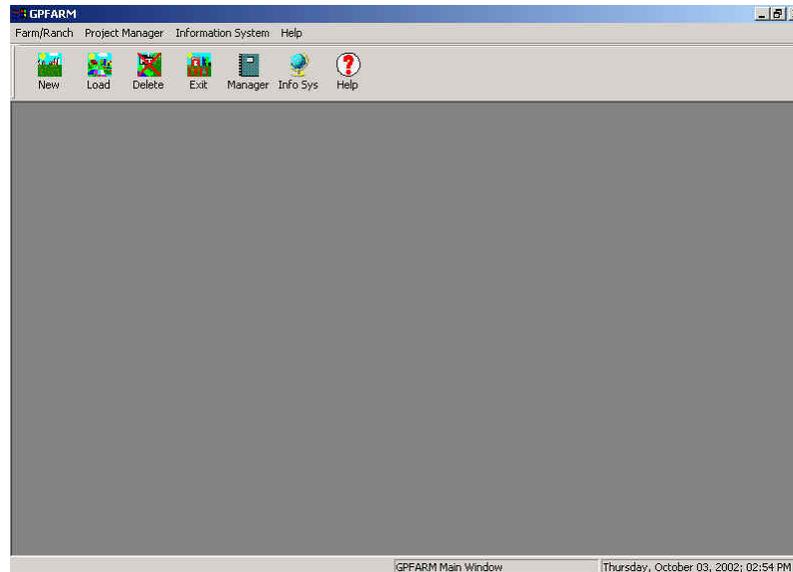
Tools to Modify Management Units

- Other tools that are of use in modifying an MU include:
 - **View:** which shows the MU in relation to the rest of the Farm/Ranch.
 - **Select:** which when selected and pointed at an MU allows you to move that MU.
 - **ABC (Text):** which allows you to add text to an MU, Field, or anywhere on the screen.
 - **Delete:** used in conjunction with the Select tool. Point to an MU or block of text with the Select tool then click on Delete to remove that MU and/or text.



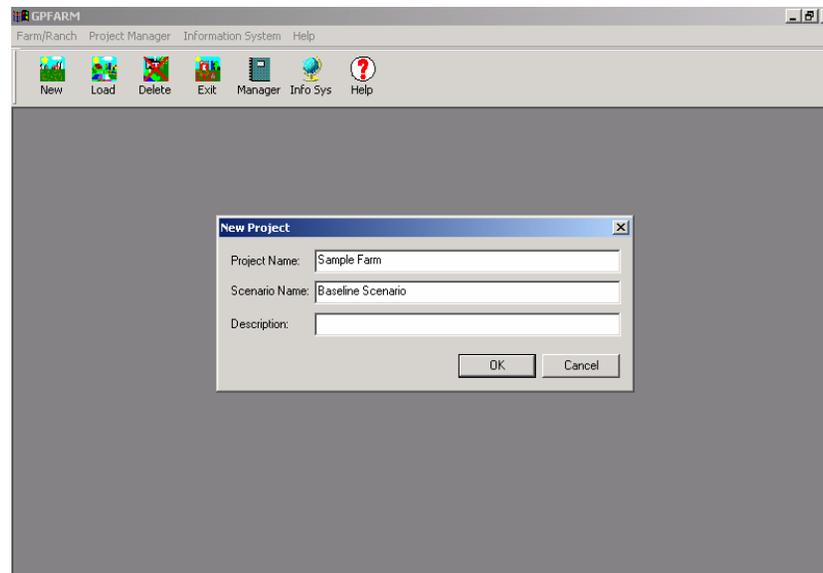
Create a New Farm

- NOTE: Default projects have been provided in version 2.6 “Express” that make setting up your own operation easier and quicker. (See page 117-124.) To set up your own operation from scratch continue with the following directions.
- To begin creating your own farm in GPFARM, first start with a blank screen.
- Do this by either clicking the Close icon or Close under the Farm/Ranch menu tab (only necessary if a project is already loaded).
- The screen should look like the example below.
- To begin, click on the New icon or New under the Farm/Ranch menu tab.
- If New is not an option, the current project has not been closed.



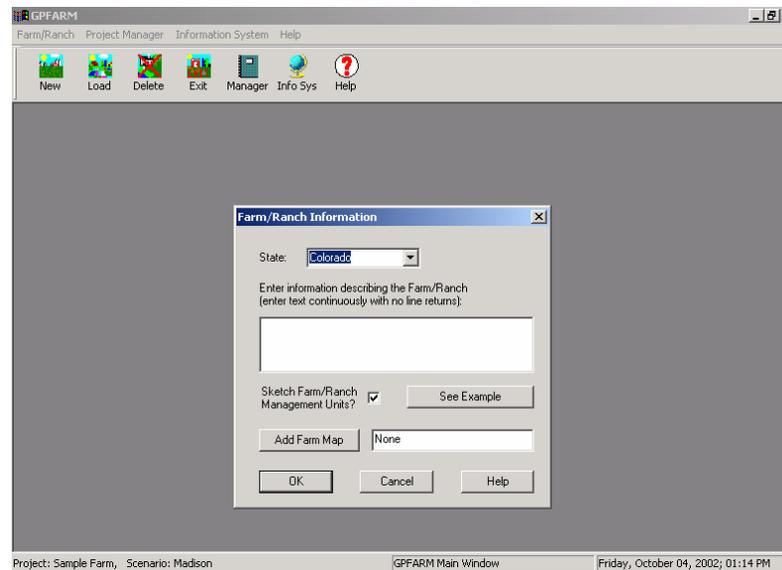
Name the Farm

- The first screen in creating your own project asks you to name the project and scenario and to describe the two.
- Only the first box, Project Name, must be filled in to proceed. The other two are optional.
- When naming files, projects, scenarios, etc. use only letters and numbers, never use symbols such as: \ / | ? : * # () { } [], etc.
- Click OK after giving the project a name.



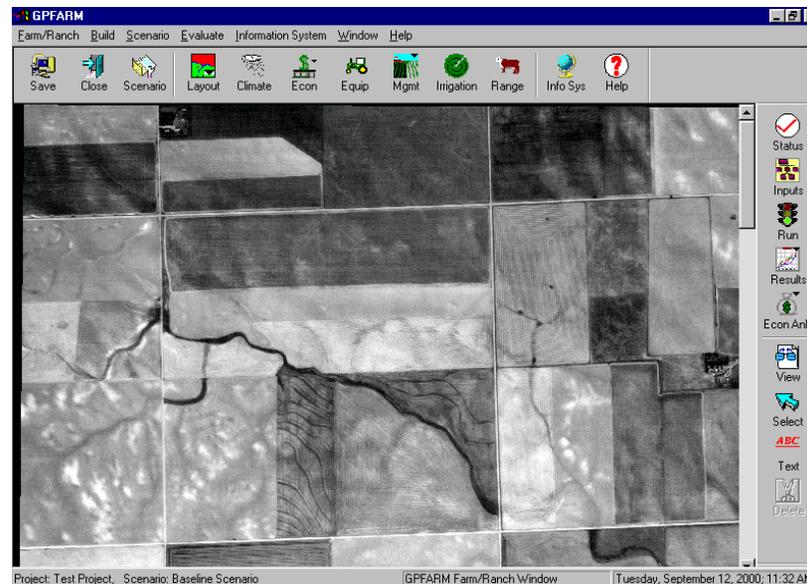
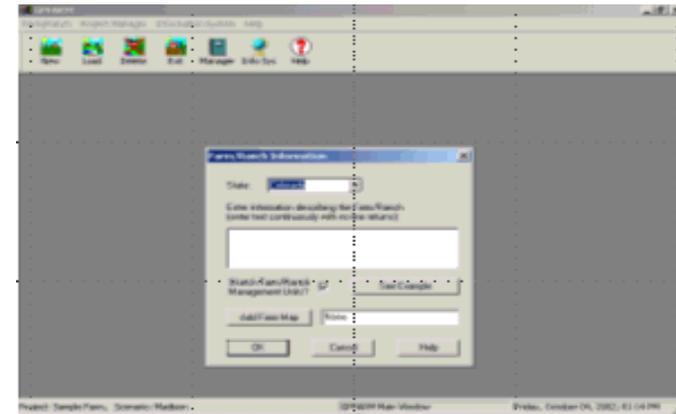
Farm Information

- The next screen asks you to select the State (Colorado, Wyoming, Kansas, or Nebraska).
- Now you must choose whether you want to sketch field boundaries or simply enter then necessary information in the appropriate tables.
- If you choose to sketch your fields you can choose to sketch on the screen or over a farm map. (see Importing Bitmaps)
- You can also enter field or MU information on this screen in the description box. Click OK when you are done.



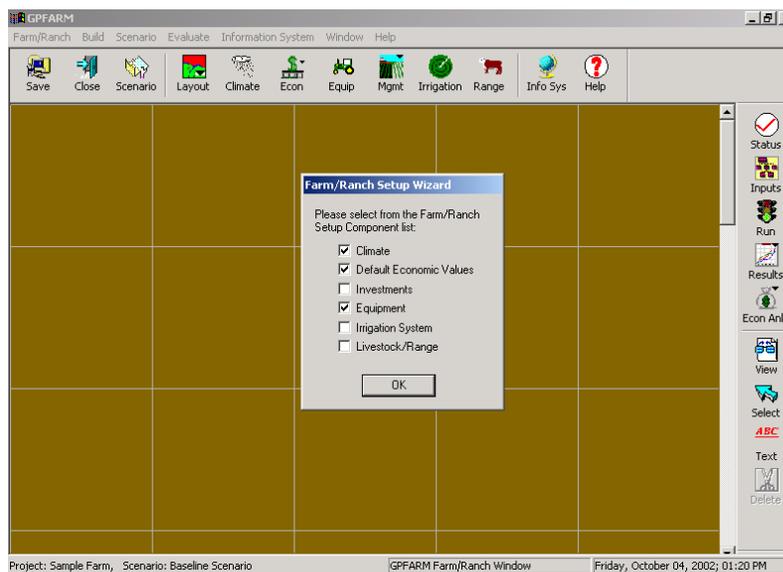
Import a Farm Map

- You can import a map of your Farm/Ranch and draw the fields and mu's on the map.
- The map must be in bitmap (.bmp) format.
- Use the Farm/Ranch Information screen to import the bitmap. Press the Add Farm Map button to begin the import. NOTE: bitmap images can be quite large so this may take a few seconds.



Farm Setup Wizard

- The next screen shows Farm/Ranch Setup Wizard.
- The Setup Wizard is designed to help keep track of the information that is needed for your project.



Required Farm Setup Information

- The next three screens concern Climate, Economic Default Values, and Equipment Setup.
- These are required for an accurate set-up of your farm/ranch. Irrigation Systems and Livestock/Range are only necessary if they are part of your farm/ranch operation.

The image displays three overlapping software windows from the GPFARM application, illustrating the required farm setup information.

Climate Window: This window is used to load or generate climate data. It features tabs for "Load Climate", "File Manager", and "Nitrogen in Rainfall". Under "Climate File Input", there are radio buttons for "Generated" (selected) and "Historical". A "Generate Climate" button is present. The "Available Climate Files" section shows a dropdown menu with "Test Farm Climate" selected. Below this, there are fields for "Start Date" (01/01/1), "End Date" (12/31/1), and "Number of Years" (10). Further down, there are fields for "State" (Colorado), "Station" (AKRON CAA AP), "Type" (Generated), and "Wind Station" (AKRON CAA AP). A "Get Historical Climate" button is also visible. At the bottom are "OK", "Cancel", and "Apply" buttons.

Economic Default Values Window: This window is used to set default values for economic parameters. It has tabs for "Irrigation", "Machinery", "Crops", "Labor", and "Investment Interest", with "Irrigation" selected. A "Reset to Defaults" button is located at the top right. The "Irrigation Energy Rates" section contains several input fields:

Customer Charge (\$ Per Month):	7.50
Meter Charge (\$ Per Meter Per Month):	6.20
Demand Charge (\$ Per HP of Connected Load):	1.50
Demand Charge (\$ Per Max. KW Per Summer Month):	1.85
Demand Charge (\$ Per Summer Month Peak KW):	1.70
Demand Charge (\$ Per Max. KW Per Winter Month):	1.25
Demand Charge (Average \$ Per KW):	0.10
Average Energy Charge (\$ Per KWH):	0.50
State Surcharge (\$ Per KWH):	0.0002

A note at the bottom states: "NOTE: These rates apply to electric pumps only. For fuel driven pumps, please enter fuel prices in the Machinery default section." "OK" and "Cancel" buttons are at the bottom.

GPFARM Equipment Selection Window: This window is used to select default equipment for the farm/ranch. It includes a "Note" at the top: "Drag and drop default equipment to create the equipment list for your farm/ranch." Below the note are two main sections: "Default Equipment List" and "Farm/Ranch Equipment List (Double-Click on Item to Edit)". The "Default Equipment List" contains a list of equipment items with checkboxes:

- COMBINE (WITHOUT HEAD)
- CROP MAINTENANCE
- HARVESTER
- OTHER
- PLANTER
- TILLAGE
- TRACTOR
- TRUCK

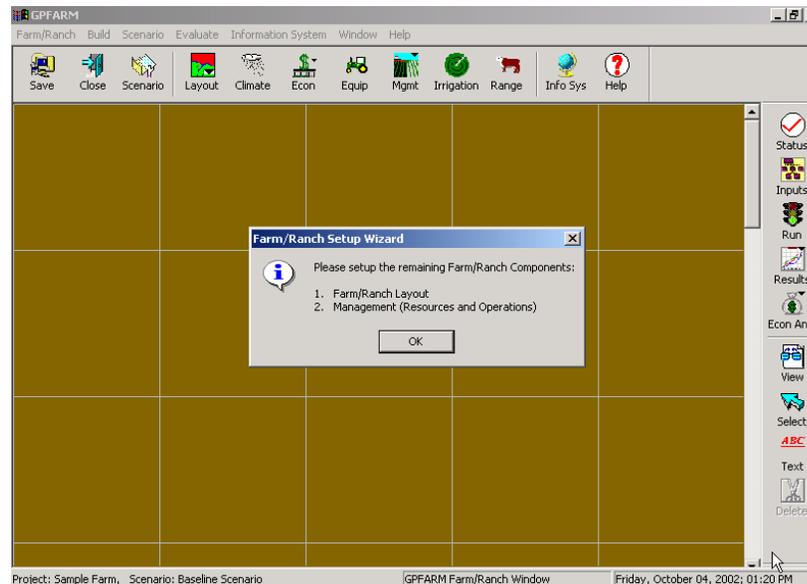
Buttons for "Define New", "Delete", "Default Rates", and "View Costs" are located between the two lists. The "Farm/Ranch Equipment List" contains a list of selected items:

- Pickup Truck, Tandem Axle, 4 Ton
- Tractor, 260 4WD
- Sprayer, 30 Ft
- Fertilizer Spreader 4 T, 40 Ft
- Trailer Spreader, Dry Materials, 20 Ft
- Combine, 220 HP
- Corn Combine Head 6-30, 15 Ft
- No-Till Planter, 20 Ft
- Subsoiler, Combination Disk, 14 Ft
- Mulch Treader, 20 Ft
- Tandem Disk, 15 Ft, Rigid

Buttons for "Load Equipment" and "Save Equipment" are located between the two lists. At the bottom, there are radio buttons for "Annual Estimated Hours" (selected) and "Actual Hours", along with "OK" and "Help" buttons.

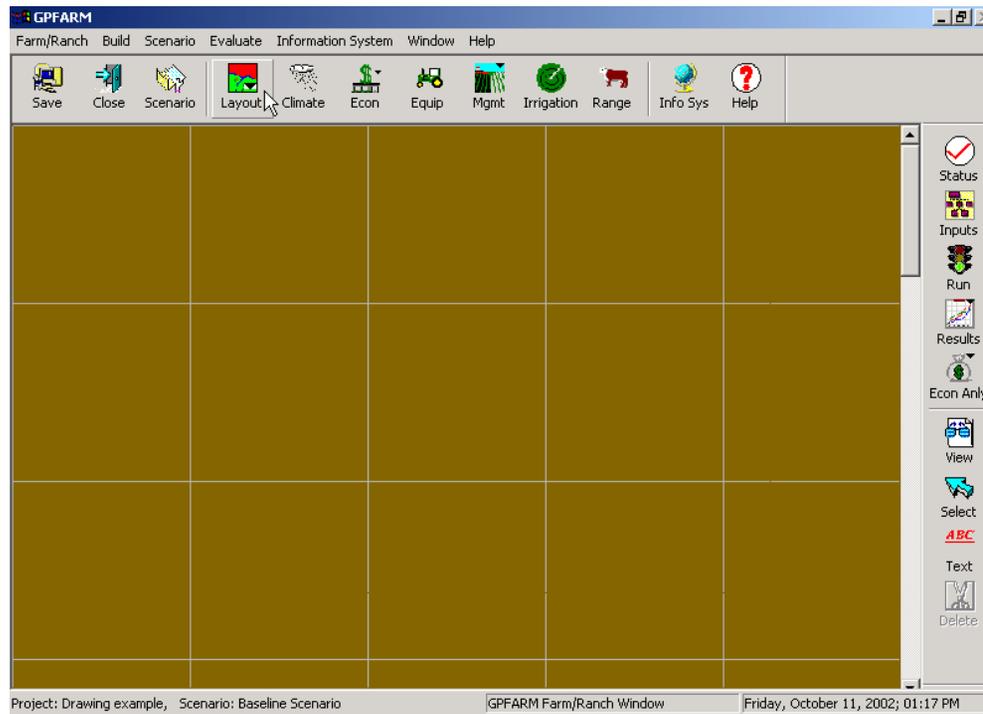
Remaining Farm Setup Tasks

- This screen reminds you that you have three tasks left to complete before running the simulation.
- Farm/Ranch Layout refers to sketching fields on either the brown template or on an imported image. This is required only if you checked “Sketch Farm/Ranch Management Units” on the Farm/Ranch Information screen.
- Management (Resources and Operations) are the last two tasks to be completed and refer to choosing the soils, etc. and farm practices relevant to the field.
- After these items are complete you are ready to run the simulation.



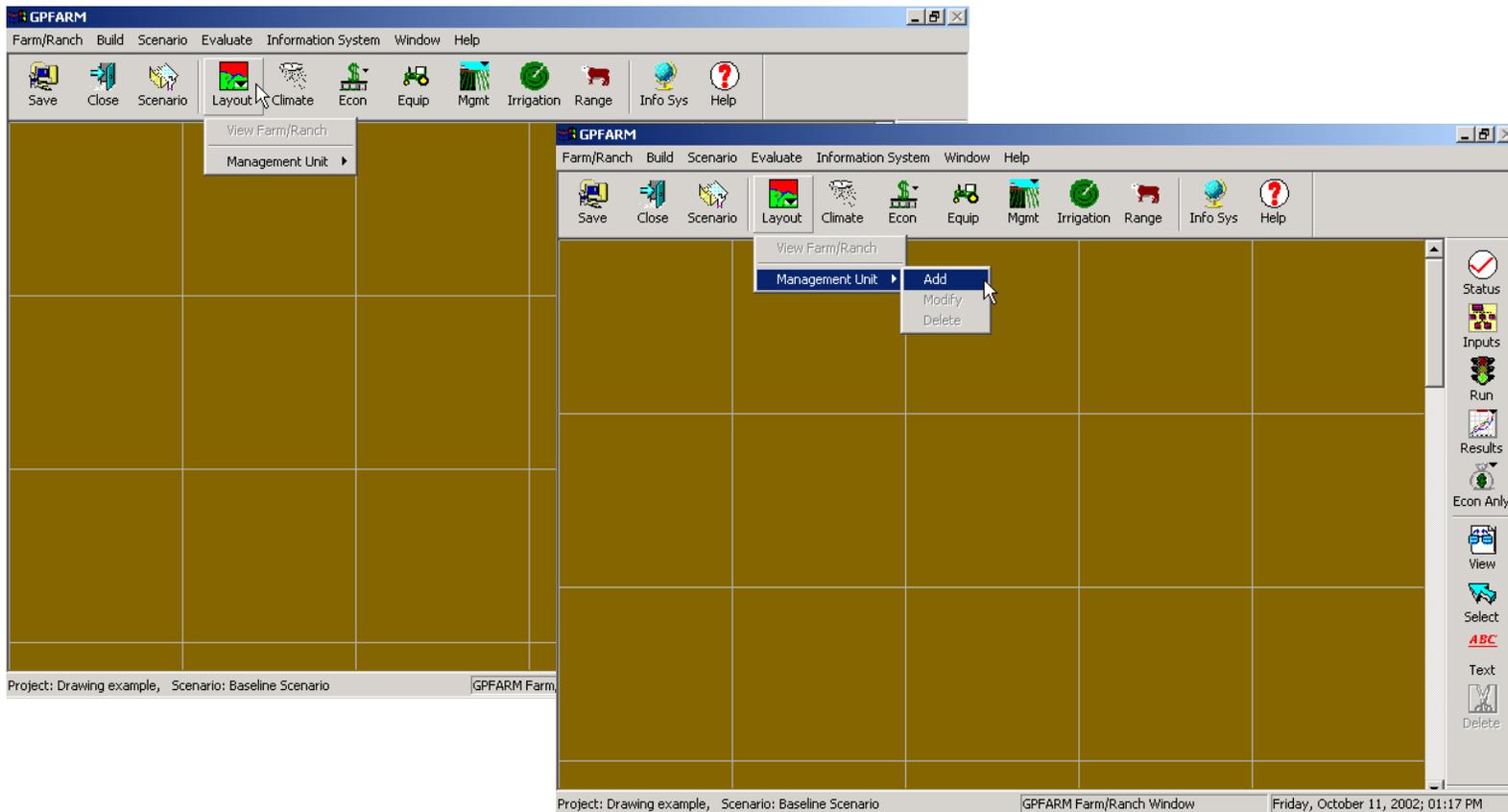
First Step in Drawing a Management Unit

- Starting from either a new scenario or one you wish to modify, click the Layout icon from the menu bar (or from Build, Farm/Ranch Layout or right-click the mouse and select Management Unit, Add).



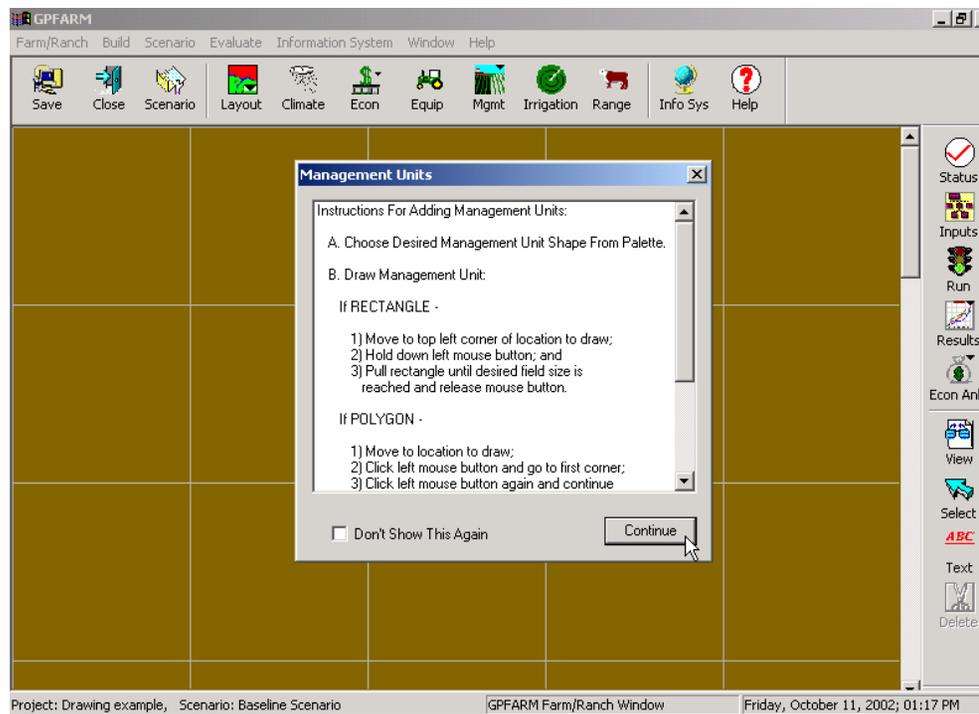
Add a Management Unit

- Select Management Unit from the drop-down menu.
- Next, select Add



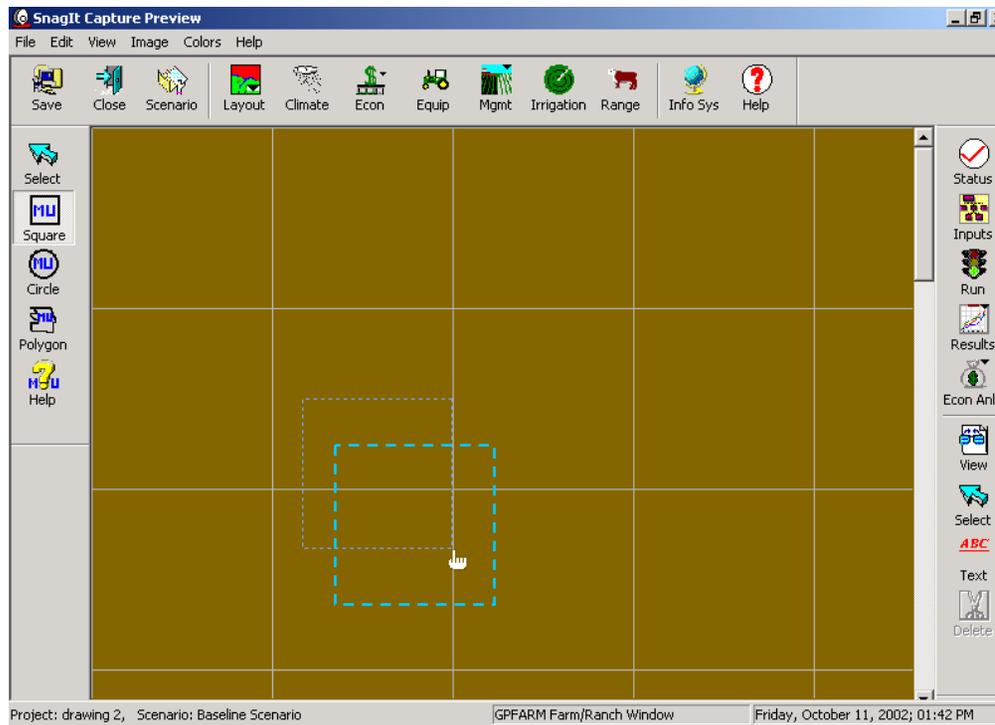
Drawing Tools

- The next screen will give you information on the three drawing tools.
- To avoid seeing this screen in the future click on the Don't Show This Again box.
- After familiarizing yourself with the drawing tools click Continue.



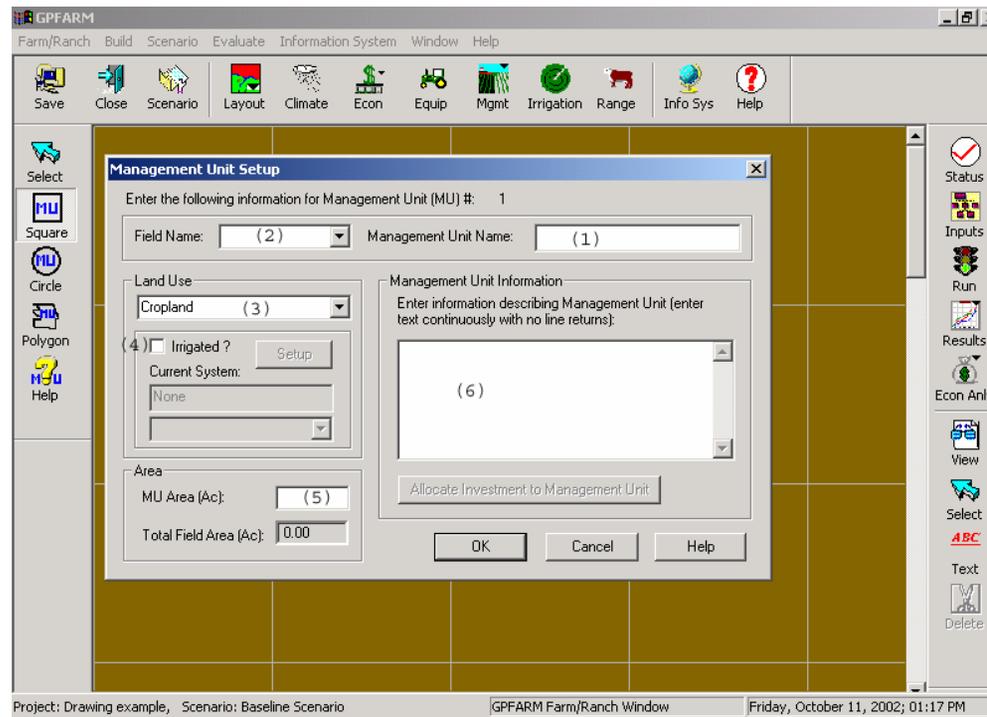
How to Draw a Management Unit

- The three drawing tools are: Square, Circle, and Polygon.
- Position the cursor (pointing hand) where you want the MU to begin, then with the right-click button held down, drag the cursor to create the MU size desired.
- Use the Select icon later if you want to move the MU and label.



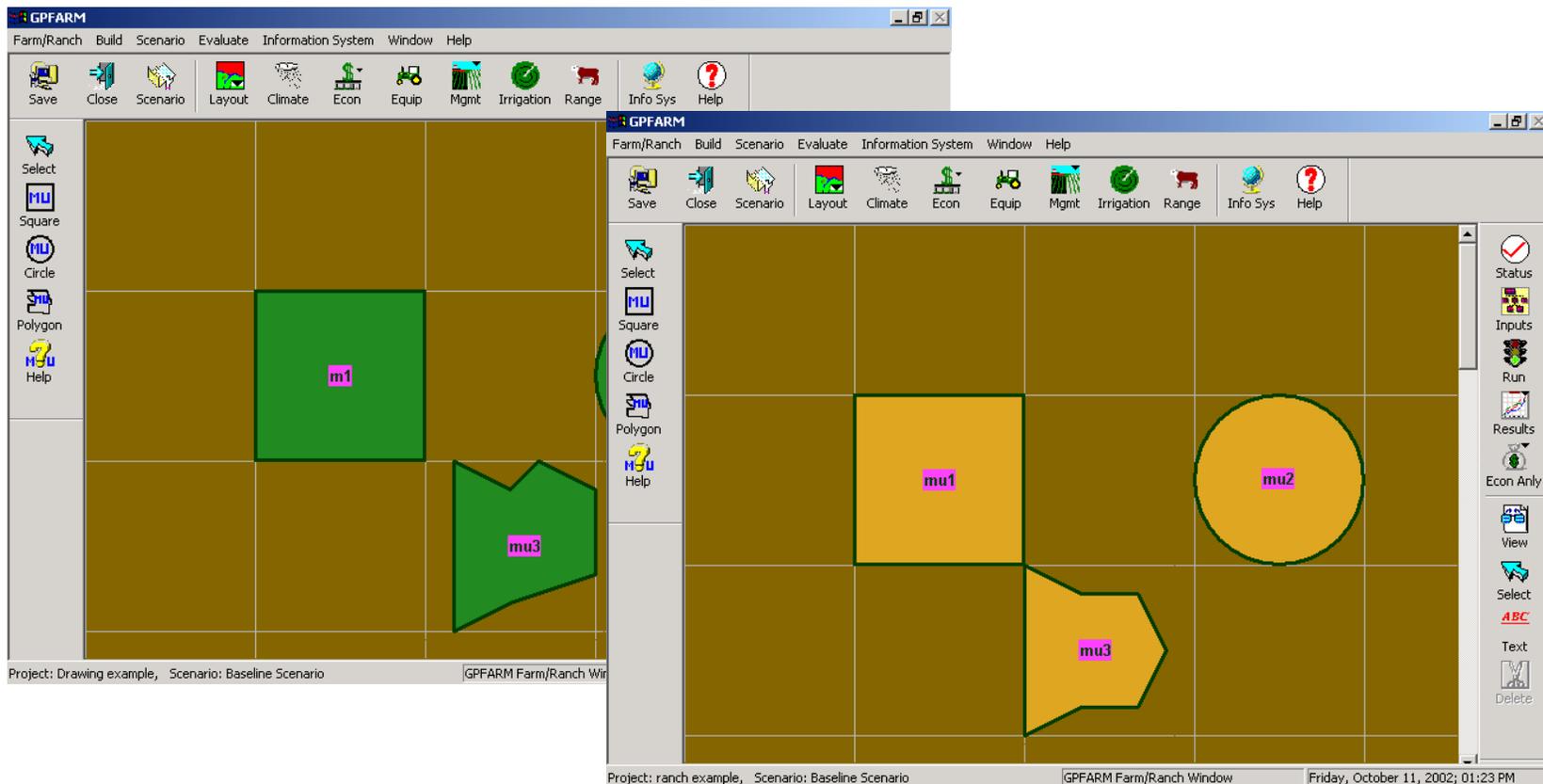
Management Unit Setup

- After drawing the shape of the MU the Management Unit Set Up screen will appear.
- Enter the MU name (1) and the field name (2). **Use only letters and/or numbers.**
- Specify if the MU is Cropland or Rangeland (3).
- If irrigation is required for this MU, check the box labeled Irrigation (4).
- Enter the size of the MU (5). Enter MU information in box (6).
- Click OK when done. The Management Unit Set Up Wizard will appear next and guide you through Resources and Operations set up for this MU.



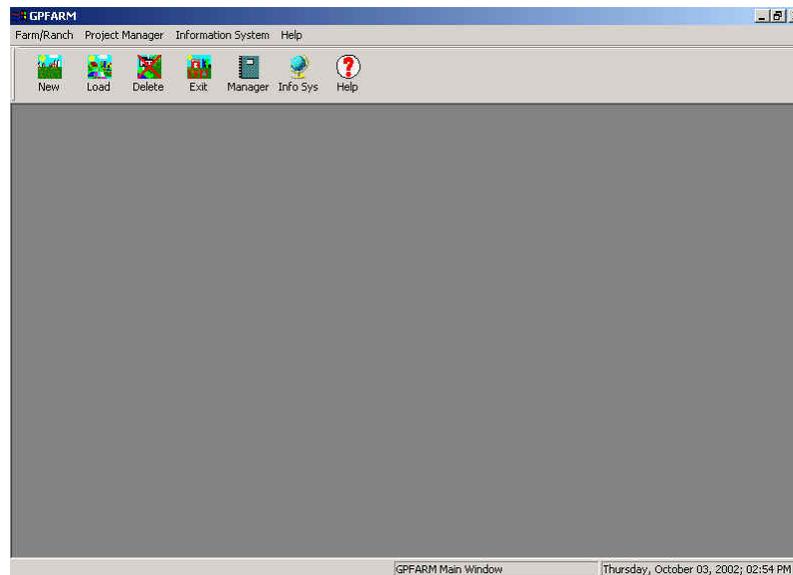
Management Unit Types

- Management Units selected for Cropland will appear green, Rangeland MUs will appear yellow.



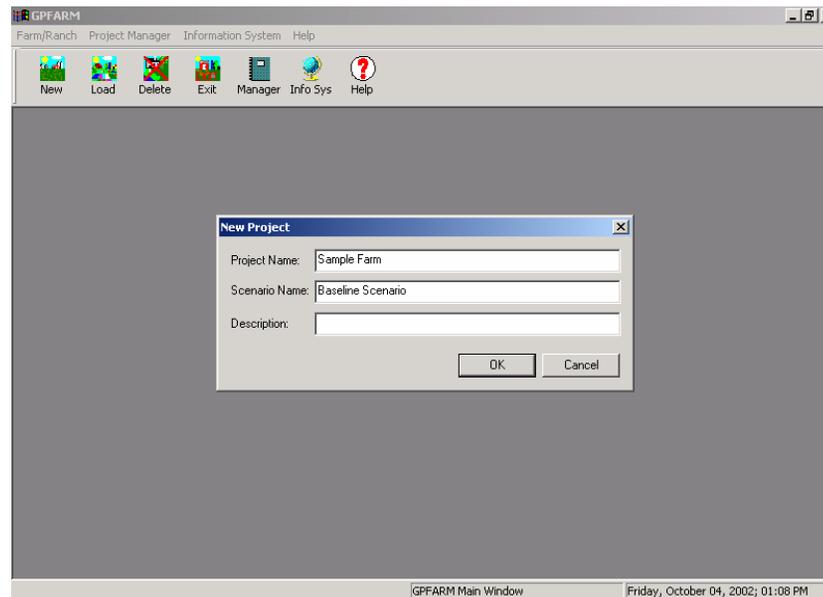
Create a New Ranch

- NOTE: Default projects have been provided in version 2.6 [GPFARM “Express”](#) that make setting up your own operation easier and quicker. (See pages 117-124.) To set up your own operation from scratch continue with the following directions.
- To begin creating your own ranch in GPFARM, first start with a blank screen.
- Do this by either clicking the Close icon or Close under the Farm/Ranch menu tab.
- The screen should look like the example below.
- To begin, click on the New icon or New under the Farm/Ranch menu tab.
- If New is not an option, the current project has not been closed.



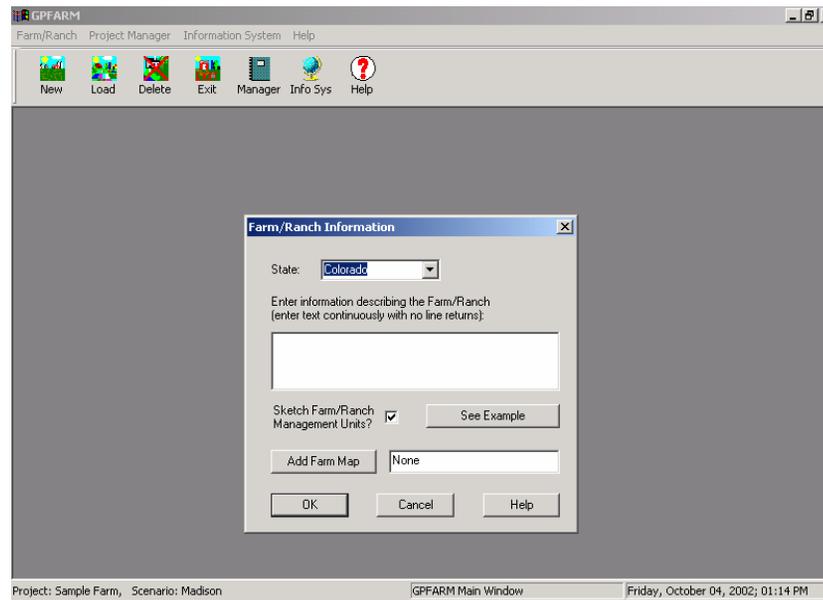
Name the Ranch

- The first screen in creating your own project ask you to name the project and scenario and to describe the two.
- Only the first box, Project Name, must be filled in to proceed. The other two are optional.
- When naming files, projects, scenarios, etc. use only letters and numbers, never use symbols such as: \ / | ? : * # () { } [], etc.
- Click OK after giving the project a name.



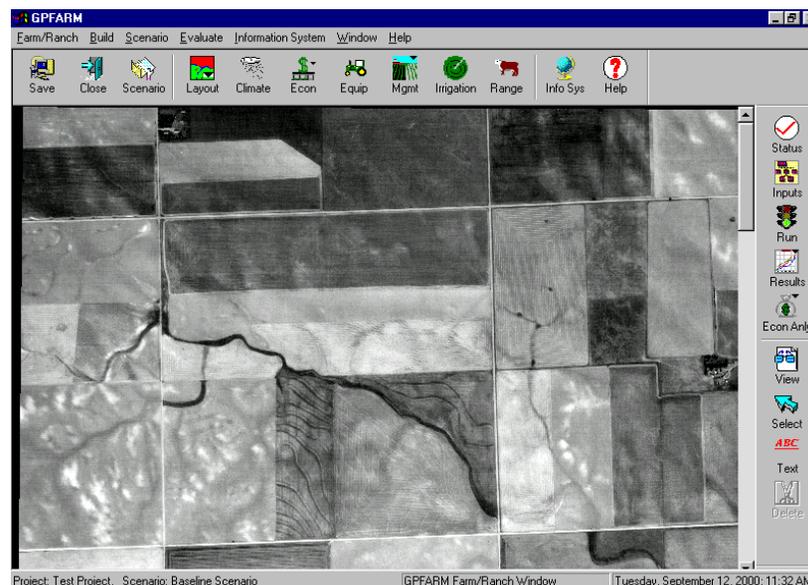
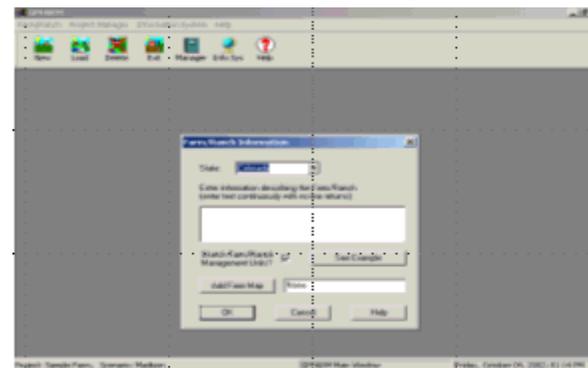
Ranch Information

- The next screen asks you to select the State (Colorado, Wyoming, Kansas, or Nebraska).
- Now you must choose whether you want to sketch field boundaries or simply enter then necessary information in to the appropriate tables.
- If you choose to sketch your fields you can choose to sketch on the screen or over a farm map. (see Importing Bitmaps)
- You can also enter field or MU information on this screen. Click OK when you are done.



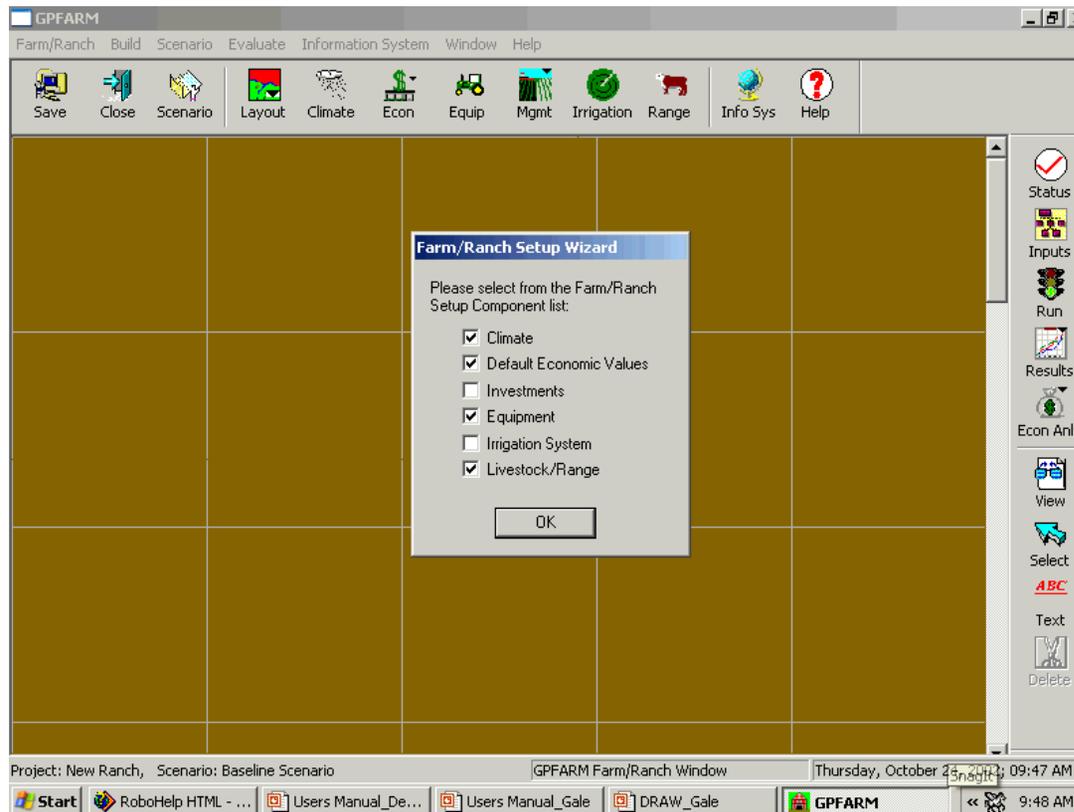
Import a Ranch Map

- You can import a map of your Farm/Ranch and draw the fields and mu's on the map.
- The map must be in bitmap (.bmp) format.
- Use the Farm/Ranch Information screen to import the bitmap. Press the Add Farm Map button to begin the import. **NOTE:** bitmap images can be quite large so this may take a few seconds.



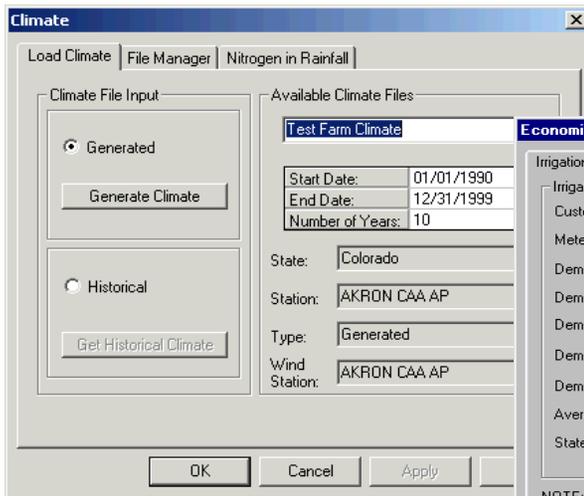
Ranch Setup Wizard

- The next screen shows Farm/Ranch Setup Wizard.
- The Setup Wizard is designed to help keep track of the information that is needed for your project.

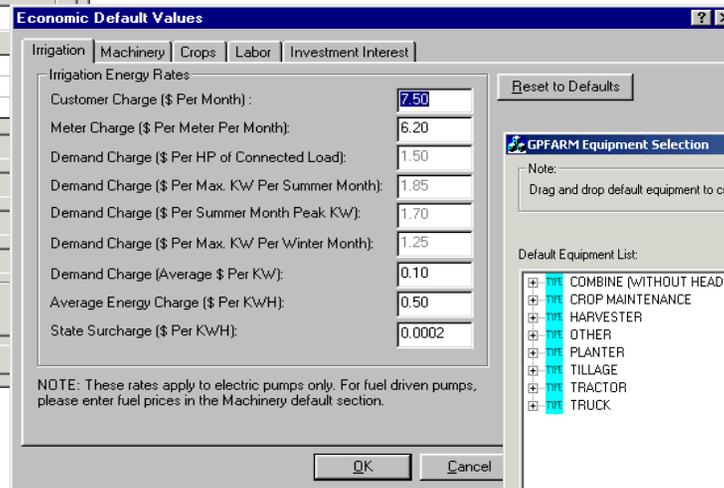


Required Ranch Setup Information

- The next three slides concern Climate, Economic Default Values, and Equipment Setup.



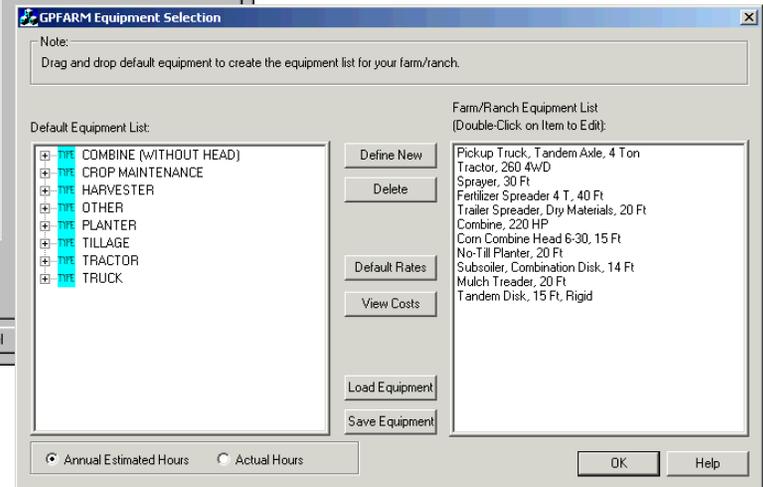
The Climate dialog box has three tabs: Load Climate, File Manager, and Nitrogen in Rainfall. The Load Climate tab is active. It features a 'Climate File Input' section with radio buttons for 'Generated' (selected) and 'Historical'. A 'Generate Climate' button is below. The 'Available Climate Files' section shows a list with 'Test Farm Climate' selected. Below this are fields for 'Start Date: 01/01/1990', 'End Date: 12/31/1999', and 'Number of Years: 10'. Further down are fields for 'State: Colorado', 'Station: AKRON CAA AP', 'Type: Generated', and 'Wind Station: AKRON CAA AP'. At the bottom are 'OK', 'Cancel', and 'Apply' buttons.



The Economic Default Values dialog box has four tabs: Irrigation, Machinery, Crops, Labor, and Investment Interest. The Irrigation tab is active. It contains a 'Reset to Defaults' button and a table of 'Irrigation Energy Rates':

Customer Charge (\$ Per Month):	7.50
Meter Charge (\$ Per Meter Per Month):	6.20
Demand Charge (\$ Per HP of Connected Load):	1.50
Demand Charge (\$ Per Max. KW Per Summer Month):	1.85
Demand Charge (\$ Per Summer Month Peak KW):	1.70
Demand Charge (\$ Per Max. KW Per Winter Month):	1.25
Demand Charge (Average \$ Per KW):	0.10
Average Energy Charge (\$ Per KWH):	0.50
State Surcharge (\$ Per KWH):	0.0002

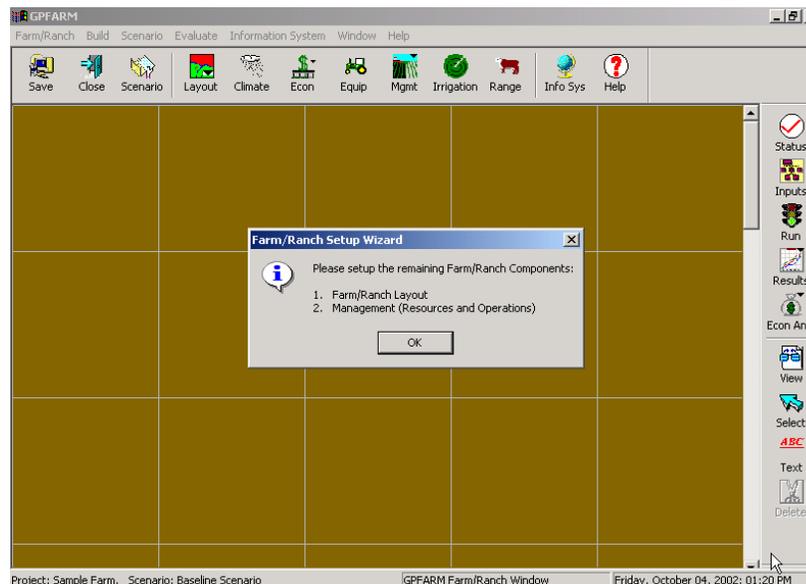
A note at the bottom states: 'NOTE: These rates apply to electric pumps only. For fuel driven pumps, please enter fuel prices in the Machinery default section.' 'OK' and 'Cancel' buttons are at the bottom.



The GPFARM Equipment Selection dialog box contains a 'Note' at the top: 'Drag and drop default equipment to create the equipment list for your farm/ranch.' Below this are two lists. The 'Default Equipment List' on the left includes: COMBINE (WITHOUT HEAD), CROP MAINTENANCE, HARVESTER, OTHER, PLANTER, TILLAGE, TRACTOR, and TRUCK. The 'Farm/Ranch Equipment List (Double-Click on Item to Edit):' on the right includes: Pickup Truck, Tandem Axle, 4 Ton; Tractor, 260 4WD; Sprayer, 30 Ft; Fertilizer Spreader 4 T, 40 Ft; Trailer Spreader, Dry Materials, 20 Ft; Combine, 220 HP; Corn Combine Head 6-30, 15 Ft; No-Till Planter, 20 Ft; Subsoiler, Combination Disk, 14 Ft; Mulch Treader, 20 Ft; Tandem Disk, 15 Ft, Rigid. Between the lists are buttons for 'Define New', 'Delete', 'Default Rates', 'View Costs', 'Load Equipment', and 'Save Equipment'. At the bottom are radio buttons for 'Annual Estimated Hours' (selected) and 'Actual Hours', along with 'OK' and 'Help' buttons.

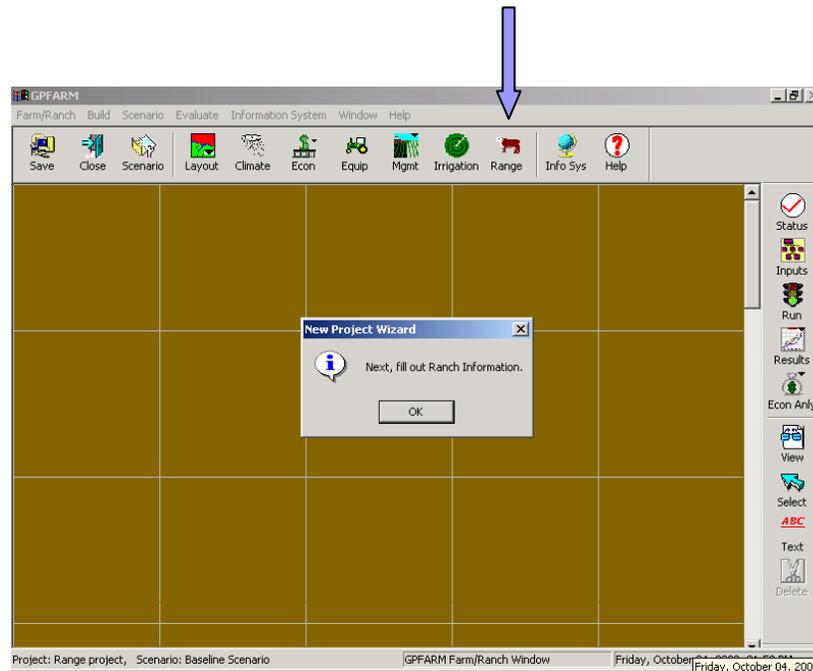
Remaining Ranch Setup Tasks

- This screen reminds you that you have three tasks left to complete before running the simulation.
- Farm/Ranch Layout refers to sketching fields on either the brown template or on an imported image. (Required only if the “Sketch Farm/Ranch” box was checked on the Farm/Ranch Information screen.)
- Management (Resources and Operations) are the last two tasks to be completed and refer to choosing the soils, etc. and farm practices relevant to the field.
- After these items are complete you are ready to run the simulation.



Animal Information Reminder

- This screen reminds you that you must now fill out information on your cattle herd.
- Click on OK to advance to the Livestock/Herd Information screen.



Livestock Range Information

- This series of screens contains information about your herd, winter feed and other supplement, expenses, and livestock operations.
- Most of these screens are self-explanatory.

Livestock/Range Information

Herd Information | Feed Sources | Livestock Expenses | Revenue | Financial/Capital | Annual Labor | Machinery/Equipment

Breed Characteristics

Breed Type: Hereford-AngusX

Maximum Supplement (Lbs/Day): 17

Daily Animal Requirement (Lbs/Day): 17

Milk Production: Low - 8 Lbs/Day

Heifer Daily Gain (Lbs/Day): 2

Female Calf Mortality (No. of Animals): 0

Male Calf Mortality (No. of Animals): 0

Reset to Default Values

Bull Information

Time with Cows (Days): 30

Purchase Price (\$): 400

Selling Price (\$): 150

Useful Life (Years): 7

Bull Weight (Lbs): 1000

Weaning Weights (Lbs)

	200 Day	Adjusted
Female:	419	383
Male:	430	394

Initial Herd Class Distribution

Type	Bulls	Open Cows	Bred Cows	Yearling Heifers	Heifer Calves	Steer Calves	Stocking Rate
Number of Head	5	0	75	7	0	0	87
Yearling Heifer Replacement(%)				0			

OK Cancel Apply Help

Herd Information

- This screen asks for information specific to your herd.
- Choose the breed or dominant breed of your cattle herd and check the default values for Maximum Supplement, Daily Animal Requirement, Milk Production, etc.
- Make sure the Initial Herd Class Distribution is accurate because these are the values that will be carried through the whole scientific simulation.

Livestock/Range Information

Herd Information
 Feed Sources
 Livestock Expenses
 Revenue
 Financial/Capital
 Annual Labor
 Machinery/Equipment

Breed Characteristics

Breed Type:

Maximum Supplement (Lbs/Day):

Daily Animal Requirement (Lbs/Day):

Milk Production:

Heifer Daily Gain (Lbs/Day):

Female Calf Mortality (No. of Animals):

Male Calf Mortality (No. of Animals):

Bull Information

Time with Cows (Days):

Purchase Price (\$):

Selling Price (\$):

Useful Life (Years):

Bull Weight (Lbs):

Weaning Weights (Lbs)

	200 Day	Adjusted
Female:	<input type="text" value="419"/>	<input type="text" value="383"/>
Male:	<input type="text" value="430"/>	<input type="text" value="394"/>

Initial Herd Class Distribution

Type	Bulls	Open Cows	Bred Cows	Yearling Heifers	Heifer Calves	Steer Calves	Stocking Rate
Number of Head	5	0	75	7	0	0	87
Yearling Heifer Replacement(%)				0			

Feed Sources

- This screen asks for information on winter feed and other supplement.
- GPFARM has a special feature that will calculate the least-cost option for supplement feeding. Any time that the livestock require supplement because of lack of forage, supplement will automatically be fed.
- The nutritional content of each supplement can be adjusted if you have values for it. If you don't, the default values are reasonable averages for that type of forage. (See the Default Values for detailed supplement information in the Appendix pages 146-153.)

Livestock/Range Information

Herd Information | **Feed Sources** | Livestock Expenses | Revenue | Financial/Capital | Annual Labor | Machinery/Equipment

Forage
 Grazing Rental Rate (\$/AUM): How much would it cost to rent or lease an AUM in your area?
 (AUM = Animal Unit Month)

Supplement

Supplement Type	Supplement Name	Amount Stored	Units	Constraints (Lb/Day)
			Tons	20.40
			Tons	9.20
			Tons	1.0 to 3.0
Dry Matter (%)				Assumes Dry Pregnant Cow
TDN (%)				
Crude Protein (%)				
Initial Price (\$/Unit)				
Restock price (\$/Unit)				
Amount Fed (%)			0.00 0.00 0.00	

Clear Supplement Table Calculate Feed Rations Feed Sources/Grazing Prices

OK Cancel Apply Help

Livestock Expenses

- This screen concerns expenses associated with livestock production other than supplement.
- Vet expenses, trucking, castrating (Animal Management) are some examples of livestock expenses.

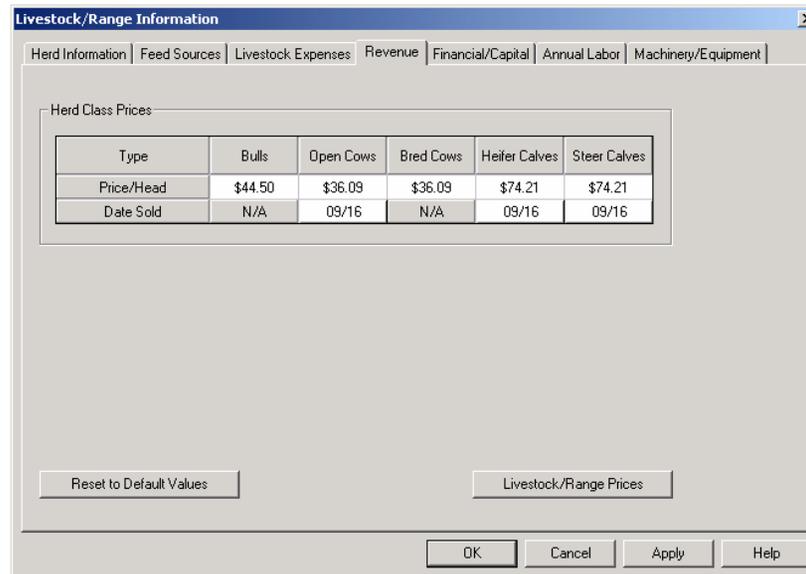
The screenshot shows a software window titled "Livestock/Range Information" with a tabbed interface. The "Livestock Expenses" tab is selected. The window contains a table with the following columns: "Type of Expense", "Category", "Date", and "Material/Labor".

Type of Expense	Category	Date	Material/Labor
Animal Management	Birth Calves	03/06	+
Animal Management	Buy Supplement	06/15	+
Animal Management	Wean Calves	09/02	+
		Enter	+

Below the table, there is a note: "Note: Events should be entered for one year period with Birthing and Weaning only occurring once." and a button labeled "Veterinary/Medical Prices". At the bottom of the window are buttons for "OK", "Cancel", "Apply", and "Help".

Revenue

- The revenue screen shows animal type, price per head, and sale date.
- Fill in this screen with desired or expected values. GPFARM will use these numbers for doing an economic analysis without a simulation.
- Simulation economic values are calculated by GPFARM for Breakeven analysis.



The screenshot shows a software window titled "Livestock/Range Information" with a close button (X) in the top right corner. The window has several tabs: "Herd Information", "Feed Sources", "Livestock Expenses", "Revenue", "Financial/Capital", "Annual Labor", and "Machinery/Equipment". The "Revenue" tab is selected. Inside the window, there is a section titled "Herd Class Prices" containing a table with the following data:

Type	Bulls	Open Cows	Bred Cows	Heifer Calves	Steer Calves
Price/Head	\$44.50	\$36.09	\$36.09	\$74.21	\$74.21
Date Sold	N/A	09/16	N/A	09/16	09/16

Below the table, there are two buttons: "Reset to Default Values" and "Livestock/Range Prices". At the bottom of the window, there are four buttons: "OK", "Cancel", "Apply", and "Help".

Financial/Capital

- The Financial/Capital screen is available if you wish to enter information on production loans or depreciation on structures and other capital improvements, as well other expenses related to livestock production.

The screenshot shows a software window titled "Livestock/Range Information" with a close button (X) in the top right corner. The window has several tabs: "Herd Information", "Feed Sources", "Livestock Expenses", "Revenue", "Financial/Capital" (which is selected), "Annual Labor", and "Machinery/Equipment".

Under the "Financial/Capital" tab, there are two main sections:

Finance Expense for Livestock

Description	Rate (%/Yr)	Term (Months)	Amount	Interest Cost
Interest on Operating Capital	10.00			
Total (Cost/Cow):				\$0.00

Non Cash Operating Expense for Livestock

Description	Units	Amount	\$/Unit	Non-Cash Op Cost
Depreciation Buildings and Equipment	Dollars			
Other Depreciation	Dollars			
Other Non-Cash Expenses	Dollars			
Total (Cost/Cow):				

At the bottom of the window, there are four buttons: "OK", "Cancel", "Apply", and "Help".

Annual Labor

- This screen, Annual Labor Used, refers to labor costs associated with the animals only. For instance, labor hired for branding, castrating, etc. Other labor costs, not associated directly with the animals, can be entered in Operations section.

Livestock/Range Information

Herd Information | Feed Sources | Livestock Expenses | Revenue | Financial/Capital | Annual Labor | Machinery/Equipment

Annual Labor Used

Labor Activity	\$/Year

Total (Cost/Cow): \$0.00

Note: Only Annual Labor should be entered here. Operation Labor should be entered separately. The same labor should not be entered in both places.

Clear Labor Table

OK Cancel Apply Help

Resources

- The Resources for each Management Unit needs to be defined. This is done in the Farm/Ranch Window at the Management Unit level.
- For each Management Unit, define the following resources if it applies:
 - Soil Information – soils data must be entered to successfully run a simulation. NOTE: The following items can be run with the defaults, but the more information you provide the better GPFARM will simulate your farm or ranch.
 - Residue Cover
 - Topography
 - Conservation Planning
 - Weed Population
 - Forage – available only for rangeland MU's

Resource Setup - MU1 [?] [X]

Soil Information | Residue Cover | Topography | Conservation Planning | Weed Population

Create/Save Soil

Soils-5 Database

User-Defined Soil

Load Existing Soil

Save Current Soil

Advanced Information

State: Colorado Survey Name: MORGAN

Series Name: ASCALON LOAMY SAND Advanced Layer Information

Soil Texture: Loamy Sand Identify Restrictive Layers

Layer Number	Upper Depth (In)	Lower Depth (In)	Organic Matter (%)	Initial Water Content	Initial NO3-N Content (Lb/Ac)
1	0.00	7.00	1.50	Field Capacity	10.00
2	7.00	18.00	0.00	Field Capacity	0.00
3	18.00	25.00	0.00	Field Capacity	0.00
4	25.00	60.00	0.00	Field Capacity	0.00

Copy Soil Information to Management Unit(s) Clear Current Soil

Load/Save/Copy OK Cancel Apply Help

Soil Information

- Soil information needs to be defined for each MU.
- First choose the soil series from the GPFARM supplied Soil database that best describes the MU. You can then edit certain values to 'customize' it for your location by using the Advanced Layer Information button.
- You may also define your own soil information. You will first need to enter the soil series information and then enter the layer information on the Soil Information Resource screen.
- You can also define a root or water restrictive layer by using the Identify Restrictive Layers button.

Resource Setup - MU1

Soil Information | Residue Cover | Topography | Conservation Planning | Weed Population

Create/Save Soil

Soils-5 Database

User-Defined Soil

Load Existing Soil

Save Current Soil

Advanced Information

State: Colorado Survey Name: MORGAN

Series Name: ASCALON LOAMY SAND Advanced Layer Information

Soil Texture: Loamy Sand Identify Restrictive Layers

Layer Number	Upper Depth (In)	Lower Depth (In)	Organic Matter (%)	Initial Water Content	Initial NO3-N Content (Lb/Ac)
1	0.00	7.00	1.50	Field Capacity	10.00
2	7.00	18.00	0.00	Field Capacity	0.00
3	18.00	25.00	0.00	Field Capacity	0.00
4	25.00	60.00	0.00	Field Capacity	0.00

Copy Soil Information to Management Unit(s)

Clear Current Soil

Load/Save/Copy OK Cancel Apply Help

Residue Cover- Cropland

- Residue cover is the percent of soil surface covered by residue. Also enter the proportion that is standing and the proportion that is flat.
- Enter the amount of the residue as well.
- You can also specify the type of residue and the random roughness of the residue. The random roughness is simply a descriptive term.

The screenshot shows a software dialog box titled "Resource Setup - MU1" with a "Residue Cover" tab selected. The "Initial Residue Cover" section contains the following fields and values:

Field	Value
Surface Residue Cover (%)	50
Standing Surface Residue (%)	50
Flat Surface Residue (%)	50
Surface Residue Mass (Tons/Ac)	1.733
Residue Type	Corn, Stalks
Random Roughness	Smooth

Additional features include a button for "Advanced Residue Cover Information", a "Copy Residue Cover to Management Unit(s)" button, and a "Default Values" button. The bottom of the dialog has "Load/Save/Copy", "OK", "Cancel", "Apply", and "Help" buttons.

Residue Cover- Rangeland

- This is basically the same as the Residue Cover for Cropland with the exception of Residue Type.
- The only Residue Type available is Prairie Litter and this is the default.

The screenshot shows a software dialog box titled "Resource Setup - Rang 8, MU1". It has five tabs: "Soil Information", "Residue Cover", "Topography", "Conservation Planning", and "Forage". The "Residue Cover" tab is active. The dialog is titled "Initial Residue Cover" and contains the following fields and controls:

- Surface Residue Cover (%): 50 (spin box)
- Standing Surface Residue (%): 30 (spin box)
- Flat Surface Residue (%): 70 (spin box)
- Surface Residue Mass (Tons/Ac): 1.733 (text box)
- Residue Type: Prairie Litter (dropdown menu)
- Random Roughness: Smooth (dropdown menu)
- Advanced Residue Cover Information (button)
- Copy Residue Cover to Management Unit(s) (button)
- Default Values (button)

At the bottom of the dialog are four buttons: "Load/Save/Copy", "OK", "Cancel", and "Apply".

Topography- Cropland

- Topographic information should be entered for the Management Unit to correctly predict crop yield and soil erosion.
- The slope profile is the shape of slope of the MU. Information about the slope length and slope segments should be entered as well.
- If you do not have data for this information, the defaults will be sufficient.
- Please see the online Help System for detailed help in entering topographic information.

Resource Setup - West

Soil Information | Residue Cover | **Topography** | Conservation Planning | Weed Population

Type of Slope Profile:

Slope Length [LEN] (Ft):

Elevation Difference between Top and Bottom Slope [ELEV] (Ft):

Top Slope [SB] (Ft/Ft):

Mid Slope [SM] (Ft/Ft):

Bottom Slope [SE] (Ft/Ft):

Average Slope (Ft/Ft):

Default Topography/Conservation Planning

Copy Topography to Management Unit(s)

Load/Save/Copy | OK | Cancel | Apply | Help

Topography- Rangeland

- Enter the length and slope % for each slope segment.
- You can view the slope in line or curve view.
- If you do not have data for this information, the defaults are sufficient.
- Please see the online Help System for detailed help in entering topographic information.

The screenshot shows the 'Resource Setup - Rang 8, MU1' window with the 'Topography' tab selected. The window contains a graph of Elevation (ft) vs. Distance (ft) and a table of slope segments.

Segment	Length (Ft)	Slope (%)
1	10.000	1.0
2	20.000	2.0
3	30.000	3.0
4	40.000	4.0

Below the table are buttons: 'Clear Table and Graph', 'Load Slope Profile', 'Save Slope Profile', 'Default Topography/Conservation Planning', and 'Copy Topography to Management Unit(s)'. At the bottom are 'Load/Save/Copy', 'OK', 'Cancel', 'Apply', and 'Help' buttons.

The graph shows a red line representing the slope profile. The y-axis is 'Elevation (ft)' from 0.0 to 3.0. The x-axis is 'Distance (ft)' from 0 to 100. The line starts at (0, 3.0) and ends at (100, 0.0). The slope conditions are set to 'Flat' for the top and 'Flatter' for the bottom, with a 'Transition%' of 20.

Conservation Planning- Cropland

- Conservation Planning and Topography are inter-related.
- Information should be entered for Soil Erodibility, Overland Flow and Wind Erosion.
- The Slope Length on the Topography tab impacts the Conservation Planning information.
- If you do not have data for this information, the defaults are sufficient.
- Please see the online Help System for detailed help in entering topographic information.

Resource Setup - dryland mu 1

Soil Information | Residue Cover | Topography | **Conservation Planning** | Weed Population

Soil Erodibility Factor

Segment Number	Cumulative Segment Length (Ft)	Soil Erodibility Factor (Ton/Acre/English EI)
1	100.00	0.23

Total Slope Length (Ft):

Wind Erosion

Clockwise angle between Field Length and North (Degrees):

Maximum Erodible Thickness for 1 Event (In):

Note: Please fill out completely rows of data. The final segment cumulative length must equal to the total slope length.

Overland Flow Factors

Segment Number	Cumulative Segment Length (Ft)	Soil Loss Ratio (USLE C Factor)	Contouring (USLE P Factor)	Manning's n Factor
1	100.00	0.26	1.00	0.035

Conservation Planning – Rangeland

- Conservation Planning and Topography are inter-related.
- Information should be entered for Soil Erodibility, Overland Flow and Wind Erosion.
- The Slope Length on the Topography tab impacts the Conservation Planning information.
- If you do not have data for this information, the defaults are sufficient.
- Please see the online Help System for detailed help in entering topographic information.

Resource Setup - Range 10, MU1

Soil Information | Residue Cover | Topography | Conservation Planning | Forage

Total Slope Length (Ft): 280.00

Relative Soil Erodibility (Unitless): 0.23

Note: Please fill out completely all rows of data.

Wind Erosion

Clockwise angle between Field Length and North (Degrees): 90.0

Maximum Erodible Thickness for 1 Event (In): 0.394

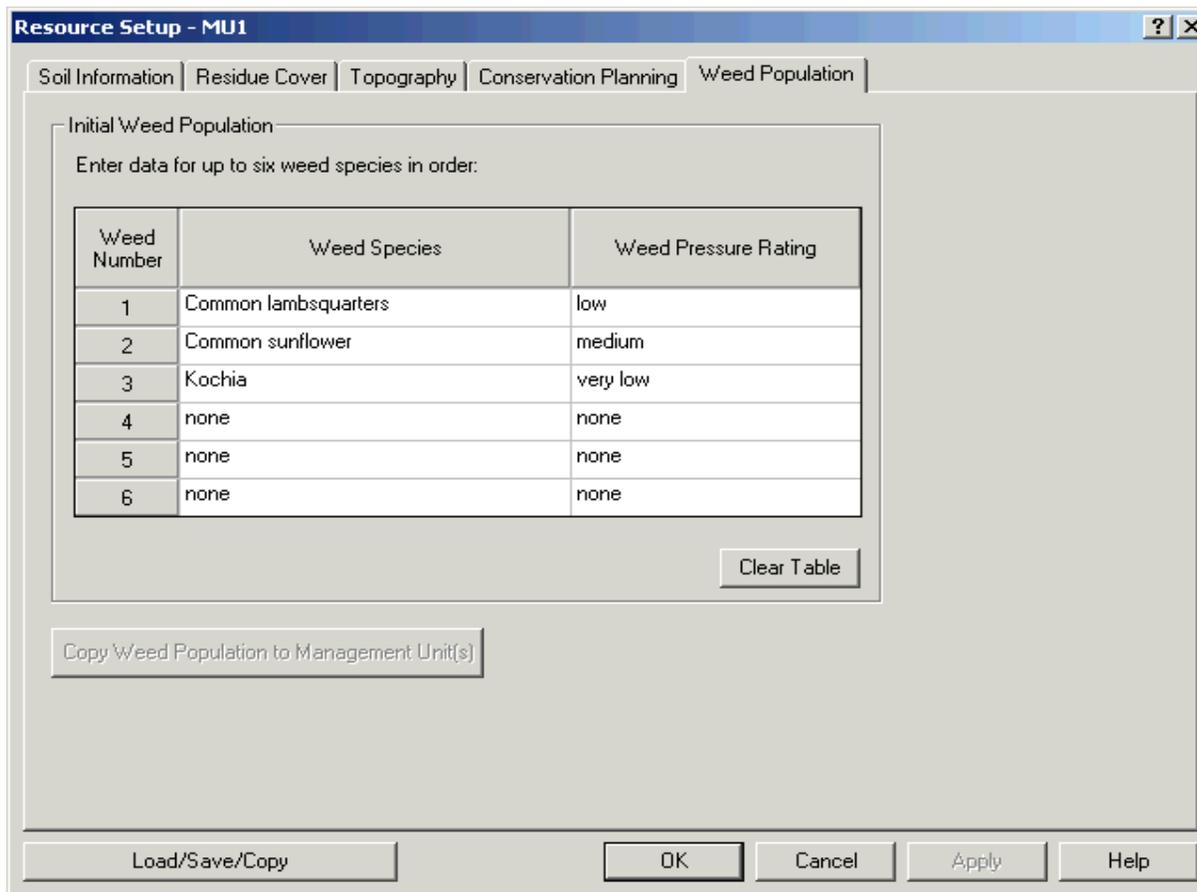
Segment Number	Cumulative Segment Length (Ft)	Segment Slope (%)	Canopy Cover (%)	Ground Cover (%)
4	100.00	4.00	10.00	10.00
5	110.00	2.00		
6	155.00	2.00		
7	201.00	6.00		
8	226.00	8.00		
9	278.00	1.00		
10	298.00	3.00		

Copy Conservation Planning to Management Unit(s) Clear Table

Load/Save/Copy OK Cancel Apply Help

Weed Population

- Select the dominant annual weed species that are present on the MU.
- Then enter the Weed Pressure Rating for each weed species selected. (NOTE: Change the weed pressure ratings on a different scenario to see what effect weeds have on yield.)
- There are images of the different weed pressures in the Help System to help in selecting the correct descriptive term.



Resource Setup - MU1

Soil Information | Residue Cover | Topography | Conservation Planning | Weed Population

Initial Weed Population

Enter data for up to six weed species in order:

Weed Number	Weed Species	Weed Pressure Rating
1	Common lambsquarters	low
2	Common sunflower	medium
3	Kochia	very low
4	none	none
5	none	none
6	none	none

Clear Table

Copy Weed Population to Management Unit(s)

Load/Save/Copy OK Cancel Apply Help

Forage

- The Forage tab is available only if the MU is a rangeland MU.
- Enter the vegetation data for Total Initial Biomass and the Forage Use Factor. You can accept the default values or if you have values that are more accurate for your operation, enter those in place of the default values.
- The Maximum Forage can be adjusted by moving the slider bars for Grassland Type and Grassland Condition. Grassland Type refers to short, mixed and tall grasslands. The grassland condition is an assessment of the grassland by the user.
- Enter the percentage of forage in each species group.

Resource Setup - Rang 8, MU1

Soil Information | Residue Cover | Topography | Conservation Planning | Forage

Vegetation

Maximum Forage (Lbs/Ac): 2250

Total Initial Biomass (Lbs/Ac): 300

Forage Use Factor (%): 50

Grassland Type: 3 (Short)

Grassland Condition: 60 (Excellent)

Species Group Distribution

Warm-Season Grass (%): 20

Cool-Season Grass (%): 60

Shrubs (%): 20

Forage-Legumes (%): 0

Weeds (%): 0

Default Values

Copy Forage to Management Unit(s)

Load/Save/Copy | OK | Cancel | Apply | Help

Operations

- The Operations for each Management Unit must be defined for a simulation to run. This is done in the Farm/Ranch Window at the Management Unit level.
- NOTE: [Pre-loaded operations](#) are included with the default projects. (See pages 122-124)
- For each Management Unit, do the following for each operation as appropriate as described on the following pages:
 - Choose the Management Operation Option
 - Choose the Crop/Land Use and the Operation Type (Event). Fallow must have a Start and Stop event.
 - Set the Date for the operation
 - Click in the check box if it is a Custom Operation
 - Enter or select Equipment, Properties and Materials/Custom information
 - The Total Cost will be displayed for the event and icons will appear on the timeline below. If the cost seems to be too high or too low, go back to Equipment Costs, Properties or Materials/Custom to find what item(s) needs adjusting.

Management Operations for dryland mu 1

Management Operation Options
 Rotation Events Over Time

Load Information Save Information Copy Information to Management Unit

For Other Spreadsheet Options, Use Mouse Right Button.

No.	Crop / Land Use	Operation Type	Date	Custom Operation?	Equipment	Properties	Materials/ Custom	Total Cost
1	Foxtail Millet	Weed Control - BOTH	04/20/0001	<input type="checkbox"/>				\$12.47
2	Foxtail Millet	Commercial Fertilizer	05/20/0001	<input type="checkbox"/>				\$15.18
3	Foxtail Millet	Planting	05/20/0001	<input type="checkbox"/>				\$15.62
4	Foxtail Millet	Harvest	09/15/0001	<input type="checkbox"/>				\$14.99
5	Fallow	Start	09/16/0001	<input type="checkbox"/>				\$0.00
6	Fallow	Weed Control - BOTH	05/20/0002	<input type="checkbox"/>				\$13.07
7	Fallow	Stop	09/30/0002	<input type="checkbox"/>				\$0.00
8	Winter Wheat	Planting	10/01/0002	<input type="checkbox"/>				\$15.62

0001 0002 0003 0004
 Winter Spring Summer Fall Winter Spring Summer Fall Winter Spring Summer Fall Winter Spring Summer Fall

Note: Place cursor over icon above to scroll to associated operation

<< Year Back 03/16/0004 Year Forward >> OK Cancel Help

Management Operation Options

There are two options or methods of entering management operations. They include Rotation and Events Over Time.

- Rotation – this is the easier, faster way of entering operations. Once you set up the operations for each crop/land use in the rotation then these operations are repeated for every time the rotation is repeated.
- Events Over Time – with this option each operation for each event for every year must be entered. This is helpful when a rotation is not being repeated and every year is potentially different. You cannot mix Rotation and Events Over Time on the Farm/Ranch. In any one scenario you cannot have some MUs with operations entered as a rotation and some MUs with operations entered as Events Over Time.
- On Range MUs only the Rotation Management operation option is available. Events are entered for one year on range MUs and then repeated for the number of years in the rotation.

Crop/Land Use

- Select either cropland or rangeland.
- What is available in the dropdown list depends on how the management unit was defined. If it is a cropping MU, the crops currently included and fallow will be listed. If it is a rangeland MU then range is the only option available.

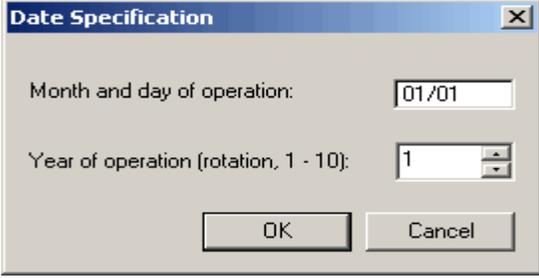
Operation Type

- If the MU is a cropping MU and a crop is chosen the following events are available:
 - Tillage
 - Planting
 - Commercial Fertilizer
 - Manure
 - Weed Control - BOTH
 - Weed Control - POST
 - Weed Control - SOIL
 - Irrigation – fixed date
 - Irrigation Interval
 - Harvest

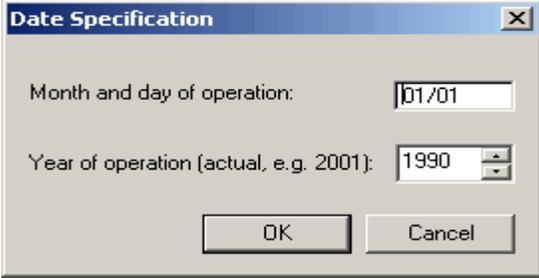
- If the land type is Fallow, Start and Stop replace Planting and Harvesting events. Start and Stop events must entered.
- If the land type is Range, then the only events available are Graze Start and Graze End.

Operation Date

- Every operation must have a specific date.
- For a Rotation management option, enter the year as one, two, three etc. This refers to the year within the rotation.
- For Events Over Time and for Rangeland MUs the actual calendar date for year must be entered for example, 1990.
- If a crop or land use type spans the end of the calendar year, simply enter those operations that occur in the first year as year 1 (or whatever year the rotation is in when this crop or land use type is selected) and the operations in the second calendar year as year 2 or the appropriate following year. For a winter wheat-fallow rotation the wheat planting date (usually September or October) is in year 1, but harvest is in year 2.
- If actual calendar years are used enter the calendar year for each operation in the same manner.



A dialog box titled "Date Specification" with a close button (X) in the top right corner. It contains two input fields: "Month and day of operation:" with a text box containing "01/01", and "Year of operation (rotation, 1 - 10):" with a spinner box containing "1". At the bottom are "OK" and "Cancel" buttons.



A dialog box titled "Date Specification" with a close button (X) in the top right corner. It contains two input fields: "Month and day of operation:" with a text box containing "01/01", and "Year of operation (actual, e.g. 2001):" with a spinner box containing "1990". At the bottom are "OK" and "Cancel" buttons.

Custom Operations

- Click in the check box to designate a Custom Operation.
- A custom operation does not require equipment. That will be provided by the person performing the custom operation. It will be accounted for in the economics for GPFARM by the fee charged by the custom operator associated with the custom operation.
 - NOTE: If the custom operation is a tillage event you must still choose tillage equipment. GPFARM needs that information for other internal calculations.
- Properties do not change between custom operations and other operations.
- You will need to enter materials information for a custom operation. This is not optional as it is for other operations. (See [Materials for Custom Operation](#), page 112)

Operation Equipment

- Choose the equipment needed for the operation event from the list that appears. This is the list that you created when you selected equipment for the Farm/Ranch.
- NOTE: A [default equipment list](#) is included with the default projects included in GPFARM “Express”. (See page 120)
- If you find that a piece of equipment is not included press the Equipment Setup button to return to the screen where you can add equipment or even modify or create new equipment.
- If the operation is a custom tillage operation be sure to select equipment.

Equipment Used for Operation

Available Equipment for Whole Farm

- Manure Spreader, 400 Bu
- Stalk Shredder, 20 Ft
- Combine, 190 HP
- Grain Drill, 25 Ft
- No-Till Planter, 20 Ft
- Row Crop Planter 12-30, 30 Ft
- Chisel Plow, Front Disk, 21.25 Ft, Folding
- Cultivator 12-30, 30 Ft
- Field Cultivator, 37 Ft
- Moldboard Plow 4-18, 6 Ft
- Pickup Truck 3/4 Ton

↓ Add ↑ Remove Equipment Setup

Selected Equipment for Current Operation	Hours/Acre	Acres/Hour
Grain Drill, 25 Ft	0.090	10.610

Machinery Labor (\$/Hr): 7.00 Operation Time -->

OK Cancel Help

Edit Operations

- You can edit operations you have entered by clicking the right mouse button to access the edit menu.
 - Copy Operation - copies the operation in the row where you right-clicked.
 - Paste Operation - pastes the copied operation. Position the cursor on the row where you want to paste the operation. You will have to enter the date.
 - Cut Operation - deletes an operation. It will NOT be available to paste in again.
 - Insert Operation - inserts a blank row in the operations spreadsheet. Enter the information for an added operation here.
 - Sort Operation - sorts the operations by date.
 - Clear Table - clears the table. You will have to re-enter operations.



Change Start Crop

- To change the beginning crop in the rotation, click the right mouse button on the Operations screen and choose Change Start Crop.



- This is only available if the Management Operation Option is Rotation.
- Choose the new Start Crop from the list in the dialog box.



Properties for Events

- Properties need to be provided for each event.
- There are some exceptions in that Tillage events, Grazing Start and Grazing End, Fallow Start and Fallow Stop have no properties.
- The icon under Properties will show red until the event has had its properties defined. The icon will then show green.

Properties for Tillage Events

- No information is required for tillage event properties.
- The icon under the Properties column will be green for a tillage event signifying no information is required.

Properties for Planting Events

- Enter the following information:
 - Row spacing in inches
 - Total Seeding Rate by choosing Seeds/Acre or Lbs/Acre of seeds and entering the amount of Seeds/Acre or Lbs/Acre of seeds.
 - Seed Size – only available if Seeds/Acre was chosen.
 - In-Row Plant Spacing is not currently editable.
- Enter the economic information at the bottom of the screen.
- If the land use is Fallow, Planting will be replaced by Start and no information is required.

Crop Planting Information

Crop:

Seeding Information

Row Spacing (In):

In-Row Plant Spacing (In):

Total Seeding Rate

Seed Size (Seeds/Lb):

Name of Material	\$/Unit	Unit	Units/Acre
Seed		Bags	

Properties for Nutrient Applications Events

- Nutrients may be applied as:
 - Commercial Fertilizers
 - Blend of Fertilizers
 - Manure
- Each type requires different information to be entered.

Properties for Commercial Fertilizer Events

- Enter the type of fertilizer and the method by which it is applied.
- Next enter the amount of fertilizer applied in total pounds per acre. The table to the left will calculate the pounds and percent of Nitrogen, Phosphorus and Potassium applied based on the fertilizer type and amount applied.
- Enter the economic information at the bottom of the screen.
- To choose a Blend Commercial fertilizer select Blend under the Type of fertilizer and enter the percentage of each component in the blend in the Blend/Other screen that appears.

Commercial Fertilizer

Fertilizer Information

Type of Fertilizer:

	N	P	K
% N P K:	82	0	0
Lb/Ac:	57.4	0.	0.

Application Information

Method of Applicator:

Amount of Fertilizer Applied (Lb/Ac):

Commercial Fertilizer	\$/Unit	Unit	Amount/Acre
Anhydrous ammonia	\$0.45	Lbs	70.00
<input type="button" value="Calculate \$/Acre"/>			\$31.50

Properties for Manure Application Events

- Select the source of the manure and enter the amount applied in tons/acre.
- Select the method of application and enter the percentage of water in the manure.
- The percentage of components will be entered for you in the table. You can type in new percentages if you want to, however the column must total 100%.
- Enter the economic information at the bottom of the screen.

Nutrient Manure [X]

Manure Information

Source of Manure: Dairy dry solid [v] Wet Amount Applied (T/Ac): 20

Method of Application: Surface Dry/SemiDry [v] Water (%): 87

Percentage of components contained in the manure (dry weight):

Component (Dry)	%	Parts per Million	Amount (Lb/Ac)	Amount (Tons/Ac)
Organic N	0.89898	8990	46.75	0.023
Nitrate N	0.00016	2	0.01	0.000
Ammonium N	0.00086	9	0.04	0.000
Organic Carbon	11.34000	113400	589.68	0.295
Other	87.79898	877990	4565.55	2.283

C to N Ratio: 13

Manure	\$/Unit	Unit	Units/Acre
Dairy dry solid	\$10.00	Tons	20.00

Calculate \$/Acre: \$200.00

OK Cancel Help

Properties for Weed Control Events

- Choose the herbicide treatment you want to apply, a surfactant if any and check if the herbicide will be applied in bands.
- You can view treatment notes about the selected treatment. You can also edit the treatment by changing the efficacies of the treatment components.
- You can add a new tank mix.
- You can view the properties of each component of the selected treatment. These are the parameters for the components and can be edited. Do not change these parameters unless you are sure of the new values.
- Enter economic information for the treatment.

Weed Management [?] [X]

Land Unit Information

Land Unit:

Crop:

Herbicide Application Information

Treatment Name:

Surfactant:

Banding: Bandwidth (In):

Herbicide/Surfactant	\$/Unit	Unit	Amount/Acre	Properties
Atrazine 4L	\$1.80	pt	1.00	<<Select>>
Bladex 4L	\$7.10	qt	1.00	<<Select>>
Dual	\$8.46	pt	1.00	<<Select>>
Nonionic Surfactant	17.50000	\$0.00	1	<<Select>>

Properties for Irrigation Events

- Irrigation can be entered in two ways: as a Fixed date when an amount of water will be applied on a specific date or as an Interval when an amount of water will be applied every number of days as determined by the interval you set.
- Enter the amount of water to be applied, the amount of nitrogen in the water, and the duration of irrigation. If this is an Interval irrigation event, then enter the start and stop date and the number of days between irrigation events.
- Be careful how many interval irrigation events you schedule. There is room for only 98 total events in the spreadsheet and scheduling too many interval irrigations can overrun the spreadsheet.

Irrigation Options (Fixed Date)

Amount of Water to be Applied (In):

Amount of Nitrate N in Irrigation Water (PPM):

Duration of Irrigation Event (Hours):

Interval Scheduling

Start Date:

Stop Date:

Notes:

1. Be careful in selection not to enter too many irrigation events.
2. Be careful in duration selection to pick a reasonable time for the capacity of irrigation system as well as not applying more water than the soil can handle.

OK Cancel Help

Irrigation Options (Fixed Date)

Amount of Water to be Applied (In):

Amount of Nitrate N in Irrigation Water (PPM):

Duration of Irrigation Event (Hours):

Interval Scheduling

Start Date:

Stop Date:

Interval: (days)

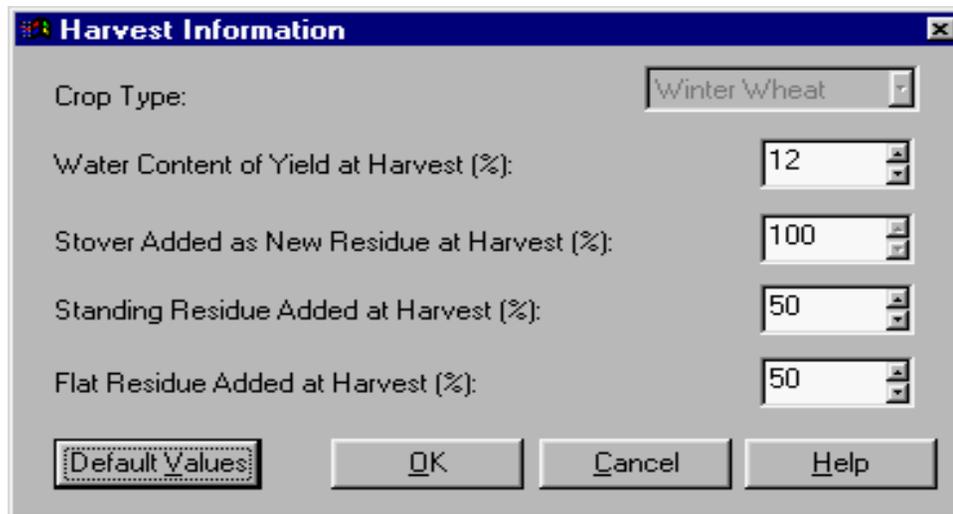
Notes:

1. Be careful in selection not to enter too many irrigation events.
2. Be careful in duration selection to pick a reasonable time for the capacity of irrigation system as well as not applying more water than the soil can handle.

OK Cancel Help

Properties for Harvest Events

- Enter the water content of the harvested yield.
- Enter the Stover Added as New Residue at Harvest. This is the portion left in the field.
- Enter the Standing Residue at Harvest and the Flat Residue at Harvest. These two comprise the Stover Added as New Residue at Harvest and must equal 100%.
- If the land use is Fallow, Harvest will be replaced by End and no information is required.



The screenshot shows a dialog box titled "Harvest Information" with a close button (X) in the top right corner. The dialog contains five input fields, each with a label and a value:

Field Label	Value
Crop Type:	Winter Wheat
Water Content of Yield at Harvest (%):	12
Stover Added as New Residue at Harvest (%):	100
Standing Residue Added at Harvest (%):	50
Flat Residue Added at Harvest (%):	50

At the bottom of the dialog, there are four buttons: "Default Values" (highlighted with a dashed border), "OK", "Cancel", and "Help".

Properties for Graze Start and End Events

- No Properties are required for Graze Start or Graze End. The icon will load in green to indicate nothing needs to be entered for this event in properties.
- These events are available only if the MU is a rangeland MU.

Materials/Custom

- If it is not a custom operation you have the option of entering additional information under materials/custom, but it is not required. This could include land payments, insurance or any other cost not accounted for elsewhere.
- Enter economic information about materials that were used and not entered on any of the property screens. This could be for materials that don't belong in the previous property screens.
- Enter cost information about non-machine labor.

The screenshot shows a software window titled "Materials" with a close button (X) in the top right corner. The window contains the following elements:

Identify miscellaneous materials used for: Planting

Materials:

Type of Operation	Name of Material	\$/Unit	Unit	Amount/Acre
Planting	Seed Treatment	\$10.00	gal	2.00

Clear Materials Table Calculate Materials \$/Acre \$20.00

Non-Machine Labor:

Type of Operation	Name of Activity	Hours/Acre	\$/Hour
Planting	Treating seed	1.00	\$7.00

Clear Non-machine Labor Table Calculate Labor \$/Acre \$7.00

Misc. Material Prices Fert./ Pest. Prices OK Cancel Help

Materials for Custom Operation

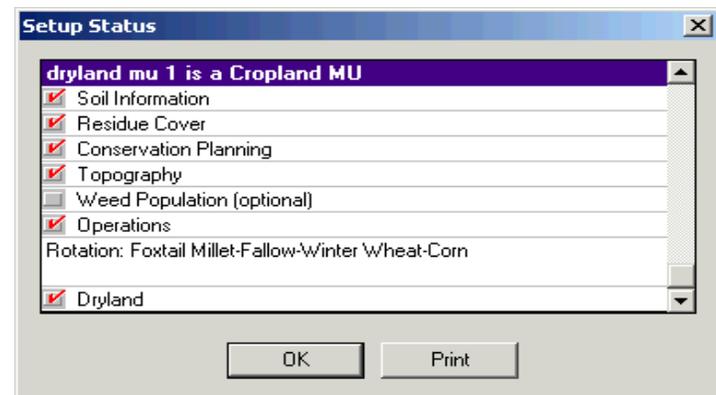
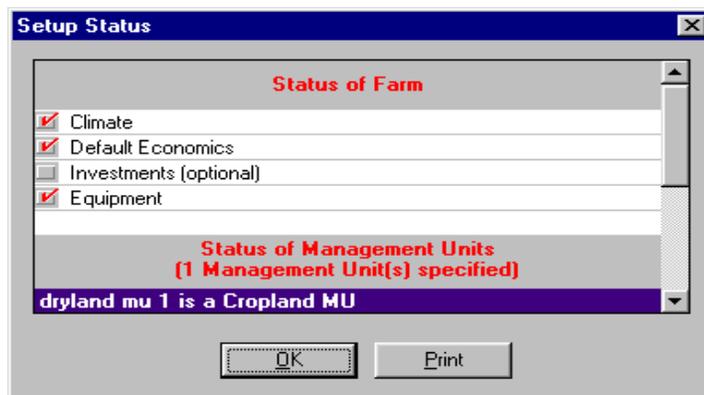
- When you designate an operation or event as Custom you will need to enter Materials information. GPFARM will not let you out of this screen until you enter the information.
- Click on the icon under Materials/Custom and enter a description of the materials used in the custom operation. Enter the units the material is priced in and the amount of units used in the operation.

Operation Type	Description	Units	Amount
Commercial Fertilizer	Liquid Fertilizer	\$/Acre	0

OK Cancel Help

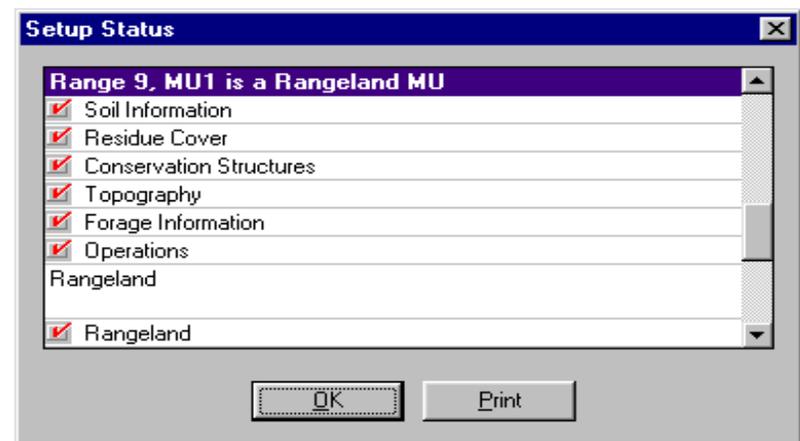
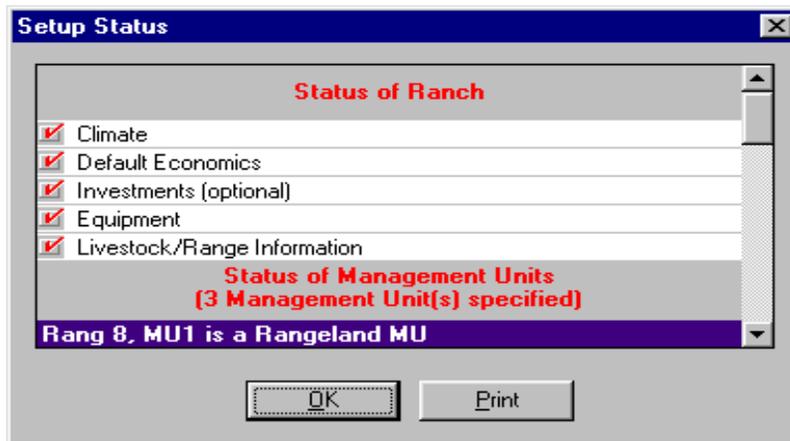
Setup Status- Farm

- At any time during the setup of your operation, you can click on the Setup Status icon to see a report of what you have completed for each MU. You can also access this from the Build menu.
- You can print this report to have along side you as you work through the setup of your operation. It is also a good idea to print this if you have to leave before you finish setting up your operation. Then when you return, the print out of the Setup Status will help you know what else needs to be completed.



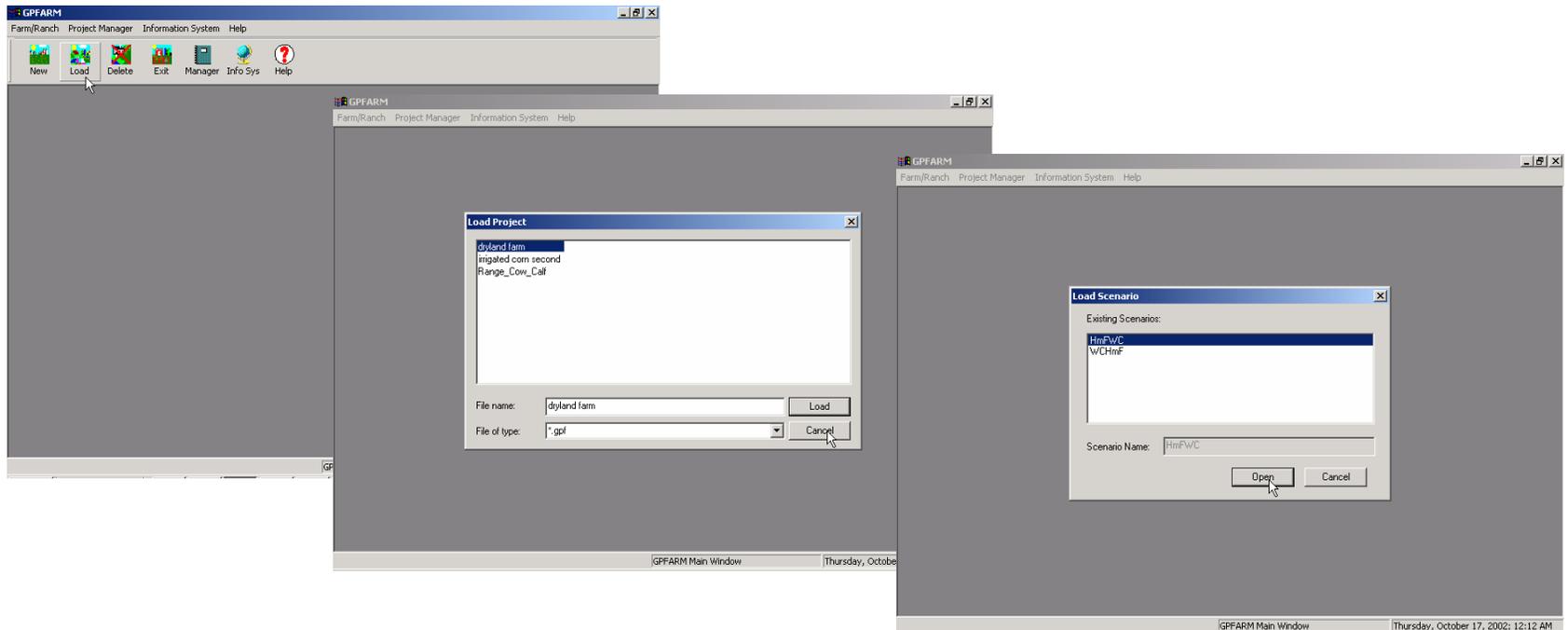
Setup Status- Ranch

- You can also access the Setup Status for the Ranch from the Setup Status icon or from the Build menu.
- You can print this report to have along side you as you work through the setup of your operation. It is also a good idea to print this if you have to leave before you finish setting up your operation. Then when you return, the print out of the Setup Status will help you know what else needs to be completed.



Load a Project

- To run an existing project or load a default project (“Express”), first close any currently open projects. (See the section on [“GPFARM Express”](#) beginning on page 117.)
- Next, click on the Load icon from the main screen.
- On the next screen select a Project and click the Load button or just double-click the mouse.
- Now select from the existing scenarios and click Open.
- The scenario will display the farm/ranch layout. You can now edit the scenario (climate, economics, operations, resources, etc.), run the scenario as is, or view results from the last time this scenario was run.



GPFARM “Express”

- GPFARM Express is the current version of GPFARM and it is the full version of GPFARM. It also contains some predefined projects (which makes it “Express”) that will enable you to set up your operation in a shorter period of time.
- Several Projects have already been set up and all you need to do is customize them to your operation. Eight cropping projects and one range project are available to choose from.
- Each of the cropping projects are set up with 2400 acres divided evenly between each crop. For example, the Wheat Sunflower Fallow project has three fields with 800 acres each.
- A [default Equipment list](#) (page 120) is included with each rotation which can be edited.
- Several [Historical and Generated Climate files](#) (page 119) are included.
- Economic values are left at the Default Values.
- You will probably need to change the [soils](#) (page 84), select a [climate](#) (page 119) and make small [operational](#) changes (see page 122) to customize the project to your operation. This should enable you to set up your operation quickly in a minimal amount of time.

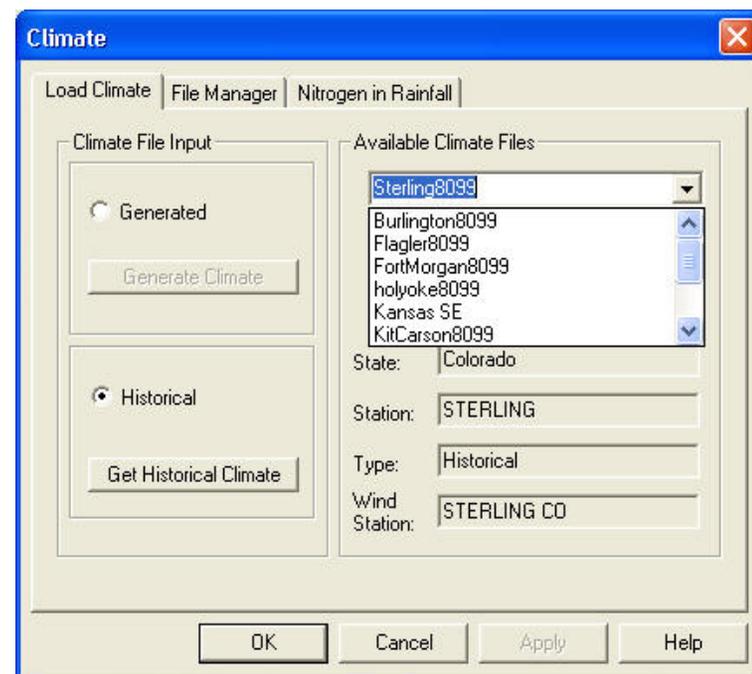
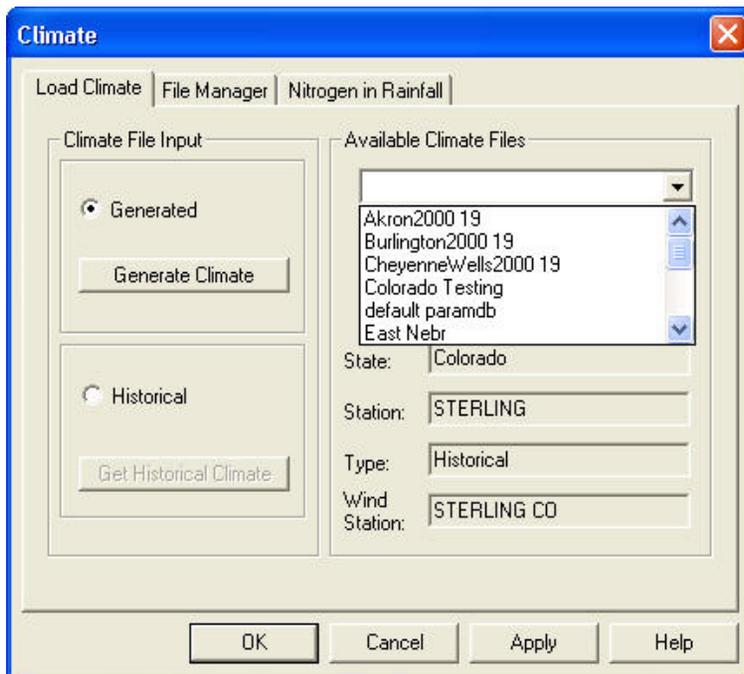
How to Use GPFARM “Express”

- To use the “Express” part of GPFARM begin at the Load button on the main screen. Press the Load button and the Load Project screen will appear with a listing of the default projects.
- Click on the default project you wish to load and press the Load button or simply double-click on the project name.
- Highlight the scenario in the next screen that appears and press the Open button to begin customizing the default project to your operation.



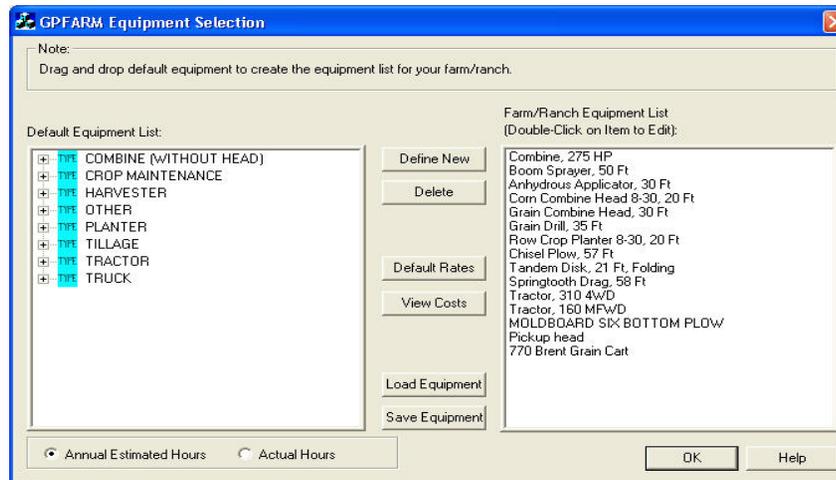
“Express” Climate

- Several Historical and Generated climate files are available when a default project is chosen.
- When you click on the radio button for Historical climate files and then click on the dropdown arrow under Available Climate Files all the climate files that have 8099 are the default Historical files. The 8099 indicates climate for the years 1980 – 1999.
- If you choose Generated climate files the dropdown will show files with 2000 19 on the end of the name. This indicates climate for the years 2000 – 2019.
- Choose a climate file that fits your area.



“Express” Equipment

- A default Equipment list is provided with each default project.
- You can edit this list from the [Equipment](#) screen. (See page 47)



“Express” Economics

- The Economics for the Default Projects were left with the default values. You can look at these values by pressing the Econ button on the main screen and choosing Default Values from the dropdown list. (See page 45)
- You can edit these values as needed.

Economic Default Values

Irrigation | Machinery | Crops | Labor | Investment Interest

Irrigation Energy Rates

Customer Charge (\$ Per Month):	7.50	Reset to Defaults
Meter Charge (\$ Per Meter Per Month):	6.20	
Demand Charge (\$ Per HP of Connected Load):	1.50	
Demand Charge (\$ Per Max. KW Per Summer Month):	1.85	
Demand Charge (\$ Per Summer Month Peak KW):	1.70	
Demand Charge (\$ Per Max. KW Per Winter Month):	1.25	
Demand Charge (Average \$ Per KW):	0.10	
Average Energy Charge (\$ Per KWH):	0.50	
State Surcharge (\$ Per KWH):	0.0002	

NOTE: These rates apply to electric pumps only. For fuel driven pumps, please enter fuel prices in the Machinery default section.

OK Cancel Apply Help

“Express” Operations

- On the Operations screen you can edit anything to customize it to your current operation.
- Press the Mgmt button on the main screen and select Operations from the dropdown.
- Then select the management unit for which you want to edit operations. The operation screen will open where you can make changes to the management operations for that rotation. (See page 93)

No.	Crop / Land Use	Operation Type	Date	Custom Operation?	Equipment	Properties	Materials/ Custom	Total Cost
1	Winter Wheat	Tillage	08/01/0001					\$4.15
2	Winter Wheat	Commercial Fertilizer	08/15/0001					\$19.88
3	Winter Wheat	Planting	09/10/0001					\$16.32
4	Winter Wheat	Harvest	07/10/0002					\$13.62
5	Winter Wheat	Weed Control - BOTH	08/01/0002					\$15.59
6	Sunflower Seed	Weed Control - POST	04/01/0003					\$8.75
7	Sunflower Seed	Weed Control - BOTH	05/01/0003					\$12.11
8	Sunflower Seed	Planting	05/25/0003	<input checked="" type="checkbox"/>				\$29.68

“Express” Load Default Rotations



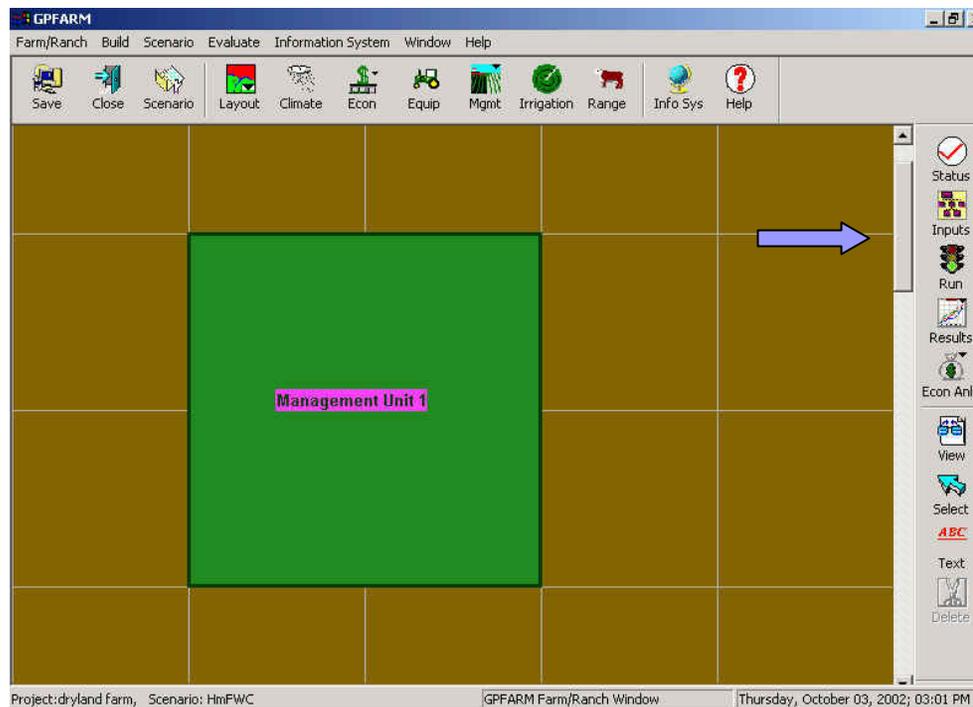
- To create a new rotation in a default project or to add to the existing rotation press the Load Information button on the Operations screen and the Load Rotation screen will appear.
- From here you can select predefined rotations with the operations already entered. You can then ‘fine-tune’ the operations for your situation.
- Highlight your choice and press the Load button.
- The Load User Operations box will appear. You can either clear out the current rotation setup and load the new rotation or you can simply append the selected rotation to the current rotation.

“Express” Predefined Rotations

- The rotations available from the Load Information button on the Operations screen are:
 - WCF – Wheat Corn Fallow
 - WCPMF – Wheat Corn Proso Millet Fallow
 - WCSFF – Wheat Corn Sunflower Fallow
 - WF – Wheat Fallow
 - WM – Wheat Millet
 - WSF – Wheat Sorghum Fallow
 - WSFF – Wheat Sunflower Fallow

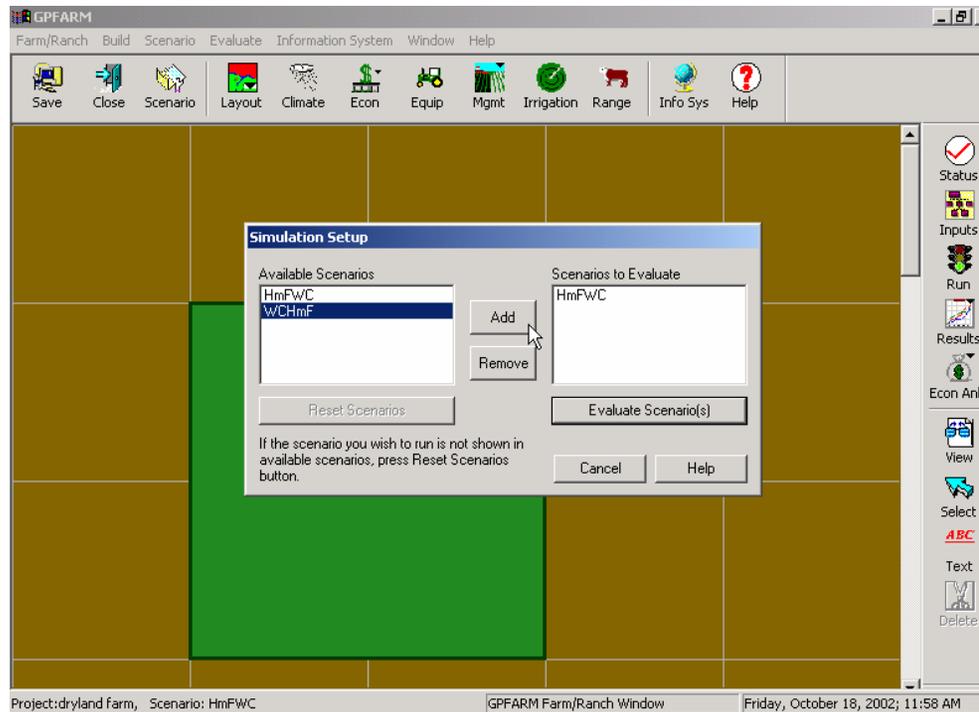
Run an Existing Project

- To run an existing project or a modified existing project, click on the Run icon to begin the simulation (this can also be accomplished by clicking the Evaluate menu tab and choosing Run Simulation Model).
- A series of screens will now appear; make the desired selection for each screen to begin the run.



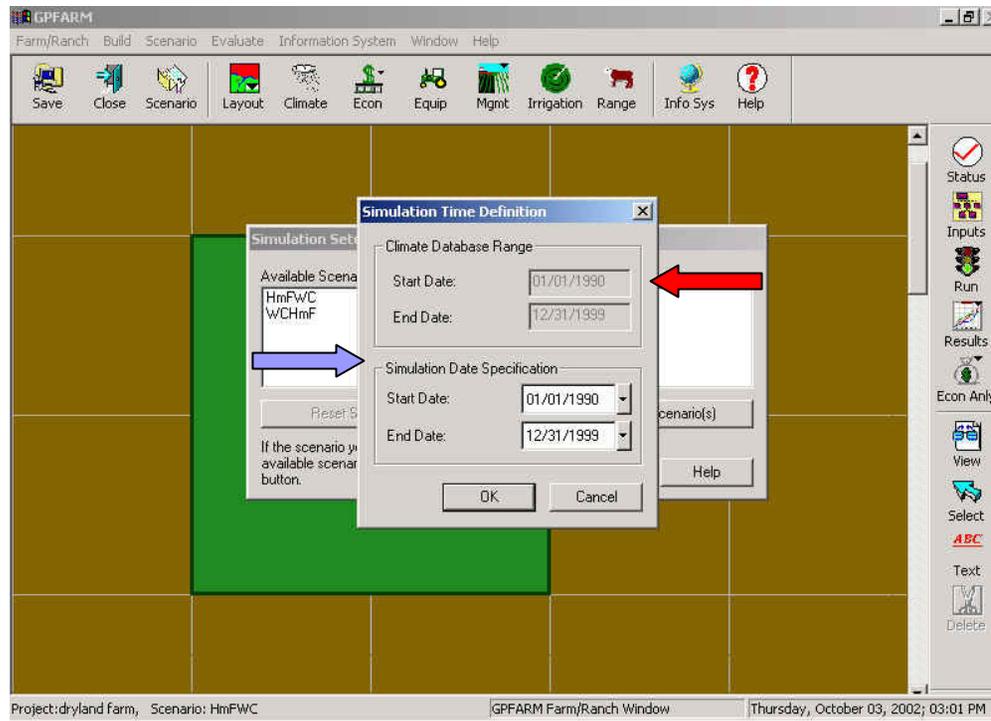
Choose the Scenarios

- The Simulation Setup window allows you to choose the scenario(s) you wish to run.
- If all of the finished scenarios are not shown, select Reset Scenarios to bring in the rest.
- Highlight the desired scenario(s) on the left of the screen and click Add.
- Once you have selected the desired scenario(s), click the Evaluate Scenario(s) button to move to the next screen.



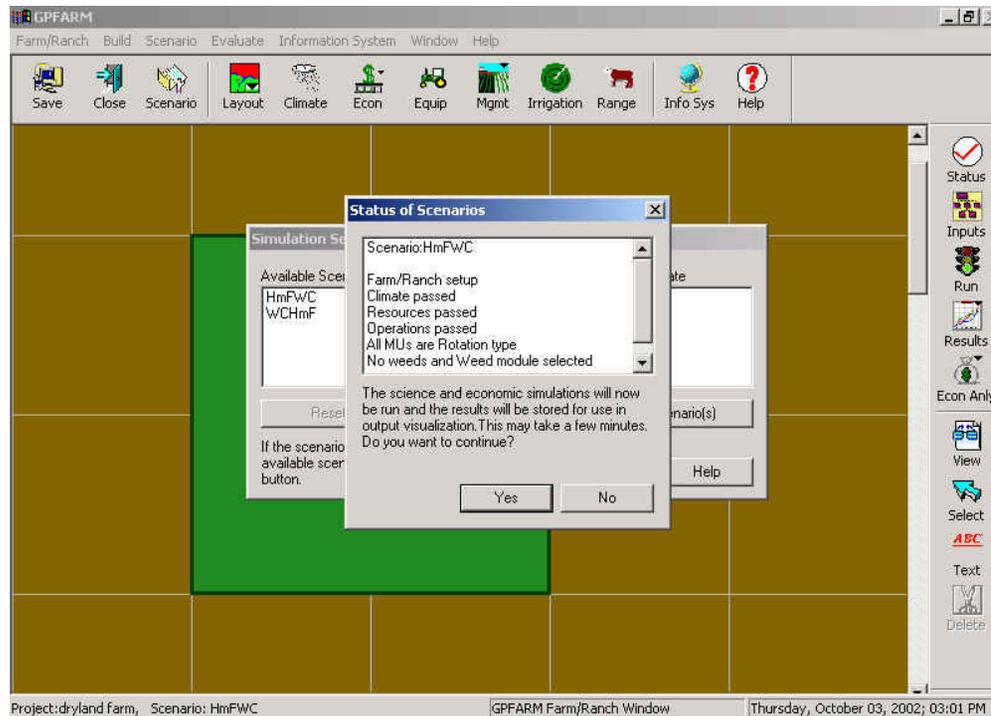
Simulation Time Definition

- The screen Simulation Time Definition will indicate the beginning and ending years and months for the selected climate (red arrow) and the Simulation Date Selection (blue arrow).
- You can change the length of time for simulation to run by changing the Simulation Date Selection, but only if you stay within the time frame shown in Climate Database Range.



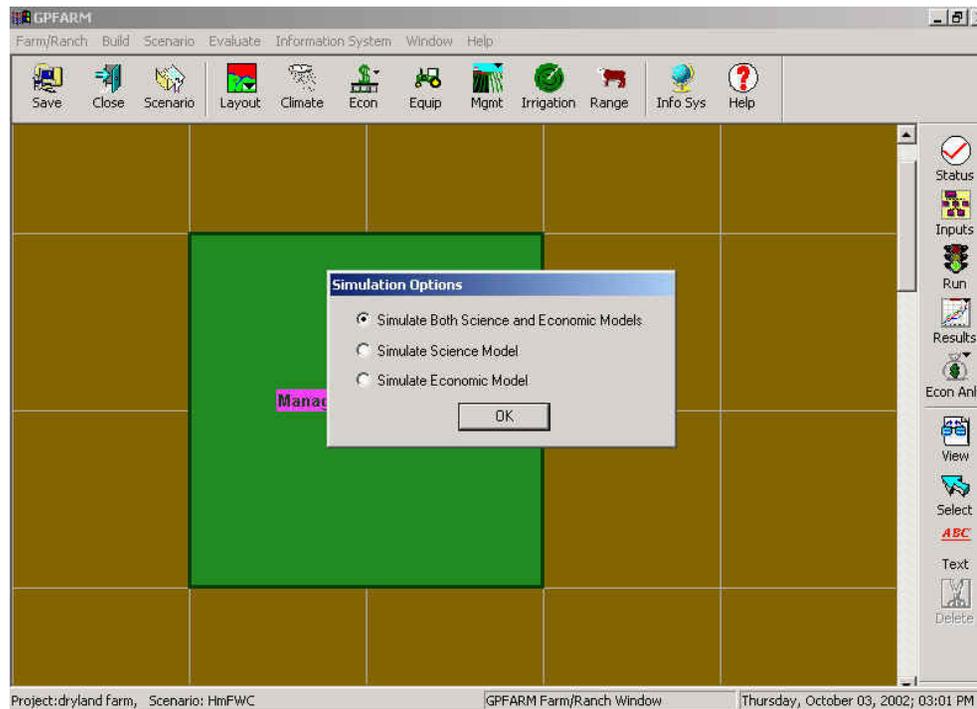
Status of the Scenarios

- The final screen before the simulation begins is the Status of Scenario(s). This screen will tell you if all of the information necessary to run the simulation has been completed.
- If the screen indicates a problem, click NO, and return to that part of the setup to make corrections or additions.
- Click on YES if all of the items are okay as is.



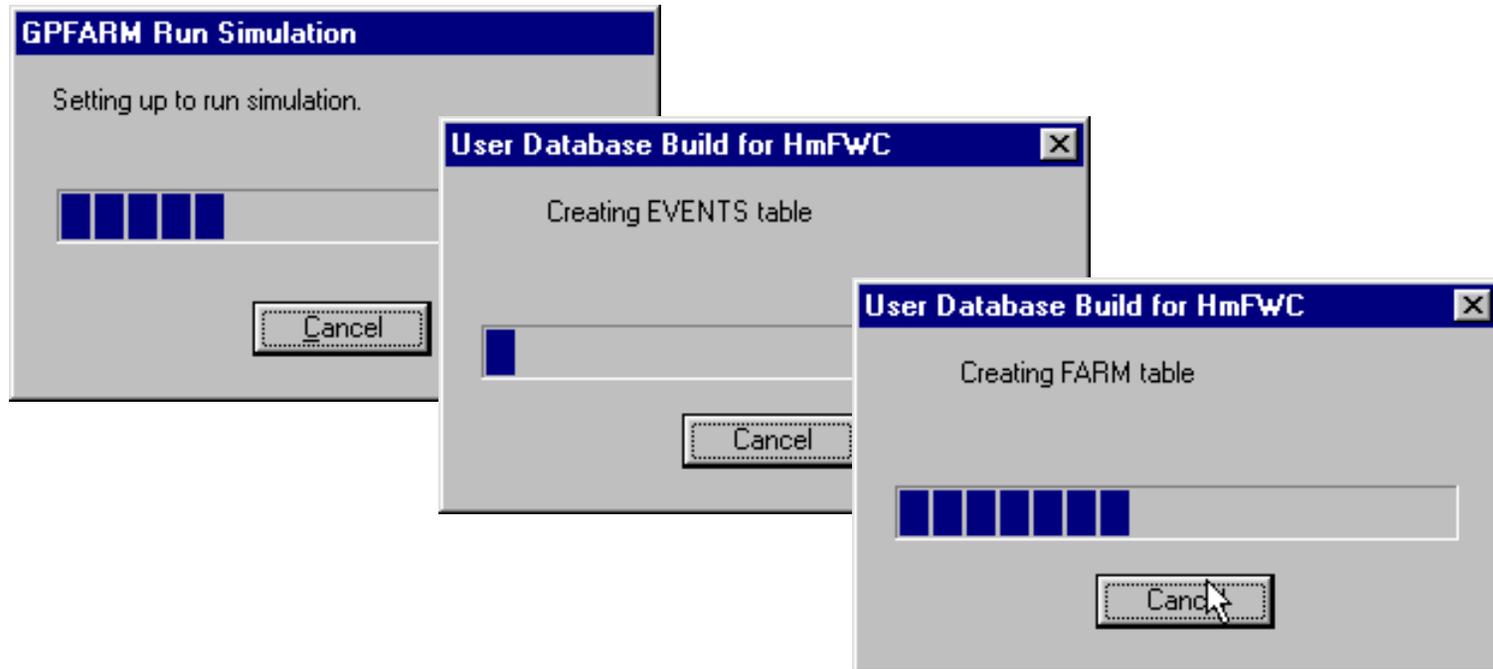
Simulation Options

- The next screen allows you to choose between running the science simulation alone, just the economics alone, or both simulation and economics together.
- Running only the Science Model will produce only environmental results.
- Running only the Economics Model will produce only economic results.
- Choose one of the three options and click OK.



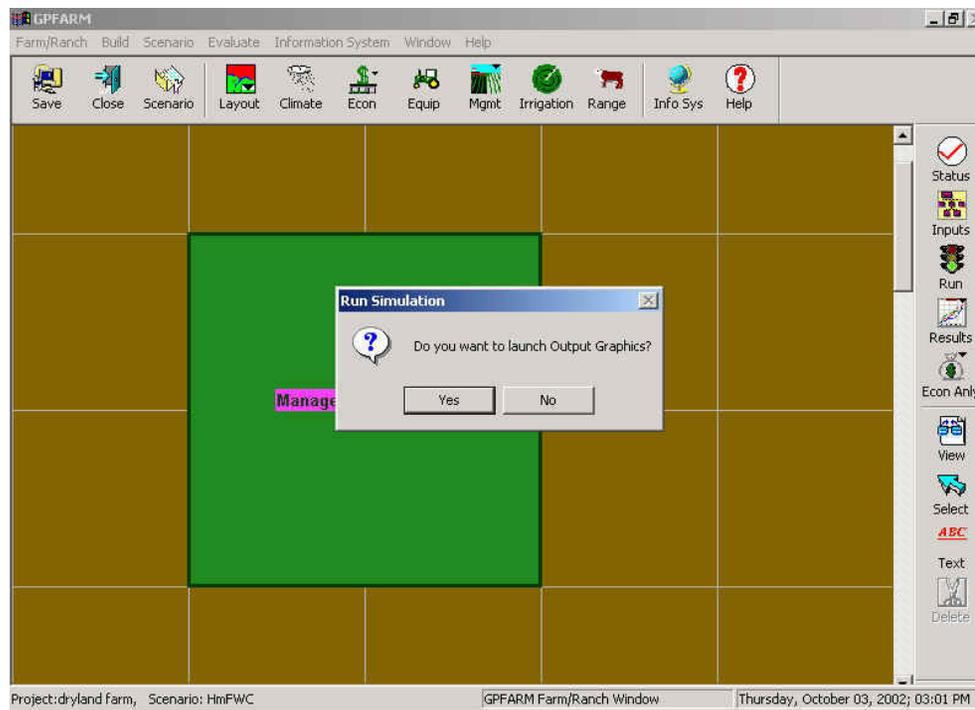
Simulation Progress

- While the simulation runs, GPFARM keeps you informed of its progress.
- If for some reason GPFARM does not complete the run, write down the information on the screen and include it in your correspondence with the GPFARM technical support team



View the Results

- At the end of the simulation a screen will appear asking if you want to Launch Output Graphics.
- Click YES if you wish to view the results as graphs.

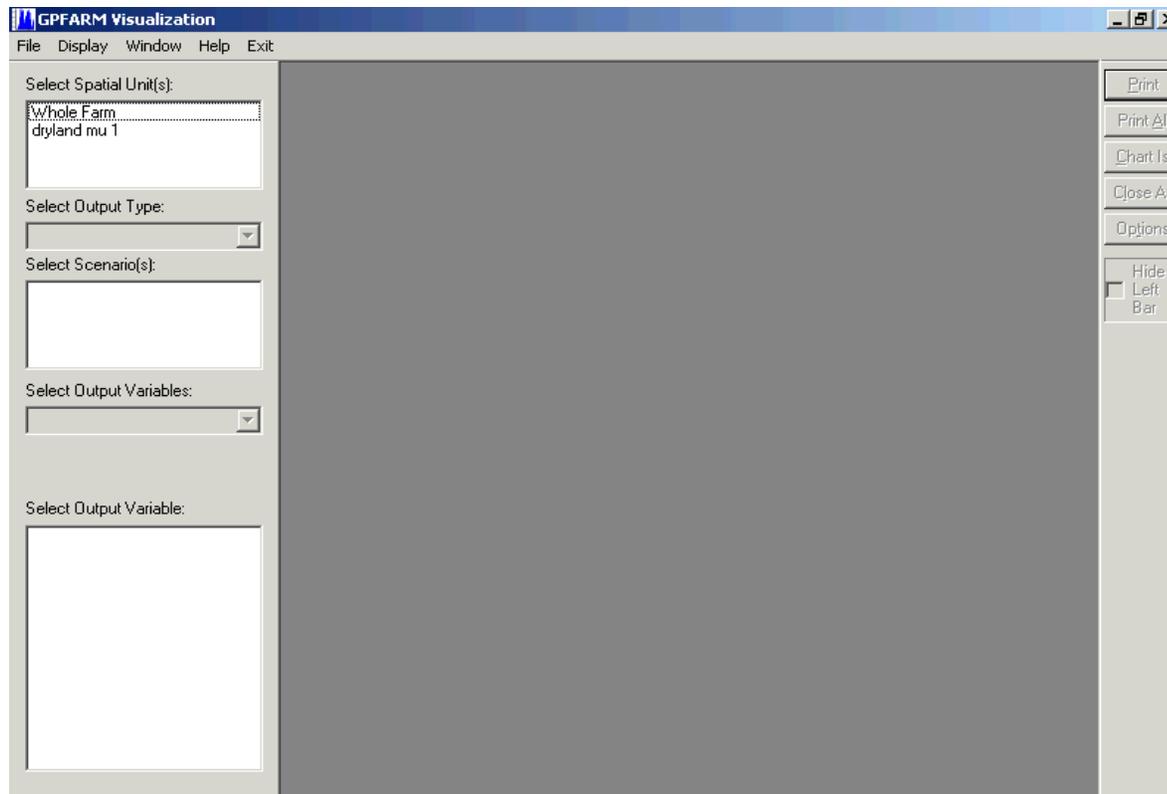


GPFARM Outputs

- There are several ways to view output from the GPFARM model run:
 - You can view graphical displays of output for the Whole farm, for Crop and for Rangeland.
 - You can compare different scenarios in Scenario Comparisons.
 - You can use the decision tool Multiple Criteria Analysis, to compare indices in the results.
 - Spatial Analysis is a way to view the results in a map fashion. This is only practical if there are at least two MUs in the scenario.
 - Economic Analyses can be viewed in several different reports and in breakeven analyses for crop and rangeland.

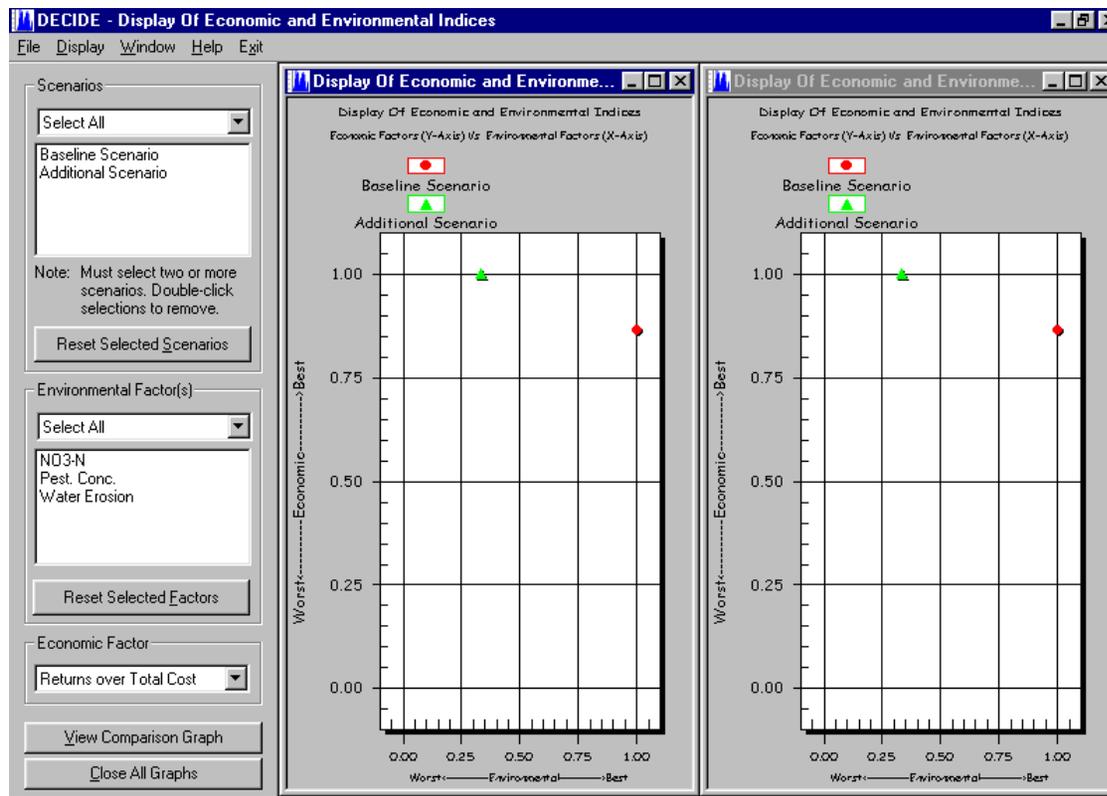
Graphical Display

- This is the only way output can be viewed for scenarios containing mixed MU's, i.e. both crop and rangeland MUs.
- Select the:
 - Spatial Units
 - Output Type
 - Scenarios
 - Output Variable Type – Default variables, Pesticides or Weed variables
 - Crop or Cropping System, Pesticides or Weeds list - may not be available depending upon other selections
 - Output Variable to be graphed
- Items can be graphed for the Whole Farm, Cropping MUs or Rangeland MUs. The above items must be chosen as appropriate to graphically display output for the Whole Farm, Cropping or Rangeland MUs.



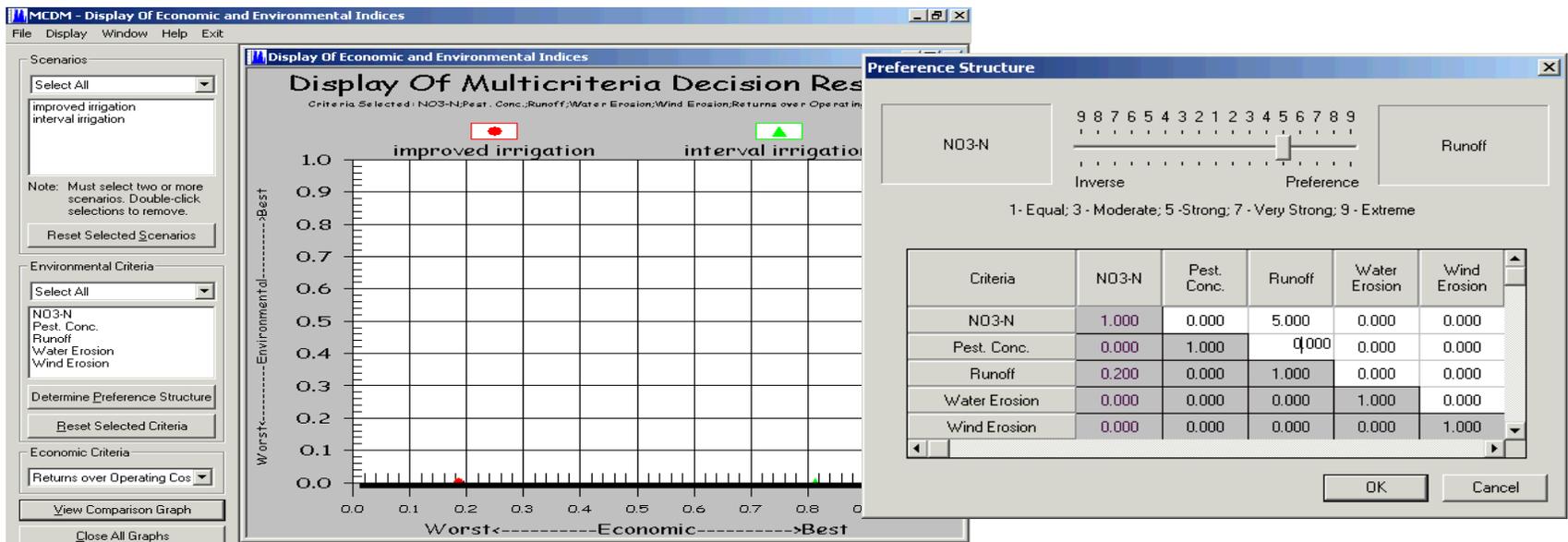
Scenario Comparisons

- Scenario Comparison is a decision tool that compares all indices with equal preference.
- Two or more scenarios can be compared for economic indices and environmental indices.
- This is not appropriate for scenarios containing rangeland mu's.
- Choose the scenarios, environmental indices and the economic indices to be compared. Only one economic factor may be chosen whereas one or all environmental indices can be chosen.



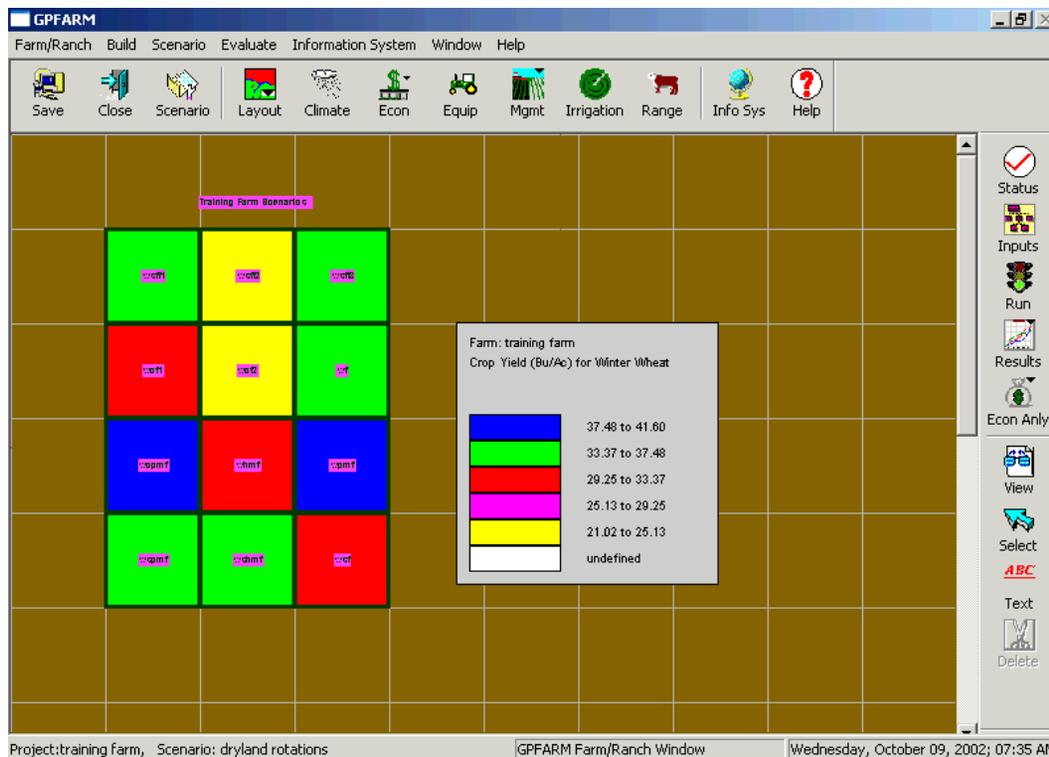
Multiple Criteria Analysis

- This is a decision tool that allows you to compare indices, but you can give one index a higher preference over another index. In Scenario Comparisons, all indices have equal weight.
- For example, if you value or prefer one index above another you can give it a greater weight or preference. You set the preferences in the Preference Structure screen.



Spatial Analysis

- This is another way to view the output in a pictorial way. The results are displayed by color on the map of the farm or ranch.
- This is most appropriate for scenarios with two or more MUs which have repeating crop treatments.
- Do not use this output form for rangeland MUs or scenarios with mixed MUs, i.e. crop and rangeland.
- Use the Spatial Setup option to open the Variable Selection screen to choose the variables to be displayed spatially.
- Click on Spatial Analysis again to close the display.



Variable Selection

Select Output Variable Type:
Default Variables

Select Crops or Cropping System:
Winter Wheat

Select Output Variable:
*** SCIENCE ***

Crop Yield (Bu/Ac)
Crop Yield Adjusted (Bu/Ac)
Crop Yield on a Dry Matter Ba
Crop Yield on a Wet Basis (Lb
Dry Matter Produced (Tons/A
MQ2M Leaked Below Root

Display Done

Economic Analysis Overview

- There are several ways to view the economic analyses that GPFARM provides:
 - Many reports are available; choose Crop Reports or Rangeland Reports.
 - You can also see a Breakeven Analysis for either crop or range. It is not possible at this time to view Breakeven Analysis for both Crop and Rangeland MU's. That is, GPFARM cannot provide integrated economic output for the entire enterprise when both cropland and rangeland are part of the scenario.

Economic Analysis – Crop Reports

- Crop Reports include:
 - **Detailed Budget** report – includes the costs for each item used in each operation.
 - **Budget by Operation** report – includes the gross receipts for the product and the direct costs for each item in the operation.
 - **Budget by Inputs** report– includes the gross receipts for the product and the direct costs for materials and equipment used in the operation.
 - **Materials** report – includes the costs of each material used in the operations of the enterprise.
 - **Cash Needs** report – includes the cash needed for machinery costs, materials and labor each month to produce the crop on one MU.
 - **Whole Farm Summary** report – includes the Operating and Total Costs and Returns and the Total Breakeven Price and Yields.

Detailed Economic Analysis Reports

Done Help

Report Type: Budget (By input)

Land Unit: wf

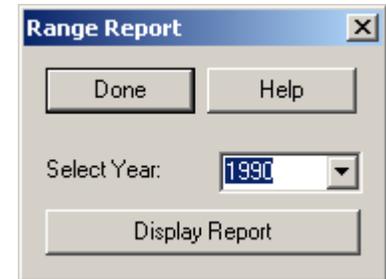
Crop: Winter Wheat

Year: 1983-1984

Display Report

Economic Analysis –Range Reports

- Range Reports include:
 - **Range Enterprise Budgeting** report – includes the Total Revenues by animal class and the Total Costs for several categories.
 - This is provided for one year and you choose the year to view.



Range Enterprise Budgeting

1 of 3 89%

Enterprise Budgeting

Enterprise Budget for Cow/Calf Enterprise
Range_Cow_Calf, 1990

Number of cows: 80

Gross Revenue From Production						
	Market Price (cwt)	Market Weight (lbs)	Number of Head	Value Per Head	Value Per Cow	Total Value
Open Cows	36.09	1,313.68	2	474.11	11.85	948.22
Steer Calves	74.21	332.50	35	246.75	107.95	8,636.15
Heifer Calves	74.21	313.36	40	232.54	116.27	9,301.75
Total Gross Revenues from Production					236.08	18,886.12
Direct Cash Operating Expense						
Animal Expense					2.36	188.48
Machine and Equipment Expense					0.57	46.00
Labor Expense					31.25	2,500.00
Finance Expense					5.47	437.52
Total Direct Cash Operating Expenses					39.65	3,172.00
Net Cash Receipts from Operations					196.43	15,714.13
Non-Cash Operating Expenses					7.04	563.22
Net Cash Receipts					189.39	15,150.92

Economic Analysis – Crop Breakeven Reports

- A Crop Breakeven Analysis shows the price you must receive for a given yield in order to breakeven and what yield you will need to breakeven. This is shown for both Operating Costs and Total Costs.
- The Breakeven Operating Price is the price required to exactly cover the Operating Costs.
- The Breakeven Total Price is the price required to exactly cover the Total Costs.
- The Breakeven Operating Yield is the minimum yield required to exactly cover the Operating Costs.
- The Breakeven Total Price is the minimum yield required to exactly cover the Total Costs.

Crop Breakeven

Selected Farm Unit: Year: Crop:

	Price		Yield	
	Operating	Total	Operating	Total
Breakeven	\$0.30	\$0.84	11.72	32.97

Yield Increment (%):

Price Increment (%):

Per-acre Returns over Operating Costs with Alternative Prices and Yields (\$/Ac)

Yield\Price	\$1.93	\$2.20	\$2.48	\$2.75	\$3.03	\$3.30	\$3.58
75.36	\$113.21	\$133.56	\$154.66	\$175.01	\$196.11	\$216.46	\$237.56
86.12	\$133.98	\$157.23	\$181.35	\$204.60	\$228.71	\$251.97	\$276.08
96.89	\$154.77	\$180.93	\$208.06	\$234.22	\$261.35	\$287.51	\$314.64
107.65	\$175.53	\$204.60	\$234.74	\$263.81	\$293.95	\$323.02	\$353.16
118.42	\$196.32	\$228.29	\$261.45	\$293.43	\$326.58	\$358.56	\$391.71
129.18	\$217.09	\$251.97	\$288.14	\$323.02	\$359.19	\$394.06	\$430.23
139.95	\$237.87	\$275.66	\$314.85	\$352.63	\$391.82	\$429.61	\$468.79

Economic Analysis – Range Breakeven Reports

- A Range Breakeven Analysis shows price you must receive for a given weaning weight of animal in order to breakeven. It will also show the weaning weight the animal needs to have for you to breakeven.
- The Breakeven price is the price needed to exactly cover the Operating Costs of producing the animal.
- The Breakeven Weaning Weight is the weaning weight required to exactly cover the operating costs incurred in producing the animal.

Range Breakeven

Year: 1991 Class: Heifer Calves

	Price	Weaning Weight	Weight Increment (%): 10	Adjust Wean Percent
Breakeven	\$19.25	60.13	Price Increment (%): 5	Adjust Animal Costs

Per-head Returns over Operating Costs with Alternative Prices and Weights (\$/Head)

Wt.\Price	\$63.08	\$66.79	\$70.50	\$74.21	\$77.92	\$81.63	\$85.34
162.23	\$31.82	\$35.13	\$38.45	\$41.77	\$45.09	\$48.41	\$51.72
185.40	\$39.87	\$43.66	\$47.46	\$51.25	\$55.04	\$58.83	\$62.62
208.58	\$47.93	\$52.20	\$56.47	\$60.73	\$65.00	\$69.26	\$73.53
231.75	\$55.99	\$60.73	\$65.47	\$70.21	\$74.95	\$79.69	\$84.43
254.93	\$64.05	\$69.27	\$74.48	\$79.69	\$84.91	\$90.12	\$95.34
278.10	\$72.11	\$77.80	\$83.49	\$89.17	\$94.86	\$100.55	\$106.24
301.28	\$80.17	\$86.33	\$92.49	\$98.66	\$104.82	\$110.98	\$117.14

Print Reset to Defaults OK Cancel Help

Default Values- Irrigation and Machinery

➤ Irrigation Energy Rates

- Customer charge \$ 7.00/month
- Meter charge \$ 6.20/meter/month
- Demand charge \$ 1.50/hp per connected load
- Demand charge \$ 1.85/max. KW per summer month
- Demand charge \$ 1.70/summer month per peak KW
- Demand charge \$ 1.25/max. KW per winter month
- Demand charge \$ 0.10/average per KW
- Average energy charge \$ 0.05/ KWH
- State surcharge \$ 0.0002/KWH

➤ Machinery

- Sales tax rate 5%
- Insurance rate 3%
- Storage costs \$ 0.33/foot
- Gasoline \$ 1.20/gal
- Diesel fuel \$ 0.90/gal
- LP gas \$ 1.00/gal
- Natural gas \$ 0.40/CCF

Default Values- Crops

➤ Crops	Price	Yield
➤ Corn	\$ 2.75/bu	80 bu
➤ Corn (irrigated)	\$ 2.75/bu	80 bu
➤ Winter wheat	\$ 3.60/bu	30 bu
➤ Winter wheat (irrigated)	\$ 3.60/bu	30 bu
➤ Proso millet	\$ 4.25/bu	100 bu
➤ Proso millet (irrigated)	\$ 4.25/bu	100 bu
➤ Foxtail millet	\$ 4.50/ton	3 ton
➤ Foxtail millet (irrigated)	\$ 4.50/ton	3 ton
➤ Sunflower oil	\$ 6.50/CWT	3 CWT
➤ Sunflower oil (irrigated)	\$ 6.50/CWT	3 CWT
➤ Sunflower seed	\$ 6.50/CWT	3 CWT
➤ Sunflower seed (irrigated)	\$ 6.50/CWT	3 CWT
➤ Sorghum grain	\$ 1.80/bu	50 bu
➤ Sorghum grain (irrigated)	\$ 1.80/bu	90 bu

Default Values – Labor and Investment Interest

➤ <u>Labor</u>	<u>Cost</u>
➤ Machine labor	\$ 7.00/hr
➤ Irrigation labor	\$ 7.00/hr
➤ Other labor	\$ 7.00/hr

➤ <u>Investment Interest</u>	<u>Rate</u>
➤ Short-term interest rate 1 year operating loan	10.00%
➤ Intermediate-term interest rate up to 10 years, equipment loan	10.00%
➤ Long-term interest rate land, building and investments	10.00%

Default Values – Livestock and Forage

<u>Bull information</u>	<u>Units</u>
➤ Time with cows	30 days
➤ Purchase price	\$ 400.00
➤ Selling price	\$ 150.00
➤ Useful life	7 years
➤ Bull weight	1000 pounds

	<u>200 day</u>	<u>Adjusted</u>
➤ Female	419 Lbs	383 Lbs
➤ Male	430 Lbs	394 Lbs

	<u>Initial Herd Class Distribution</u>					
	<u>Bulls</u>	<u>Open Cows</u>	<u>Bred Cows</u>	<u>Yearling Calves</u>	<u>Heifer Calves</u>	<u>Steer Calves</u>
➤ Number of head	5	0	75	7	0	0
➤ Yearling heifer replacement				0%		

<u>Feed Sources</u>	<u>AUM</u>
➤ Forage – Grazing rental rate	\$ 15.00/ Animal Unit Month (AUM)

Default Values – Energy and Grain/Concentrates Supplements

➤ Supplement		Dry		Crude	Initial	Restock
➤ Supplement Type	matter	TDN%	Protein	Price	Price	
➤ Energy supplement						
➤ Apple Pomace		22.0%	69	5.40%	\$00.030	\$00.059
➤ Bakery waste		92.0%	89	9.00%	\$00.030	\$00.059
➤ Beet sugar, pulp dehydrated	91.0%	74	9.80%	\$00.030	\$00.059	
➤ Beet pulp + Steffens filt	91.0%	66	10.00%	\$00.030	\$00.059	
➤ Citrus, pomace without fines, dehy.		91.1%	82	6.70%	\$00.030	\$00.059
➤ Corn, Dry ear, 45 lbs/bu	86.0%	77	9.00%	\$00.030	\$00.059	
➤ Corn, Dry ear, 56 lbs/bu	87.0%	82	9.00%	\$00.030	\$00.059	
➤ Corn, HM ear, 56 lbs/bu	72.0%	85	9.00%	\$00.030	\$00.059	
➤ Corn, hominy		90.0%	91	11.50%	\$00.030	\$00.060
➤ Fats, animal hydrolyzed	99.2%	177	0.00%	\$00.030	\$00.059	
➤ Fats, oil vegetable		99.8%	177	0.00%	\$00.030	\$00.059
➤ Rice, bran with germ	90.5%	70	14.40%	\$00.029	\$00.058	
➤ Sorghum, steam flaked	70.0%	88	12.00%	\$00.030	\$00.059	
➤ Tallow	99.0%	177	0.00%	\$00.030	\$00.059	
➤ Tapioca	89.0%	84	3.10%	\$00.030	\$00.059	
➤ Wheat, bran		89.0%	70	17.40%	\$00.031	\$00.061
➤ Wheat, flour by product	89.3%	69	18.70%	\$00.030	\$00.059	
➤ Wheat, middlings		89.0%	83	18.40%	\$00.028	\$00.056
➤ Whey acid	89.0%	83	18.40%	\$00.028	\$00.056	
➤ Whey delact		93.0%	71	17.90%	\$00.030	\$00.059

Default Values – Energy and Grain/Concentrates Supplements cont'd

Supplement	Dry matter	TDN%	Crude Protein	Initial Price	Restock Price
Supplement Type					
Grain/Concentrates					
Barley, grain	88.1%	88	13.20%	\$00.045	\$00.090
Barley, grain light	88.0%	77	14.00%	\$00.045	\$00.090
Canola, grain	92.2%	70	30.70%	\$00.120	\$00.240
Corn, Dent yellow grain	90.0%	90	9.80%	\$00.048	\$00.097
Corn, Dry grain, 45 lbs	88.0%	88	9.80%	\$00.048	\$00.097
Corn, Dry grain, 56 lbs	88.0%	88	9.80%	\$00.048	\$00.097
Corn, Ground grain	88.0%	88	9.80%	\$00.048	\$00.097
Corn, Grain flaked	86.0%	93	9.80%	\$00.048	\$00.097
Corn, HM grain 45lbs/	72.0%	90	9.80%	\$00.048	\$00.097
Corn, HM grain 56lbs/	72.0%	93	9.80%	\$00.048	\$00.097
Oats, grain 38 lbs/bu	89.2%	77	13.60%	\$00.063	\$00.127
Rice, grain ground	89.0%	79	8.90%	\$00.012	\$00.024
Rice, grain polished	89.0%	89	8.60%	\$00.012	\$00.024
Rye, grain	88.0%	84	13.80%	\$00.070	\$00.140
Wheat, grain	90.2%	88	14.20%	\$00.075	\$00.150
Wheat, grain hard red	88.0%	84	14.20%	\$00.075	\$00.150
Wheat, grain soft white	90.0%	85	11.30%	\$00.065	\$00.130
Oats, grain 32 lbs/bu	91.0%	73	13.60%	\$00.063	\$00.127
Sorghum, dry grain	89.0%	76	11.60%	\$00.043	\$00.087
Sorghum, grain	90.0%	82	12.60%	\$00.043	\$00.087

Default Values – Grass Hay and Legume Hay Supplements

➤ Supplement	Dry		Crude	Initial	Restock
➤ Supplement Type	matter	TDN%	Protein	Price	Price
➤ Grass hay					
➤ Bahiagrass, hay	90.0%	51	8.20%	\$00.046	\$00.093
➤ Bermudagrass, coastal	93.0%	49	7.80%	\$00.046	\$00.093
➤ Brome, hay pre-bloom	88.0%	60	16.00%	\$00.034	\$00.068
➤ Brome, smooth hay mid-bloom	87.6%	56	14.40%	\$00.034	\$00.068
➤ Brome, hay late-bloom	91.0%	55	10.00%	\$00.034	\$00.068
➤ Brome, smooth hay, mature	92.6%	53	6.00%	\$00.034	\$00.068
➤ Canary Grass, Reed	89.3%	55	10.20%	\$00.046	\$00.093
➤ Fescue, Alta hay	89.0%	55	10.20%	\$00.046	\$00.093
➤ Fescue, K31 hay	91.0%	58	12.90%	\$00.046	\$00.093
➤ Fescue, Kentucky 31	90.0%	44	10.80%	\$00.046	\$00.093
➤ Fescue, Meadow hay	88.0%	56	9.10%	\$00.046	\$00.093
➤ Oats, hay sun-cured	90.7%	53	9.50%	\$00.039	\$00.078
➤ Orchard Grass, hay early bloom	89.1%	65	12.80%	\$00.046	\$00.093
➤ Orchard Grass, hay late bloom	90.6%	54	8.40%	\$00.046	\$00.093
➤ Ryegrass, hay	88.0%	64	8.60%	\$00.046	\$00.093
➤ Sorghum, Sudan hay	91.0%	56.1	11.30%	\$00.046	\$00.093
➤ Timothy, hay late-veg	89.0%	62	14.00%	\$00.046	\$00.093
➤ Timothy, hay sun-cured early bloom	89.1%	59	10.80%	\$00.046	\$00.093
➤ Timothy, hay mid-bloom	89.0%	57	9.70%	\$00.046	\$00.093
➤ Timothy, hay sun-cured full bloom	89.4%	56	8.10%	\$00.046	\$00.093
➤ Timothy, hay seed stage	89.0%	47	6.00%	\$00.046	\$00.093
➤ Wheat, hay sun-cured	88.7%	58	8.70%	\$00.046	\$00.093
➤ Wheatgrass, Crested hay	92.0%	53	9.00%	\$00.046	\$00.093

Default Values – Grass Hay and Legume Hay Supplements cont'd

Supplement	Dry matter	TDN%	Crude Protein	Initial Price	Restock Price
Supplement Type					
Legume hay					
Alfalfa	90.6%	60	18.60%	\$00.059	\$00.117
Alfalfa, sun cured	90.5%	60	19.90%	\$00.059	\$00.117
Alfalfa, sun cured	90.9%	55	17.00%	\$00.059	\$00.117
Alfalfa, sun cured	91.0%	58	18.70%	\$00.059	\$00.117
Alfalfa, mature	91.0%	50	14.00%	\$00.059	\$00.117
Alfalfa, weathered	89.0%	48	10.00%	\$00.059	\$00.117
Clover, Ladino, fresh	89.1%	60	22.40%	\$00.059	\$00.117
Clover, Red, hay	88.4%	55	15.00%	\$00.059	\$00.117
Trefoil, Birdsfoot	90.6%	59	15.90%	\$00.059	\$00.117
Vetch, hay	89.0%	57	20.80%	\$00.059	\$00.117

Default Values – Other Roughages Supplements

➤ Supplement	Dry		Crude	Initial	Restock
➤ Supplement Type	matter	TDN%	Protein	Price	Price
➤ Other roughages					
➤ Alfalfa cubes	91.0%	61	17.00%	\$00.036	\$00.071
➤ Alfalfa meal	91.7%	62	18.90%	\$00.062	\$00.124
➤ Alfalfa meal dehydrated 15% protein	90.4%	59	17.30%	\$00.066	\$00.132
➤ Alfalfa meal dehydrated 17% protein	91.8%	61	18.90%	\$00.064	\$00.128
➤ Alfalfa pellets, sun-cured	91.0%	61.5	17.00%	\$00.067	\$00.133
➤ Alfalfa pellets, dehydrated	91.0%	66.6	18.90%	\$00.064	\$00.129
➤ Alfalfa silage, early-bloom	44.1%	63	19.50%	\$00.036	\$00.071
➤ Alfalfa silage, mid-bloom	38.0%	58	17.00%	\$00.036	\$00.071
➤ Alfalfa silage, full-bloom	40.0%	55	16.00%	\$00.036	\$00.071
➤ Barley silage	37.1%	60	11.90%	\$00.036	\$00.071
➤ Barley straw	91.2%	40	4.40%	\$00.023	\$00.045
➤ Corn, Dent Yellow silage	34.6%	72	8.65%	\$00.036	\$00.071
➤ Corn silage, 45% GR+NPN	33.0%	79	13.00%	\$00.036	\$00.071
➤ Corn silage, 45% GR+NPN+Ca	33.0%	75	13.00%	\$00.036	\$00.071
➤ Corn silage, 50% grain	35.0%	75	8.00%	\$00.036	\$00.071
➤ CS 50% + NPN + Ca	35.0%	82	13.00%	\$00.036	\$00.071

Default Values – Other Roughages Supplements cont'd

Supplement	Dry matter	TDN%	Crude Protein	Initial Price	Restock Price
Supplement Type					
Other roughages					
➤ Corn silage, immature	25.0%	65	9.00%	\$00.036	\$00.071
➤ Corn silage, stalkage	30.0%	55	6.30%	\$00.036	\$00.071
➤ Corn stalks, grazing	50.0%	66	6.50%	\$00.036	\$00.071
➤ Cotton, hulls	90.4%	42	4.20%	\$00.036	\$00.071
➤ Grape Pomace	90.0%	33	0.00%	\$00.036	\$00.071
➤ Meadow Hay	90.0%	60	13.40%	\$00.046	\$00.093
➤ Oats, hulls	92.4%	35	4.10%	\$00.007	\$00.015
➤ Oats, silage	36.4%	59	12.70%	\$00.036	\$00.071
➤ Oats, straw	92.2%	50	4.40%	\$00.036	\$00.071
➤ Prairie, hay	91.0%	48	5.30%	\$00.046	\$00.093
➤ Prairie plants, Midwest, hay	91.0%	51	6.40%	\$00.046	\$00.093
➤ Rice, hulls	91.9%	12	3.10%	\$00.004	\$00.009
➤ Sorghum, silage	30.0%	60	9.39%	\$00.036	\$00.071
➤ Sorghum, Sudan silage	28.0%	55	10.80%	\$00.036	\$00.071
➤ Soybeans, seed coats	90.3%	77	12.20%	\$00.035	\$00.070
➤ Wheat, silage	34.2%	57	12.50%	\$00.036	\$00.071
➤ Wheat, straw	91.3%	41	3.50%	\$00.016	\$00.032

Default Values –Protein Supplements

➤ Supplement	Dry		Crude	Initial	Restock
➤ Supplement Type	matter	TDN%	Protein	Price	Price
➤ Protein supplement					
➤ Barley, malt sprouts with hulls	93.0%	71	28.10%	\$00.076	\$00.152
➤ Blood meal	90.5%	66	93.80%	\$00.076	\$00.152
➤ Brewers grain 21% dry	21.0%	70	26.00%	\$00.076	\$00.152
➤ Brewers, grain dehydrated	90.2%	66	29.20%	\$00.076	\$00.152
➤ Canola, meal sun cured	82.0%	69	40.90%	\$00.076	\$00.152
➤ Coconut meal	92.0%	64	21.50%	\$00.076	\$00.152
➤ Corn, Dent yellow, distillers grains	90.3%	90	30.40%	\$00.076	\$00.152
➤ Corn, Dent yellow, gluten feed	90.0%	80	23.80%	\$00.034	\$00.067
➤ Corn, gluten meal	91.0%	84	46.80%	\$00.076	\$00.152
➤ Corn, Dent yellow, gluten meal	88.2%	89	66.30%	\$00.132	\$00.265
➤ Cotton, seed	89.4%	90	24.40%	\$00.076	\$00.152
➤ Cottonseed, black whole	92.0%	95	23.00%	\$00.056	\$00.113
➤ Cottonseed, high lint	92.0%	90	24.40%	\$00.076	\$00.152
➤ Cottonseed, meal-mechanical	92.0%	78	44.00%	\$00.076	\$00.152
➤ Cottonseed, meal-solv 41 %CP	90.2%	75	46.10%	\$00.077	\$00.154
➤ Cottonseed, meal-solv 43% CP	92.0%	75	48.90%	\$00.076	\$00.152
➤ Distillers grain, + solubles	25.0%	88	29.50%	\$00.076	\$00.152
➤ Distillers grain dehydrated	91.0%	88	30.40%	\$00.052	\$00.105
➤ Distillers grain wet	25.0%	90	26.00%	\$00.076	\$00.152

Default Values – Protein Supplements cont'd

➤ Supplement	Dry		Crude	Initial	Restock
➤ Supplement Type	matter	TDN%	Protein	Price	Price
➤ Protein supplement					
➤ Feathermeal, poultry	93.3%	68	85.80%	\$00.124	\$00.248
➤ Fish, anchovy meal-mechanical	92.0%	79	71.20%	\$00.076	\$00.152
➤ Fish, Menhaden meal-mechanical	91.7%	73	67.90%	\$00.076	\$00.152
➤ Lupins	90.0%	78	34.20%	\$00.076	\$00.152
➤ Meat, meal rendered	93.8%	71	58.20%	\$00.076	\$00.152
➤ Peanut, seeds without coats	92.4%	77	52.90%	\$00.076	\$00.152
➤ Soybean, meal	90.9%	84	51.80%	\$00.076	\$00.152
➤ Soybean, seeds meal 44%CP	89.1%	84	49.90%	\$00.077	\$00.153
➤ Soybean, seed whole	86.4%	94	40.30%	\$00.090	\$00.179
➤ Soybean, whole roasted	90.0%	94	42.80%	\$00.090	\$00.179
➤ Soybean, seeds w/o hulls	89.9%	87	54.00%	\$00.076	\$00.152
➤ Soybean, meal 49%	90.0%	87	54.00%	\$00.082	\$00.164
➤ Sunflower, Common seeds w/o hulls	92.5%	65	26.00%	\$00.055	\$00.110
➤ Urea	99.0%	0	291.00%	\$00.076	\$00.152

Default Values – Herd Class Prices and Financial/Capital

➤ Herd Class Prices

			Open	Bred	Heifer	Steer
	<u>Bull</u>	<u>Cows</u>	<u>Cows</u>	<u>Calves</u>	<u>Calves</u>	<u>Calves</u>
➤ Type						
➤ Price/head	\$44.50	\$36.09	\$36.09	\$74.21	\$74.21	\$74.21
➤ Date sold	N/A	09/16	N/A	09/16	N/A	N/A

➤ Financial/Capital

- Interest on operating capital 10.00% per year

Right Click Menu

- You can click the right mouse button and a short-cut menu will appear with several choices from the menu bars. This is a fast way to access the most often used commands.
 - View Farm/Ranch – this is a hierarchical view of the Farm/Ranch, Fields and MUs.
 - Management Units – this further opens to the menu choices of Adding, Modifying and Deleting an MU.
 - Management Resources – this enables you to access the Resources for a chosen MU.
 - Management Operations – this enables you to access the Operations for a chosen MU.
 - Zoom Normal – this is the normal, desktop view of the Farm/Ranch layout.
 - Zoom Extent – this view shows the entire Farm/Ranch layout and is useful if the layout is large and cannot be seen entirely when in normal view.
 - Zoom Spatial Level – this view shows the entire Farm/Ranch and is useful when using Spatial Analysis. This display is larger than Zoom Extent but still shows the entire Farm/Ranch layout.
 - Save Screen as Bitmap – allows you to save the current screen image as a bitmap (.bmp) file.
 - Graphical Display – this takes you to the graphical display of the last run of the current scenario.
 - Spatial Analysis – this displays the last run results in a pictorial way on the Farm/Ranch layout.
 - Spatial Setup – use this to select different options for Spatial Analysis.



Create Your Own

- Within GPFARM you can create your own historical climate, soils database and define your own machinery. Detailed instructions are provided in the Help System in the following topics:
 - “How to Use Your Own Historical Climate Data”
 - “User-Defined Soils”
 - “New Equipment”

- To create your own climate file you will need to populate two tables CLIMLONG which contains your climate data and the CLIMSTN table (climate station). You will then need to create .ash file and instruct GPFARM to write these two tables to the climate database (CLIMDB).

- To create your own soils file you will need to supply data describing the soil and the soil parameters. These will be used to populate tables in the database that GPFARM will use to run the simulation.

- To create your own or new machinery you will need to enter economic information as well as data concerning the life of the equipment, how it is powered, soil disturbance, coverage, storage space required and labor factors.

Load, Save, Copy Resources

- Resource setups can be saved for future use, loaded from a saved file or copied to management unit(s).
- All Resource tabs have a button (*Copy resource name to Management Unit(s)*) to copy that tab to another MU or multiple MUs within the current scenario. NOTE: only the current resource tab will be copied to the MU.
- If you want to copy the information to multiple MUs answer No at the question and the Farm List screen will open. Choose which MU to copy to and then repeat the process to copy to another MU.
- The Soil Tab also allows you to save the current soil setup for future use or to load an already saved soil setup and use it in the current MU setup.
- The Topography tab for a Rangeland MU allows you to save the current slope profile or to load a saved slope profile.
- Each Resource tab has a Load/Save/Copy button. This button applies to ALL the tabs in the resource setup and is not for just a single tab as above. Use this button to load a previously saved resource file or to save the current resource setup. You can also copy all the tabs to another management unit. If you want to copy to more than one MU, you must answer No at the question and choose the MU to copy to from the Farm List screen. You will need to repeat this process for each MU you wish to copy to.

Load, Save, Copy Operations

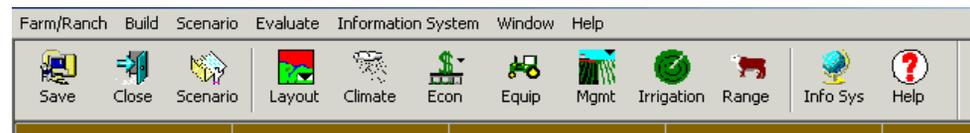
- Load Information – use this button to load a previously saved operations setup file.
 - You can then either clear the spreadsheet and load the saved operations into the spreadsheet or append the loaded operations to the existing operations in the spreadsheet. You may need to edit the dates of the loaded/appended operations.
- Save Information – use this button to save the current operation setup. NOTE: All information must be entered before the operation setup can be saved.
- Copy Information – use this button to copy the operation setup to another MU. All information must be entered prior to copying.
 - You can copy to all the MUs, however, cropping MUs will be copied only to other cropping MUs and rangeland MUs will be copied only to other rangeland MUs.
 - If you do not want to copy to all the MUs answer No to the question and choose from the Farm List screen the MU to which you want to copy. If you want to copy to several MUs (but not to all) you will need to repeat this process for each MU to copy to.

Menus Overview

- On the first window in GPFARM you will find four menus:
 - Farm/Ranch – differs slightly from Farm/Ranch on the next window.
 - Project Manager – no sub-menu. Manager icon.
 - Information System – no sub-menu. Info Sys icon.
 - Help – same as Help on the next window. Help icon.

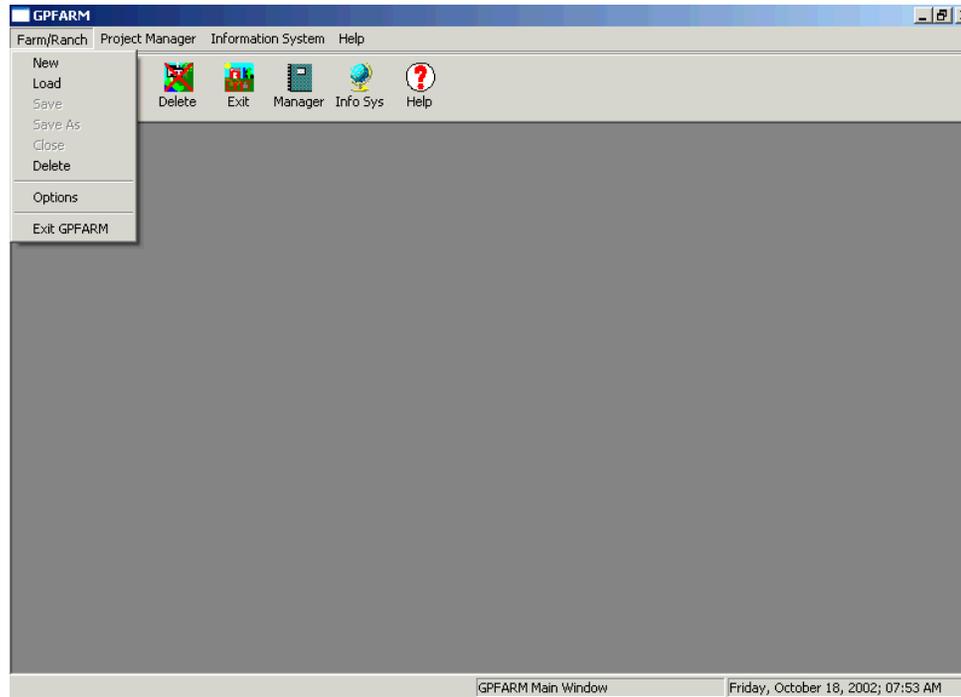


- On the window where you will do all the setup of your operation you will find seven menus:
 - Farm/Ranch
 - Build
 - Scenario
 - Evaluate
 - Information System – no sub-menu. Info Sys icon.
 - Window
 - Help – Help icon.



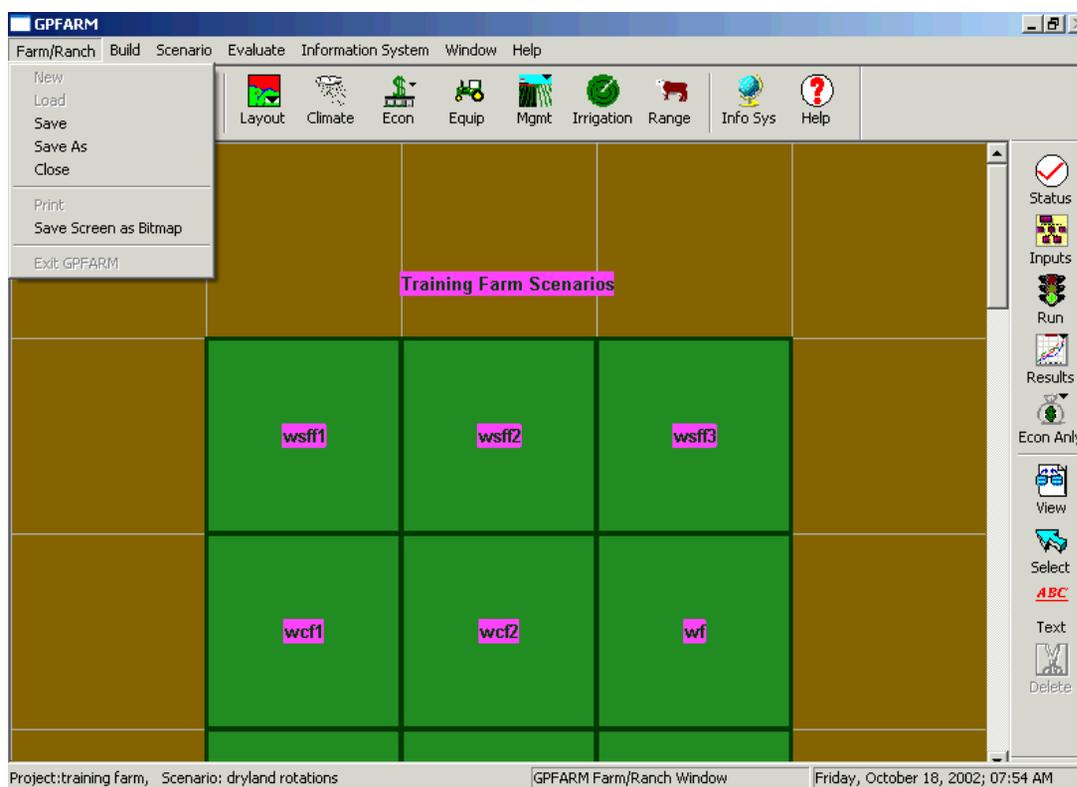
Farm/Ranch Menu – First Window

- The Farm/Ranch menu occurs on both windows of GPFARM and they differ slightly .
- The first window Farm/Ranch menu includes:
 - New – creates a new project. This is the same as the New icon.
 - Load – loads an existing project. This equals the Load icon.
 - Save, Save As, Close are grayed and unavailable at this level.
 - Delete – deletes the entire project including all scenarios. This is the same as the Delete icon.
 - Options – choose to turn off the weeds module or select a different browser for viewing the Information System. These options are also available under the Window menu.
 - Exit GPFARM – closes GPFARM and equals the Exit icon.



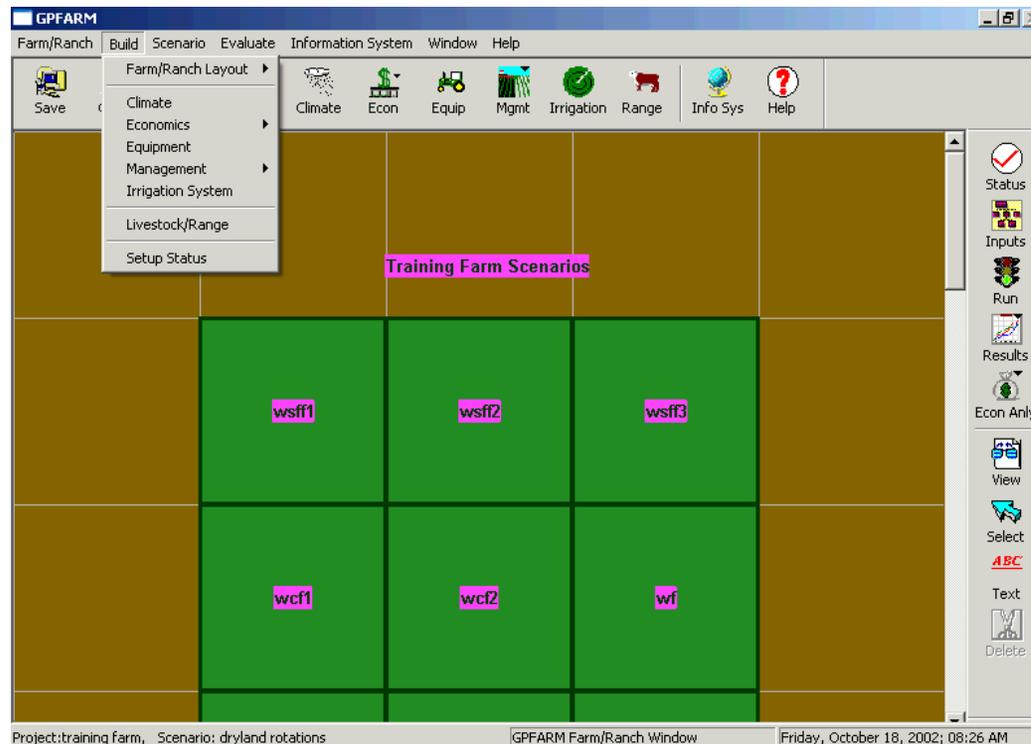
Farm/Ranch Menu – Second Window

- The Farm/Ranch menu on the second GPFARM window is similar to the previous Farm/Ranch menu. It includes:
 - New, Load, Print, Exit GPFARM are grayed and unavailable at this level.
 - Save – saves the Farm/Ranch project with the same name.
 - Save As – saves the Farm/Ranch project with a new name.
 - Close - closes the farm/ranch project. You can choose whether to save it as the current scenario or give the scenario a new name.
 - Save Screen as Bitmap – saves the current screen image in bitmap form (.bmp).



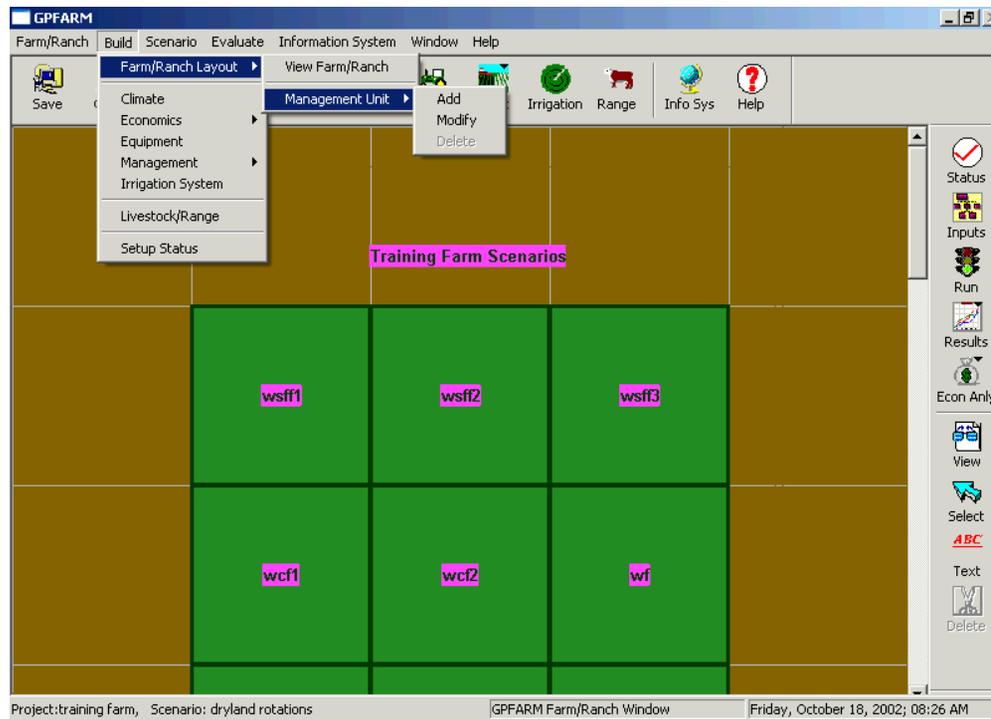
Build Menu- Overview

- The Build Menu contains all the items required to set up before running GPFARM. Items included are:
 - Farm/Ranch Layout – view the layout of the farm/ranch or Add, Modify, or Delete an MU. Layout Icon
 - Climate – select climate data for the whole farm/ranch. Climate icon.
 - Economics – access the default values or set up investments for the farm/ranch. Econ icon.
 - Equipment - select the equipment for the farm/ranch operation. Equip icon.
 - Management – setup all the resources and operations for the farm/ranch. Mgmt icon.
 - Irrigation System – setup the irrigation system(s) for the farm/ranch. Irrigation icon.
 - Livestock/Range – define the livestock and forage operation. Range icon.
 - Setup Status – view the progress of the setup of the farm/ranch. This will show what has been defined and what remains to be setup. Status icon.



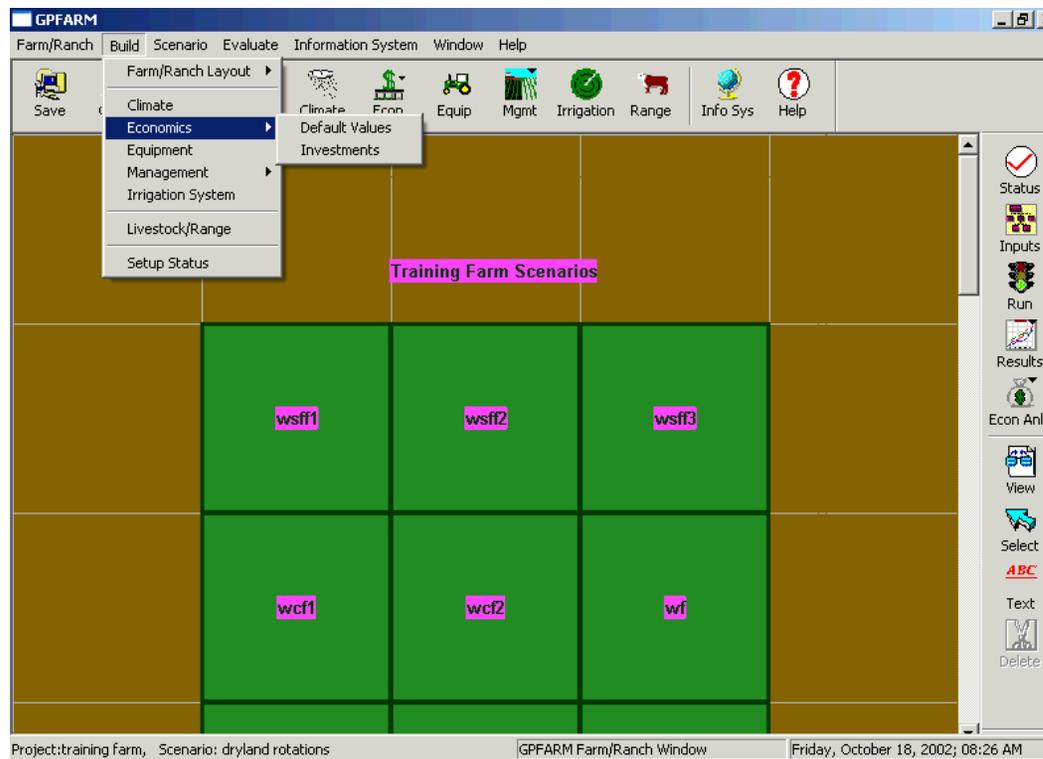
Build Menu- Layout

- The first selection in the Build Menu is Farm/Ranch Layout. This is the same as the Layout icon. There are two choices available and include:
 - View Farm/Ranch – this is a hierarchical view of the farm/ranch structure. It shows the fields and associated MUs.
 - Management Unit – this has a sub-menu and contains three choices:
 - Add – create a new management unit.
 - Modify – edit an existing management unit.
 - Delete – remove an existing management unit.



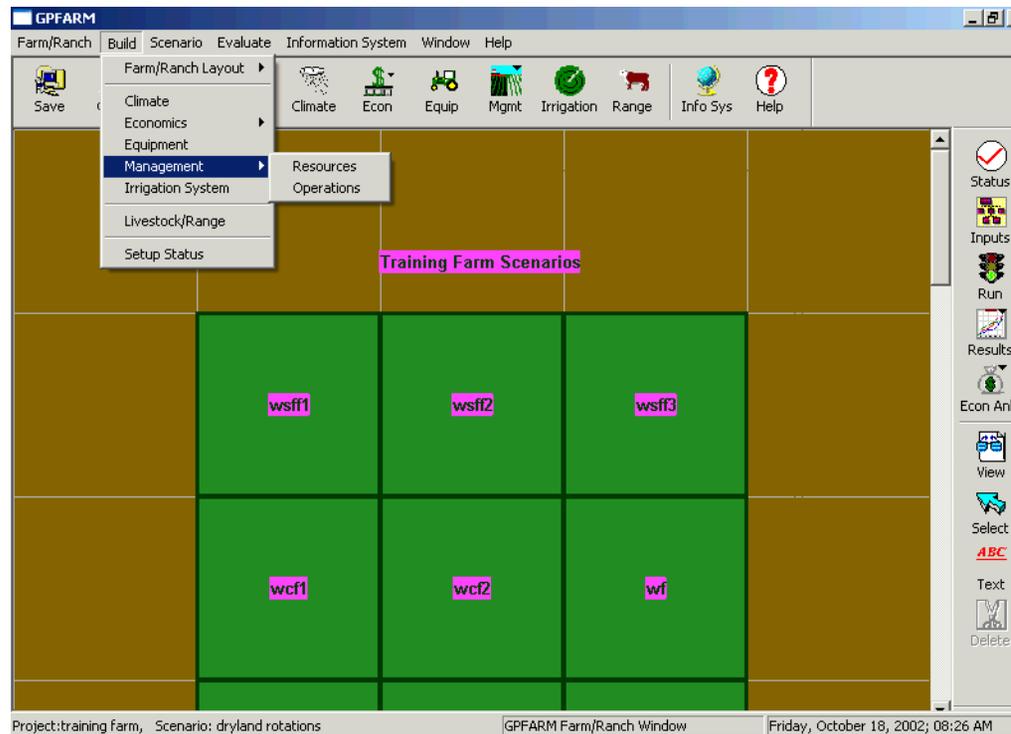
Build Menu- Economics

- The Build menu contains an Economics item which is the same as the Econ icon. The economics choice has a sub-menu with two additional choices. They are:
 - Default Values – use this to view the default values GPFARM provides. You can edit these values if you have better data for your operation.
 - Investments – setup the investments for the farm/ranch. These include items such as a new building or improvements made.



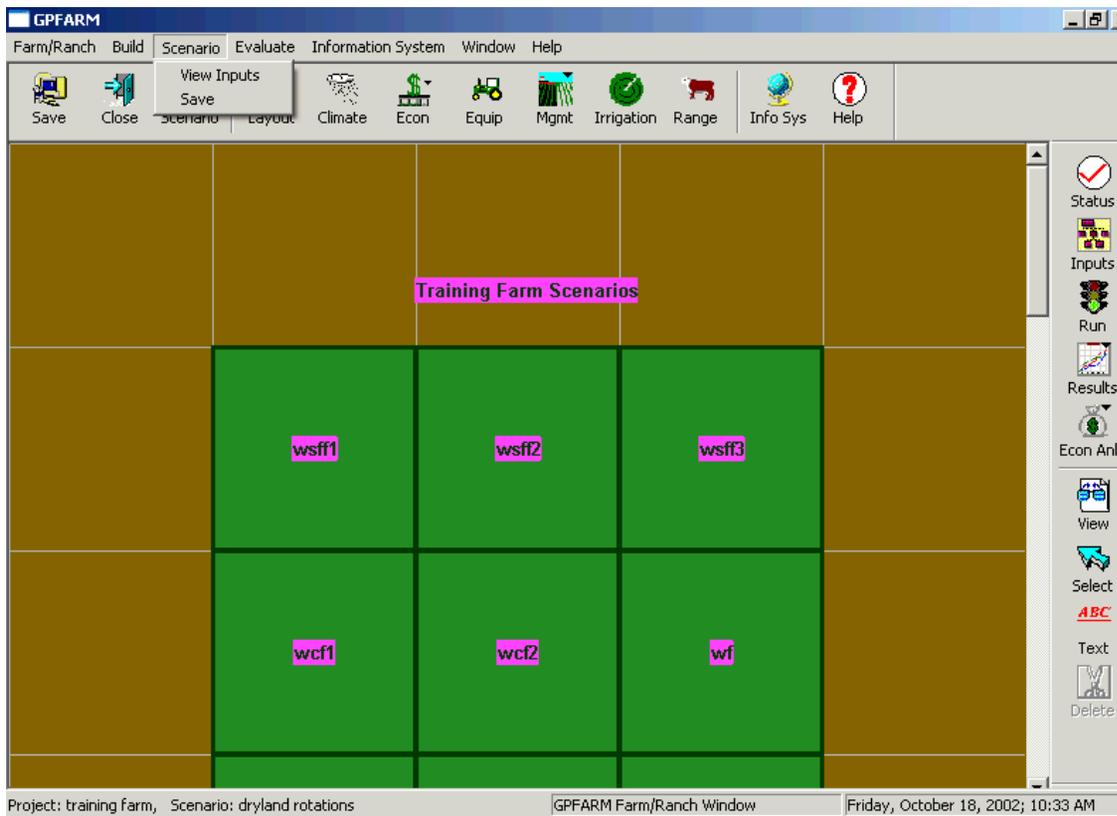
Build Menu- Management

- The Build menu contains a Management item and is the same as the Mgmt icon. The management choice has a sub-menu with two additional choices. They are:
 - Resources – setup all the resources for each MU. This may include Soils information, Residue Cover, Topography, Conservation Planning, Weeds or Forage.
 - Operations – setup all the operations for each MU. This includes selecting the Date, Equipment, Properties, Materials for each Operation performed on each Crop/Land Use in the MU.



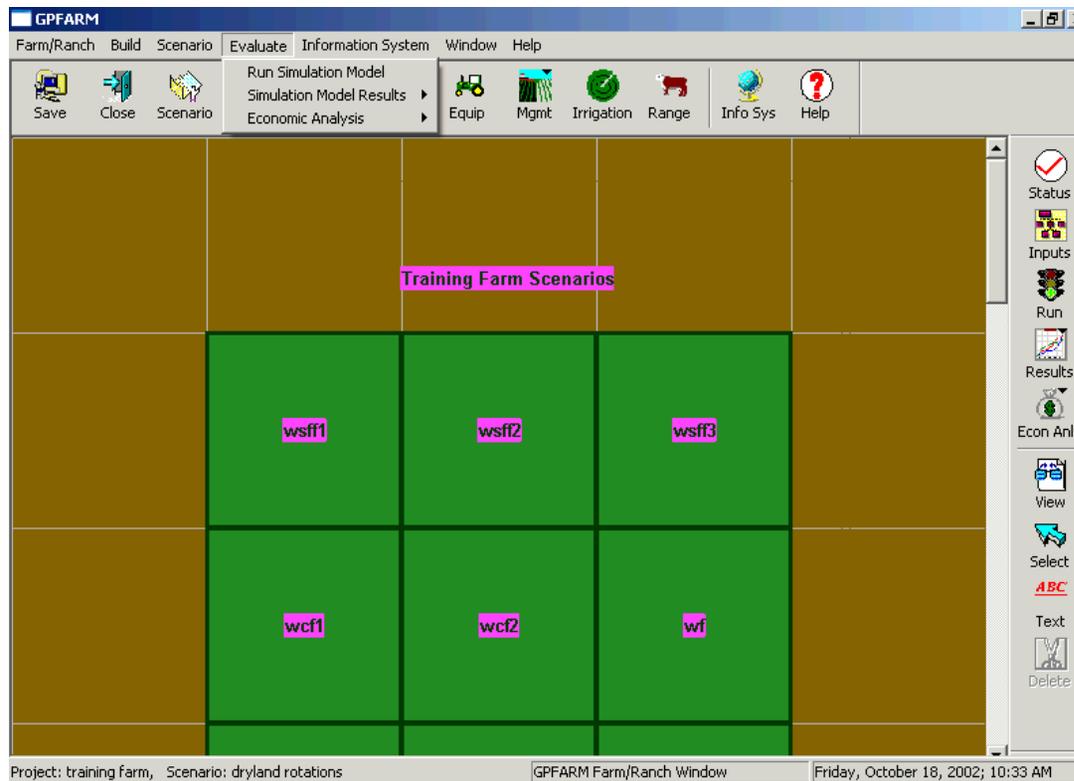
Scenario Menu

- The scenario menu has two choices and they are:
 - View Inputs – this allows you to see the inputs you have entered/accepted for the scenario you are creating or have created. This is presented in the form of reports. This is the same as the Inputs icon.
 - Save – this allows you to save the scenario as the current scenario or to save it as a new scenario.



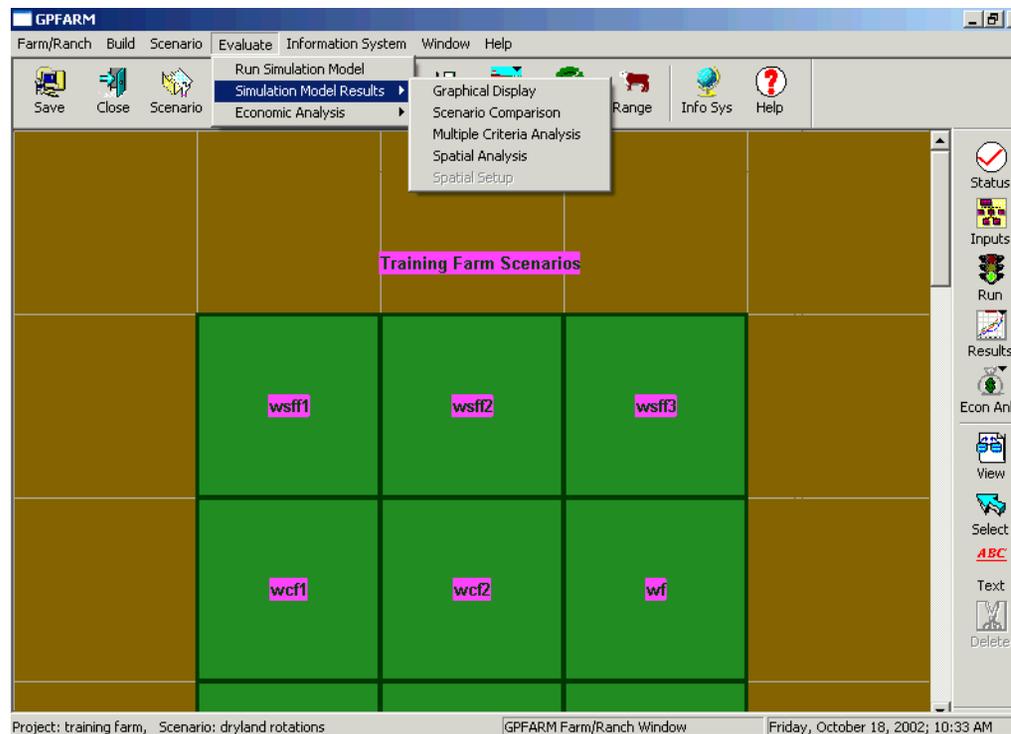
Evaluate Menu- Overview

- There are three choices in the Evaluate menu. They are:
 - Run Simulation Model – choose this to run GPFARM with all the information you have entered. Run icon.
 - Simulation Model Results – choose the way you want to view the results of the GPFARM run. Results icon.
 - Economic Analysis – choose the economic analysis you want to view. Econ Analysis icon.



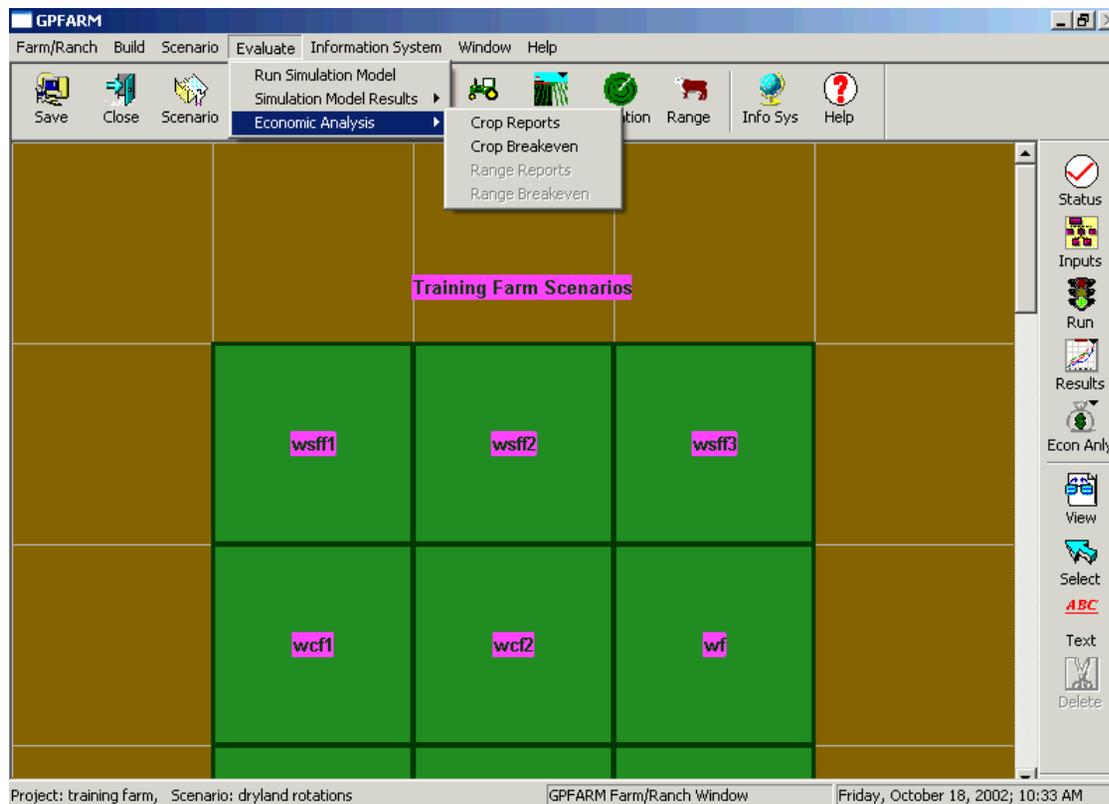
Evaluate Menu- Results

- The Evaluate menu has a Simulation Model Results choice and is the same as the Results icon. Simulation Model Results has a sub-menu with five items. They are:
 - Graphical Display – choose this to see the results displayed in a graph.
 - Scenario Comparison – this compares the economic and environmental indices of two or more scenarios. You can see which scenario provides the best outcome with the given information.
 - Multiple Criteria Analysis – this shows economic and environmental indices. You can choose to give one index a higher preference and the graph will compare the indices with the selected index having more weight or importance.
 - Spatial Analysis – this displays a selected result in a pictorial way in the farm/ranch layout.
 - Spatial Setup – this is used to select the items that will be displayed in the Spatial Analysis and is available only when Spatial Analysis is checked.



Evaluate Menu – Economic Analysis

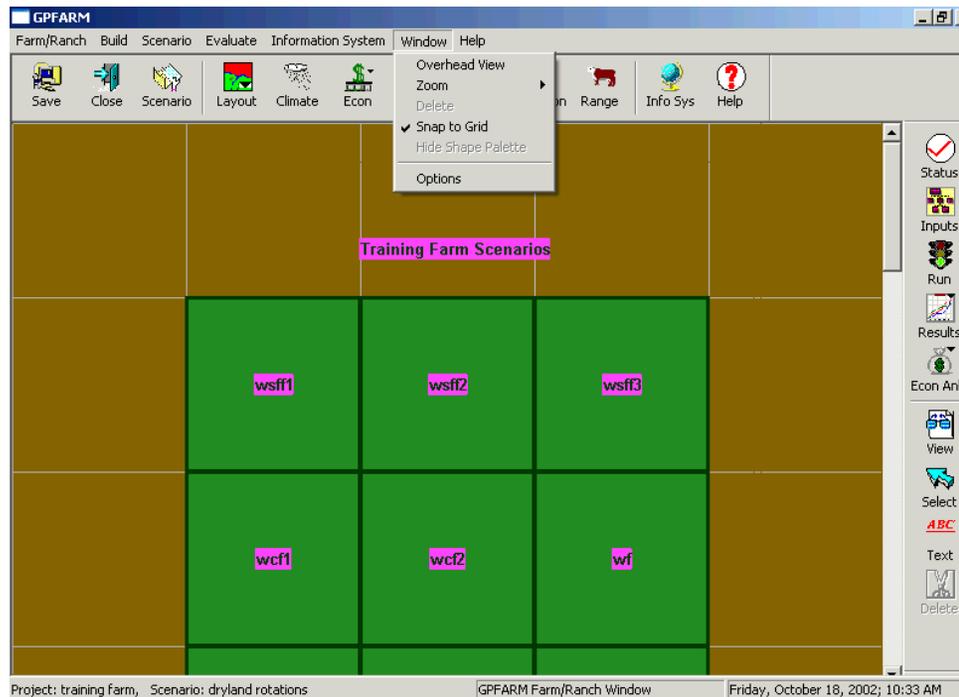
- Economic Analysis is the third choice on the Evaluate menu and is the same as the Econ Analysis icon. It has a sub-menu with four choices. They are:
 - Crop Reports – view economic results for crops in several different reports.
 - Crop Breakeven – shows the breakeven price and yield for particular crops.
 - Range Reports – view economic results for the livestock one year at a time.
 - Range Breakeven - shows the breakeven price and weaning weight for the livestock.
- NOTE: If there are no rangeland MUs then the range choices will be grayed as will the crop choices if there are no cropping MUs.



Window Menu Overview

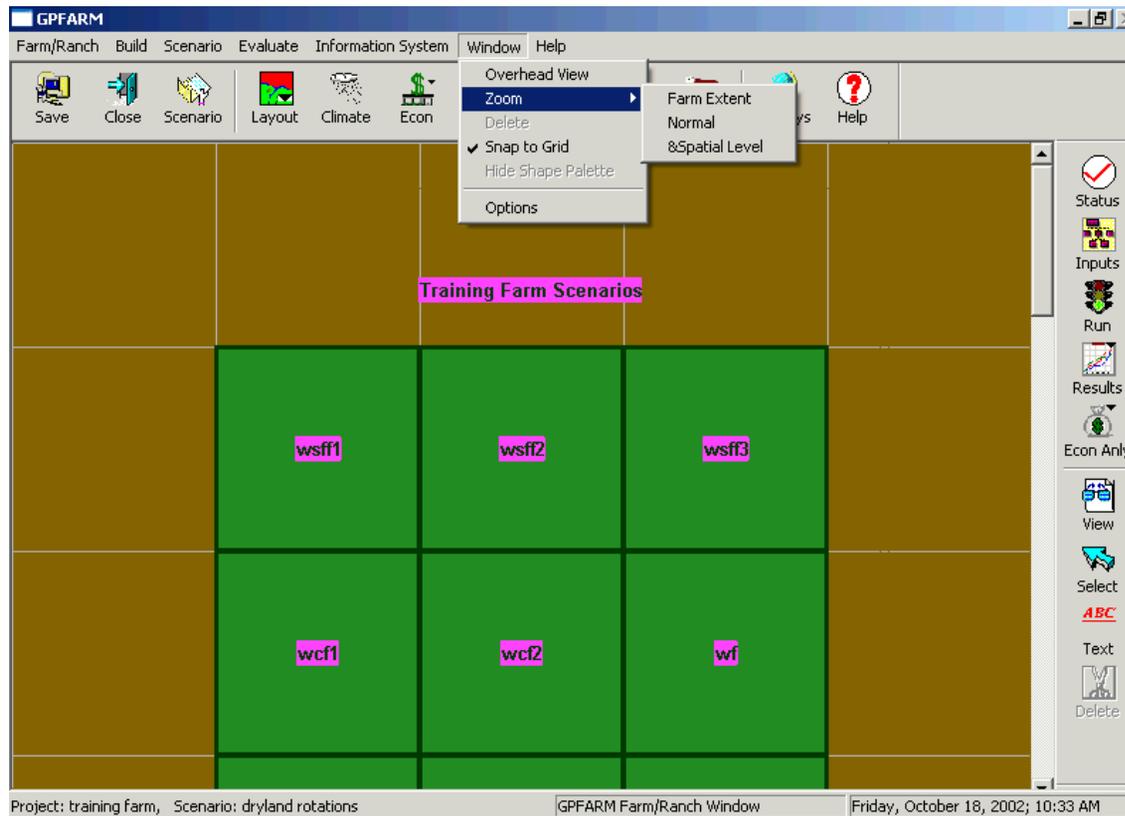
Under the Window menu are several tools for displaying items.

- Overhead View – opens a small window with a rectangular outline that you can move around the small window. As you move the outline, the display of the Farm/Ranch layout will move accordingly in the Farm/Ranch Window.
- Zoom – there are three options for displaying the layout.
- Delete – use this to delete an object in the window. Click on, for example, an MU and then select the delete option to remove that MU.
- Snap to Grid – as you draw MUs and Fields, this will help align them. If you do not want this, click on this option to un-check it.
- Hide Shape Palette – this is available only if the drawing tools are on and the shape palette is displayed. This will turn off the display of the drawing tools. Click on this option to de-select it.
- Options – there are two options included.



Window Menu- Zoom

- The Zoom sub-menu on the Window menu contains the following selections:
 - Normal – the normal view.
 - Farm Extent – this shows the entire Farm/Ranch layout in the window.
 - Spatial Level – this is smaller than Normal view but larger than Farm Extent view. It is useful with Spatial Display to be able to view all the Fields at the same time and in a larger display than with Farm Extent.



Window Menu- Options

The Windows menu has an Options choice. This will open a dialog box for you to change two different options.

- You can choose not to run the Weeds simulation. The results will have no information about weeds or their impact on crop yield. Click in the check box to turn off Weeds simulation.
- If you want to change internet browsers, press the Reset Browser Information button. Select the browser you want from the list that will be displayed showing the browsers installed on your machine.



Help Menu

- The Help menu is the same as the Help icon and has four choices. They are:
 - Contents – this gives access to the online Help system.
 - Search is currently unavailable.
 - Technical Support – this gives contact information for technical support on GPFARM.
 - About GPFARM – gives the version number of GPFARM.

