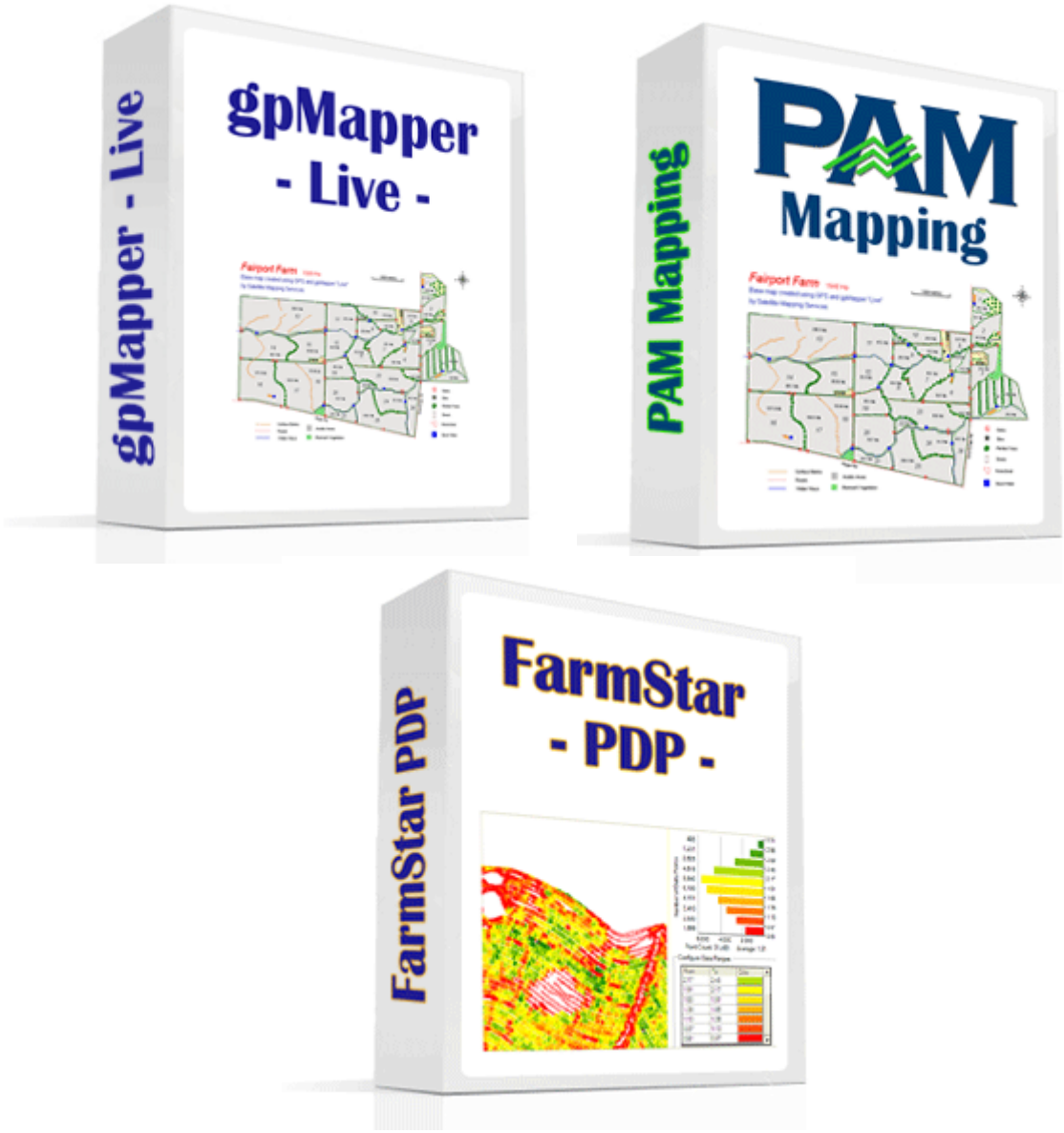
Fairport's Mapping Manual

Covering the Farm Mapping Modules in PAM & FarmStar & gpMapper



Chapter 1

Installation and Getting started

Contents

Welcome to Fairport's Suite of Mapping Software

You may have purchased our "stand alone" mapping systems for general purpose mapping (gpMapper) or precision farming applications (FarmStar 'Light') or you have the PAM mapping module which come embedded in the PAM production recording database software. Either way, we thank you for your choice and we hope you enjoy the features we have delivered in this software. Please let us know if you think it lacks any specific features… it is our desire to please our clients and this task is made easier if we know your desires. Just let us know.

The Fairport Mapping Modules will enable you to...

- Have a multi-featured map "on tap" to print out any time you need it
- Have a platform to do planning - redesign property layouts, draw planned rehabilitation projects
- Display your PAM data visually (if you have one of the PAM Mapping modules) - season by season
- Display an unlimited number of satellite and other images of your properties.
- Import data from other mapping programs.

The FARMSTAR upgrade will enable you to...

- Process, analyse and display spatially variable data like Yield Data, Soil Test Data… any data that varies spatially.
- FarmStar has many rich and powerful features that enable you to visualise your data.

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Registering the Mapping programs

If you are installing one of the “stand alone” versions of the Fairport mapping programs… on your first run of the program you will be requested to enter your trading name, address and other details. This information is required by the program before it can operate.

The program needs a serial number entered into it before it is completely "unlocked"… However, you will be able to run the program 20 times. After the 20th run, you will still be able to print a registration form and unlock your program but you can no longer gain access to the program proper.
Each time you run the software before it is registered, you will see a panel indicating the number of runs you have left. You’ll also see the **Print Rego Form** button and the **Register** button.

A special program registration form must be printed from the program. This form has on it a 15 digit number which Fairport Technologies will use to generate your 9 digit customer serial number. To receive you unlock number, please fax the form to the number printed on it.

By registering, you will help us to know your hardware configuration and you will be entitled to the following benefits:

- Fairport Club membership for six months which entitles you to use our Toll Free 1800 help line and receive free minor upgrades.
- Information on upgrades or revisions to the software
- Free support "help notes" (which are mailed out from time to time to all registered users).

About this manual

This user's manual is a comprehensive guide that contains all of the procedures you need to operate the program efficiently and effectively.
The program has "on-line" help which can be accessed by pressing the <F1> function key.

Symbols and conventions used in this manual

Program menu items are written in *Italics* and if we are referring to a sub-menu item or a sub-sub-menu item, we write it thus ...
Main menu item/Sub-menu item/Sub-sub-menu item.
Mouse buttons are also in italics but we put *"Quotes"* around the button caption.

When we refer to the ARROW keys or the CURSOR keys we are talking about the keys used to move the cursor or menu selection highlight bar.
When referring to a key on your keyboard we use angled braces: <Enter>
When referring to key combination we use this method : <Alt+F7>
Meaning : Hold down the <Alt> key then press <F7>.

When referring to a mouse button we use :
Click on the **Cancel** button.

When referring to things you need to type we use courier font :

```
A:\setup.exe
```

How can we help you get the best from your software?

Fairport Technologies has the following support strategy. For the first six months you have free access to Fairport's Toll Free help line (Australia only). Thereafter you will be invited to pay a fee for this service. The fee also entitles you to Fairport Club membership which has other benefits like automatic software updates.
Before you call either Fairport or your dealer, check in the printed material that comes with the program for answers to your questions. Use the index table and the table of contents to locate the area in the manual most likely to cover the problem. You should also check the on-line help system in the program for possible clues. Access this everywhere with <F1>. If the answer can't be found your next step is to contact Fairport or the dealer who sold you the program.

Fairport Technologies offers a back-up help service to all dealers. If they can't solve your problem, they will contact Fairport Technologies and we will do our best to help you as soon as possible.
When using this service please bear in mind that the more information you can give us, the more able we will be to answer the problem. If at all possible a fax is preferable to a phone call. A fax will give us "hard copy" of your query and we can then prepare a written response.
Fairport Technologies can be contacted on the Internet... our email address : techsupport@fairport.com.au
We also have a web site .... http://www.fairport.com.au

The program error trapping system

The program has an error trapping system to catch any program errors that may have missed our testing processes.
If you should ever see the error trapping system warning message you will see that you are given a range of choices.
In general it is advisable to select **Abort**.
A file is maintained behind the scenes and the information that is contained in this file is very handy to us when attempting to locate and fix the problem. So, please take a moment to print the error messages, should you see one on your screen. You can then either email, fax or post the printout to Fairport Technologies and we will act on the problem as quickly as possible.

What you need to run the Mapping software

It will work with most IBM and compatible computers available today. Although in theory it will operate on any IBM PC that is capable of running Microsoft Windows® 95, 98 or NT, it does require a reasonably powerful computer to run well... but, as a general rule of thumb, if your computer is able to run Microsoft Windows® 95, it is powerful enough to run it.
The minimum requirements are :

- A computer with one hard disk a CD ROM drive or one floppy disk drive and 640k of RAM, 16 megabytes of Upper memory and the Windows 95 operating system. We recommend a Pentium processor 150 Mhz or better and 32 Megabytes of RAM or better.
- Screen type : a SVGA screen or better is recommended operating at a resolution of 800 X 600 or better. We recommend that your screen is set to display more than 256 colours. To set your computer to operate with these settings, seek help from your hardware supplier.
- Printer requirements: it will print out on any printer supported by Windows.

Data file compatibility

The data files used by this program are 100% Microsoft Access 97 compatible. Any text output files created by this program are in ASCII text format. They can be edited by any word processing program.

Program operating speed

This program is a true "relational" database system and the operation involves a lot of disk reading and writing. The speed of operation will depend greatly upon the speed of your hardware (ie. the "clock" speed of your processor and the disk drive access speed). As the data files grow in size, the time needed to access that data will increase. This should be more obvious in reporting than in other areas of program operation.

This is a fact of life in large database systems. Much effort has been and will continue to be devoted to reducing the processing time throughout the program wherever possible.

It will run much faster on more modern computers especially those which have extra memory installed.

Installation

If your program arrived on a CD ROM, insert it in your CD drive and it will "Auto-run". You will see a series of selection buttons… some are to run the guided tour of either PAM or other Fairport products, some are for installing our software. Select the software you are intended to install by clicking on its button.

If your software arrived on floppy disks do this :

1. Select the ***Run*** option on the *"Start"* menu
2. Type `A:\SETUP` in the **Open** box.
3. Click **OK**

The installation procedure creates the directory **PAM** on your hard disk, then copies the files into that directory. The program files will then be "unpacked" - a process which may take several minutes.

The installation process will create an icon on your desktop area as well as a menu option in your *"Start"* menu (look under *Programs*).

If you are installing the "stand alone" version of the mapping software… The icon will bear the name gpMapper or FarmStar Light.

How to start your mapping program

The installation program will create an icon on your desktop area of your computer. There will also be a new option on your *"Start/Programs"* menu… Select one of these… either the desktop icon or the Start menu item to run the program.

Help !!

The on-line help system is quite comprehensive, in fact it is really a manual "on line".
To access the help system, either press F1 or click on the *Help* option on the menu.

What can't I do in the demonstration version?

You can't set up new maps. This means that the only map you can look at and play with is the ones we ship with the demo.
You can't save your data… so all the work you do will be deleted at the end of your runtime. You can't load any new images.

What can I do in the demonstration version?

You can draw objects, add layers, create layer groups… In fact you have full access to all facilities except loading new images.
You should spend time testing the functionality of the software using the demonstration map views… Get familiar with the drawing tools, the navigating and zooming tools. The next chapter will guide you through those tasks.

Can I delete all the demo map views?

By all means. When you register your program and the system will then enable you to save your work… delete all or any of the demonstration map views.

Getting started

The first step is to run the program... do this by double clicking on the program icon in Windows.

If you are a running the PAM Production database software with integrated Mapping it is important that you first set up your properties and production units (paddocks, blocks, fields etc) via the PAM *Configuration* menu. The mapping system will then look for the farm data directory to associate the areas you draw with the production units in your database.

In the next chapter we'll talk about some of the general program concepts… Layers, views, map objects, symbols etc. I recommend you read it before you move on to use the program.

The next chapter will guide you through the most important aspects of the program… If you read nothing else, make sure you read Chapter 2.

Do you know about "RIGHT MOUSE ZOOMING" ?
Before you get starting with PAM's mapping module, check out the Help system for the concept of RIGHT MOUSE ZOOMING.

While you're there, make sure you check out the concept of "Views"

Chapter 2

Let's Go Mapping…

Contents

General tips and Concepts…

We recommend that you read this chapter before leaping into creating your own maps. We also recommend that you familiarise yourself with the following concepts and instructions using the demonstration maps supplied with the software.

When you have mastered these few and simple concepts you are well on your way.

Like all comprehensive and sophisticated software, our mapping programs have several concepts that you need to understand before you really start flying…

A Map Object…

Map objects are:

- *Polygons:* Polygons are closed areas which are defined by individual points that draw on the map. These are used to draw the filled areas such as areas of salt. For polygons you can specify their colour, the pattern of the filled area and the thickness of the border.
- *Lines:* These are used for objects such as Power Lines, Roads and Cables. For lines you can specify the line style, colour and the line thickness.
- *Circles:* Circles are used to represent Circular Production areas, "centre pivot" irrigation systems or whatever you may care to use them for.

- *Rectangles:* Rectangles have a special purpose… for creating print areas. You may also find rectangles useful for another purpose… perhaps other regular shaped objects. Rectangles can be used as representatives of production units (eg. Paddocks, fields, blocks) when connecting to the PAM production recording database.
- *Points:* Use points to represent small objects (single point locations) like soil sample or crop monitoring sites.
- *Symbols*: Use symbols to represent things like gates, buildings, pumps, windmills, air strips, bridges and other man made objects and structures.
- *Text:* Add labels to your map. Labels can be attached to any layer. Labels can be scaled and will grow and shrink as you zoom in and out… or you can make them a fixed size. We'll look at these options in more detail later.

A Layer…

A layer is a collection of map objects that you draw or import (eg. Aerial photos). You decide which objects belong together on a layer. A layer can either be on display or not… when a layer is on display, all objects on that layer are on display together. We provide you with a "Layer Manager" and a "Quick Layer Selector" to manage your layers.

A layer can be any one of, and indeed any combination of the following:

"Raster" images or photos (eg. Scanned aerial photos) or satellite images, yield maps, soil type images… any views of the world in a "raster" format!

"Vector" data… lines, circles, polygons, points that someone has drawn using a mouse… These objects represent objects on the earth's surface… sometimes objects like rivers, lakes, height contour lines (natural features) and sometimes, roads, fences, telephone lines, power lines and other man made features (cadastral data).

Symbols… small icons that represent objects on the earth's surface… usually man made objects like dams, tanks, buildings,

Layers can be on display or not… It's a simple mouse click to show or hide a layer.

You can "Lock" a layer… this is a useful feature… it stops you from accidentally editing or deleting an object on a layer. If you want to unlock a layer to enable the editing or deleting of a map object that is just a single mouse click.

How many layers can you have on a map? As many as you want!

So to re-cap… a layer is a collection of map objects that you draw or import (eg. Aerial photos). You decide what objects belong together on a layer. A layer can either be on display or not… when a layer is on display, all objects on that layer are on display together. We provide you with a "Layer Manager" and a "Quick Layer Selector" to manage your layers.

A View…

A view is a set of visible map layers within a defined area. In our case the bounding area is a computer screen. To create a view you use the zooming and panning facilities to zoom in to or out to an area of the map you would like to save as a view. Then decide on the layers you want visible in your view… set the required layers "on"… then save the view using a name that has a relevant meaning. Use *File/Save View As…* to save your new views.

How many views of your map can you have? As many as you want!

You'll find views are an extremely useful and powerful feature of the program. Your map can consist of as many views of the world as you like. Let's just think of it as your complete set of views of the world!

The most complex job you're going to face is managing your layers. To assist you, we provide you with a Layer Manager. This enables you to

- Create new layers
- Delete unwanted layers
- Rename layers
- Change the display order of layers… Generally you'll want to keep your images (scanned aerial photos etc) on the bottom layer, your vector (drawn) layers stacked on top.
- Organise your layers into "Layer Groups"

We also provide a "Layer Quick Selector"… (the Hot Key to see this is F4) this sits on the left side of your screen (when it's on view) and enables you to

- quickly hide or show layers,
- select layers for editing (ie. Adding more objects to a layer, and editing existing objects)
- lock or unlock layers (to enable selection with the mouse for editing).

We provide a "View Quick Selector"…(the Hot Key to see this is F5) this also sits on the left side of the screen (when it's on view) and enables you to quickly move from one view to another.

A Map…

A map is a set of layers of objects that are representations of the earth's surface… One map can have many (unlimited) views of the world. It can have an unlimited number of farming properties on it with an unlimited number layers.

A Layer Group…

A Layer Group is a collection of layers that you can create and name. They enable you to keep your layers better organised. Layer groups can be added, named, renamed and deleted.
How many layer groups can you have on a map?
As many as you want!
You could have a layer group called "Maps of the world", another called "Current Farm Layout", another called "Future plans".

More on Layers…

As mentioned above, layers can be a combination of object types. Lines, polygons, points, images, labels, circles, rectangles. This is a powerful feature... even your scanned aerial photo belongs to a layer that can also have labels or any other object on it.
When you hide your "Aerial Photo" layer, all objects on that layer are hidden.

So when you create a new layer, you are not required to define an object type for your new layer… because you can have *any object type on it!*

Each object type on a layer can have its own style…

A object's style can be defined as one of or a combination of the following (depending on the type of object it is)
line pattern, line colour, line thickness
font, font size, font style, font colour
fill pattern, fill colour

We provide you with a style selector to enable the setting and editing of object styles.

Navigating around the map

Zooming In

There are two ways to zoom in on the map. Zooming in allows you to focus on a smaller area of the map.

Method 1 : We call it "Right Mouse Zooming"

Decide which area of the map you would like to zoom in on... then, move the mouse cursor to the top left corner of that area, hold down the RIGHT mouse button and drag the mouse down to the bottom right corner of the area. You will see the area you have selected outlined on the screen.
Release the RIGHT mouse button and the screen will redraw with the area selected, enlarged to the display area size.

Method 2

Select the "*Zoom In"* button from the main toolbar. This will enlarge the map by 20%

Zooming Out

Zooming out allows you to see more of the map.

Method 1

Select the "*Zoom Out"* button from the toolbar. This reduces the zoom by 20%

Method 2

If you want to zoom out to the full scale view the quickest way to do this is to click your left mouse button on the "*Reset View"* button on the tool bar.

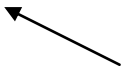
Zooming to Full View

Click this button to revert your zoom to the full view (that is your currently selected view).

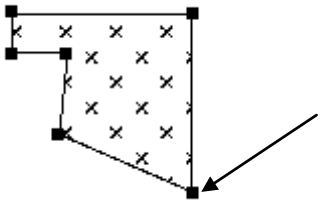
Please Note: A view is a set of visible map layers within a defined area. If you have switched any layers "on" that were not originally visible they will be turned "off" by clicking this button.

Zooming to a Selected Object

Click this button to zoom to an object that you've selected.
How do you select an object?… You make sure you have the *"Selector"* button down then click on the object (always with the left mouse button). You'll know when you've selected an object… its "Drag Handle(s)" will be on show. You'll find the *"Selector"* button will be your most useful button.



Drag Handles

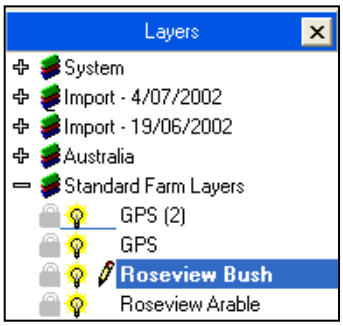


Panning

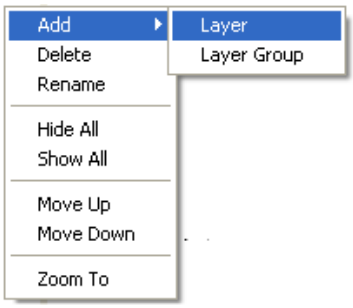
Panning is the name for moving the map about the screen.
To pan, select the *"Drag View" or "Panning"* button on the tool bar…

click the left mouse button on the map and holding it down, drag it in whichever direction you like… Notice that the mouse cursor changes to a small Hand shaped object… The map will move with your mouse. The best way to understand this functionality is to experiment with it. You will soon discover how simple it is.

Hot Tips



Right Clicking on this window gives you access to many useful facilities…



Add – Add a new Layer or Layer Group
Delete – Either the selected Layer or Layer Group
Rename – Either the selected Layer or Layer Group
Hide All & Show All – Layers within the selected Layer Group
Move Up & Move Down – Move the selected Layer or Layer Group
Zoom to – The selected Layer

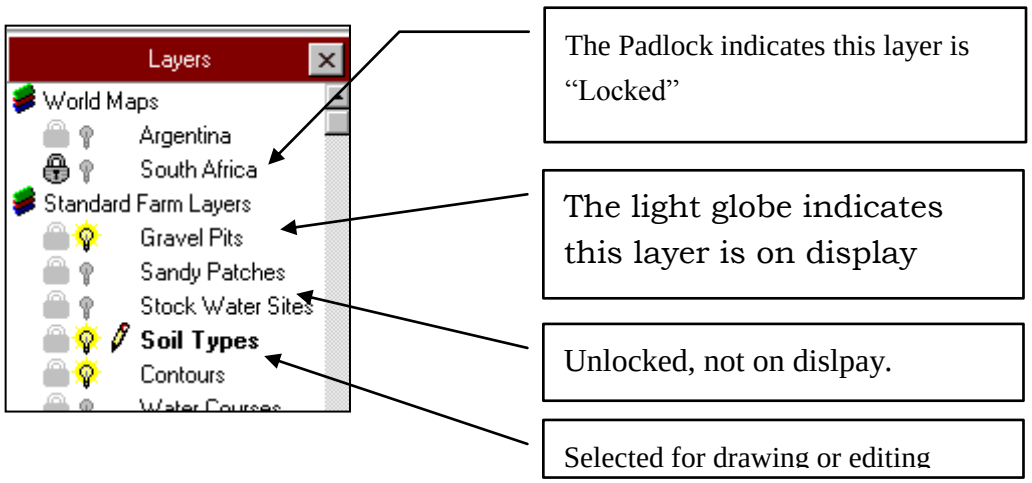
Note also the +ve and –ve signs down the left of the layer list. Use these to collapse and expand your layer groups.

Drawing Overview and Tips

To begin drawing, you must first select the layer on which you want to create objects, from either the Layer Manager or from the Layer Quick Selector list… On the Layer Quick Selector click on the layer name… you'll see a pencil icon alongside the name to indicate that you're in drawing mode.

The Layer Quick Selector

Access this list by press F4 or by selecting *Show / Layer Quick Select*. You'll see the currently available layers listed in their layer groups listed in the order that you can set in the Layer Manager.



So... get into drawing mode by

1. Selecting a layer
2. Clicking on the *Drawing Tools* button… see on the following page.
3. Then click on the new object type button… and then the *"Create Object"* button.

There are seven object types you can draw or add.

- *Polygons:* Polygons are closed areas which are defined by individual points that draw on the map. These are used to draw the filled areas such as areas of salt. For polygons you can specify their colour, the pattern of the filled area and the thickness of the border.
- *Lines:* These are used for objects such as Power Lines, Roads and Cables. For lines you can specify the line colour and the line thickness.
- *Circles:* Circles are used to represent Circular Production areas, "centre pivot" irrigation systems or whatever you may care to use them for.
- *Rectangles: Rectangles:* Rectangles have a special purpose… for creating print areas. You may also find rectangles useful for another purpose… perhaps other regular shaped objects. Rectangles can be used as representatives of production units (eg. Paddocks, fields, blocks) when connecting to the PAM production recording database.
- *Points:* Use points to represent small objects (single point locations) like soil sample or crop monitoring sites.

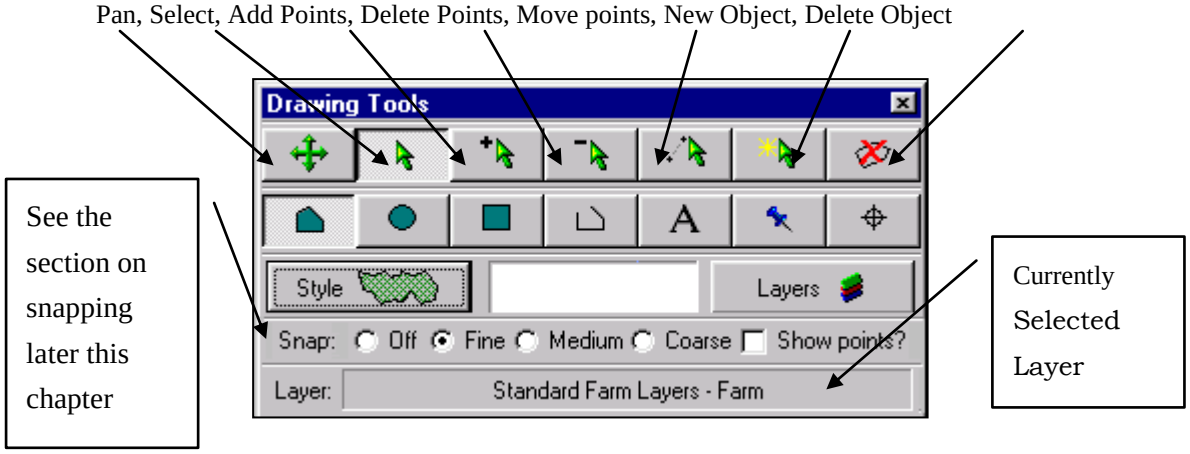
- *Symbols*: Use symbols to represent things like gates, buildings, pumps, windmills and other man made objects and structures.
- *Text:* Add labels to your map. Labels can be attached to any layer. Labels can be scaled and will grow and shrink as you zoom in and out… or you can make them a fixed size. We'll look at these options in more detail later.

The Drawing Toolbar

Firstly you'll see that the drawing toolbar has some familiar buttons. Like the main mapping toolbar, the drawing toolbar has *"Panning"* and *"Selector"* buttons… also the *"Layer Manager"* button.

The first row of buttons:

Pan, Select, Add Points, Delete Points, Move points, New Object, Delete Object



The buttons on the second row are used when you are creating new objects… use them to tell the program the object type you are adding.

From the left: Polygon, Circle, Rectangle, Lines ("Polylines"), Text, Symbols, Points.

Polygons

Drawn by left clicking at a starting point then clicking around the boundary with the left mouse. You'll see the polygon evolving as you proceed. Right mouse click to end.

Circles

Drawn by left clicking the top-left corner then the bottom right.

Rectangles

Drawn by left clicking the top-left corner then the bottom right.

Lines

Drawn by left clicking at a starting point then along the line with the left mouse. Right mouse click to end.

Text

Added by left clicking on the map the position of the text… then type the text into the text editor provided… click *"OK"* when done.

See Font/Style setting later this chapter.

Symbols

Added by selecting a symbol style using the *"Styles"* button (see more details later this chapter)… then left click on the map to position the symbol.

Points

Added by clicking on the map with the left mouse. You'll notice that once you are in add points mode, you'll remain in that mode… unlike some other add modes which end when you click on the right mouse button.

Finishing drawing an object

When you are drawing a line or a polygon you will reach a point where you need to stop drawing… "the end!"

You'll notice as you draw a polygon that it will always be closing itself back to your starting point.

How do you tell the program you're finished?

To end a line or polygon object when drawing… Click once on your right mouse button.

The "Style" *button*

This will pop up the object style setting form… if you are adding or editing text, you'll see a font style and size selection form… if you are adding or editing symbols you'll see a symbol selector otherwise you see the line and polygon styles form. More on that later.

Traps for young players

Before you can start drawing an object you need to have selected a layer to draw it on. You'll soon get used to this trap. Use either the Quick Layer Selector or the Layer Manager to select your layer.

It is so easy to edit an object that you should not get too concerned with perfection when drawing it.

The add points and subtract points modes are very quick simple and intuitive to use… Even deleting an entire object and starting again is not onerous.

Please Note: The drawing toolbar can always remain on your screen… it does not stop you from performing other tasks.

Setting the style of an object

A polygon, rectangle or circle style

Click on the *"Style"* button on the drawing toolbar.
To change the line width, style and colour choose the appropriate pick list and choose the appropriate style or colour.

To change the fill colour, pattern and pattern colour… select the appropriate pick-list and then the appropriate colour or pattern.

Please Note: If you prefer not to have a filled area, choose a transparent fill style by checking the "Transparent" check box.

A line style

Using the same procedure as above… you only need to set the line style and colour

Text style

Using the *"Pick Font"* button on text entry form or the *"Style"* button on the Drawing Tools form (whichever is convenient)… choose a font, choose its style (normal, bold, italic, underlined)… now to choose its size…

If you want the text label to remain the same size regardless of the zoom level or scale… choose the sizing option of "Points"… these are the same points that you use when you are using a word processor. You would tend to use this size option in the print preview screen… we'll talk about that later.

If you want the text label to remain in a size relative to your zoom level (recommended !) then use a sizing option of metres or kilometres (depending on the scale of the map)… For farm names try 500 metres. You may need to experiment with the sizes until you are familiar with them.

Symbol style

Click on the style button on the drawing toolbar.
From there you can select the type of symbol to use for the job at hand and its colour and size. The size of a symbol can either be in points or a distance (eg. Metres). If you want a symbol to remain a constant size regardless of the zoom level… use points, otherwise to make your symbols change size and remain relative to your zoom level, use metres or kilometres.

Snapping Points

What is snapping?
You will notice on the drawing toolbar that you can either have Snap off or have it set to "Fine", "Medium" or "Coarse"…
Snapping makes it easier for you to draw adjoining map objects… ones that share a common boundary.
As you draw objects (particularly polygons and lines) on your map you turn corners or change directions, by clicking your left mouse. You may need to draw another polygon or line alongside an existing one… you may want to share the points of one object with another… snapping makes this job much easier.

With snap turned on, you'll see the line you are drawing will be "snapped" automatically to adjoining points… try it and see for yourself… If you want to see all other points (that you could snap to) check the* Show Points *check box.

Zooming in and out while drawing

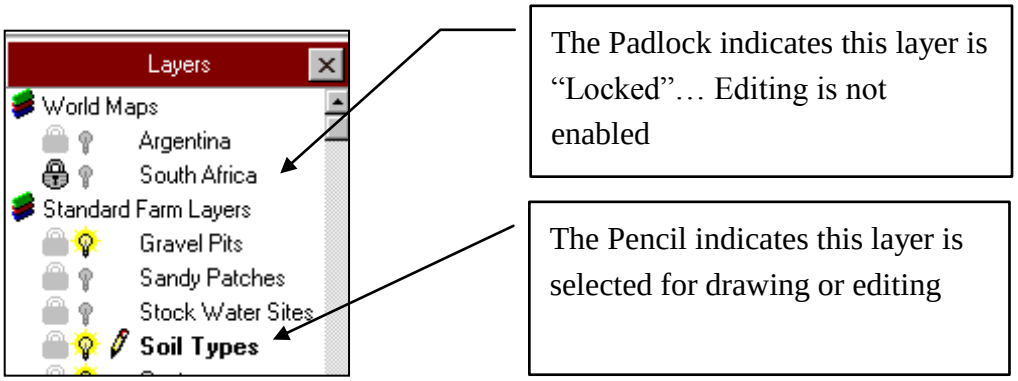
You'll notice that if you try to use right mouse zooming while you're drawing you'll immediately end the drawing task. Oops!
You'll also notice that if you choose to click on either the zoom in or zoom out buttons… that will end your drawing task as well.
Check your on-line help for the method of zooming while drawing… this facility is to be added in a future version.

Panning while drawing

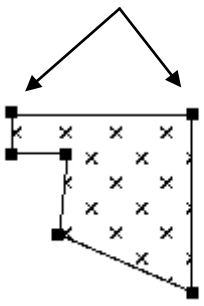
You'll notice that if you choose to click on the panning buttons… that will end your drawing task as well. Check your on-line help for the method of zooming while drawing… this facility is to be added in a future version.

Selecting an object for editing or deleting

Before an object can be edited, deleted or added (for that matter!) you must ensure that the layer on which it sits is unlocked. If a layer is locked you will see a small padlock alongside its name in the Layer Quick Selector or you will see the word "Locked" along side its name in the Layer Manager. Click you left mouse on the padlock or the word "Locked"… depending upon the Layer Management list you're looking at.



Once the layer is unlocked and selected for editing, select the *"Drawing"* tools. Now by clicking the *"Selector"* button you put the system into select mode… click on or inside an object to select it… you'll see the object is selected when its "drag handles" are on display… thus



Tips

If you are in select mode and clicking on objects but they are not being selected… the cause could be one of the following:

- The object you are clicking is on a layer that is *Locked*

- You are clicking on a *line* type object and you are not clicking near a point along the length of it… always aim to click near a line's end or at a corner in the line.
- The system is still in another mode… try clicking on the *"Panning"* button and then on the *"Selector"* button. Some of the program's modes are very subtle and are there for a reason… we're trying to make the program learn from you as you use it… sometimes it can guess wrongly!

Please Note: As you move your mouse over selected objects you will notice the changes in the mouse cursor. The cursors indicate the mouse mode… The hand cursor indicates "dragging" or moving mode (ie. The whole object will move), the cross-hair cursor indicates "point selecting" mode. When a point is selected it can be moved individually.

You'll soon get the idea of the mouse cursor "modes". Like the whole drawing, editing, selecting system… they are very intuitive and you'll soon be comfortable with them.

The Layer Manager

Layer management is potentially a complex task… Keeping your house in order, not letting it get too complicated… You may not get to this situation but if you are using the precision farming module you will most likely get many layers of data in a relatively short time.

Things you can do…

Add, Delete, Rename and Move a Layer Group

Layer groups are there to help you keep your layers in organised groups.

You can move layer groups up and down to put them in a preferred order in your list of layer groups.

Within a layer group you can…

Add, Delete, Rename and Move a Layer

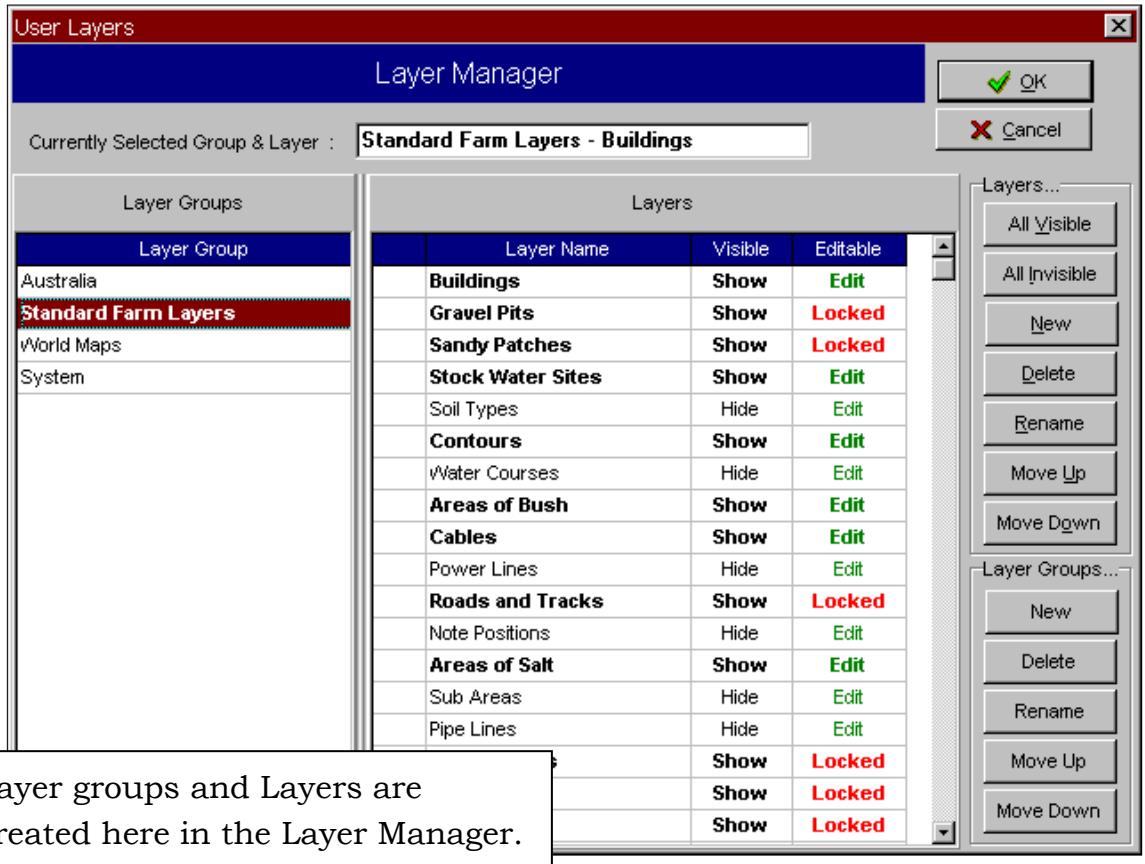
Each time you need to create a layer for your map you must create it here in the layer manager.

Once a new layer has been created its name will appear on your Layer Quick Selector.

You should decide the "Stack Order" of your new layer. Do you want it on top of all other layers? Do you want underneath all other layers? If it's an aerial photo you most likely do.

Please Note: You can either use your left mouse to drag and drop the layer names to change the stack order of your layers or you can select the layer name then use the* Move up, Move down *buttons.

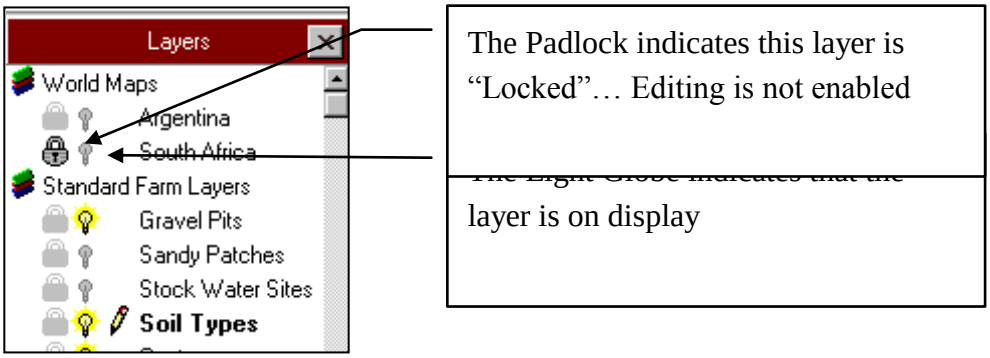
Some layers in the PAM Mapping Modules are "Fixed layers"… these can not be deleted but instead, all objects on those layers can be deleted simply by selecting *"Delete"* in the Layer Manager.



Layer groups and Layers are created here in the Layer Manager.

Layer and Layer Group "Stack Order" is altered using the "Move Up" and "Move Down" buttons (or by dragging and dropping the layer names).
The Show/Hide status and the Locked/Unlocked status can also be set here.

self explanatory. They work in the same
padlock (locked/unlocked) icon on the



Photos and images - how do we get them?

An image can be any type of scanned photo, scanned topographical map or satellite image. At this stage the program requires that the image be in the form of a Windows Bitmap.

Aerial photography

Many people will have at some stage purchased an aerial photograph of their property. The ideal size of photograph for each property is the size of half an A4 page.

The photograph will need to be scanned to create an image file that can be copied to the appropriate directory on your computer… or you can have it on a CD. Fairport Technologies can arrange for this process to be done if you are unable to locate a scanner. Your image needs to be in the form of a Windows Bitmap file - "BMP" file. Modern computer screens can display images which can be made up of 16 to 16 million colours! This software is designed to work with images that are 256 colours or better. If you can get your images scanned with 256 colours or better, then do so.

Some state mapping departments can provide your images on a disk for you. If you are not sure, contact your local mapping or lands department and enquire. You will most likely need to provide as much information as you can regarding your location. Section or Location numbers, Longitude and Latitude co-ordinates or Easting and Northing co-ordinates, distance and direction from your nearest town and a rough "mud map" of your property would all be very useful in helping the authorities locate your photo or image.

Image Resolution

Resolution refers to the clarity of the scanned image when displayed on your computer screen. The higher the resolution (the more "dots per inch"), the clearer the image. Also the higher the resolution of the image, the larger the image file size, the slower it takes to display on your screen. There is always a trade-off between image resolution and display time.

If you have access to a scanner, it would be handy to have two images created from your aerial photography - one at a high resolution to obtain a clearer image when zooming in, and one with a lower resolution for looking at the full scale view.

When ordering your scanned image, the rule(s) of thumb for scanning resolution are :

- Windows Bitmap file format (BMP), 256 colours or more.
- The larger the scanned image, the longer it will take to display on your screen, however we recommend you have your images scanned at 150 dpi. Or more.
- If possible ask the image supplier to write down for you, the TOP-LEFT Corner and BOTTOM-RIGHT Corner geo-locations (co-ordinates) of your property boundary and also supply a photocopy of the exact location of those co-ordinates. The co-ordinates can be in longitude and latitude or in "XY" (UTM) co-ordinates (in Australia these are called "AMG" or Australian Map Grid co-ordinates).

Accuracy of aerial photography

As you are probably aware, aerial photographs can be inaccurate in terms of their representation of the earth's surface. Due to aircraft movement and to the lens error of the camera used, aerial photographs can be "out" by tens of metres. There is a process known as rectification that can be carried out to correct the errors. Fairport Technologies can arrange for this process to be done if you require. However, before we can proceed with rectifying we will need at least nine known reference points on the image. That is nine surveyed points or G.P.S. readings to work from. Please enquire if you require this service.

Using the editing facilities within the program you can shrink and stretch the images in either length or breadth.

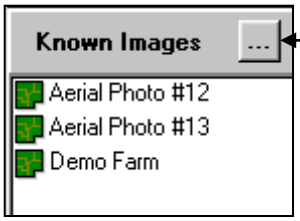
Satellite imagery

Satellite images can be used as your basic underlying image for drawing your paddocks. While satellite imagery is relatively accurate compared to aerial photography in terms of its "geo-location" the resolution of the images make it difficult to see the smaller features. The most readily available satellite imagery is "Landsat TM" which has 30m X 30m pixels (dots). "SPOT" imagery, which may also be available for your area, has 20m X 20m pixels (that's 0.04 Ha in a dot).

Installing or Importing an aerial photo or other image

The following steps will guide you through the process
In gpMapper:
Click *File / Import / Aerial Photo or Bitmap*
In PAM with Mapping
Click *Tools / Import / Aerial Photo or Bitmap*
You will then see the image preview window…

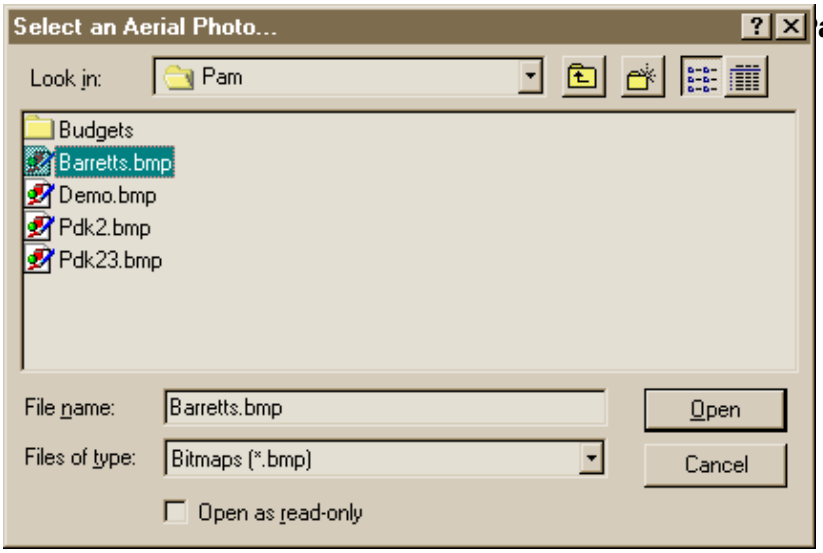
Please Note: Any previously imported images will be listed on the "Known Images" outline on the left hand side of your screen… Double clicking on one of those will display it on the preview screen.



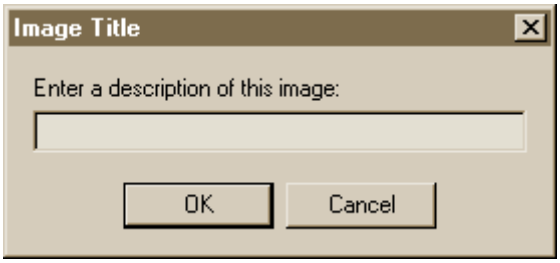
Click this button to :
Show, delete and rename an image or to set the view ing method of the image list

Click *Select image…*

Now, using the file location dialog,



find your image either on your hard disk or on a CD, floppy disk or wherever it is located. When you have selected the image file (as shown above), click *Open.* You will see this box…



Enter a meaningful description for your image… eg. "Newlands Farm Photo"
Now the image is registered in the "Known Images" list…

The next step is geo-locating the image.
Note that some images are "pre-geo-located". For example, Old Interfarm and Farmstar images and those exported from ER Mapper all import with their geo-location information.

Geo-locating your image

You will need to have the co-ordinates of at least two points on your image. This mapping software uses either "AMG" (Northings and Eastings) or Longitude and Latitude (WGS 84 or GDA 2000) values for geo-locating. Be sure to ask your image provider for at least two points in one of these formats.

If you know the location of two points on your image:

Click on the *"Digitise Points"* button.

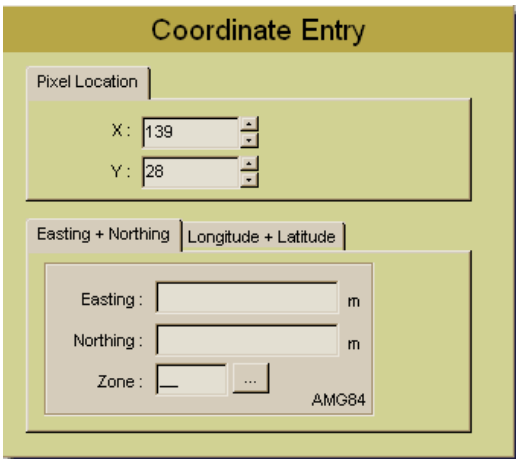
The steps are:
Carefully locate the two points with the known co-ordinates on the image.

Please Note: When choosing two points, be sure to use points that are as <u>diagonally opposite</u> each other as you can.

Ideally… Top Left and Bottom Right or Top Right and Bottom Left corners.

Not doing this may cause undesirable results and distortion.

1.
Click on the first point with your left mouse button then a special dialog appears…



enter the northing and easting value (or longitude and latitude) for that point. You can use the *"Zoom"* buttons to assist you in this process if required… or use your right mouse zooming capability (ie. Lets assume you want to zoom into a specific area of your image…Click your right mouse on the top-left corner of that area… now holding down your right mouse button, drag the mouse to the bottom right hand corner of that area… now let the mouse button up)

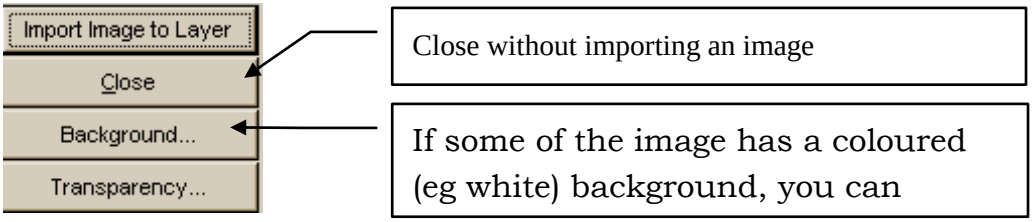
2. Now click your left mouse on your second point and enter those co-ordinates in the space provided. If you have made a mistake and want to abort, click on the *"Abort"* button.
3. When you have done that, click on *"Save"*.
4. Now, if the program calculates that your image is not accurate, you will warned.

Please Note: When choosing two points, be sure to use points that are as diagonally opposite each other as you can. Not doing this may cause additional errors and distortion.

If you make a mistake entering the co-ordinates for a point, you can choose *"Abort"* or *"Start Again"*… depending on the circumstances.

If your image needs to be rotated to align it North-South, the program will perform that task for you.
When you have your image geo-located, click on *"Import Image to Layer"*.

You are then asked to nominate a layer for your image… Yes! An image is placed on a layer… You can have as many images for your map as you like. Each image can either be placed on its own layer.



The program will display the Layer Manager for you to select your chosen layer for this new image. Notice that the "Aerial Photos" layer is auto-selected.

Layers can be stacked in your chosen order when displaying them on your screen… Obviously it would be wise to have one of you images (usually the main aerial photo) as the base layer of all your map layers.

So remember…You can have any number of background images for your map and each of those images can be put on their own layer… and those layers can be stacked on top of each other in your preferred stack order.

Editing the shape of an image

When would you want to do this?

If you have established a farm (or other) map using a DGPS system in conjunction with logging software (like SkyMapper)… you may find that your image(s) are not exactly lined up with the lines and shapes that you have imported.

For example, using SkyMapper and a DGPS system you can log lines and polygons of a farm or property layout. This information can then be imported into your mapping system and saved into layers. Generally this information will be very accurate (within half a metre) and therefore may show up some discrepancies in your aerial photos.

If you have an aerial photo layer under your imported logger data and you would like to re-shape your photo to best match the data,
The image can be re-shaped using the following steps…

- Click on the *"Selector"* button to get into select mode
- Ensure the layer on which your image sits is *Unlocked*... perhaps you should lock other layers to avoid selecting them in error
- Click your left mouse on the edge of the image … you should now see its drag handles
- Using the drag handles (ie. Move your mouse over to one of the image drag handles) hold down your mouse button while carefully dragging the image shape into the preferred shape.

If the image is shaped ok but it is sitting in the wrong area… click on the body of the image somewhere to display the hand shaped (dragging) cursor… holding down the mouse button, drag the
image to its correct location.

Remember to "Lock" the layer that you have been working with when you are finished.

Please Note: As you move your mouse over the image and close to the "drag handles" will change the mouse cursor from a hand, to a cross-hair. These cursors indicate the mouse mode… The hand cursor indicates "dragging" mode, the cross-hair cursor indicates "stretching" mode.

Exporting an Image

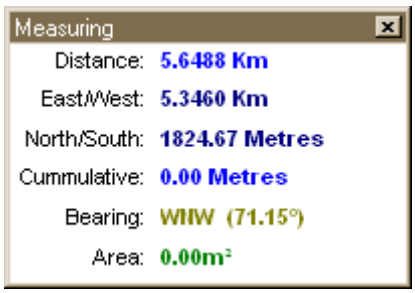
To import an image to be used by another Fairport Mapping system user or in SkyMapper or any of the other software products that import our images…
Choose *File or Tools / Export / Aerial Photo.*
The export process is quite similar to the import system…
Select the image to be exported from the list.

Then click on the *"Export"* button. You can export the image file to a floppy disk or any other disk drive on your computer.

You must supply a file name… always use a meaningful name that you can recognise later.

The Measurement tool

To measure lengths and or areas:



Click the *"Measure Distance/Area"* button…

Now, start your measuring by clicking your left mouse on the starting point…

The measure report panel pops onto the screen…

Now move to the next point and…

As you move your mouse you'll see the distance changing… and the bearing displayed.

Now click... and as you move your mouse to the next point you'll see the area changing. The area being calculated is the area from where your mouse is… back to your first point.

As you continue measuring lengths, their total length is accumulated.

To stop measuring, click your right mouse button. Close the report panel by clicking the [X] window icon.

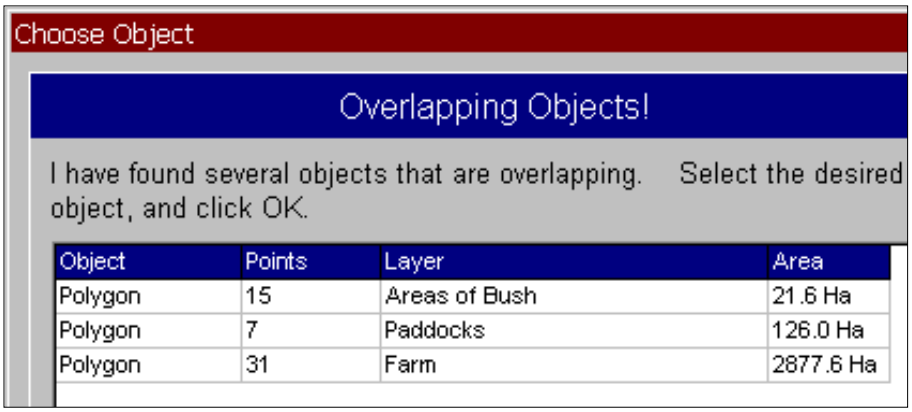
How do you measure polygons on your layers?

As mentioned above, you can measure ad hoc polygons "on the go" with the measuring tool… however you will obviously need to measure your drawn polygons from time to time.

Here are the steps:

Ensure you have the *"Selector"* button down.

Click inside a polygon (or a series of overlapping or stacked polygons will display a list of polygons and their areas.



If you only click inside one polygon, the area is displayed in the status bar across the bottom of the screen.

You'll notice that the area you selected will have its "drag handles" showing. The distance displayed is the polygon's perimeter.

You can only select and display a polygon's area when its layer is unlocked.

Chapter 3

Printing Your Maps

Contents

In this chapter you will learn how to select print areas on your maps and how to set up a presentable printed map.

The Steps for Printing your Maps

On the *File* menu in gpMapper (or the *Tools* button menu in PAM with Mapping), choose the option *Print Prepare.*
This displays a submenu with the following options:

Draw Print Rectangle(s)…

This option enables you to draw one or more rectangles on your map that will be used in the print prepare screen. You can have as many sections of a map on your printed output as you want.. Obviously the page size will restrict you to only a few map sections, however you will find this feature quite useful.

How To

Select the menu option… you will find yourself in drawing mode… the drawing tools bar on display and the *"Rectangle"* object selected, the *"Create Object"* button selected… ready for drawing.

Draw your print areas

By clicking in the top left corner of the designated area… moving the mouse down to the bottom right corner then click the left button again.

You can repeat this process to draw a second area and as many extra areas you might need for the current print job.

These print areas (rectangles) are recorded and saved for future print jobs… of course if you don't require them again, simply delete them in the same way you would delete any other map object.

Once you've created your print areas… select the *Layout via "Print Areas"* option to use your print areas.

Note that Print Areas belong in the "System" layer group. This layer group is used for non-user mapping objects.

Layout via Current View

This option takes you to the print prepare screen using the current map screen view and visible layers.

To make best use of this facility… zoom in or out and pan to the required part of your map before selecting this option.

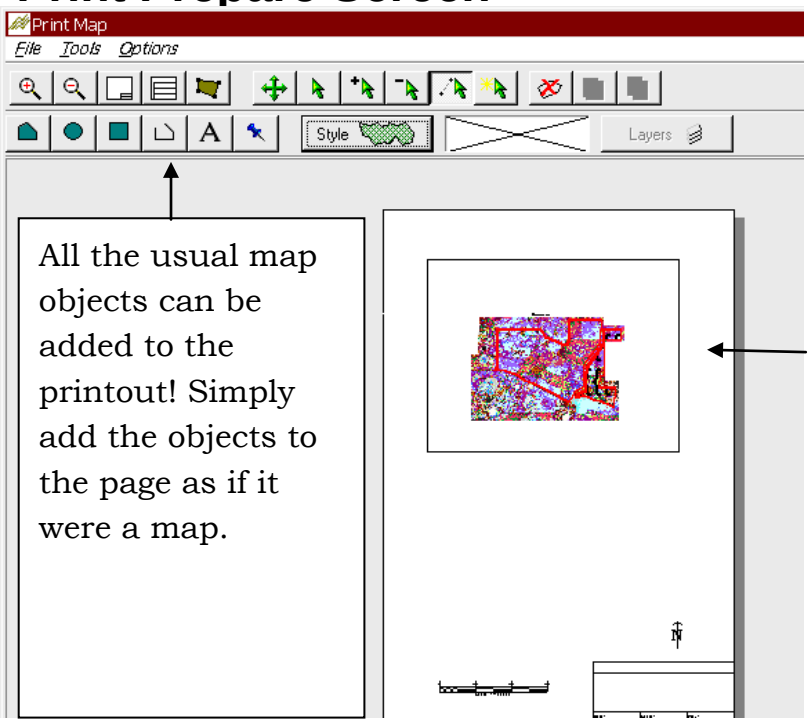
Layout via "Print Areas"

This option takes you to the print prepare screen using the currently available print areas.

To use this facility, ensure you have defined one or more print areas using the *Draw Print Rectangle(s)…* option.

Please Note: You can have many Print Areas on your Print Areas layer. When you select the* Layout via "Print Areas" *option, only those print areas that are fully in view on your current View will be displayed and available on the Print Prepare screen.

The Print Prepare Screen



The print prepare system is as rich in features as your main mapping screen… perhaps even richer. Move your mouse over the buttons on this screen to read their "hints" and gain an understanding of their functions.

What can you do here?

- Zoom in and out using the same techniques as on the main map sreen.
- Add objects (Polygons, Circles, Text, symbols etc)
- Delete objects (eg. The scale bar, north arrow, the title block)
- Zoom to the title block and add text.
- Drag and resize your map
- Show and hide layers on your map or map section
- Change the styles of your added objects
- Set the stack order of the displayed objects on the page

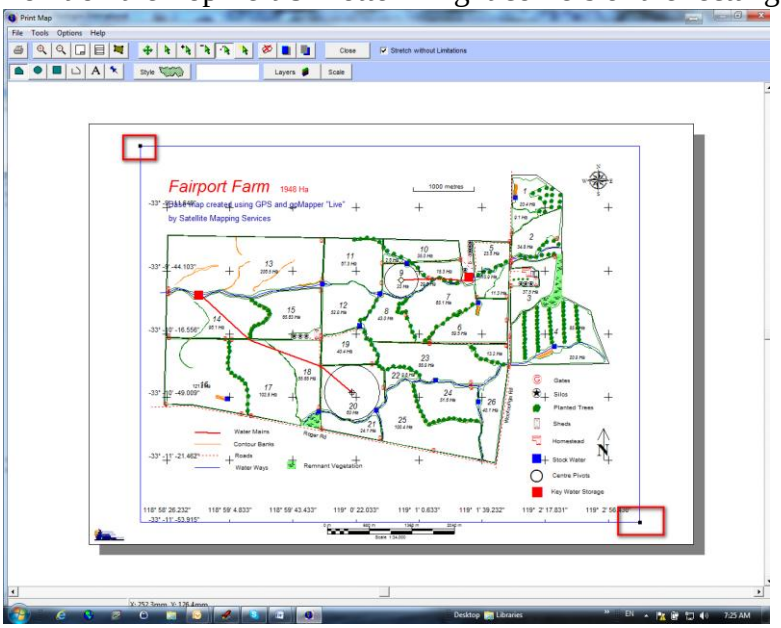
- Set the scale for each map section that you select to be on your printout.

Using the Layer Manager on this screen you can turn layers on or off to suit. To find out about the Layer Manager turn to chapter 2.

Please Note: The Layer Manager can only be accessed when you have a map section selected. Select the map sections on the page by clicking on them.

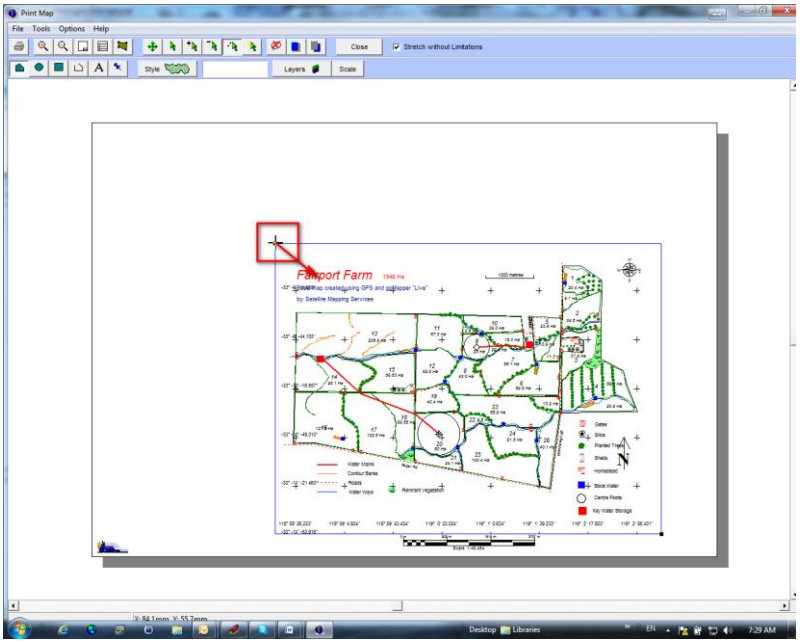
Manually Resizing the Map

Click inside the map rectangle this will "Select" the map. You will see a Black Point on the Top Left & Bottom Right corners of the rectangle.



Once the Map is selected you can –

- Move it by holding down the mouse button, when you release the mouse button the map is released.
- Resize it by moving to one of the Black Point (Top Left/Bottom Right) holding the Mouse button down and dragging the point.



Displaying Multiple Maps on your Printout

Using the *Draw Print Rectangle(s)* option on the main screen, you can define multiple (one or more) map sections as print areas. When you choose the menu option *File or Tools/Print/Print via "Print Area(s)…"* you will see on your print prepare screen your multiple selections.

Setting the position and size of map sections

Choose the map section to adjust using your mouse, drag and resize the map section using the mouse to suit your needs. Notice that each map section has its own scale bar… it's unlikely that each map section you created and selected has the same scale.

Individual scale bars can be deleted if they're not required. To delete a scale bar, select it then click the *"Delete"* button.

If you need to delete an entire map section simply select it by clicking on it … then choose the *"Delete"* button.

Please Note: As you move your mouse over the map sections you will notice the changes in the mouse cursor. The cursors indicate the mouse <u>mode</u>… The hand cursor indicates "dragging" or moving mode (ie. The whole object will move), the cross-hair cursor indicates "stretching" mode. When a point is selected it can be moved individually... thereby stretching the selected object.

Adding Additional Map Sections (Print Areas) to Your Page

The *Tools / Add Map Section(s) from Your Main Map* enables you to display multiple instances of your drawn print areas or map sections.
Choose the option and the map sections will automatically add to your print prepare page. You can then delete any unwanted sections, change the scales of any section and change the visible layers and their stack order of any section.

Please Note: Sometimes map sections can be hiding behind others… always check for this if you have "lost" a map section on your page.

Setting layers on or off in different map sections

You may also want to show some layers on and some off in the different sections. Simply…

- select the section then…
- using the layer manager on the print prepare screen make your adjustments.

Saving and Using Saved Layouts

Under the *File* menu you'll find the options:

New Layout

Beware! This option is designed to "blow away" your currently displayed map or map sections and all the features on the print prepare layout… giving you a "clean sheet".

Open Layout

Select this option to see a list of pre-saved print layouts. This is a list that you will add to as time goes by. A saved layout has on it all layers, text, objects, the scale and indeed the complete print layout as it was when you saved it! Of course any objects on a layer that have either been created or deleted or altered will reflect those changes.

Save Layout

When you create a new layout or you update an existing layout, select this option to update it.

Save Layout As…

After creating a new layout or after updating an existing layout, select this option to save it under a new layout name.

Setting the Scale of Map Sections

On your print prepare page your map section will have a scale bar. You can easily change the scale of a map by dragging/stretching the map section to the required size.

The other method is to select the map section then choose the required scale from the scale list.

If you don't want your scale bars to stay locked to your map sections, check the *Options* menu for the *Scales stick to Maps* option.

If you want to see what the current map section scale is set to… zoom in on its scale bar.

Deleting a Scale Bar

If you want to delete the scale bar, click on it to select it, then click the *"Delete Object"* button.

Chapter 4

PAM Data and Your Maps

Contents

In this chapter you will learn how to generate map-based reports and how to enter your data using the maps.

The Demo Farm & other Demo Maps & Views

We provide demonstration maps so you can see how you might draw your own farm layout and as examples of views, layers and layer groups.
Q. Should I delete the demo farm and other maps when I install?
A. If you want to, but **if you are upgrading to PAM from Interfarm or Farmstar <u>leave the demo maps in tact until you have imported your old maps (See the topic "Importing Maps from Interfarm or FarmStar").</u>**

Back to the question!… it won't hinder your progress or bother the program if you leave the demo farm there… you might just delete some of the layers that are not needed for you farm. Eg. Areas of Salt, Areas of Bush... Any map objects on a layer are totally ignored and don't impact on your computer's memory or operation speed unless brought into view on your screen.
However, if you want to delete the demonstration farm "Kambah" from your Views list… Choose File/Open View … now select the Kambah view and click the "Delete" button. Delete any other views that you don't require. If you delete a layer from the layer group called "Standard Farm Layers", and you have used this layer group (and its layers) for your own farm(s)… then you will <u>definitely not</u> want to delete these layers!

Setting up your farm maps and views to work with PAM data.

Let's assume you have followed the instructions in the manual or on-line help to load in a farm photo or some other method to get your basic farm layout into the program…

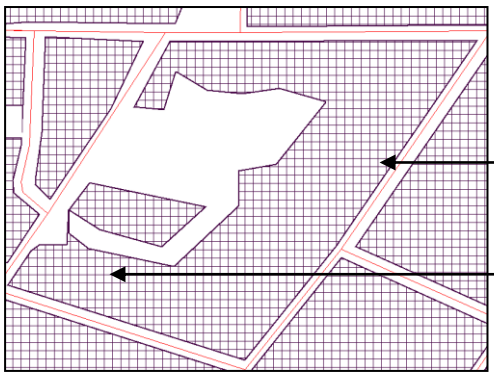
To draw paddocks

Firstly, you will want to draw all your paddocks. For this you'll need to have a layer called "**<u>Paddocks</u>**",
The choice of layer names for all other layers is entirely yours. Eg. Any one of: Bush, Areas of Bush, Remnant Vegetation could be used to describe the same thing.
Drawing your paddock should be relatively simple… following your aerial photo or some other "template".

We recommend you create a layer of the arable areas (for this you'll need to have a layer called "**Arable Areas**") of your paddocks if:
your arable areas are different to the total areas of your paddocks and…
you are to use the map for meaningful map reports

To draw arable areas

Firstly create an "Arable Areas" layer for that purpose in the Layer Manager… that is if you deleted the one that we set up for the demo farm. Now zoom into each paddock and draw your arable areas.
Q. Can I draw more than one object (polygon) for a paddock's arable area?
A. Yes… by all means. Notice that in the demonstration farm we chose to draw a single polygon for each paddock's arable area however. The advantages of this are… a) You click once to select the entire arable area when doing data entry and b) you only need to click once to see the area This can be done by drawing in this way…

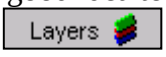


Single arable area polygon for a complex arable area.

This small area is connected to the other area by careful drawing.

Associating your paddocks and arable areas to their map objects

Once you have drawn all your paddocks (and their arable areas if you've chosen to do that):

Display your paddock layer. It is a good idea to turn off all other layers for this job. (Hint: Turn off all layers in 

the Layer Manager, then turn your paddock layer back on).

Now choose from the Tools Menu the option Data Links / Assign Paddocks & Arable Areas.

The steps from this point are :
Click on a paddock polygon… A list of all paddocks in your PAM paddock list will be displayed.
Choose the appropriate paddock on the click.
Click the 

button.

Repeat these steps until all paddock polygons have been assigned their paddock name.

To assign your arable area polygons to their paddocks, repeat the process above but ensure that:
Your have your paddock layer turned “off” and your arable areas layer turn “on”.

And… you click the 

button.

Setting up “Views” for data entry and map reports

As you will know, you can set up as many views of your farm or farms as you like. Check out the section in chapter 2, about views in “General tips and Concepts”.

We recommend that you have a view that only displays Paddocks and Arable Areas for your main “Data Entry” view for each farm.
When entering data using your maps, you can choose any view you may have created…
Sometimes it may be appropriate to have a view that shows your aerial photo as a data entry view… particularly if you need to draw a sub area for a treatment that covered less than your total paddock area.
To use your maps to add paddock data:
Using the Paddock Activities Add Wizard as normal… when you get to the wizard page to select the areas (Paddocks or Crops), click on the “Map” tab…
If you don’t see a map displayed, choose a view from the views list on this tab page.
Now click on the areas treated or if you need to draw a “sub-area” click on the Draw Sub Areas… button to draw the area(s) treated.

For map reports, you can use a view that has only the Paddock layer on display… Why? Because the map objects (polygons) that "contain" the data will be displayed when you generate map reports…
For cropping and related reports, these will be the arable areas polygons, paddock polygons or the sub-areas polygons that you draw at data entry time.
For livestock reports, these will be the paddock polygons.

Should I use the map for data entry?

The main purpose of providing you with a map at data entry time is to enable the drawing of "Sub Areas"… that is where you have treated or planted less than the whole area of a paddock.
You may find it quicker and easier to use the pick lists to enter data for activities that covered the entire paddock or cropped area… the choice is yours!

Creating paddock names…

In the demo map we created a layer called Paddock Names for our paddock names. You could use that layer (if you haven't deleted it!) if you want to… or you could create another layer called "All labels" and add the names of all your map objects to that layer… or you could add the paddock names directly on to the Paddocks layer. Remember though that all objects on a layer are "ON" together.

To add more labels, use Drawing tool bar…Click on the "Create New Object" button … then click on the Text button.
You can then add labels by clicking on the map on the spot where you want to add the text… type the text into the dialog that pops up. Change the style of the text if you want to… by clicking on the "Pick Font" button… I recommend you use a font size of 150 metres or more depending on the overall scale of your map.
You can set text styles in advance by clicking on the "Style" button on the drawing tool bar.

Using your Maps for Entering Crop Data

Before you can use your maps as a method of entering data you should create appropriate views for each of the farms listed in your PAM database. This is quite a simple process…

Firstly… you will need to draw all the arable areas of the production areas of each farm. The arable areas within a paddock can be one or more polygons. See the arable areas layer in the demonstration farm.

Now… Save the view. Perhaps call it "Farm XYZ Data Entry View".

To Select an Area at Data Entry Time Using the Maps

1. Select the Maps Tab on the Areas Selection page of the "Add" wizard
2. Select the appropriate view from the pick list of views
3. Click on the required areas… they will change colour to indicate they are selected. (To de-select them, simply click on them again).
4. Click on the *"Next"* button and proceed with your data entry as normal.

What if you need to draw one or more sub areas

If you are treating less than the total area of a production unit… choose the *"Draw Sub Areas"* button and draw the actual area treated. You will most likely need to display the aerial photo and to zoom in on the relevant area. Use the Layer manager and zooming and panning options as required.

Drawing sub areas

1. You are advised to zoom well into the paddock in which you are drawing sub areas.
2. Draw the sub-areas as you would draw a paddock boundary

A data record can link to more than one sub area. For example you might spray several small areas of a crop but they are recorded as a single record in PAM. That's no problem… simply draw all areas treated.

Odd shaped sub areas ... examples

Where you have one area within another, you must draw both areas.

To achieve two closed polygons, you need to draw two shapes like in Figure 1 and 2 to finish up with the effect shown in Figure 3.

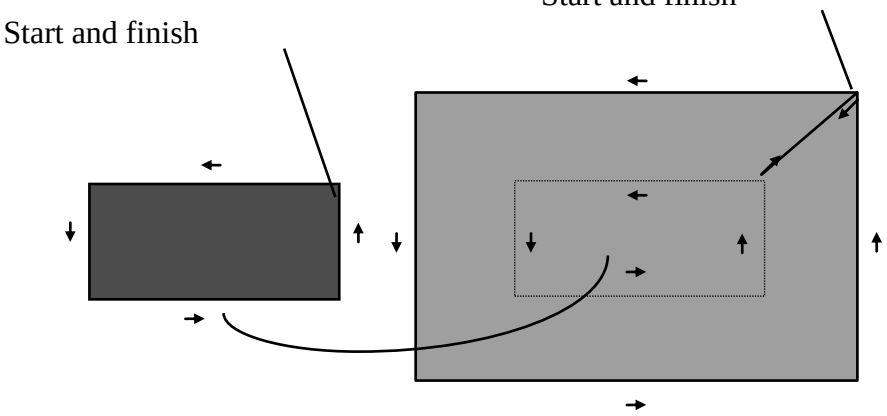


Figure 1

Figure 2

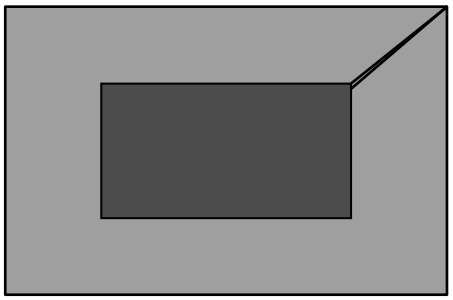
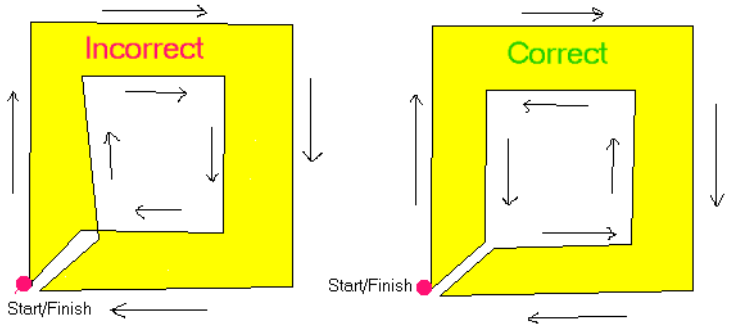


Figure 3



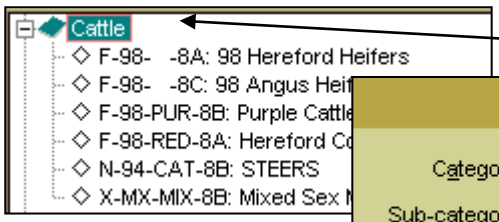
Please note : There is right and a wrong way to draw this type of sub area.

Figure 4

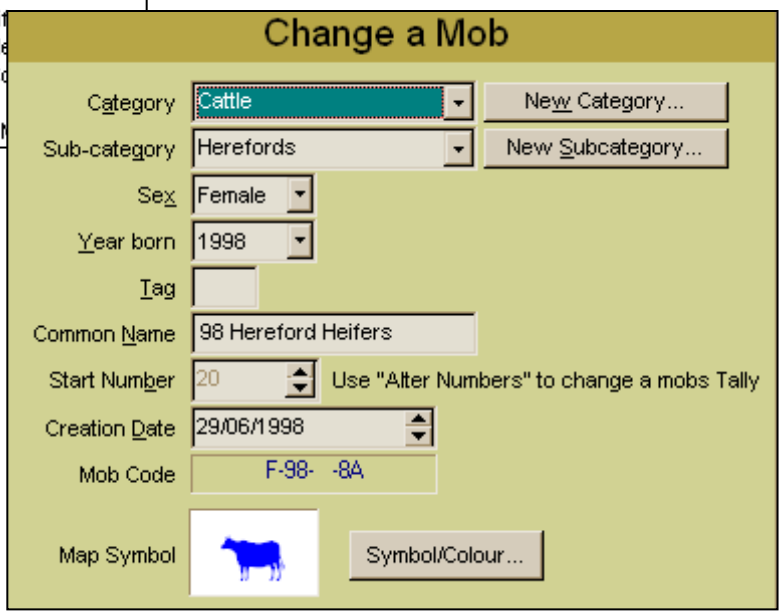
Using your Maps for Moving Stock

Setting up

Under *Configuration / Livestock Categories and Mobs* you can assign a symbol and colour to each of your mobs.
The quickest way to do this is to double click on the mob code in the outline.



Double Click on the Mob Code to display the "Change a Mob" form…



Now click the "Symbol/Colour" button to set up the appropriate map symbol for the mob.

When you have assigned all your mobs their symbol, you are ready to use the mob movement system using your map.

Click the 

"Mob Move" button on the main map screen… Choose the date for the move(s) you are about to perform. If you are moving stock on more than one day you will get a chance to change dates later as well.

You will now see the stocked paddocks displaying the mob symbols and mob codes. If you have any mobs in the "Yards": they are displayed in their own list. You can move this "Livestock in Yards" list if it gets in your way.
The farm filter is over ruled by the Map View system… That is, you choose the map view from the Views list, the mobs in the paddocks for that view are shown… including ANY mobs that are in the Yards… The Yards are not tied to any farm in particular… they are generic system wide yards.

You can zoom in and out if you need to. To see more information for a mob, hold down your left mouse button on its symbol and look across the top of the map screen.

If you want to use the map for moving stock… drag and drop the mob code & icon.

To move a mob from the yards to a paddock, hold down your mouse on the mob in the yards, drag your mouse out across the map and drop it!… Across the top of the map view window you'll see the instructions displayed in bold type… keep an eye on that message as you click on (and move) mobs

Eg. **F-98-RED 8A Red Cows (24) : "Release button to move into Top Road…"**

PAM Mapping Reports List

The following is a list of reports that you can display on a map.

Cropped Areas	Regions filled by pre-set variety colour and fill pattern
Production Unit Gross Margins	Regions coloured by Income/Ha
Crop Yields	Regions coloured by Yields/Ha
Cropped Area Gross Margins	Regions coloured by Income/Ha
Fertiliser Applications	Regions coloured by cumulative Rate/Ha
Nutrient Applications	Regions coloured by cumulative Rate/Ha
Nutrient Audits	Regions coloured by balance Kg/Ha
Chemical Applications	Regions coloured by cumulative Rate/Ha
Herbicide Resistance History	Regions coloured by cumulative “Hits”
Machinery Workings	Regions coloured by cumulative Operations
Manual Tasks	Regions coloured by cumulative Operations
Sundry Consumables	Regions coloured by cumulative quantities consumed
Irrigation Applications	Regions coloured by cumulative applications (in mm.)
Average Soil Test Results	Regions coloured by average test item results
Average Leaf Test Results	Regions coloured by average test item results
Current Stocking Rates	Regions coloured by average test item results
Stocking Rates As At Any Date	Regions coloured by average test item results

How to Make Map Reports…

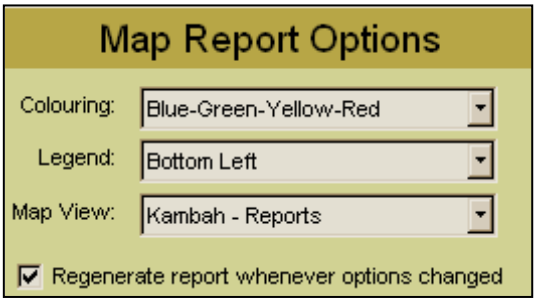
Generating your map reports is very similar to generating the standard reports in PAM.

It is a good idea to set up an appropriate view in the main mapping system. We recommend you use a basic view for each farm with just the paddock boundaries showing. Perhaps name them “Farm XYZ Report View”.

When you are ready to generate a map report, the steps are:

- Select the *Map Reports* option from the *Reports* menu.
- Select the report type from the pick list of reports
- Select the Farm or Farms (you can have views that show more than one farm).
- If the report is one the types where an item (eg. A chemical, fertiliser etc) needs to selected… Select the item
- Now choose the Season or date(s) as appropriate.
- Now click *"Generate Map"*

To change the map view for the report, click the button…



You may need to move the legend to suit your case. Use the Legend Position list to choose your position. You may prefer a different legend colour scheme to the default… Simply choose your preference.

To print the result… Choose *"to Print Layout…"*. You will find yourself in the print prepare screen. For the features, options and facilities in this screen see Chapter 3.

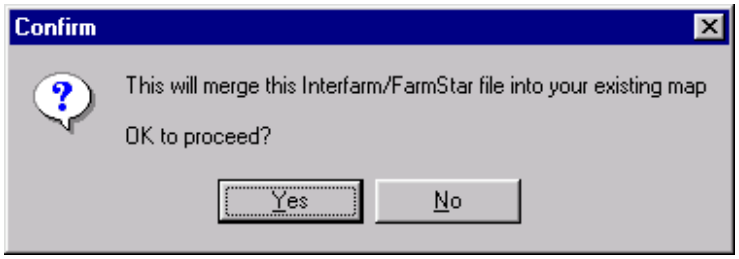
The colours and patterns for crop types used in the "Cropped areas" map report are set up under *Configuration / Crop Types and Associated Lists and Settings.* This should be done in advance.

Importing maps from Interfarm or FarmStar

To start this process, firstly ensure you have a "View" selected …
I strongly recommend you have the demonstration view "Kambah" selected on the Views list when you perform this task to ensure the right layers ("Standard Farm Layers") are on & off.

Use the Tools/Import option… Interfarm/Farmstar Maps
A list of Interfarm or FarmStar farm names will be shown…

Select a farm to import (eg. My Farm). From the list… you will now see this message…



This is saying that the layers of your selected farm will be added to the list of Standard Farm Layers already set up for you.

If you encounter any error messages as your old data is being imported, click OK to continue. An occasional record that can not be dealt with in your old data may be found… this should not cause any significant problems.

As soon as your imported farm is displayed you should set the zoom level to your liking (using right mouse zooming or the zoom buttons and pan/drag facility) and save the "View".
To save a view use…
Tools / Views / Save As… The "hot keys" for this option are <Shift+F10>
Name it… (eg. My Farm – All Layers)

Hint: It's a good idea to create other views of each farm. Check out the demo farm… see the "Data Entry" view and the "Reports" view.
Your paddock names will not be imported (sorry!). Add these by using the Drawing Tools … Create New Object / Text.

Hint : You could add your paddock names to the "Paddock Names" layer.

Chapter 5

Importing and Exporting Map Data

Contents

Types of Map Data you can import

At the time of writing, the Fairport mapping programs support the importing of AutoCAD “DXF”, ArcView “SHP”, MapInfo “MIF” files, SkyMapper, gpMapper “GPX”, SoilTRAX “SXE”, Interfarm (Version 2.7), FarmStar (Version 2.7) and Garmin GPS files.

This list of supported file types will grow, however the method of bringing the data into the program will remain the same.

Fairport (and some Fairport agents) provide a service to convert Microstation “DGN” files and several other data exchange formats into a format that can be imported. Please contact us if you require this service.
Alternatively, check to see if your mapping software can output in MapInfo “MIF” format.

Special instructions for creating MapInfo “MIF” files for importing into Fairport’s mapping programs

If your map that you want to export to Fairport’s mapping program is not in a Longitude/Latitude (WGS 84) projection (or if you are not sure) then do this…
Let’s start assuming you have on your MapInfo screen the map you want to export.

Choose File / Save Copy of Table As…
On the save dialog, enter a new name then click on the *"Projection…"* button.
Now on the next dialog, choose the Category "Longitude/Latitude" and the Category member "Longitude/Latitude (WGS84)"

Having done that… make sure the newly created map (TAB file) is the one on your screen.
Now choose Table / Export
Pick the table to export (if you get a pick list dialog)
Supply a name for the "MIF" file.
Click "Export".

If anything goes wrong trying to import this new file check using WordPad or Notepad the text "CoordSys Earth Projection 1" exists.
This text should exist. If it doesn't then you shoul;d carefully follow the steps above again.

Steps for setting up a Farm Map with a GPS logger or with SkyMapper

Load the log file you have created on the logger via the *File / Import / SkyMapper File (or whichever)* menu option...
Nominate the layer name you are loading the data into. The Layer Manager will be displayed for you to either create a new layer or select an existing one… then click *"OK"*.
The data will then be imported and displayed on the screen.

You can now save this new data as a view in the normal way.
This can be the starting point for the creation of a fully featured farm layout.
To associate the drawn paddocks with their PAM data (if you are intending to do that), choose *"Data Links/ Assign Paddocks"*. You click on each paddock map polygon… a list of your paddocks will appear… choose from your list of paddocks to link the polygon to its PAM data.

Exporting to another gpMapper or PAM program

If you want export your mapping information to another PAM or gpMapper user, choose the *Export/gpMapper* option.

You can choose to export all map objects or just the visible objects or only the wholly displayed visible objects. This gives you a wide and powerful range of options.

Exporting to other Mapping Software

Writing to a log file

You can send special layers of type “Points” to SkyMapper. Having created a layer of points, select *File / Export / SkyMapper file*, select the layer(s) required
Now provide a file name... it MUST have an extension “TXT”

To export to MapInfo, choose that option and proceed in the same way.

Chapter 7

Live Mapping with gpMapper or FarmStar

Contents

Setting up the GPS Interface

Before you start mapping with a GPS you need to set up the parameters required to communicate with your GPS unit.

To enter the settings of your GPS unit:

- Click on the "GPS" menu item.
- Then select "GPS Setup…"
- Enter the relevant information into the Serial Port, Baud Rate, Parity, Data Bits and Stop Bits fields.
- The GPS Position Data source will Auto Detect.
- Click on "OK" when the connection is verified.

Note that on this form you can set the upload / download speed for interfacing with a Garmin GPS for exchanging waypoints.

Satellite Information

It is possible to view the information sent via satellite by selecting the Satellite Information option from the GPS Tracking menu. The GPS Satellite Data screen shows the relative positions of satellites the GPS receiver can currently "see", and the strengths of the signals from them.

If the GPS Satellite Data screen does not appear when you select this option from the GPS Tracking menu, the program is not receiving any satellite information. This could be due to one of the following reasons:

- The GPS unit is not correctly installed.
- Your GPS unit is not sending any information.
- Your GPS unit is not receiving any signal.

GPS Offset

When a GPS unit records a geolocated coordinate, the information recorded relates to the position of the antenna of the GPS unit. If the antenna is physically connected to the GPS unit the difference in position of the antenna and the unit will be minimal. However, if the GPS unit uses an external antenna there may be several metres difference in the position of the unit and the position of the antenna.

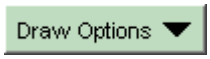
Also, there are some situations in which it is not possible to have the GPS unit or its antenna and the exact location the point is to be recorded. Eg. When using a GPS mounted in a vehicle to map fence lines.
The GPS Offset function allows the direction and distance of an offset from the GPS unit to be setup. In this way, gpMapper can be used to accurately map paddock boundaries to within the accuracy limitations of the GPS unit being used.

To set the GPS Offset:

- Click on the  button located on the GPS Tracking Tool Bar.
- Enter the distance in metres of the offset.
- Enter the direction from the location the GPS reports, to the offset.
- Click on "OK" to save the settings.

GPS Tracking Tool Bar

The GPS Tracking Tool Bar has several new buttons used to control various aspects of Live mapping.

-  is used to close the gpMapper Live mode. Alternatively you can close the GPS Tracker by selecting Stop Tracking from the GPS Tracking Menu.
-  is used to center your screen to the current GPS location.
-  is used to zoom to the object being drawn.
-  is used to zoom to the path which is currently being followed.
-  is used to zoom in on the map.
-  is used to zoom out from the map.
- 

this button displays the Drawing Options menu which has options for drawing lines and shapes from incoming data. Refer to the link below for more details.
-  this button is used to set up a GPS Offset. Refer to Related Topics for more details.
-  this button is used to Hide or Show the path you are following while in GPS Tracking mode. This path line is NOT saved when the map is saved.

-  is used to add a Waypoint at the current location.
-  is used to draw a line while in tracking mode.
-  is used to create a polygon while in tracking mode.
-  while this button is depressed no lines or polygons will be drawn while you are in the Live mode.
-  this button is used to Start and Finish drawing when creating a line or polygon.
-  this button is used to add a point which is being drawn manually. Refer to Draw Options for more details.
-  is used to Hide and Display the Navigation Panel. Refer to link below for more details.

Hot Keys

While Live mapping, it may be more convenient to press keys on your keyboard than to click buttons with your mouse or pointing device.
The “Hot Keys” are as follows:
A – Add a Point
L – Start or Stop drawing a Line
N – “None” …this will End drawing a Line or Polygon.
P – Start or Stop drawing a Polygon
W – Add a Waypoint
Y – Add a New Layer (a new automatically named layer is created “on the fly”)

Draw Options

The Draw Options menu is used to setup drawing and screen settings when in GPS Tracking mode.

- The first option on the Draw Options menu is Add Point Mode. This menu item gives you the option to Add Points Automatically or Manually. When the Manual option is ticked you can enter points manually at your current GPS location. When the Automatic option is ticked the GPS points will be entered automatically. The

intervals at which the coordinates are entered at can be set using the Automatic Settings option.

• The Shape Style option allows you to alter the style of the object you are drawing. For more information refer to the link below.

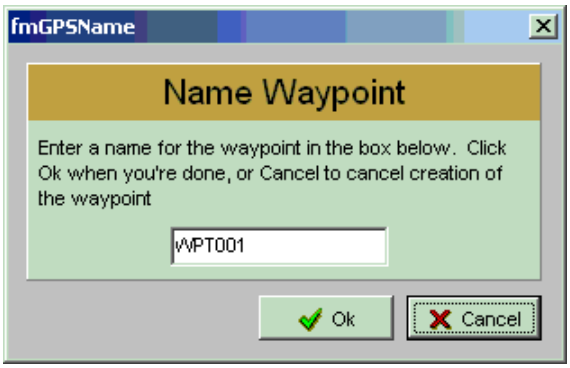
• If the Show Path option is checked a line will be displayed showing the path followed while GPS Tracking is active. This path line is NOT saved when the map is saved. To turn the path off click on the menu option to un-tick it. You can also click on  to Show or Hide the path.

• If the Show Current Position option is checked, your current GPS location will be shown on the screen. To turn this option off click on the menu item to uncheck it.

• The next menu option is Show Label for Current Position. This option will be on if the option is checked and off if the option is unchecked.

• The Limit Path to 500 Points menu option allows you to Limit the path displayed while you are tracking (not the shape you are drawing) to 500 points. Once point number 500 has been displayed the first point will disappear. Thus the path displayed is the most recent course you have taken. Alternatively you can uncheck this option and the path displayed will not be limited by a number of points. The path you take will continue to be displayed until you turn off the Path or Stop Tracking.

• The final option of the Draw Options menu is Change Label when adding a Waypoint. This gives you the option to change the name of the Waypoint each time you add a new point. If the menu item is checked the Name Waypoint screen will appear.



Automatic Settings

When the Automatic Settings option is selected the GPS Automatic Shape Settings screen is displayed.
You have three settings options:

- You can choose whether you want the points to be added in regular intervals of seconds or meters.
- You can choose how often you want points to be added. For example every 50m or every 20 seconds.
- Finally you can set points to be added when the course you are travelling changes by a specified number of degrees. If the check box is not ticked a point will NOT be added when your course changes by the specified number of degrees.
- Click on 

to save your settings.

Drawing Waypoints

A Waypoint is a point on a map with a GPS coordinate. A waypoint can be used to build up routes for navigation purposes.
There are two ways you can create a waypoint in gpMapper Live.

- The first is to click on the  button on the GPS Tracking Tool Bar. This simply creates a GPS Waypoint at the currently reported position of the GPS unit.
- The second way to create a Waypoint is to convert all visible points to Waypoints. To do this select *Convert Points to Waypoints* from the *GPS*. By clicking on this option all points currently visible in the map display will be converted to waypoints for use with the GPS module.

Please note: for a point to be converted it must actually be visible on the display screen. Points that are not physically visible are not converted even if the layer they are on is visible.

Interface to Garmin GPS Unit

GPS receiver units manufactured by Garmin implement the NMEA interface standard. This is ideal for the GPS tracking function provided by gpMapper, which utilizes the NMEA interface to retrieve data from the GPS unit.
When the Garmin GPS Interface option is selected from the GPS Tracking menu, a screen is displayed listing the units supported by the interface.

Using the Garmin GPS Interface

In order to work with the Garmin GPS interface you need to specify your hardware settings. To do this:

- Select Exchange waypoints with Garmin GPS from the GPS.

The Garmin GPS Interface screen provides you with all the functions you need to transfer data to the Garmin unit from gpMapper and vice versa. These functions are explained below.

The “Get from GPS” button allows you to transfer waypoints from the GPS receiver into gpMapper. Waypoints are simply added to the list of available waypoints on the navigation information pane. To Download points:

- Click on the “Get from GPS” button

The “Send to GPS” button enables you to transfer waypoints from gpMapper to the GPS unit. Waypoints are sent using the names assigned to them in gpMapper. NB: Most Garmin units will simply overwrite any existing waypoints with the same name as the one which is uploaded. Therefore unless you are sure you want to overwrite existing waypoints, you should ensure that there are no points in gpMapper with the same name as those already in the GPS unit.

The “Advanced” option on this form enables you to refine the waypoint format used. If unsure leave it as “Auto”. The program can create a log file of the upload and download process. Use this if you want to see a log of the transfers or if instructed by a Fairport support person in the event of a malfunction.

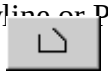
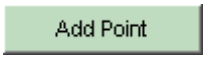
Creating Polylines and Polygons

gpMapper offers you two “Add Point Modes” in which shapes can be drawn. Polylines and Polygons can be drawn manually where the operator has to add points to the shape by clicking on the add point button. Alternatively shapes can be drawn automatically where points are added at regular intervals. To set up the automatic option, refer to Automatic Settings

To select either the manual or automatic Add Point Mode:

- Click on Draw Options
- Click on Add Point Mode
- Select either manual or automatic. The ticked option is the selected mode.

To draw a Polyline or Polygon:

- Click on the  /  button.
- If you are adding points manually click on  at each location you want to add a point.

• If you are adding points automatically, simply follow the path along which you would like the shape to be plotted.

• Once you have finished plotting your shape click on 

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• To start drawing another shape click on 

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Index

If you read nothing else, read Chapter 2 !

All the best from the Fairport Crew !