



Instruction Booklet

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1. How to Use This Booklet

Welcome and thank you for choosing to use FieldMAP.

This booklet has been written so that you can follow it from start to end, and end up with a professional looking, accurate map of your farm.

If you look through the table of contents, it has been written in great detail so that if you are just trying to find out how to do one specific thing, you should be able to find it fairly easily.



Quick Tip:

Along the way you will find handy “Quick Tips” and information about many other tools that are designed to make your job easier.

A point to note is that in Section 4: Drawing a Farm Map there are instructions on how to draw a farm map using a handheld GPS, importing an aerial photograph and using Google Earth. You only need to follow the instructions relevant to the method that you are using to draw your farm map, and then you can skip to the next section to continue drawing your map.

For further support please visit www.wheresmycows.com or www.precisionirrigation.co.nz and follow our detailed tutorials.

2. Installing FieldMAP Software

Before you can create your farm map you must install FieldMAP. FieldMAP is the software application you will use to draw, edit and print your farm map.

2.1.1. Installing FieldMAP

FieldMAP requires Microsoft Windows XP, Vista or 7 to operate.

1. Place the FieldMAP CD in your CD-ROM drive. The installation process should automatically begin. If it does not begin to install automatically, go to 'My Computer' and browse the CD drive, then double click the 'setup.exe' file.
2. The installer may ask you to accept license agreements to install various items that FieldMAP requires to operate correctly – click 'Accept' to allow it to install these. Once these other items are installed the FieldMAP setup will launch, guiding you through a couple of simple steps, just click 'Next' when prompted and it will install automatically.

To start FieldMAP, click 'Start' then 'Programs'. There will be a new menu item called 'Growsmart'. FieldMAP is under this menu heading. You should also find a link to FieldMAP on your desktop.



Quick Tip:

This tip only applies if you are installing on a Mac:

FieldMAP can be installed on a Mac computer as long as it is running Microsoft Windows, either from bootcamp or from a program that boots Windows from OS X such as Parallels or VMware Fusion.

If you are running VMware Fusion or Parallels, make sure that all 3D acceleration and effects are enabled; otherwise FieldMAP will give an error until you have enabled them.

2.2. Registering FieldMAP

You will need to register FieldMAP the first time you run the software. Registration can be done either online or by phone. We recommend you register online.

2.2.1. Registering FieldMAP Online

When FieldMAP starts up, it will ask you to select how you would like to register. Click 'Register Online'.

Type the serial number as it appears on your CD ROM or email in the box at the top of the registration window. Make sure that your computer is connected to the internet, and then click 'Register'. Your copy of FieldMAP will register and you may then use the software.

2.2.2. Registering FieldMAP Over the Phone

When FieldMAP starts up, it will ask you to select how you would like to register. Click 'Register Over the phone'.

Type your serial number as it appears on your CD ROM in the box at the top of the registration window. Phone us on the number shown, and we will give you the second code needed to register your product.

2.2.3. How to get a 30-day Trial Registration Number

If you downloaded FieldMAP as a trial, you will have been emailed a serial number along with a link to download FieldMAP. If you received a CD that did not have a serial number printed on it, you may click 'Get a free 30 day trial online' (making sure that you are connected to the internet) and fill in your details on our website. After you have filled in your details, click on 'Get Serial Number'. The following page will then give you your serial number. Go back to FieldMAP and follow the steps in '2.2.1 Registering FieldMAP Online'.

2.2.4. Ordering a Full License Online

After trialling FieldMAP, you may purchase a full license online. To do this, start FieldMAP, while making sure that you are connected to the internet. Then select 'Click here to purchase a full version online'. Your browser will open to a page where you can select whether you would like to purchase a GPS mapping kit, or simply FieldMAP on its own. Click on the 'Buy Now' text next to the item you would like to purchase.

You may register FieldMAP only two times before your registration key runs out. You may use these two registrations as you choose, either using one and keeping one spare in case your computer dies and you need to reinstall, or you may install the software on two separate computers.

2.3. Opening the Demo Map

To view and have a play around with the demo map, open the FieldMAP program, click on 'File' then from the drop down list click on 'Open Demo Map'. This will open an example farm showing some of the features that you can use in FieldMAP.

Use the demo map to experiment using the different features of the FieldMAP software, such as turning layers on or off by clicking on the tick box next to each layer.

3. Using your Handheld GPS Unit

This section explains what you need to do when setting up and recording points with your Garmin handheld GPS unit to record GPS points to begin mapping your farm. This section only applies to users who wish to interface with a Garmin handheld GPS, this includes DO IT YOURSELF GPS FARM MAPPING KIT users. If you are drawing your map from an aerial photograph or have had your farm mapped professionally and do not need to set up your computer to interface with a GPS, please skip to Section 4: Drawing a Farm Map.

If you have purchased the DO IT YOURSELF GPS FARM MAPPING KIT and intend to use a different GPS you will need to configure it similarly, but the steps taken may differ slightly. Your GPS unit may require drivers to be installed on your computer, they allow your PC and GPS to communicate. Refer to your GPS manual for details.

3.1. Setting Up your Handheld Garmin GPS

Please follow the instructions in the GARMIN GPS owner's manual for instructions on:

- Warnings and precautions
- Installing the batteries
- Learning key functions
- The main page sequence

Please follow the steps in the relevant sub-section depending on the GPS you are using.

3.2. Garmin GPS 72H

3.2.1. Clearing the Memory

Before you start mapping a farm, you need to clear the GPS's memory. This means that no previously saved track logs or waypoints will be loaded onto your computer, which could be confusing when it comes to drawing your fields.

3.2.2. Clearing Saved Waypoints

This will delete ALL waypoints from your GPS. You should have downloaded any points you have previously collected and wish to keep to your PC, as waypoints will not be recoverable after they have been deleted.

To remove all waypoints:

1. Press **MENU** twice to get to the main menu.
2. Using the rocker pad, navigate to 'Points', then press **ENTER**.
3. Press **MENU**.
4. Using the rocker pad, navigate to 'Delete All', press **ENTER**.
5. Select 'Yes' then press **ENTER**.
6. Your waypoints will now be cleared.

3.2.3. Clearing the Track Log

1. Press **MENU** twice to get to the main menu.
2. Using the rocker pad, navigate to 'Tracks', press **ENTER**.
3. Select 'Clear' and press **ENTER**.
4. Select 'Yes' and press **ENTER**.
5. Your track log will now be cleared.

3.2.4. Setting the GPS Mode to Normal

There are several modes your GPS can run under: 'Normal', 'Battery Saver', 'GPS Off' and 'Demo'. It is important that you have the GPS set to 'Normal' while mapping, as this setting updates your location most frequently.

To set your GPS to 'Normal' mode:

1. Press **MENU** twice to get to the main menu.
2. Using the rocker pad, navigate to 'Setup', then press **ENTER**.
3. Using the rocker pad, navigate to 'Mode' and press **ENTER**.
4. Select 'Normal' and press **ENTER**.
5. Your GPS is now in 'Normal' mode.

3.2.5. Setting Track Recording Mode

The track recording method should be set to 'Auto' and 'Wrap when full' must be turned off.

To set the track recording mode:

1. Press **MENU** twice to get to the main menu.
2. Using the rocker pad, navigate to 'Tracks', press **ENTER**.
3. Press **MENU**.
4. Select 'Setup Track Log' and press **ENTER**.
5. Set 'Recording' to 'Stop when full' and 'Record Method' to 'Auto' then select 'OK' and press **ENTER**.

3.2.6. Recording a Waypoint (Angle Post)

1. While holding the GPS over the post, push and hold **ENTER** until the 'Mark Waypoint' screen comes up.
2. With 'OK' selected, press **ENTER** to save. The waypoint numbers will increment automatically each time you save a new waypoint.
3. If it is a special feature that you want to remember later on, toggle to the icon name (e.g.001) using the rocker pad. Press the **ENTER** button and rename to something appropriate for the feature.



Quick Tip:

If you notice that the GPS is 'Searching the Sky' or if it has located less than 3 satellites, the GPS will not triangulate your location or record your point accurately. In this case, wait for the GPS to lock onto more satellites before proceeding.

Your GPS Set-up is complete! You may skip to Section 3.6: Recording Points using your Handheld GPS.

3.2.7. Calculating Areas on the Garmin GPS72H

The area inside a track you have walked with your GPS can be displayed on your GPS. This step is not required for drawing your farm map, but is handy if you wish to calculate an area while out in the field.

To calculate an area on your GPS:

1. If track recording has been turned off it needs to be set back to 'Wrap when full' (See 3.2.5 'Setting Track Recording Mode' to see how to do this).
2. Press **Menu** twice to get to the main menu.
3. Using the rocker pad, navigate to 'Tracks', then press **ENTER**.
4. Clear the current track log by selecting 'Clear' and press **ENTER**, then select 'Yes' and press **ENTER**.
5. Travel around the outside of the area you wish to calculate with your GPS.
6. Select 'Save' and press **ENTER** to save the track you have just made.
7. Select that saved track (It should appear just under the save button) and press **ENTER**.
8. The area of that track will now be displayed, along with other information about that track.

3.3. Garmin GPSMAP 62s and GPSMAP 78s

3.3.1. Clearing the Memory

Before you start mapping a farm, you need to clear the GPS's memory. This means that no previously saved track logs or waypoints will be loaded onto your computer, which could be confusing when it comes to drawing your fields.

3.3.2. Clearing Saved Waypoints

This will delete ALL waypoints from your GPS. You should have downloaded any points you have previously collected and wish to keep to your PC, as waypoints will not be recoverable after they have been deleted.

To remove all waypoints:

1. Select the 'Setup' icon. Press **ENTER**.
2. Then select the 'Reset' icon and press **ENTER**.
3. Choose the 'Delete All Waypoints' icon and press **ENTER**.
4. When prompted select the 'Yes' icon and press **ENTER** to delete all the waypoints stored in the memory of the GPS.

3.3.3. Clearing the Current Track Log

1. Select the 'Setup' icon and press **ENTER**.
2. Select the 'Reset' icon and press **ENTER**.
3. Select 'Clear Current Track' and press **ENTER**.
4. When prompted select the 'Yes' icon and press **ENTER** to delete the current track stored in the memory of the GPS.

3.3.4. Setting the GPS Mode to Normal

There are several modes your GPS can run under: 'Normal', 'Battery Saver', 'GPS Off' and 'Demo'. It is important that you have the GPS set to 'Normal' while mapping, as this setting updates your location most frequently.

To set your GPS to 'Normal' mode:

1. Power on your GPS.
2. Press **MENU** to get to the main menu screen (you may need to press **MENU** twice to quickly get to the menu screen).
3. Navigate to 'Setup' and press **ENTER**.
4. Press **ENTER** while the 'System' icon is highlighted.

5. Make sure that it says 'Normal' beneath the 'GPS' heading (at the top). If it doesn't, press **ENTER** while the 'GPS' heading is highlighted and then select 'Normal' and press **ENTER** again.
6. Press **PAGE** or **QUIT** to exit the system menu.

3.3.5. Setting Track Recording Mode

The track recording method should be set to 'Auto' and 'Wrap when full' must be turned off.

To set the track recording mode steps:

1. Press **MENU** twice to enter the main menu.
2. Using the rocker pad, make sure that 'Tracks' is selected and press **ENTR**.
3. Make sure that 'Record Method' is set to 'Auto'. If it is not, use the rocker pad to highlight the setting, press **ENTR**. Using the rocker pad highlight 'Auto' then press **ENTR** again.
4. Press **QUIT** twice to get back to the main menu.

3.3.6. Turning the Track Log On or Off

1. Select the 'Setup' icon.
2. Select the 'Tracks' icon.
3. Then select the 'Track Log' icon.
4. Then select the 'Record, Do Not Show' or 'Record, Show On Map' icon to setup how you would like the track to be stored and displayed.

3.3.7. Recording a Waypoint (Angle Post)

1. While holding the GPS over the post, press the **Mark** button.
2. Press **ENTER** on 'Done'. The waypoint numbers will increment automatically each time you save a new waypoint.

3. Or if it is a special feature that you want to remember later on toggle to the icon name ie.001. Press the **ENTER** button and rename.
4. The waypoint is now recorded and you may proceed to the next angle in the fence line where you will repeat this process again.



Quick Tip:

If you notice that the bars showing the GPS accuracy have a red cross through them the GPS will not record your point accurately. The 'red cross' means it could not lock onto any satellites. The easiest way to correct this is to turn the unit off then restart the unit once you are out in the field.

Your GPS Set-up is complete! You may skip to Section 3.6: Recording Points.

3.4. Garmin Oregon and Dakota Series¹

3.4.1. Clearing the Memory

Before you start mapping a farm, you need to clear the GPS memory. This means that no previously saved track logs or waypoints will be loaded onto your computer, which could be confusing when it comes to drawing your fields.

3.4.2. Clearing Saved Waypoints

When starting off it is a good idea to delete any waypoint that may be already saved in the GPS's memory. You should have downloaded any points you have previously collected and wish to keep to your PC, as waypoints will not be recoverable after they have been deleted.

¹ (Oregon 200, 450 and 550, Dakota 10 and 20)

To remove all waypoints:

1. Touch the 'Setup' icon.
2. Then touch the 'Reset' icon.
3. Then touch the 'Delete All Waypoints' icon.
4. Then when prompted select the 'Yes' icon to delete all the waypoints stored in the memory of the GPS unit.

3.4.3. Clearing the Current Track Log

To clear the current track log:

1. Touch the 'Setup' icon.
2. Then touch the 'Reset' icon.
3. Then touch the 'Clear Current Track' icon.
4. Then when prompted select the 'Yes' icon to delete the current track stored in the memory of the GPS unit.

3.4.4. Setting the GPS Mode to Normal

There are several modes your GPS can run under: 'Normal', 'WAAS', and 'Demo'. It is important that you have the GPS set to 'Normal' while mapping, as this setting updates your location most frequently. If you are in a WAAS enabled area, you may set 'WAAS' on to achieve greater accuracy.

To set your GPS to 'Normal' mode:

1. Power on your GPS.
2. Navigate to 'Setup'.
3. Press 'System'.
4. Make sure that it says 'Normal' beneath the 'GPS' heading (at the top). If it doesn't, press 'GPS' and then select 'Normal'.

3.4.5. Turning the Track Log On or Off

1. Touch the 'Setup' icon.
2. Then touch 'Tracks'.
3. Then touch 'Track Log'.
4. Then select the 'Record, Do Not Show' or 'Record, Show On Map' icon to setup how you would like the track to be stored and displayed.

3.4.6. Recording a Waypoint (Angle Post)

1. While holding the GPS over the post, touch the 'Mark Waypoint' icon.
2. Then touch the 'Save' icon. The waypoint numbers will increment automatically each time you save a new waypoint.
3. If it is a special feature that you want to remember later on touch the 'Save and Edit' icon. This will allow you to edit the waypoint properties and enter an appropriate name for the waypoint.
4. The waypoint is now recorded and you may proceed to the next angle in the fence line where you will repeat this process again.



Quick Tip:

If you notice that the bars showing the GPS accuracy have a red cross through them the GPS will not record your point accurately. The 'red cross' means it could not lock onto any satellites. The easiest way to correct this is to turn the unit off then restart the unit once you are out in the field.

Your GPS Set-up is complete! You may skip to Section 3.6: Recording Points.

3.5. Garmin Montana Series²

3.5.1. Clearing the Memory

Before you start mapping a farm, you need to clear the GPS memory. This means that no previously saved track logs or waypoints will be loaded onto your computer, which could be confusing when it comes to drawing your fields.

3.5.2. Clearing Saved Waypoints

When starting off it is a good idea to delete any waypoint that may be already saved in the GPS's memory. You should have downloaded any points you have previously collected and wish to keep to your PC, as waypoints will not be recoverable after they have been deleted.

To remove all waypoints:

1. Touch the **^** button at the centre of the bottom of the screen.
2. Touch the **Setup** icon.
3. Touch the **Reset** icon.
4. Touch the **Delete All Waypoints** icon.
5. When prompted, select the **Yes** icon to delete all the waypoints stored in the memory of the GPS unit.

3.5.3. Clearing the Current Track Log

1. From the setup screen (follow steps 1 to 3 above), touch the **Clear Current Track** icon.
2. When prompted, select the **Yes** icon to delete the current track stored in the memory of the GPS unit.

² (Montana 650t)

3.5.4. Setting the GPS Mode to Normal

There are several modes your GPS can run under: Normal, WAAS, and Demo. It is important that you have the GPS set to 'Normal' while mapping, as this setting updates your location most frequently. If you are in a WAAS enabled area, you may set WAAS on to achieve greater accuracy.

To set your GPS to normal mode:

1. Touch the ^ button at the centre of the bottom of the screen.
2. Touch the **Setup** icon.
3. Press **System**.
4. Make sure that it says 'Normal' beneath the 'GPS' heading (at the top). If it doesn't, press 'GPS' and then select 'Normal'.

3.5.5. Turning the Track Log On or Off

1. Touch the ^ button at the centre of the bottom of the screen.
2. Touch the **Setup** icon.
3. Touch **Tracks**.
4. Touch **Track Log**.
5. Select the **Record, Do Not Show** or **Record, Show On Map** icon to setup how you would like the track to be stored and displayed.

3.5.6. Recording a Waypoint (Angle Post)

1. While holding the GPS over the post, touch the **Mark Waypoint** icon.
2. Then touch the **Save** icon. The waypoint numbers will increment automatically each time you save a new waypoint.

3. If it is a special feature that you want to remember later on touch the **Save and Edit** icon. This will allow you to edit the waypoint properties and enter a name for the waypoint.
4. The waypoint is now recorded and you may proceed to the next angle in the fence line where you will repeat this process again.



Quick Tip:

If you notice that the bars showing the GPS accuracy have a red cross through them the GPS will not record your point accurately. The 'red cross' means it could not lock onto any satellites. The easiest way to correct this is to turn the unit off then restart the unit once you are out in the field

3.6. Recording Points using your Handheld GPS

There are a couple of little tricks to taking points out on your farm that make drawing up your map on your PC easy. The method for easily recording and mapping your farm is outlined below.

3.6.1. Always Start with a Fresh Memory

To make downloading and drawing your farm map easy, you'll only want to download the relevant points that you have taken relating to your farm. The best way to ensure that you only get these points is to delete any existing track logs and waypoints from your GPS before you start, refer to the relevant section depending on the GPS unit you are using.

3.6.2. Recording Fields

Before you record anything with your GPS, we recommend that you allow your GPS to 'warm up'. When you first turn the GPS on it will begin acquiring satellites. Once it locks on to enough satellites, the

accuracy is displayed at the top of the screen. Wait until this number gets down to below 10m before you start recording points. The lower the number, the more accurate your mapping will be.

To be able to draw your fields on your computer, you will need to record every angle post of every fence line with your GPS. We do this by recording waypoints on the angle posts, and a track log is automatically created which shows the path you have taken.

When recording a field, start at one post (usually by the gate is a good start, but it does not matter where you start) and make your way around the field, recording waypoints at all angle posts around the fence line until you get back to where you started.

3.6.3. Moving Between Fields

When you reach a new field continue recording waypoints at each angle post as you did in the last field. Note, it is not necessary to re-record points or fence-lines that you already recorded in the previous field.

When you move between fields your track log will record where you go. When you download your track log to your PC you will see the path you have taken around the outline of the fields as well as where you have moved between the fields. The track log is used as a guide when drawing the fence lines which makes it much easier than just looking at a galaxy of dots on your screen.

We recommend that you record all of the angle posts as waypoints and use the track log as a guide to show how they all join together. After drawing the fields in you can then hide the track log so you have nice neatly drawn fence lines.



Quick Tip:

If you are travelling long distances between fields or around a large obstacle, turn off track logging until you reach the place where you wish to start recording again.

To turn the track log on and off, refer to the relevant section to 'Turning the Track Log On or Off' for your specific GPS (this feature may not apply to some GPS units).

3.6.4. Finishing Recording Fields

When you have finished recording fields it is not necessary to save your track log. You can simply turn the GPS off and go home. It will be ready to download your points when you return to your PC.

4. Drawing a Farm Map

To find and open FieldMAP either click on the FieldMAP icon on your desktop or navigate to:

Start menu -> Programs -> Growsmart -> FieldMAP

4.1. Creating a New Farm Map

If you are starting a new map, you will need to create a new farm database.

To begin a new farm map:

1. Click on the 'File' menu at the top of the screen
2. Click on 'New Project...'
3. Fill out your farm details.
4. Select your country from the drop down list. If your country is not shown, select 'Northern Hemisphere' or 'Southern Hemisphere'.



Quick Tip:


You will see there are two country options for New Zealand, unless you are importing files into your map that have been created using NZ Map Grid (NZMG) we recommend you choose NZTM, this is the most current grid used in New Zealand.

5. Click 'OK'.
6. Now select a place where you would like to save your farm map file.
7. We suggest you browse to 'My Documents' and use a folder called 'Maps'.
8. Double click on the 'Maps' folder to open it.

9. Type a name in the 'File name:' text box such as 'John's Farm Map', or leave the farm name it automatically places there for you, then press 'OK'.

Your farm map file is now set up and ready to go.

4.1.1. Opening an Existing Farm Map

If you have already created a map file (set it up, specified your country and begun working on your map) and you wish to add to or edit it, click on 'File' -> 'Open Farm...' or on the  'Open' button and navigate to where you saved the farm map you wish to edit, then open that file.



Quick Tip:

If you have followed our recommendations on saving your farm map file you will find it in 'My Documents'->'Maps'

4.2. Drawing a Farm Map from an Aerial Photograph

This section applies to users who wish to draw their farm map from an aerial photograph or import an aerial photograph as a background layer to their map, this includes those who purchased the DO IT YOURSELF AERIAL FARM MAPPING KIT.

If you are not drawing your map from an aerial photograph skip this section and move to the drawing method that you are using, either from GPS points (Section 4.3) or Google Earth (Section 4.4).

If you are in New Zealand and would like an aerial photograph of your farm please contact Wheresmycows.com either visit our website at www.wheresmycows.com or call 0800 GET MAP.


4.2.1. Importing an Aerial Photograph

If you have an aerial photograph to load into your map, you may load it in to FieldMAP and have it appear as a background layer. Choose

the appropriate instructions below depending on whether you are using the DO IT YOURSELF AERIAL FARM MAPPING KIT or have purchased an aerial photograph separately.

Note that aerial photographs must be ortho-corrected images, screen shots of Google Earth or photographs that are not geo-reference files will not import into FieldMAP.

Importing an aerial photograph with the DIY AERIAL FARM MAPPING KIT:

1. From FieldMAP, open a new or existing farm map then click  ('Import').
2. Browse to the folder containing the files for your aerial photograph (My Documents -> Map), and select your aerial photograph.
3. Press 'Open' and your photograph will load. It may take some time to load, but once it has loaded everything should run quickly from then on.


Importing an aerial photograph from a CD:

1. Insert the CD containing your aerial photograph into your computer.
2. Open 'My Computer' from your start menu or desktop.
3. In 'My Computer', double mouse click on your CD drive to open it.
4. Select every file on the CD by holding the left mouse button down and dragging over all the files. Right mouse click this folder and click 'Copy'.




Quick Tip:

You must copy ALL the files on the disk, not just the image file (the files will have the same name but varied file extensions). The supporting files are required to allow the software to correctly position the image within your map.

1. Browse to 'My Documents' -> 'Maps'
2. Right click in the 'Maps' folder window and click 'Paste'. All the files from the CD should copy into the 'Maps' folder.
3. Open FieldMAP, and open a new or existing farm map then click  'Import' ('Import').
4. Browse to the folder containing the files for your aerial photograph (My Documents -> Map), and select your aerial photograph.
5. Press 'Open' and your photograph will load. It may take some time to load, but once it has loaded everything should run quickly from then on.



4.2.2. Drawing Fields

To draw your fields onto your map, you must first create a fields 'layer'. Each layer can be thought of as an item on the map key.

1. To create a layer, Click on  'New' then 'Polygon Layer (Paddocks/ Enclosed Areas, etc)'. A new polygon layer will appear in the layers tree on the left hand side of your screen.



2. If you do not see the new polygon layer, you may need to expand the tree by clicking the '+' sign next to your farm name at the top of the tree.

3. It is important to name each layer with a name that describes what that layer is. That way you can easily edit and display or hide layers. To name the layer you just created, right-click on the layer name 'New Polygon Layer' then left-click on 'Rename'. You can then change the name. Type 'Fields', as this layer is going to be your Fields layer. Press the 'Enter' key to secure the name change.
4. Making sure that the 'Fields' layer is highlighted (click on the text), ensure the  'Edit' icon is selected at the top of the page, then click  'Add'. This will enable you to draw your fields onto your farm map.
5. To draw a field polygon, click on one of the corners of the field to create a point. Move your mouse to the next angle post along the fence line and click on it. Continue to do this until you have clicked on all corners of the field (polygon). Once you've finished, click back on the first point you used to start drawing and the area will fill in a solid colour. Your field (polygon) has been created.
6. To move around on the map while in 'Edit' mode, hold down the shift key while clicking and dragging the mouse. You can then reposition the map to where you wish to draw, release the shift key and continue drawing.


ZOOM = Shift + left click and drag mouse

PAN = Shift + right click and drag mouse



Quick Tip:

ZOOMING IN: Drawing fields is easier when you have zoomed in close to the field/area you wish to draw. To zoom in, hold down the shift key on your keyboard, move your mouse to where you want to zoom in to and then click and drag upwards to zoom in, or click and drag downwards to zoom out. Remember to hold down shift while you zoom or you will start drawing!

ABORT: To cancel drawing part way through, press the 'Esc' key on your keyboard or click on the  cross in the grey box at the top right hand side of the map window (not the small cross that closes the program though!).

DELETE POINTS: If you make a mistake while drawing, press backspace on your keyboard to erase the last point you clicked and then click in a new position.

DISABLE SNAPPING: To temporarily disable the automatic snapping onto to existing points, hold down the 'Ctrl' key and click. This will enable you to click near an existing point without the cursor jumping onto it.

FILL COLOUR: If the polygon does not appear to be filled in a solid colour, check that the 'FillColour' property is not set to white, transparent, or another difficult to see colour. To change the colour of the polygon fill, click on 'FillColour' in the properties box while the polygon layer is selected in the layer tree, then click another colour to change the colour. You may also change other properties including the line colour, text colour, and whether text including field names and areas is displayed.

Once you have drawn all your fields skip to Section 4.6: Editing and Naming Fields.

4.3. Drawing a Farm Map from GPS Points

4.3.1. Downloading GPS Points

This section applies to users who wish to draw their farm map from GPS points, this includes those who purchased the DO IT YOURSELF GPS FARM MAPPING KIT.

If you are not drawing your map from GPS points skip this section and move to the drawing method that you are using, either from an aerial photograph (Section 4.2) or Google Earth (Section 4.4).

This section assumes you are using a Garmin GPS and USB cable as supplied with the DIY GPS FARM MAPPING KIT. Before attempting the following steps ensure you have the USB cable at hand.

The newer style handheld Garmin Series are classed as 'Plug and Play' units. This means there is no need to install any software drivers on your PC. If you have an older style GPS and the steps below do not work, you may download drivers from the support page on www.wheresmycows.com. If you are using your own GPS, the steps will be similar, but you may need to set up your GPS to interface with your PC, refer to your user manual for instructions.

4.3.2. Import GPS points

1. Lift the weather cap on the GPS unit.
2. Insert the smaller connector on the USB cable into the mini-B jack.
3. Connect the other end of the cable to the USB port on your computer.

Note: Once you have connected your GPS it may take a few moments for your computer to recognise the GPS unit. If it is the first time you have connected your GPS to your computer it may take a few minutes for it to automatically load its software.

You are now ready to send data between your GPS and PC.

To import GPS points:

1. Connect your GPS to your PC using the USB cable supplied.

2. Power on your GPS.
3. If a window comes up asking you what you want to do (i.e. view files in explorer) close this window by clicking on the cross in the top right corner.
4. If you have created your farm file and still have the file open ready to go, click on 'Download from GPS' in the menu at the top of the screen. If you do not have your file open and ready to go, you will need to either open your file (Section 4.1.1: Opening an Existing Farm Map) or create a new file (Section 4.1: Creating a New Farm Map), then click on 'Download from GPS' in the menu at the top of the screen.
5. Ensure that the GPS type is set to Garmin and port is set to USB and click 'Connect to GPS'.
6. Make sure that your GPS is connected and switched on and press 'OK' in the warning window that pops up. Your GPS waypoints and tracks will then show up in the window.
7. Be sure to select the waypoint and all tracks by clicking on them to 'tick' the checkbox, and then click 'Insert selected items into map'.
8. Your points and track will now have a heading in your map beneath the name of your farm on the left hand side of the screen (you may need to press the + next to the name of your farm to show the GPS layers you just imported). If you cannot see the downloaded points in the main part of the screen, you may need to right-click on one of your layers and select 'Zoom to layer'.

4.3.3. GPS Layers

The three common GPS layers created from a download are:

GPS Lines: Straight lines between waypoints in the order they were recorded.

GPS Points: Waypoints you have recorded, such as fence angles.

Track Lines: A track log, showing everywhere you went while recording.

You may show or hide each of these layers by clicking on the checkbox next to the layer name in the tree on the left hand side of the screen. They may also be renamed to something more meaningful to you by right clicking on the layer name and selecting 'Rename'.

You may change the characteristics of each layer, such as point size, point type, line width and colour, and whether waypoint names are displayed. To do this, click on the layer name you want to edit. In the box below the layer tree, a properties box comes up in which you may alter the characteristics of that layer.




Quick Tip:

If you end up with many GPS lines, points and track lines layers from importing many different data sets, you may wish to merge the layers together. Refer to Section 6.1.4: Merging Layers for more information about how to do this.

4.3.4. Drawing Your Fields



To draw your fields onto your map, you must first create a fields 'layer'. Each layer can be thought of as an item on the map key.

1. To create a layer; Click on  'New' then 'Polygon Layer (Paddocks/ Enclosed Areas, etc)'. A new polygon layer will appear in the layers tree on the left hand side of your page.



2. If you do not see the new polygon layer, you may need to expand the tree by clicking the '+' sign next to your farm name at the top of the tree.
3. It is important to name each layer with a name that describes what that layer is. That way you can easily edit and display or hide layers. To name the layer you just created,

right-click on the layer name (New Polygon Layer) then left-click on 'Rename'. You can then change the name. Type 'Fields', as this layer is going to be your Fields layer. Press the 'Enter' key to secure the name change.

4. Making sure that the 'Fields' layer is highlighted (click on the text), ensure the  'Edit' icon is selected at the top of the page, then click  'Add'. This will enable you to draw your fields onto your farm map.
5. Draw your fields by clicking on a waypoint at one corner, then sequentially clicking all waypoints around the field/area. To complete the polygon, click back on the first point. Using your track log and waypoints you should be able to see where you went on your farm, and work out where the fences should be.
6. To move around on the map while in 'Edit' mode, hold down the shift key while clicking and dragging the mouse. You can then reposition the map to where you wish to draw, release the shift key and continue drawing.


ZOOM = Shift + left click and drag mouse

PAN = Shift + right click and drag mouse



Quick Tip:

ZOOMING IN: Drawing fields is easier when you have zoomed in close to the field/area you wish to draw. To zoom in, hold down the shift key on your keyboard, move your mouse to where you want to zoom in to and then click and drag upwards to zoom in, or click and drag downwards to zoom out. Remember to hold down shift while you zoom or you will start drawing!

ABORT: To cancel drawing part way through, press the 'Esc' key on your keyboard or click on the  cross in the grey box at the top right hand side of the map window (not the small cross that closes the program though!).

DELETE POINTS: If you make a mistake while drawing, press backspace on your keyboard to erase the last point you clicked and then click in a new position.

DISABLE SNAPPING: To temporarily disable the automatic snapping onto to existing points, hold down the 'Ctrl' key and click. This will enable you to click near an existing point without the cursor jumping onto it.

FILL COLOUR: If the polygon does not appear to be filled in a solid colour, check that the 'FillColour' property is not set to white, transparent, or another difficult to see colour. To change the colour of the polygon fill, click on 'FillColour' in the properties box while the polygon layer is selected in the layer tree, then click another colour to change the colour. You may also change other properties including the line colour, text colour, and whether text including field names and areas is displayed.

4.3.5. Recording Additional Features with your GPS


Clear the memory of your GPS unit (refer to the relevant 'Clearing the Memory' section for your GPS unit), then record more waypoints and track logs as previously explained. You can record creeks, waterlines,

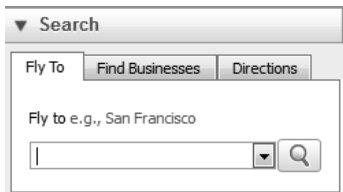
tree plantations, trough locations, or anything else you wish to display on your map. You may record features such as creeks as a sequence of points, and individual points such as troughs separately.

After downloading your GPS points on your PC, you may draw polygons (bounded objects such as fields and buildings), polylines (such as creeks, roads, tracks), and points (such as troughs and power poles).

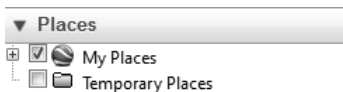
Once you have drawn all your farm features skip to Section 4.6: Editing and Naming Fields.


4.4. Drawing a Farm Map in Google Earth

1. Open Google Earth. If you do not have Google Earth software installed on your computer it can be downloaded from the Google Earth website (www.earth.google.com).
2. In the Search panel enter your farm address into the 'Fly to' box and click on  'Search'.

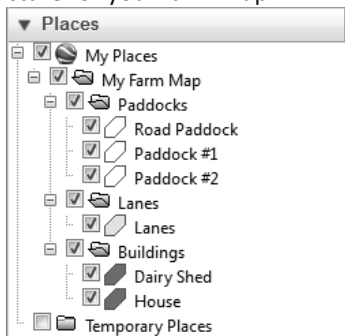


3. Google Earth will fly to the address entered. To zoom into your farm scroll in using your mouse. To pan click and hold the left mouse button and drag the screen so that your farm is centred in the screen.
4. Under the 'Places' panel, right-click on My Places -> Add -> Folder.



5. Name the new folder appropriately for the map you are about to create e.g. 'My Farm Map' and click 'OK'.
6. Right click on the folder you just created in the 'Places' panel and click Add -> Folder.
7. Name the new folder 'Fields' and click OK.
8. You now need to create a polygon for each of your fields within the 'Fields' folder.
9. Zoom the map in to the first field you are going to draw so that you can see all extents in the window.
10. Click on the Fields folder so that it is highlighted.
11. Click on  'Add a polygon'.
12. Enter a name or number for the field you are about to draw.
13. With the 'New Polygon' window still open (move it to the side of the screen if necessary), move the mouse to the field you intend to draw. Left click on each corner around the circumference of the field.
14. To delete points, either press 'Backspace' or right-click the mouse
15. To create straight lines click on one waypoint, release and then click on the next waypoint. To create curves and free-form shapes click the right button and hold it down whilst you drag the cursor around the shape.
16. Click 'OK'.
17. To edit the polygons and modify properties (name, colour etc), right-click on the name of the polygon in the 'Places' panel, and then click 'Properties'. If you want to move the corners simply move the mouse to the corner until the pointer changes from a square target to a hand, then click and drag the corner to its correct position, then click 'OK'.
18. Repeat from Step 8 to 17 for each field you wish to draw.

19. Create a new polygon (closed area) or path (line) layer for the different features you would like represented on your map (e.g. lanes, drains and buildings). To do this repeat steps 6 to 8, naming each folder after the features you intend to draw e.g. 'Buildings', 'Lanes'. An example of the folder structure for your farm map:




20. Then repeat from Step 8 to 17, for paths (line layers) you will need to click on the 'Add a Path' icon instead of 'Add a Polygon' in Step 11.

4.4.1. Saving the Layers

1. Right click on the 'Fields' Folder, Click 'Save Place As'
2. Now select a place where you would like to save your farm map. We suggest you browse to 'My Documents' and use a folder called 'Maps' (you will need to create a new folder if it doesn't already exist).
3. Double click on the 'Maps' folder to open it.
4. Ensure the file name you give it matches the folder (layer) being saved.
5. Change the 'Save as type' to a KML file using the drop-down menu.
6. Save each folder (layer) i.e Fields, Buildings, Lanes, etc. in the same way in your 'Maps' folder.

4.4.2. Importing Layers into FieldMAP


1. Open FieldMAP.
2. Open a new or existing farm map (refer to Section 4.1: Creating a New Farm Map).
3. Select the  'Import' button and browse to your farm map folder that contains your KML files.
4. Select the KML file you wish to import then click 'Open' and the KML file will load as a new layer in the layer tree. FieldMAP applies the polygon names that you entered in Google Earth to each field and calculates the areas of the imported polygons.
5. When the layer imports, it will be imported at the bottom of the layer tree by default. You may need to drag it up the layer tree to make it visible.
6. Follow the steps above to import each KML you created into your farm map.
7. You can now use FieldMAP to edit and clean up your map, add features and make any modifications you require.

Skip to Section 4.6: Editing and Naming Fields.

4.5. Importing Maps from Other Programs

Many other mapping programs will allow you to export your farm map as SHP (shapefile) or GPX format, which can be then imported into FieldMAP.

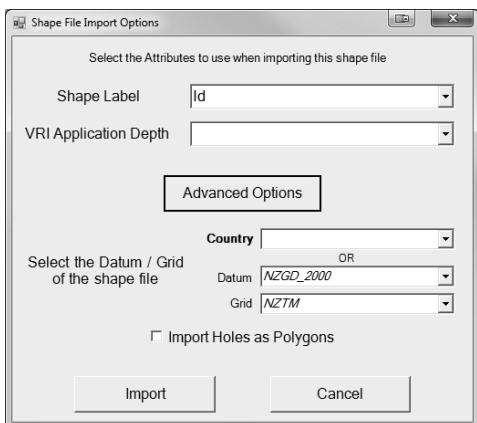
To import files, it is preferable to have your map and files both set up in the same projection, although this is not necessary.

Click on the  'Import' button in the toolbar to browse to your file and click 'Open'. When the layer imports, it will be imported at the bottom of the layer tree by default. You may need to drag it up the layer tree to make it visible.

4.5.1. Setting Shapefile Attributes

If you are importing a shapefile, an extra window will come up asking if you want to use one of the attributes of the shapefile as the label for each shape. If you are using FieldMAP for Variable Rate Irrigation, it will also ask if any of the attributes specify the application depth for VRI.

Clicking on ‘Advanced Options’ lets you set up the projection that the file is in so that FieldMAP can automatically convert it to the correct projection to bring into the map. There is also an option to import holes as separate polygons.



The ‘Import Holes as Polygons’ checkbox creates a new polygon where a hole may exist inside a polygon. A ‘Hole’ is a polygon that exists within a larger polygon but is not joined to it at any point. If you want to define application depths for irrigation to a ‘Hole’, or count the ‘Hole’ area you need to create a polygon where the ‘Hole’ is and colour that ‘Hole’ polygon differently from the larger area. To define the application depth for the ‘Hole’ set the application depths as detailed in Section 9.1.2: Define Rates ensuring you click on the ‘Hole’ area and define the rate separately to the larger area.

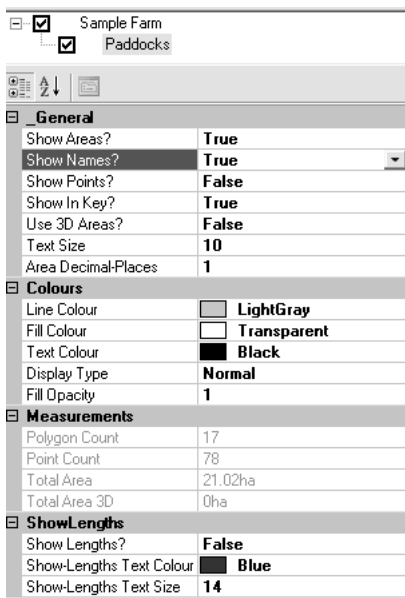
4.6. Editing and Naming Fields



4.6.1. Naming Fields

After creating your fields, you may want a text name shown in each field

To name fields:

1. Click on the layer (in the layer tree on the left hand side of your screen) you want to show names of (e.g. fields).
2. Make sure that 'Show Names?' is set to 'True' in the properties window.



3. Click on  'Edit' then  'Select' in the menu bar at the top of the screen, and then click inside the field you want to name. The properties box then updates to the properties of that particular field.

<input checked="" type="checkbox"/>	Sample Farm
<input checked="" type="checkbox"/>	Paddocks
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<input checked="" type="checkbox"/>	General
Name	Enter Name Here
View Text?	True
<input checked="" type="checkbox"/>	Appearance
Text Rotation	0
Text Scale	1
Fill Opacity	1
<input checked="" type="checkbox"/>	Colours
Fill Colour	<input type="text" value="LightGreen"/>
<input checked="" type="checkbox"/>	Stats
Area	10751.125
Area-3D	0
Point Count	5

4. Enter the name for that field in 'Name' and press Enter.
5. Refer to Section 4.7.4: Rotate text for instructions on rotating and changing text scale.

4.6.2. Displaying Field Areas

FieldMAP automatically calculates the area of fields as they are created. If the areas are not showing, click on the 'Fields' layer in the 'Layer Tree' then in the properties of that layer change the 'Show Areas?' property to 'True'. This can also be done by double clicking on 'Show Areas?'.





Quick Tip:

Note the FieldMAP trial will show all field areas as 'Oha'. When you register with a full license the areas will show correctly.




4.6.3. Editing Fields

After you have drawn your fields you may edit them. As you edit the field the size of the field will be automatically be updated.

To edit fields:

1. Select the layer you want to edit, in this case, 'Fields'.
2. Ensure  'Edit' is selected, and then click the  'Move' tool.
3. Select a fence line or a corner of two or more fence lines and click and drag to alter the size of the field(s).

To add angles in a fence line:

1. Select the layer you want to edit, in this case, 'Fields'.
2. In  'Edit' mode, click on  'Insert'
3. Click in the position on the fence line you would like to create the angle, and then use the  'Move' tool to drag the newly created angle around. You might find it beneficial to zoom in close to the area you are working on so that you can draw accurately.

You may edit the features in other layers by clicking on the layer name in the 'Layer Tree' and dragging points around in a similar fashion.

4.7. Drawing Other Features






After you have drawn in all of the fields, you may add in any other features you wish. To do this, you can either draw them in by hand, or go and take more points with your GPS and download them in to your map.

4.7.1. Drawing Lines and Points

You must create a new layer for each separate item you want to draw before you can draw it on the map. Think of each layer as an item in

the key. Bridges should all go in the 'Bridge' layer, buildings should all go in the 'Buildings' layer, and so forth.





Drawing features in new layers:

1. Click  'New' at the top left of the screen and create a new layer that corresponds to what you want to draw (polygon, polyline or point layer)
2. Right-click on the new layer you have created, then click 'Rename' to change the name. Type a new name and press 'Enter'.
3. Click on  'Edit' then  'Add' to start drawing. You might find it useful to turn off some previous layers to make it easier to see what you are drawing, do this by clicking on the tick next to the layer name to un-tick it.
4. To finish drawing a polyline click on the tick button  in the top right hand corner of your screen. You may click on the cross  to cancel it.
5. Polylines and points can be named the same way that you name polygons.


4.7.2. Drawing Parallel Lines

This feature is only available in polyline layers.

Creating multiple parallel lines:

1. With your polyline layer selected, click on  'Edit' then  'Add'. At the top right of the drawing window choose a parallel line tool:
 - 'Free form parallel lines'  allows you to place a parallel line at any given distance, or
 - 'Fixed interval parallel lines'  creates parallel lines based on the fixed interval entered.

2. Click on the original line you wish to replicate, it will then turn pink. Drag the mouse out to where you want the parallel line to be placed and then click to place it. You will notice another pink line with a distance on it telling you how far away you are placing the new line. If you have chosen the fixed interval parallel line tool, it will ask you what interval you would like to specify, then after clicking OK, will snap to that interval from the original line specified.

3. Edit and Move your lines by selecting  'Move' button.

Rotate Line: Select one end point and drag.





Move Perpendicular: Select line centre and drag.


Extend line on original axis: While holding 'Alt' key, select end point and drag.

4.7.3. Adding Text

To add text notes to your map, you can create a text layer, then place and move text around on your map. You may make several text layers and give them different names.



To create a text layer and add text:

1. Click  'New' at the top left of the screen and then click on 'Text' to create a new text layer.
2. Right-click on the new layer you have created, then click 'Rename' to change the name. Type a new name (such as 'Text Notes') and press Enter.
3. Click on  'Edit' then  'Add'. Be sure that your new text layer is also selected by clicking on it in the layer tree.
4. Click in the position you want to place your text within the map.
5. Enter your text in the box provided, then click 'OK'
6. To move your text, click on  'Move' then move your mouse to the centre of your text, then downwards until you

see the cursor change to a pen with a black dot next to it . Click and drag to move your text.

4.7.4. Rotate text

If your text does not fit inside a field you may wish to rotate it. To rotate text:

1. Click on the layer that contains the text you wish to rotate in the layer tree (e.g. 'Fields' layer)
2. Click on the  'Edit' button.
3. Click on the  'Select' tool.
4. Click inside the field, or on the text you wish to rotate.
5. In the properties box (below the layer tree box) is a section labelled 'Appearance'. Below 'Appearance' is 'Scale' and 'Rotation'.
6. The 'Scale' property can be set between 0 and 1.
7. The 'Rotation' property can be set between -360 and 360.
8. To change the scale or rotation properties, simply click on the property and type in a new number, and then press enter. Your text will then update to reflect your changes. Repeat this process until the text looks how you want it.

4.7.5. Layer Tree Order





When you create a new layer, it is automatically placed at the top of the layer tree. This tree shows the order layers are drawn on the map. Layers that appear higher on the tree than others will appear on top of them in the map. To change the position of a layer on the layer tree, click and drag a layer to a new position above or below other layers.

4.7.6. Colouring Polygons

You can colour an entire layer the same colour or colour individual polygons separately.



To change the colour of an entire layer:

1. Click on the layer you wish to colour in the layer tree.
2. In the properties box, under 'Colour', click on the 'Display Type' and change this to 'Normal' if it isn't set already.

General	
Show Areas?	True
Show Names?	True
Show Points?	True
Show In Key?	True
Use 3D Areas?	False
Text Size	10
Area Decimal-Places	1
Colours	
Line Colour	 Black
Fill Colour	 Red
Text Colour	 Black
Display Type	Normal 
Fill Opacity	1

3. In the properties box, under 'Colour', click on the 'Fill Colour' colour swatch. Open the drop box by clicking on the down arrow and use the menu to select the colour of your choice.




To change the colour of individual polygons in a single layer:

1. Click on the polygon layer in the layer tree.
2. In the properties box, under 'Colour', click on the 'Display Type' and change this to 'Individual'.
3. Click on  'Edit' then  'Select' in the menu bar at the top of the screen, and then click on the field you wish to colour. The properties box for that field will appear.
4. Under the 'Colours' heading click on the 'Fill Colour' colour swatch. Open the drop box by clicking on the down arrow and use the menu to select the colour of your choice.




4.7.7. Adding a Key, Scale, North Arrow and Border

If you have many layers of information on your map, you may want a key and border to make your map look more complete.




Insert a key:


1. Click on the  'New' button, and then click 'Key' in the drop down menu.
2. Move your mouse over the map and your key should appear in the middle of the screen. If you don't see it, try zooming out.
3. Individual layers can be shown or hidden in the key by clicking on the layer you wish to toggle in the layer tree, then selecting 'True' or 'False' in the 'Show In Key' property.
4. To move your key, click on the  'Edit' button at the top of the window, then be sure to select the 'Key' layer in the layer tree.
5. Click on the  'Move' button at the top of the screen.
6. Place your mouse over the top item in the key layer and then click and drag to move your key around on the screen. Place it somewhere it will print but not obstruct your map.
7. As you show or hide layers on your map you can update the key by clicking twice on the tick to the left of the 'Key' layer in the layer tree to hide and then show the key. When the key is redrawn it will include whatever layers are currently being displayed on the map.
8. You may change the key size, text colour, border colour, thickness and corner radius in the key properties box (below the layer tree).
9. To enter extra text at the bottom of the key, use the 'Extra Text' property in the key properties.

Insert scale and north arrow:

1. Click on the  'New' button, and then click 'Scale' in the drop down menu.
2. Move your mouse over the map and your scale and north arrow should appear in the middle of the screen. If you don't see it, try zooming out.
3. To move your scale, click on the  'Edit' button at the top of the window, then be sure to select the 'Scale' layer in the layer tree.
4. Click on the  'Move' button at the top of the screen.
5. Place your mouse over the top left hand corner of the 'Scale' layer and then click and drag to move your scale around on the screen. Place it somewhere it will print but not obstruct your map.
6. You may change the scale size, text colour, border colour and thickness and corner radius in the key properties box (below the layer tree box).

Insert a border:


1. Click on the  'New' button at the top of the screen, then click on 'Border'.
2. When you move your mouse over the map you will see a border appear in the centre of the screen.
3. Click on the  'Edit' button at the top of the screen, then select the 'Border' layer in the layer tree by clicking on 'Border'. Click on the  'Move' button.
4. Drag each corner of the border to make the border surround your map and key. To drag a corner, move the mouse near the corner of the border and notice when the cursor


changes to a pen with a black dot just below it  when you move the mouse just inside the corner of the border. When you see the cursor change, click and drag the corner. Do this for all four corners to place your border in the correct position.

5. You can change the border thickness and colour in the properties box.

5. Common Mapping Tasks


5.1.1. Zoom

Zooming in and out in all modes is achieved by selecting 'Zoom'  and holding down the left mouse button on your target and dragging the mouse up or down.

Using other tools in  'Edit' mode, you may zoom by holding down the shift key on your keyboard and following the same procedure as above.

You may zoom to show a complete layer on the screen at once by right clicking on the layer on the layer tree on the left of the screen, then clicking on 'Zoom to Layer' (or by double clicking on the layer name). This is often handy if you 'lose' your map due to zooming too far in, out or elsewhere and cannot find it. Simply right-click on the top level of the layer tree, and click on 'Zoom to Layer'.



5.1.2. Pan



Panning around your map in all modes is achieved by selecting  'Zoom' and holding down the right mouse button and dragging the map.

If using other tools, you may temporarily pan by holding down the shift key on your keyboard and following the same procedure as above.

5.1.3. Ruler

The 'Ruler' tool enables you to measure distances and areas on your map. Also, when in ruler mode, when you hover over a GPS point, the latitude, longitude and altitude of that point will be displayed at the bottom of the screen.

1. To use the ruler tool click on the  'Ruler' tool when in  'Edit' mode.

2. You can then click on a point to start your measurement from. A pink line is drawn from this starting point to the current mouse position. Clicking again will continue the line and you can carry on adding segments to your measurement.
3. Once you have finished with your measurement or want to start a new one, you can use the  'Tick' or  'Cross' button in the top right corner of the display to remove the pink line.

Associated with this pink line are several measurements which can be viewed in the properties area:

Distance: The total length of pink line (in metres).

Distance3D: When measuring between GPS points, this value is the distance between points incorporating change in elevation.

Circumference: The total length of the pink line plus the length from the end of the line back to the start position (if you drew 3 sides of a square, it would give you the total circumference of that square).

Area: The total area enclosed by the 'Circumference'.

Altitude Change: Measures the change in altitude between the last two GPS points you clicked on.

5.1.4. Select Measurement Units

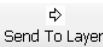
To change measurement units, click on the 'Edit' menu, then 'Options...' This will bring up a window in which you can change the units for your map.

5.1.5. Send Shapes between Layers

Occasionally when you are drawing you may draw a polygon in the wrong layer. Rather than having to delete the shape and then re-draw it in the correct layer you can send the shape to another layer.

Moving a polygon to another layer:


1. Select the layer you wish to move the polygon from in the layer tree.

2. Click on the  'Send to Layer' button at the top of the screen.
3. Click on the polygon that you want to send from one layer to another.
4. A window will pop up asking you to select which layer you want to move the shape to. Select the layer you want to move it to and then click 'OK'
5. You then have the option to delete to original polygon. In most cases you will want to delete the original so click on 'Yes'.

5.1.6. Show Lengths of Lines in a Polygon or Polyline Layer

1. Click on the polygon or polyline layer in the layer tree on which you wish to show the lengths of individual lines.
2. Change the 'Show Lengths?' property in the properties area to 'True'.


5.1.7. Saving your Farm Map

It is a good idea to save your map frequently while working on it, as well as when you have finished before you close it. Saving is simply done by clicking on the  'Save' button.

5.1.8. Printing your Farm Map

To print your map, simply select (tick) the layers you would like to print from the tree on the left hand side of the screen. You may like to make the 'Fields' layer transparent to save ink by changing the 'Fill Colour' to transparent in the properties box (You will have to select the 'Fields' layer, and then you will see the properties for that layer).

To print:

1. Before printing, be sure that you have saved your map.
2. Select the  'Print' icon from the menu bar.

3. A blue box representing the boundaries of your page will appear on the screen. If you want to print landscape (page rotated 90°) rather than portrait, click on 'File' then 'Page Setup...' Select 'Landscape' and click 'OK'. Move your mouse over the map to update the display and show your different page orientation.
4. Pan (right mouse button and drag) and zoom (left mouse button and drag) the map until it is displaying how you want it to print on your page.
5. If you would like to preview what the printed sheet will look like, you can click 'File' -> 'Print Preview'. This will open up a preview window, and after a few seconds your preview should appear. To close the Preview window click the 'Close' button or the 'X' in the upper right corner.
6. Click 'File' -> 'Print' and select your desired printer and printing options, then press 'OK' to print your map.

5.1.9. Emailing your Farm Map

1. Open your email program and create a new message
2. Attach your map file to the email as you would attach any other type of file.



Quick Tip:

You will need to browse to find your map file, if you have been following these instructions it will be found in your 'Maps' folder within your 'Documents' folder. If your computer is set to show filename extensions it will end in '.wml' and will have the FieldMAP logo for its icon.

If you are emailing your map to our support email (support@wheresmycows.com) remember to write your reason for sending your file in the body of the message (i.e. support request, to print maps). If requesting map prints, please state what size maps you would like printed, if you would like them laminated or as a map-pad, and the quantity you want.

5.1.10. Download the latest version of FieldMAP

The latest version of FieldMAP is available on our website, www.wheresmycows.com.

Go to www.wheresmycows.com and click on the 'Support' tab, then 'Software Updates' to find, download and install the latest version on your PC.

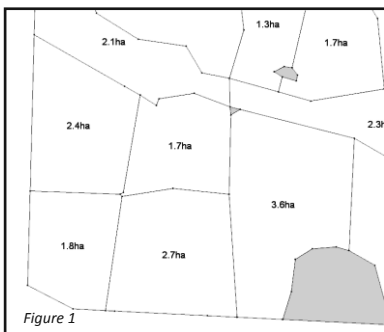
6. Advanced Mapping Operations

These operations assume a general familiarity with FieldMAP and FieldMAP's common operations. You may need to refer to earlier parts of this booklet if you are not very familiar with FieldMAP.

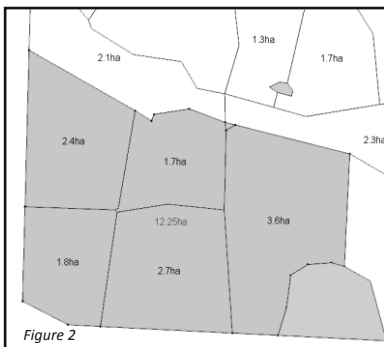
6.1.1. Subdividing or Re-Fencing Fields

You may have mapped your farm with the idea of subdividing fields or re-fencing in mind. This can be accomplished in one of several ways. We have created a step by step guide for you to follow to make subdividing and re-fencing easy. From here on we will call it 'Re-fencing'.




In this section, we will work through an example to show how to re-fence the five fields in the lower left corner of the image in Figure 1 into three equal sized fields.



1. Calculate the total area that you wish to split up. To do this create a new polygon layer and label it 'Areas to Re-fence'.
2. Draw a polygon around the boundary of the area you are going to subdivide. This will give you the area that you wish to subdivide. You can then figure out how many fields you want in that area and what size they are going to be.
3. Change the 'Text Colour' of the 'Areas to Re-fence' layer to red or something



other than the colour of the field text so that you can see the total area that you are going to re-fence. Change the 'Area Decimal-Places' property to '2' to get a more accurate area figure to divide into how many fields you desire.

- By this stage you should have something similar to the image in Figure 2. The grey area (12.25ha) is the area that we wish to subdivide. This layer is below the 'Fields' layer and we can see the existing fields over the grey area.
- In this example we are going to divide the 12.25ha into three equally sized fields of about 4.08ha each.
- In the layer that you wish to create your subdivided polygons in (generally your 'Fields' layer), use the  'Move' tool or  'Add' tool to add new polygons in to draw your subdivided areas.
- To make it easier to view what you are doing, drag the polygon layer that you are drawing in to the top of the layer tree. This will bring the layer to the top so that you can view it. Make sure that you have the layer 'Fill Colour' set to 'Transparent' in the properties box.
- Using the  'Move' tool, drag the corners of the polygons around to get your field the desired size.
- The image in Figure 3 shows the fences moved to give the desired size (4.08ha) fields.

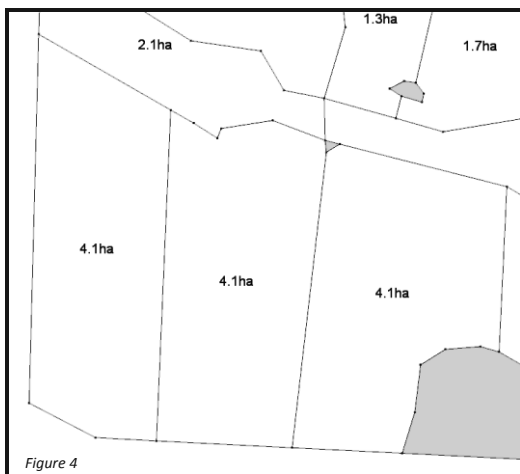
- It may be necessary to insert points in lines to create new bends when moving polygons around to suit.

- Turn off the 'Area to Re-fence' layer by



deselecting the checkbox next to the layer name.

12. Change the 'Fill-Colour' back to transparent.



At the end you should see your re-fenced fields similar to the image in Figure 4. You can then upload new corner post points to your GPS as explained in Section 7: Uploading Features to your GPS.

6.1.2. Calculate 3D Surface Area of Fields

In hilly areas there will actually be more surface area in a field than a standard planar area calculates. Instead of using a 2D planar area you can use your GPS and FieldMAP to calculate the 3D surface area of an entire polygon layer. To do this you need both a polygon layer (usually your field layer) and a set of points containing altitudes for FieldMAP to calculate the surface area from.

Creating a 3D surface area:

1. Draw up your fields and map as you would normally.
2. Clear your GPS memory, then go out and mark waypoints in the area that you wish to calculate a 3D surface area for. To do this we recommend taking points at the top and bottom of hills and valleys, and where ever the slope changes. There

is no need to label your points. The more points you take, the more accurate the 3D area will be.

3. Download your altitude waypoints into FieldMAP as you would normally.
4. It is a good idea to rename your new points 'Altitude points' or something similar so that you do not get mixed up and select the wrong layer for FieldMAP to use in its calculation.
5. Now is a good time to save your work.
6. 'Right mouse click' on the layer that you want to create a 3D surface area for (e.g.Fields).
7. Select 'Calculate 3D areas'.
8. Select your altitude point's layer to include in the calculation by clicking the checkbox next to the name, then click OK.
9. At this stage FieldMAP may take a while to calculate the 3D surface areas. Don't worry, this is normal. Just wait for it to finish and you will be able to continue working like normal.
10. If you now click on your polygon layer for which you just created a 3D surface area calculation, you will see in the properties under the Measurements section that there is now a 'Total Area' and a 'Total Area 3D' property.
11. If you change the 'Use 3D Areas?' property to true, the areas displayed in the fields will be the 3D surface area that you just calculated.
12. Save your project to retain these areas.

6.1.3. Moving an Entire Layer

Due to the inherent inaccuracy of handheld GPS over time, you may find that if you record some fields one day, then go back and record them again next month, the whole field could have shifted by a few metres. This could also be a problem if you record some fields, then later go back and record more to find that they do not line up. To get around this problem, we have created the 'Move entire layer' tool.

To use the 'Move Entire Layer' tool to line up your fields:

1. When you are recording GPS points, mark a waypoint on a 'reference point' e.g. a trough or particular angle post. The next time you go out to record GPS points ensure you mark the 'reference point'.
2. Download the new GPS points into FieldMAP as you would normally.
3. When the points are downloaded if the 'reference points' do not line up you will want to move the latest points layer collected. Right click on the new layer you want to move, and then select 'Move Entire Layer'.
4. A window will appear where you need to type in the amount by which you want to move your points in each direction (for left or downwards, type a negative sign before the number).
5. Estimate the distance that the layer needs to move to line up the 'reference points', then Click 'OK' and your entire layer will move by this amount. You may need to have several attempts at moving the layer before you get it exactly where you want it.



Quick Tip:

Before moving the layer, use the Ruler tool to find out how far in each direction you need to move the layer.

6.1.4. Merging Layers

Sometimes you might want to merge several layers into one (e.g. if you have taken several sets of GPS points that you wish to combine).

To merge layers:

1. Right click on the layer that you want to merge your layers into.
2. Select 'Merge Layers into this'.

3. Check (click on) the white box next to any layers that you want to merge into the layer that you right clicked.
4. Press 'OK'
5. After the layers are merged you will be asked if you wish to remove the layers that you merged into the first layer. Select 'Yes' or 'No' depending on whether you wish for the layer to stay as a separate layer or not.

6.1.5. Exporting as a Shapefile or DXF (AutoCAD)

If you have another farm management program you may want to export your map from FieldMAP and import it directly into your farm management program. Each layer can be exported as a shapefile or dxf which will load directly into most other farm mapping or GIS software programs.

To export a shapefile or dxf:

1. Right-click on the layer you wish to export, click 'Export' then in the sub-menu 'Export to Shapefile' or 'Export to dxf'.
2. You will need to specify if you want to export your points with easting/northing or latitude/longitude coordinates (WGS1984).
3. Select a location to save your file and type a name, then press 'OK'.
4. Your layer has now been exported as a shapefile or dxf and you may import that file into your farm management program.

6.1.6. View in Google Earth

If you do not have the Google Earth software installed on your computer it can be downloaded from the Google Earth website (www.earth.google.com).

1. Right-click on the layer in the layer tree that you wish to export from FieldMAP.
2. Click 'View in Google Earth'.

3. Select a location to save your KML file and type a name, then press OK.
4. Your layer has now been exported as a KML file. If you have Google Earth installed on your computer it will automatically start up and display your exported layer.



Quick Tip:


Some graphics cards have issues trying to display Google Earth at the same time as FieldMAP. If you run into trouble, we suggest exporting a KML file using the method below, then closing FieldMAP before you open Google Earth.

6.1.7. Export KML File

Exporting to KML files allows you to view all or part of your farm map in Google Earth.

1. Right click on the layer you wish to export.
2. Click on 'Export'-> 'Export to Google Earth (KML)'.
3. Select a location to save your KML file and type a name, then press OK.
4. Your layer has now been exported as a KML file.

6.1.8. Import KML File

1. You will need to have saved a KML file in Google Earth to be able to import it into FieldMAP. To save from Google Earth, right click on a layer and select 'Save As...'. Be sure to select save as file type KML in the save dialog box (Change from the default .KMZ file)
2. From FieldMAP, open a new or existing farm map then click  'Import'.
3. Browse to the folder containing your KML file, and select your KML file to import.
4. Press 'Open' and your file will load.

5. If you do not see your data after it has loaded, expand the layers tree (press the '+' button next to your farm name in the top left window) the right click on your imported layer and click 'Zoom to Layer'.

6.1.9. Custom Point Images



You can create up to 20 custom point types to insert into your maps.

Creating a custom point image:

1. To create a custom point you must save an image as a windows bitmap (.bmp) file using a program such as Paint (found under the accessories program in your start menu).
2. Save your images as custom1.bmp, custom2.bmp, etc in 'C:\Program Files\WMC Technology\WMCMap\textures\texture'
3. You will then be able to use your .bmp image as a point type by selecting that custom point from within FieldMAP.

6.1.10. Center-Pivot Irrigators

FieldMAP allows you to draw full circle and part-circle centre-pivot irrigators.




1. Click on the  'New' button at the top of the screen, then click on 'Centre-Pivot Layer'
2. You will notice a new layer called 'New Pivot Layer' appears at the top of the layer tree. Click on the text that says 'New Pivot Layer' to select it (it will turn blue).
3. Click on  'Add'.
4. Click in the position you want to place the centre of your pivot. (You can move it later, so don't need to place it too accurately to start).
5. A window will appear asking you to enter some information about your irrigator.

- Enter a start angle of 0 and end angle of 360 to draw a full circle pivot.
- Enter wheel track radii (distance from centre) to draw in wheel tracks. Enter radius and then click on 'Add value'. Repeat this process for each tower.



Quick Tip:

A handy tip is to put a wheel track at 2m (or 7') so that you can see where the centre-point of your pivot is.



- Sprinkler tracks and endgun radius is optional.
4. Click OK to create your irrigator.
 5. To move your irrigator, click on  'Move' then move your mouse to the centre of your pivot, then downwards until you see the cursor change to a pen with a black dot . Click and drag to move your irrigator.
 6. To modify the spec's of your irrigator, click on  'Select' and then click on the centre of the irrigator you wish to edit.

7. Uploading Features to your GPS

7.1. Uploading Points or Layers to your Handheld GPS

After you have drawn your farm map, you may want to upload points back to your GPS so that you can find them in the field.

To upload a point:

1. Click the  'Edit' button in the menu bar.
2. Click  'Send To GPS'.
3. Click the point on your map that you would like to upload.
4. Give your waypoint a name and optional comment, and then click 'Upload Waypoint to GPS'. Follow any further instructions on the screen.
5. Your point is now uploaded to the GPS. Repeat this procedure for any other points you wish to find out on your farm.

Some GPS units will let you upload an entire layer at a time from FieldMAP.

To upload a layer:

1. Right-mouse click on the name of the layer that you wish to send to your GPS unit.
2. Click on 'Send to GPS'
3. In the next window that comes up, click on 'Upload Layer to GPS'.

7.2. Finding your Uploaded Points Out in the Field

Your GPS can be used to find points you have created on your map out on the farm. To do this you must first upload the points you wish to find out on the farm as explained in the previous section.

Finding points on a GPS60 (Other GPS units will be similar):

1. Out in the field, power up your GPS and wait for it to initialise and lock on to enough satellites to give you a fix.
2. Press **FIND**.
3. Press **ENTR** with the 'Waypoints' icon selected.
4. Using the rocker pad, scroll to the waypoint you wish to locate. Press **ENTR**.
5. 'Go To' will be highlighted, press **ENTR**.
6. The map screen will show up, showing a line that looks like a road between your current position and the point you are navigating towards. Use the **IN** and **OUT** buttons to zoom in and out, and the rocker pad to pan around the map.
7. Press **PAGE** to view the compass screen which has an arrow showing you which direction to walk in, and tells you how far you need to walk to find the point.
8. To find another point, simply repeat this procedure from step 2.

If you do not have a GPS60, other units will be similar. If you can't figure out how to find a waypoint try searching the GPS's user manual online.

8. TracMap Operations

This section applies to TracMap users only. If you own a TracMap GPS unit, there are specific features for interfacing FieldMAP with your TracMap unit.

For questions relating to the use of your TracMap unit please contact TracMap directly.

8.1. Transferring a Map into TracMap

Transfer of your field shapes, hydrant points etc. is done by exporting the relevant layer onto a USB memory stick, and then plugging that stick into the TracMap unit using the dongle supplied with the TracMap unit.

1. Highlight the layer you want to export.
2. Right click and highlight 'Export' then select 'Export to TracMap' (or if that option doesn't exist select 'Export to shapefile' -> 'Latitude/Longitude WGS1984')
3. This will open a standard windows explorer box for you to select your destination, and the file name.
4. Save your file on your USB stick to take and import on your TracMap unit.



Quick Tip:

- *Fields must be polygons.*
- *Pull lines (for K-line or pod irrigation) must be polylines.*
- *Shift points for long laterals and hydrant points must be point layers.*
- *If you have imported your map from another drawing program, they often appear as polylines, not polygons. In this case you will have to redraw your fields in a polygon layer before exporting to TracMap.*

8.2. Drawing Irrigation Lines

See Section 4.7.1: Drawing Lines and Points for instructions on drawing points and lines.

8.2.1. K-Line

Use polylines to map out your shift lines. Turn 'Show Lengths' on to show you line lengths as you draw.



Quick Tip:

Make your 'Line Width' the same as your coverage width. This makes it easier to achieve the correct spacing

For rectangle fields, make use of the 'Multiple Parallel Line' feature to draw identical length lines at the correct spacing.

Once you have drawn your lines, name them (see instructions for naming fields in Section 4.6.1: Naming Fields).


8.2.2. Long Laterals

Use 'Points Layers' to plot hydrant positions and shifts.

1. Once you have your hydrant positions, create a point's layer called 'Shifts'.
2. Change your 'Point Type' to 'SprinklerYellow' (found by clicking on the Point Type box in the properties box, and then scrolling down the list)
3. Change your 'Point Size' to the radius of your sprinkler coverage (in metres e.g. 15 for a 30 metre diameter circle).
4. Use 'Edit/Add' to place 6 or 8 shifts around each hydrant, and then use 'Move' to place them accurately.
5. Click 'Select' and then click on each hydrant to name them.

8.3. Importing TracMaps for Display and Printing

You do not have to have an existing farm map to display or print your track or coverage from the TracMap unit. You can start with a blank map.

1. Plug the USB stick containing the exported job(s) in to your computer
2. Click the  'Import' icon in the top menu and a windows box will open. Click on the drive or folder containing the exported jobs.
3. There will be a series of folders named after the job name you used (e.g. Job1, Urea, etc.)
4. Click on the folder, and it will contain two files:
 - The log.shp file contains the track driven when spreading/spraying, and will import as a polyline.
 - The Secondary.shp file is a point file showing the places driven when not spreading.
5. Click on the log.shp file, and it will import as the bottom layer into your map.

Once imported, you may have to drag it up the layer order before it will display on screen (depending on your other layer settings).


You can now change the line width, colour and other properties just like any other polyline.

9. Variable Rate Irrigation (VRI)

This section is only applicable to those who have received their FieldMAP software as a component of a Variable Rate Irrigation system.

For detailed tutorials related to using the VRI functions of FieldMAP and creating VRI irrigation please visit www.precisionirrigation.co.nz.

9.1. VRI Toolbar

To bring up the VRI toolbar click on the  'VRI' button in the 'Mode' toolbar.



The VRI toolbar (shown above) is where you can access the VRI features of the software. This toolbar takes FieldMAP out of 'Edit' mode and the layer tree will only contain layers directly related to the VRI features of your map such as your VRI Irrigator, application layer and avoid layer. You should see your VRI layer in the layers tree



If you expand the layer (Click on the + on the left of the layer name), it will show any layers being used by that layer, for example:



Each layer must be 'checked' (ticked) to be able to see it on the map.


9.1.1. Set the Application Layer and Avoid Layer

Before you can define different application depths (or rates) to be applied beneath different parts of the irrigator you must have drawn these areas (or management zones) as polygons in a single layer. Every management zone (polygon) must have an application depth assigned to it, otherwise no water will be applied.

To create a polygon layer for your irrigation management zones refer to the Section 4: Drawing a Farm Map, choose the appropriate section depending on what you are using to draw the management zones (i.e. GPS points, an aerial image or Google Earth). Alternatively if you have a file you wish to import such as an EM survey map refer to Section 4.5: Importing Maps from Other Programs.

In this example we are going to use a layer called ‘EM Areas’ to define the application rates with.

Setting the application layer:

1. To set the application layer, ensure you are in  mode.
2. In the layer tree click on the irrigator layer you wish to set the application layer for.
3. In the irrigator properties, click the application layer and select the layer you wish to use to define your rates in. In our example below you’ll see we set it to ‘EM Areas’.

Settings	
ApplicationLayer	EM Areas
AvoidLayer	Avoid Areas
SimulationImageLayer	None
ShowTotalFlow	False
ApplicationType	FullVRI
Simulation	
SerialSim	False
SerialPort	7
SerialBaud	38400
SimSpeed	0
CurrentAngle	90
CurrentMode	Pivot


It is possible to have multiple application layers to set irrigation plans for different situations. Create the application layers as individual layers. Switch between the layers when creating different plans by changing the ‘ApplicationLayer’ property in the VRI properties box. You can save the different configurations you create.



Quick Tip:


To copy a field (polygon) layer you can export it to a shapefile and then import it again, however this will not copy across the application data you have defined.

Setting the avoid layer:



1. To set the avoid layer, ensure you are in  mode.
2. In the layer tree click on the irrigator layer you wish to set the avoid layer for.
3. In the irrigator properties, click the avoid layer and select the layer you wish to avoid watering. In our example above you'll see we set it to 'Avoid Areas'.

The difference between setting an avoid area and simply setting an area to 0 is that on the boundary of an area set at 0 and an area set at some other depth, the sprinkler will pulse at the average percentage of what is being instructed beneath the footprint of the sprinkler. For an avoid area, as soon as any of the footprint reaches the avoid area, the valve will shut off. This is critical for keeping irrigation off sensitive areas.

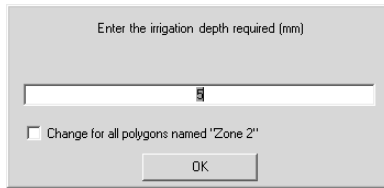
9.1.2. Define Rates

Click on  'Define Rates' to set the application rates of individual polygons in your application layer.

To define the rates:

1. Put FieldMAP in  'VRI' mode and select the VRI irrigator you wish to work with in the layer tree.
2. Ensure the correct layer is selected for 'ApplicationLayer' in the properties.
3. Click on the  'Define Rates' button.

4. Select an area by clicking on a polygon. Once an area has been selected the follow window will be displayed.



Enter the irrigation depth required (mm)

Change for all polygons named "Zone 2"

OK

5. This window is where you set the application depth. To do this, enter the desired rate into the window then press 'OK'.
6. The 'Change for all polygons named 'xxx'' checkbox is used when changing an application rate for multiple areas with the same name. In this example, when checked all areas named 'Zone 2' will have a 5mm application rate applied.
7. Repeat until all polygons (management zones) under the irrigator have been defined.
8. Refer to Section 9.1.3: Application Types Available for different ways the file can be configured to apply irrigation such as percent based and depth based options.

The fields will change colour in relation to the application rates that you apply. White signifies no water and the darkness of the blue indicates the depth of application.

Notes on defining application depth:

- Sprinklers are pulsed at an average of the rates defined inside the footprint of the sprinkler. For example, a sprinkler exactly half way over the boundary of a 0mm and a 10mm area will be applying 5mm.
- Defining -1mm for an area will mean that a sprinkler ignores the rate in that area completely while averaging, until the entire sprinkler footprint is in the -1mm area, where it will then be turned completely off. For example, a sprinkler that had 1% of its coverage in a 10mm area and 99% in a -1mm area will still be

applying 10mm. When 100% of the footprint is in -1mm area, it will be turned off completely.

9.1.3. Application Types Available

There are several application type modes available to choose from when setting up your plan. This is done in the 'ApplicationType' property for the VRI Irrigator. The options are:

Full VRI: With this option you set the depth you want to apply in all areas and the VRI system controls the speed of the machine and pulsing of valves to achieve the desired depths. In this mode, speed on your irrigator's panel must be set to 100%, the VRI controller will interrupt the speed signal to control the end tower speed.

Simple On Off: This mode will allow sprinklers to be either switched on or off. They will not pulse. This mode is generally used for irrigators with only part of the machine controlled to turn off sprinklers over sensitive areas, or for machines with big guns along the top where they are not to be pulsed. In this mode speed and depth are controlled on your irrigator's panel.

VRI Ignore Flow Rates: This mode works very similarly to the Full VRI mode, however if the sprinkler chart is such that there are sprinklers that are nozzled so that the application is not very uniform, Full VRI will pulse all of the sprinklers to even out the application and gain greater uniformity. In doing this the machine has to slow down to compensate for less water being applied while pulsing. For systems where return time needs to be as short as possible 'VRI Ignore Flow Rates' may be desirable as uniformity correction pulsing is turned off. In this mode, speed on your irrigator's panel must be set to 100%, the VRI controller will interrupt the speed signal to control the end tower speed.

VRI Percent Based: This mode allows you to set different areas as a percentage of 100% of water to be applied, the application depth is set on the irrigator controller. In this mode, the irrigator speed is controlled by the irrigator's controller according to the depth you set and the VRI system pulses valves to reduce the amount of water



applied in areas you set. This option requires only the one plan to be loaded in the VRI controller (additional plans can be loaded if desired) and the speed/depth set in the irrigator controller. The disadvantage of this method is that, for example, if for one area you set 50% of water to be applied along the entire length of the irrigator, the pivot will continue at the speed you set and pulse all valves at 50%. This is inefficient both pump and time-wise, Full VRI would be a more efficient option in this case. In this mode, speed and depth (in areas set at 100%) are controlled on your irrigator's panel.

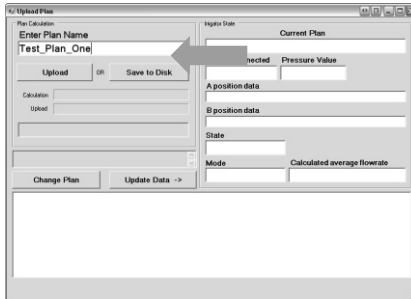
9.1.4. Calculate + Upload Button

Clicking this button will process all the input data to create the application plan to be used on the irrigator and save it either on your hard-drive or a USB stick. Alternatively, if you have a wireless connection to the irrigator you can upload the plan directly. You will need to 'Calculate + Upload' each plan you wish to use on your irrigator.

9.2. Calculating and Uploading VRI Irrigation Plans

Once the rates and avoid areas have been set up, the last step is to upload the data to the irrigator.

1. Make sure you are in  VRI mode and the VRI irrigator you wish to make the plan for is selected.
2. Click the  'Calculate + Upload' button and the 'Upload Plan' dialogue box will appear.
3. Add a plan name into the 'Enter Plan Name' text box.



- There are two options for saving a plan, either saving to disk or uploading to the VRI main controller.

Save to Disk: Clicking this button will save the plan onto your computer. The plan file will need to then be transferred onto a USB flash drive so that the plans can be taken out to the VRI Main Controller. Refer to Section 9.3: Transferring Plan Files to the VRI Main Controller.

Upload: If the VRI System has been setup with the optional wireless internet connection the plans can be created and uploaded directly to the VRI Main Controller. Refer to Section 9.4: Wireless Connection.

Once you have chosen your desired process of calculating the plan the software will create the irrigation plan file. This process may take a few minutes depending on your computer. A 'Save Complete' dialogue box will appear once the calculations have been completed.

9.3. Transferring Plan Files to the VRI Main Controller

For the VRI Main Controller to recognise the plan files to import them they must be in a specific location on the USB Flash drive.

When a plan is saved a folder is created with the plan name you entered (e.g Test_Plan). This entire folder needs to be transferred to your USB flash drive.

Create a 'Plans' folder on your USB Flash drive and copy your plan file into this folder.

Removable Disk → Plans → 'Test_Plan'

When you plug your USB flash drive into the VRI Main Controller and click 'Upload Plan' you should see your plan (e.g Test_Plan) in the list of plans available to import.

9.4. Wireless Connection

If you have a wireless connection between your VRI Main Controller and your office computer, then irrigation plans can be uploaded directly to the VRI Main Controller.

By clicking the 'Upload' button in the 'Upload Plan' window FieldMAP will connect to the VRI Main Controller and transfer the irrigation plan file to the VRI Main Controller directly.

9.4.1. Viewing the Irrigator Status

The wireless connection also allows you to check the status of your irrigator from your home PC.

First select your irrigator from the layer tree, click 'Edit' then select the 'Calculate + Upload' button, and the following window will appear.

Plan Calculation	
Enter Plan Name	Test Plan
Upload	OR Save to Disk
Calculation	
Upload	

Irrigator Found	
Change Plan	Update Data ->

Irrigator State	
Current Plan	
31-01-2011 6mm & 3mm	
Nodes Connected	Pressure Value
39	439
A position data	
Nth:-40.1498505108792 East:175.283014685326 Spd:0%	
B position data	
Nth:-40.15437005344 East:175.279081950043 Spd:0.1333022	
State	
Running	
Mode	Calculated average flowrate
Pivot	1116.52705259464

31-01-2011 6mm & 3mm

To update the data that is being displayed press the 'Update Data' button.

The right side of the window will display the current irrigator state. The bottom window displays the current irrigation plans that are available. To change plans click the required plan, then press the 'Change Plan' button.



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