



AgMission Operations Manual

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Job #: 239 Name: JoeFarm-Innisfil Pilot: Jose Tlicar Address: 30 Churchill Dr, Barrie, Ontario, Canada Aircraft: C123FW Flight #: FN123 Farm: JoesFarm Crop: Weed Control	Customer: Barrie Farmers 70 Collier St, Barrie, Ontario, Canada Lai Nguyen - 705-734-0909
--	--

Products:					
Name	Restricted Use	EPA Reg#	Rate/Ac	Total Volume Used	
Startup	No	29498	2 lit	112 lit	
2,4-D Ester 700	No	27820	0.28 lit	15.68 lit	
Carrier:					
Water	No		1.4 gal	78.4 gal	
Application	Rate	Area Size	Coverage	Total Volume Used	
	2 gal/ac	55.7 ac	56 ac	112 gal	
Planned App. Date		Actual App. Date		Actual App. Time	
Start Date	End Date	Start Date	End Date	Start Time	End Time
Oct 02, 2018		Oct 04, 2018	Oct 04, 2018	14:53:33	15:19:36
Wind Speed	Wind Direction	Temperature	Humidity	Flight Data File(s)	
15.2 - 15.7 kts	NW	64°F	67%	JoeFarm-Innisfil_239.zip	

Remark: Check Power Lines

NOTES

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AG-NAV Inc.

Telephone: 1-705-734-0909

Email: general@agnav.com

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Table of Contents

<u>1.</u>	<u>Introduction</u>	<u>7</u>
<u>2.</u>	<u>Operations</u>	<u>8</u>
	<i>2.1 Roles.....</i>	<i>8</i>
	<i>2.2 Log In.....</i>	<i>9</i>
	<i>2.3 Log Out.....</i>	<i>10</i>
	<i>2.4 Create Local Admin Account</i>	<i>11</i>
	<i>2.5 Create Client Accounts.....</i>	<i>12</i>
	<i>2.6 Create Aircraft Accounts</i>	<i>15</i>
	<i>2.7 Create Pilot Accounts.....</i>	<i>16</i>
	<i>2.8 Create Crop List.....</i>	<i>18</i>
	<i>2.9 Create Product List.....</i>	<i>21</i>
<u>3.</u>	<u>Create New Jobs.....</u>	<u>23</u>
	<i>3.1 Job Information.....</i>	<i>23</i>
	<i>3.2 Map Display.....</i>	<i>28</i>
	<i>3.3 Create Spray Areas</i>	<i>31</i>
	<i>3.4 Job Tools</i>	<i>35</i>
	<i>3.6 Add Areas.....</i>	<i>36</i>
	<i>3.7 Create Areas Library.....</i>	<i>43</i>
<u>4.</u>	<u>Download or Assign Jobs to a Platinum.....</u>	<u>52</u>
	<i>4.1 Download Jobs to USB Stick.....</i>	<i>52</i>
	<i>4.2 Assign Jobs to a Platinum.....</i>	<i>55</i>
<u>5.</u>	<u>Perform assigned Jobs in a Platinum.....</u>	<u>57</u>

5.1	<i>Platinum AgMission Settings</i>	57
5.2	<i>Download Assigned Jobs</i>	60
5.3	<i>Fly the Mission</i>	63
<u>6.</u>	<u>Upload Spray Data and Print Report</u>	<u>67</u>
6.1	<i>Upload Spray Data Directly to AgMission</i>	67
6.2	<i>Upload Spray Data by USB Key</i>	69
6.3	<i>Upload Spray Area and Data for Jobs not planned with Agmission</i>	73
6.4	<i>View Spray Data and Print Report</i>	74
<u>7.</u>	<u>Manage Jobs by Uploading Files</u>	<u>77</u>
7.1	<i>Upload Shape Files</i>	79
7.2	<i>Upload Google Earth Files</i>	79
<u>8.</u>	<u>More on Create Job Items</u>	<u>80</u>
8.1	<i>Create Pivot Spray Zone</i>	80
8.2	<i>Create Buffer Zone</i>	82
8.3	<i>Create Waypoints</i>	85
8.4	<i>Create PlaceMarks</i>	87
8.5	<i>Create and Show Obstacles</i>	88
<u>9.</u>	<u>More on Display Functions</u>	<u>91</u>
9.1	<i>Obstacle Settings</i>	91
9.2	<i>Download User Obstacles</i>	92
9.3	<i>Weather Display</i>	93
9.4	<i>Coordinates Display</i>	94
9.5	<i>Grid Line Display and Generation</i>	95

10. Aircraft and Ground Crew Tracking..... 100

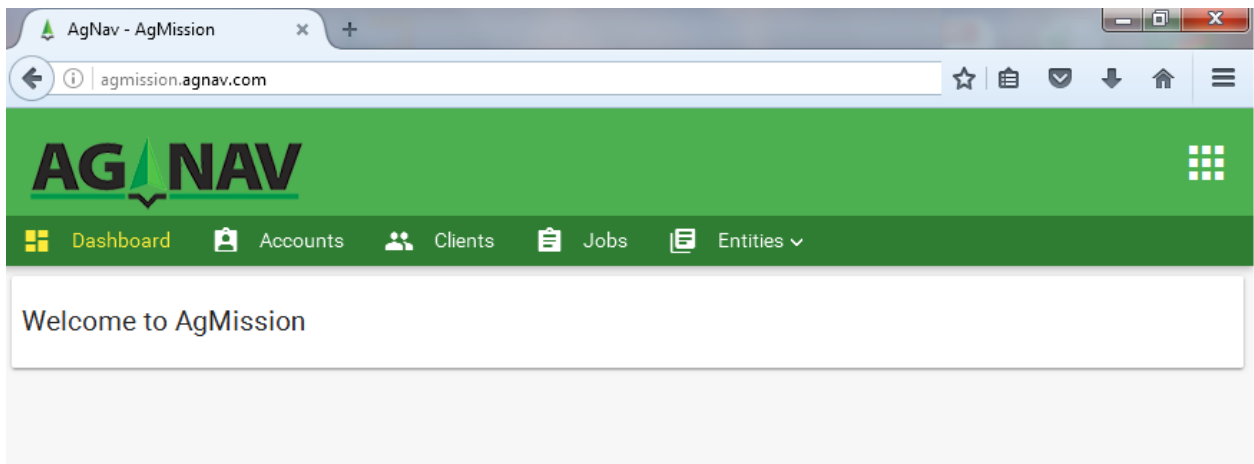
10.1 Prerequisites..... 100

10.2 Tracking with Agmission..... 104

1. Introduction

AgMission is a web app developed by AG-NAV Inc. to centralize all data related to aerial applications. The software allows all parties involved in a mission to create a job order, make spray areas, transfer the mission to a navigation system, receive flight data, and process data when available. For pilot safety, towers or obstacles information can be entered in office and saved for use in guidance systems. If using the Platinum for guidance, position of ground crew or loading truck can be sent to Platinum as a dynamic waypoint for pilot guidance to fly to a new loading zone.

Mission planning can be done well ahead of time. Missions can be loaded into the guidance system and get ready for application at the right time. Then when a mission is done, flight data can be submitted to AgMission for processing and/or inspecting right after the flight. Mission reports can be generated for customers or application analysis.



2. Operations

2.1 Roles

When signing up for using AgMission webapp, AgNav will provide you a main AgMission Account with a unique UserName and a Password. Assuming that the account be granted to your company called My AgService Inc. The Login can be:

UserName: myagservice@mail.com

Password: myags

From this AgMission account, you can create local accounts for your own users depending on each user's role. Each local user can be an administrator, officer/manager, pilot, client, or inspector.

Functions	Admin	Officer	Pilot	Client	Inspector	Aircraft
Create Accounts	Yes	No	No	No	No	No
Create Jobs/Missions	Yes	Yes	Yes	Yes	No	No
View Jobs/Missions	Yes	Yes	Yes	Yes	Yes	No
Download/Upload Jobs/Missions	Yes	Yes	Yes	Yes	Yes	Yes
Delete Jobs/Missions	Yes	Yes	Yes	Yes	No	No
Print Reports	Yes	Yes	Yes	Yes	Yes	No
Tracking	Yes	Yes	Yes	No	No	No

Note: The Aircraft account is only used in Platinum systems to receive or download job files, and upload spray data to AgMission after job done. Each aircraft should have a unique account that can be recognized by other users for job assignment. Pilot will be notified when the Platinum was assigned a new job. Pilot can download the job by using the File Manager in the Platinum.

2.2 Log In

To log in, run a web browser then enter agmission.agnav.com for web address. The Log In page will show:

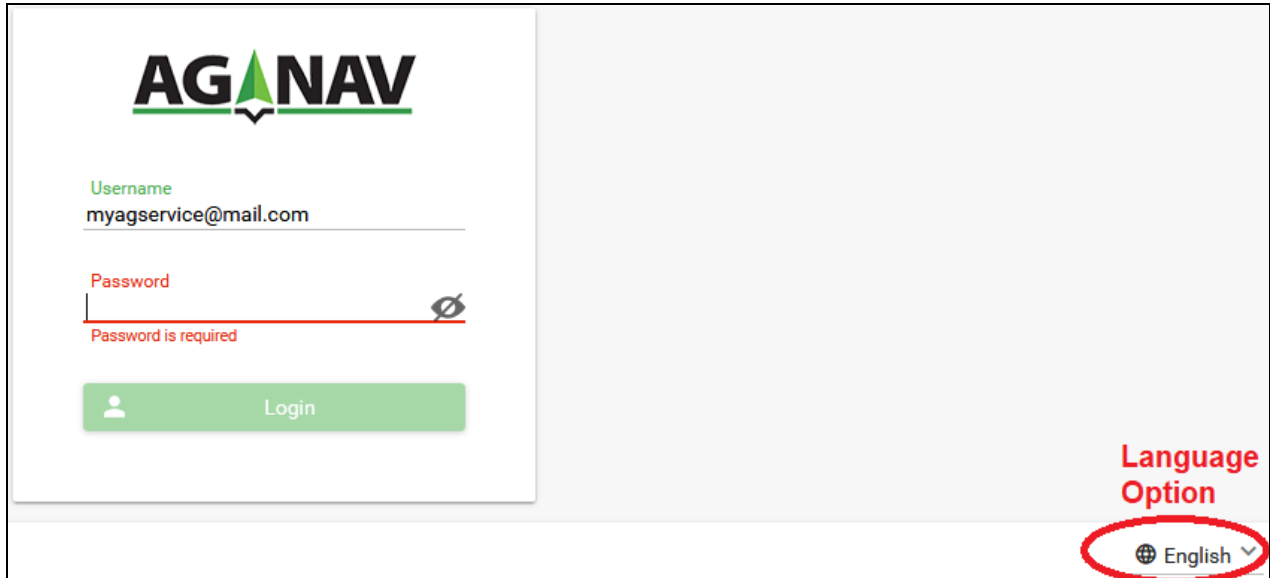


Figure 2 - 1: AgMission Login

For the first time, enter the Username and Password given to you by AgNav. If you want to change the language option, click the option at the bottom right corner of dialog to select the desired language. The available languages are English and Portuguese.

Click the **“Login”** tab. The Welcome page is shown.

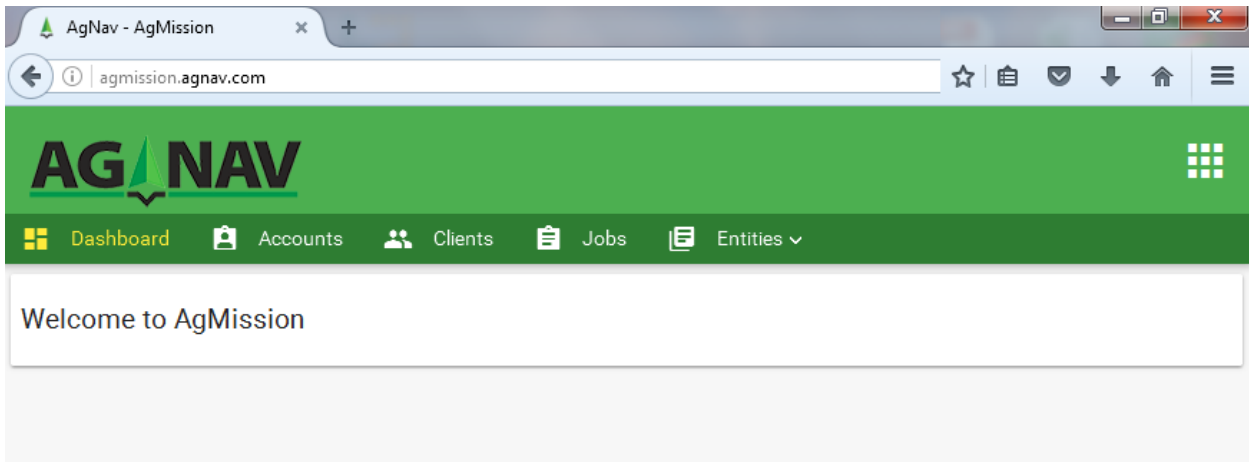










Figure 2 - 2: Welcome Page

- a) Dashboard menu  **Dashboard**: Shows the greeting, news, changes, and any information about AgMission.

- b) Accounts menu  **Accounts**: Shows the list of local Admin, Officer and Inspector accounts created for your company, for example My AgService Inc.
- c) Clients menu  **Clients**: Shows the list of your clients who can be growers, government agencies, and those receiving your services. It also shows the Client accounts.
- d) Jobs menu  **Jobs**: Shows the list of jobs created for the selected client. If no client is selected, all jobs will be shown.
- e) Entities menu  **Entities** : Shows the list of pilots, aircraft, and products used for aerial application jobs.
- f) Tools menu  **Tools** : Shows convenient tools or settings page.
- g) Tracking menu  **Tracking**: Shows current tracking-enabled aircraft positions on a map and tracking tools.

2.3 Log Out

To log out AgMission, click the square button at the top right corner of screen, then select “Sign out”.

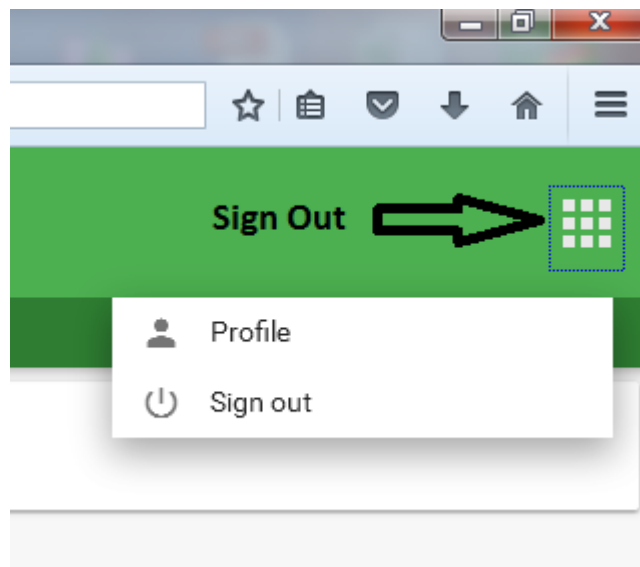



Figure 2 - 3: AgMission Logout

2.4 Create Local Admin Account

After logging in to AgMission from your company account, you can create the local accounts for your company. To do this, click  **Accounts**. The following page is shown.

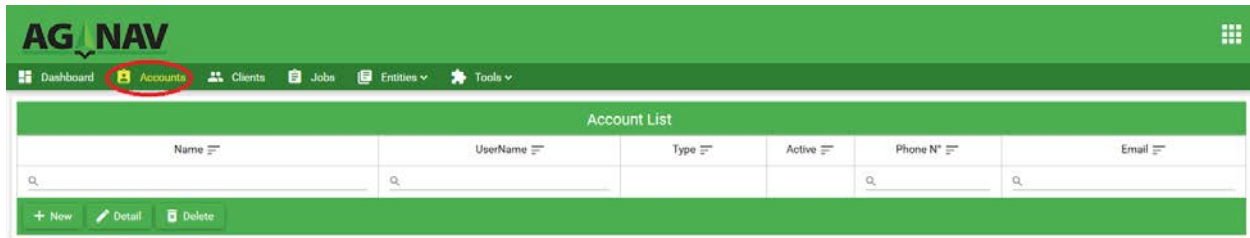



Figure 2 - 4: Create Local Accounts

First, you should create at least one local Admin account for your administrator.

The Admin user can create a local account for other local users. To create a local account:

- Click the “Add New” button 
- The Account Information page is shown. Enter all information for the Admin user. Note that the Username must follow an email address format and be unique. It’s not necessary to be a real email address.

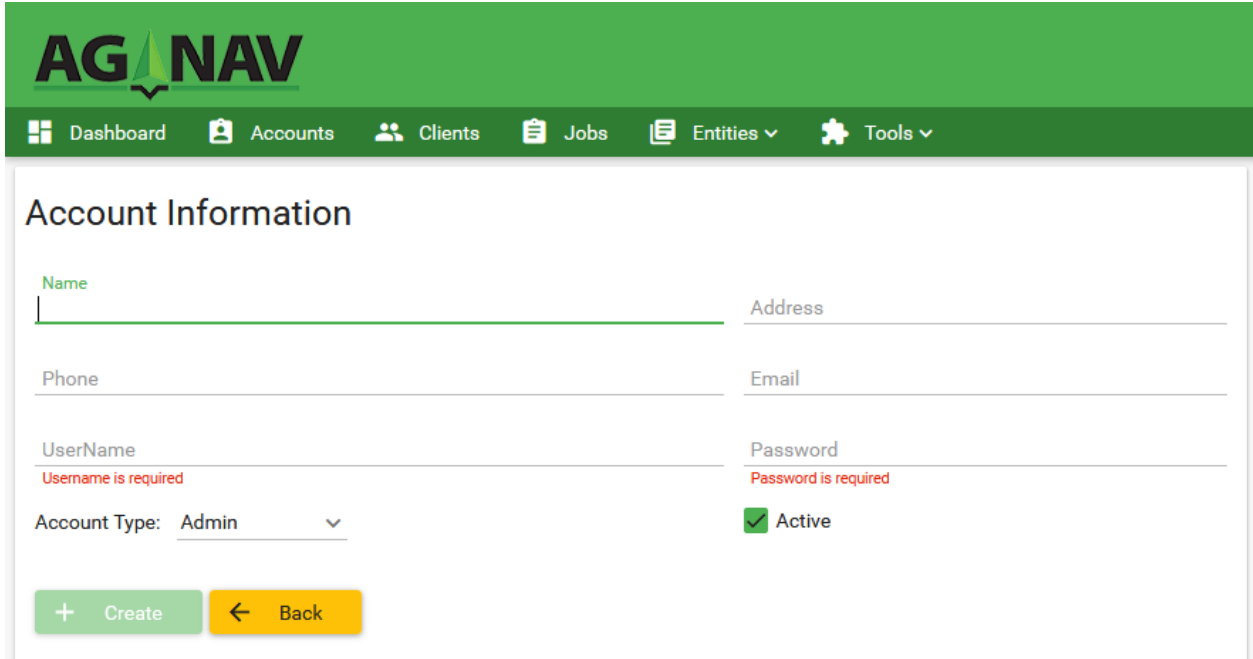


Figure 2 - 5: Create Admin Account

- To make the Username unique, the domain should be your company short name. For example, if your company name is My AgService Inc, the short name or

abbreviation can be “ags”, and the domain for UserName can be “@ags.com”. Using this method, the Username of Admin can be admin@ags.com.

The screenshot shows the 'Account Information' form in the AG-NAV system. The form is titled 'Account Information' and contains the following fields:

Name	Agmission Admin	Address	30 Churchill Dr
Phone	7057340909	Email	lain@agnav.com
UserName	admin01@ags.com	Password	adminags

Account Type: Admin (dropdown menu) Active

Buttons: + Create, ← Back

Figure 2 - 6: Enter Account Information - Example

- d) Enter the password for the Admin account. The password should not have a space.
- e) Click to check mark the “**Active**” box. Select “**Admin**” for Account Type.
- f) Click the “**+ Create**” button.
- g) Repeat the procedure to create other accounts, for example Officer or Inspector.

The screenshot shows the 'Account Information' form in the AG-NAV system for an Officer account. The form is titled 'Account Information' and contains the following fields:

Name	AgMission Officer	Address	30 Churchill Drive, Barrie, Ontario, Canada
Phone	705-734-0909	Email	AgOfficer@agnav.com
UserName	officer@ags.com	Password	officerags

Account Type: Officer (dropdown menu, circled in red) Active

Buttons: + Create, ← Back

Figure 2 - 7: Officer Account

2.5 Create Client Accounts

After creating the Admin account, you can create a Client account. You must have at least one client who can be a grower or service recipient. To create a Client account,

a) Click  menu.

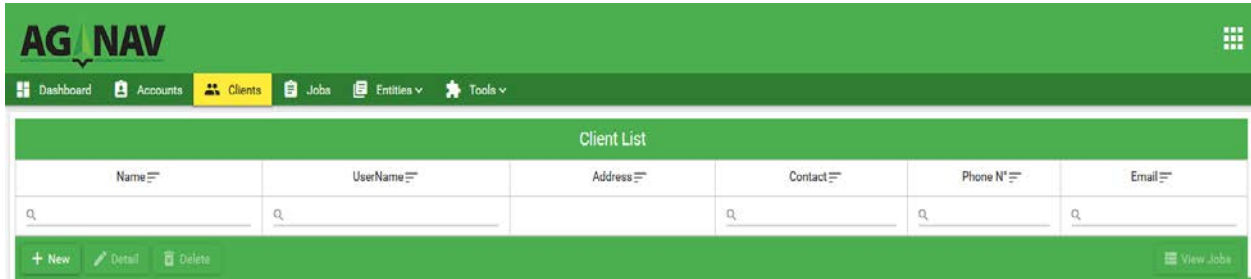


Figure 2 - 8: Client List

b) Click 

c) The Client Information page is shown.

Figure 2 - 9: Client Information

d) Enter Client information. The Username must follow the email address format. By using the same method used to create the Admin account, if the Client is Barrie Farmers, the Username can be barriefarmers@ags.com

Client Information

Name Barrie Farmer	Address 70 Collier St, Barrie, Ontario, Canada
Contact Lai Nguyen	Phone 705-734-0909
Fax	Email lain@agnav.com
Access Account	
UserName mybarriefarmer@ags.com	Password barriefarmer@#!

Figure 2 - 10: Enter Client Information

- e) Enter the password for the Client account. The password should not have a space.
- f) Click the “+ Create” button.

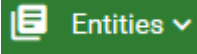
Note that you can give your client the log-in information, i.e. UserName and Password, for example mybarriefarmer@ags.com and “barriefarmer@#!” to log into AgMission to create and/or view the jobs created for the client. If the client won't view the jobs, you don't have to enter the username and password for this client.

If you have more clients, you can repeat the same procedure to create more Client accounts. Each client can create and view jobs created for him/her only.

2.6 Create Aircraft Accounts

After creating the Admin and Client accounts, you can create an Aircraft account. If you have a Platinum system which can have internet access from a Wifi network, you can send a job directly to the Platinum. The pilot will be notified how many new jobs were sent to his Platinum. Each Platinum should have a unique account for job assignment.

To create an Aircraft account,

- a) Click  menu.
- b) Select “Aircraft” from the Entities submenu.

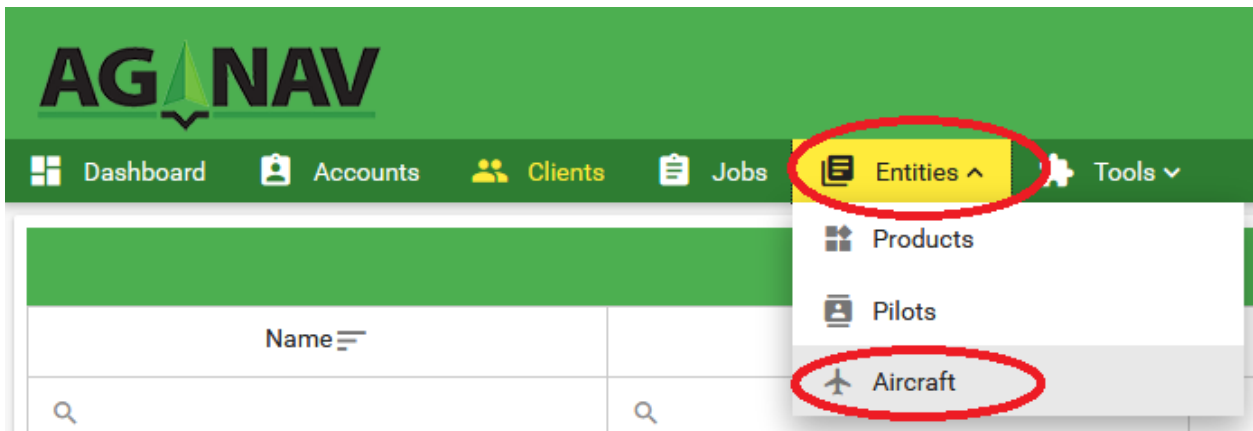


Figure 2 - 11: Entities - Aircraft

The Aircraft List is shown.

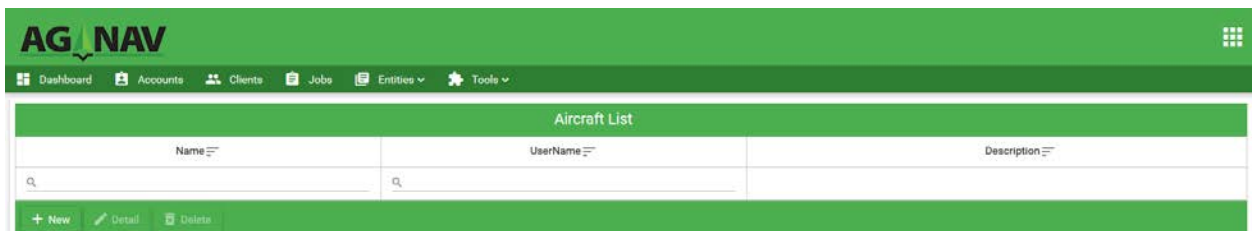



Figure 2 - 12: Aircraft List

- c) Click 
- d) The Aircraft Information page is shown.
- e) Enter Aircraft information. The Username must follow the email address format. By using the same method used to create the Admin account, if the aircraft tail number is C-AGN40, the Username can be c-agn40@ags.com

Aircraft Information

Name: C-agn400 Aircraft Type: Fixed Wing

Model: UnitId:

Description: AgNav Aircraft Color: Blue

Access Account in Guia Platinum

UserName: c-agn40@ags.com Password: agn401

+ Create **← Back**

Figure 2 - 13: Enter Aircraft Information

- f) Enter the password for the Aircraft account. The password should not have a space.
- g) Click the “+Create” button.

Note that the Aircraft log-in information, i.e. UserName and Password, should be entered in the Platinum Main Settings → AgMission. Select auto logon for automatically logging on to AgMission when internet access is available.

If you have more Platinum systems, you can repeat the same procedure to create more Aircraft accounts. Platinum can download jobs assigned to it only, and upload spray data directly to AgMission after job done.

If you have a Guia Gold or Silver system, you don't have to enter the UserName and Password for an aircraft account. This is because Guia Gold/Silver cannot download a job directly from AgMission.

The Aircraft List shows all aircraft accounts.

Aircraft List		
Name	UserName	Description
C-agn400	c-agn400@ags.com	AgNav Aircraft

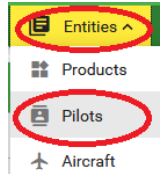
Figure 2 - 14: Aircraft Account List

2.7 Create Pilot Accounts

Each pilot can have an account to check and view jobs. Pilot can download a job to a USB key or computer for application. Job statuses are shown for pilot to know which jobs already sprayed, ready for application, or new, i.e. waiting for approval.

To create a Pilot account:

- a) Click  menu.



- b) Select “Pilots” from the Entities submenu

The Pilot List is shown.

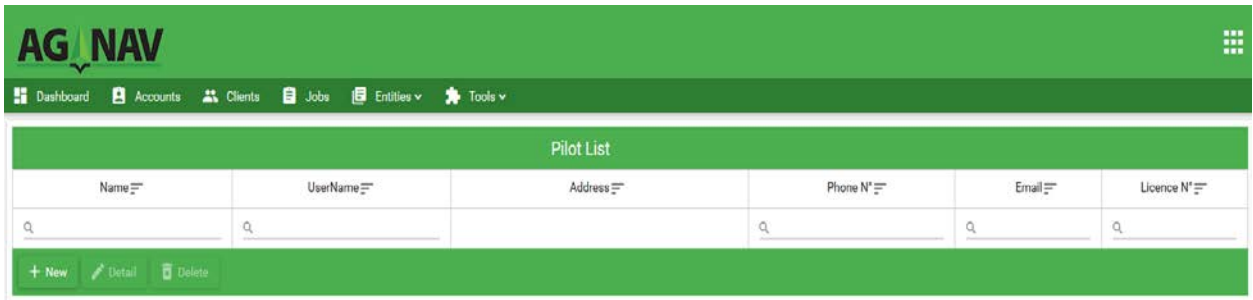
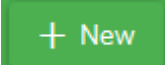


Figure 2 - 15: Pilot List

- c) Click 
- d) The Pilot Information page is shown.
- e) Enter Pilot information. The Username must follow the email address format.
- f) Enter the password for the Pilot account. The password should not have a space.

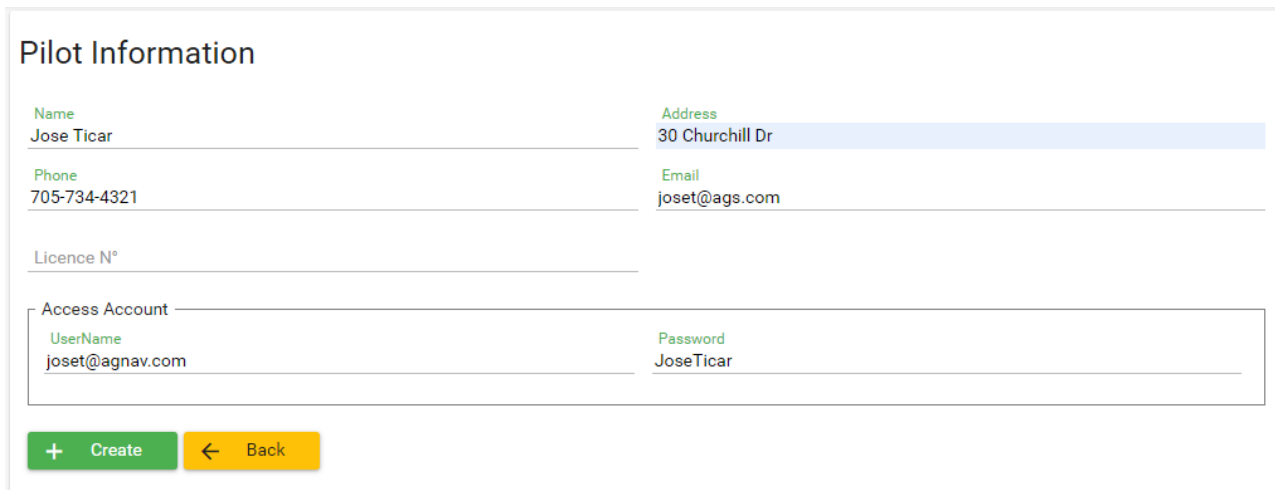
A screenshot of the 'Pilot Information' form. The form is divided into several sections. The first section contains fields for Name (Jose Ticar), Address (30 Churchill Dr), Phone (705-734-4321), and Email (joset@ags.com). The second section is for Licence N°. The third section is for Access Account, containing fields for UserName (joset@agnav.com) and Password (JoseTicar). At the bottom of the form are two buttons: '+ Create' and '← Back'.

Figure 2 - 16: Enter Pilot Information

- g) Click the “+Create” button.

If you have more pilots, you can repeat the same procedure to create more Pilot accounts.

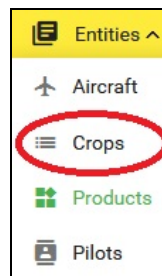
Name	UserName	Address	Phone N°	Email	Licence N°
Jose Tiscar	joseet@agnav.com	30 Churchill Dr, Barrie, Ontario, Canada	705-734-4321	joseet@ags.com	CAN27022018

Figure 2 - 17: Pilot Account List

2.8 Create Crop List

You can create a list of all crop or field types or application type for use when creating a job. To do this,

a) Click Entities  menu.



b) Select “Crops” from the Entities submenu.

The Crop List is shown.

Name	Color	Description
------	-------	-------------

Figure 2 - 18: Crop List

c) Click .

d) The Crop Information page is shown.

Crop Information

Name

Color

Description

Figure 2 - 19: Enter Crop Information

- e) Enter Crop Name. The Crop Name must be unique. This can be the field type such as corn or wheat; or application type such as forest protection or mosquito control; or restricted zone such as bee hives or play ground, etc...
- f) Enter Color for this Crop type. The options are blue, green, yellow, orange and purple. When Crop is assigned to an area, the area will be plotted in Crop Color.
- g) Enter Crop Description just for information.
- h) Click the “**Save**” button.

If you have more crop types, repeat the same procedure to create the Crop List.

The screenshot shows the AG-NAV software interface. At the top is a green header with the AG-NAV logo. Below the header is a navigation bar with icons and labels for Dashboard, Accounts, Clients, Jobs, Entities, and Tools. The main content area is titled 'Crop List' and contains a table with three columns: Name, Color, and Description. The table lists several items, each with a blue square icon and the word 'Blue' in the Color column. At the bottom of the table are three buttons: '+ New', 'Detail', and 'Delete'.

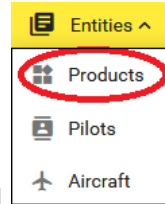
Name	Color	Description
Weed Control	Blue	Pasture
Talhoes-Pulverizados	Blue	
Larviciding	Blue	Mosquito Control
Wheat	Blue	Wheat field
Spruce Budworm	Blue	Forest Protection
Fungiciding	Blue	Crop Protection
Corn	Blue	Corn field

Figure 2 - 20: Crop List - Updated

2.9 Create Product List

For your convenience, you can create ahead of time a list of all products that you will use for application. To do this,

- i) Click  menu.



- j) Select “Products” from the Entities submenu

The Product List is shown with Water as a default Carrier product.

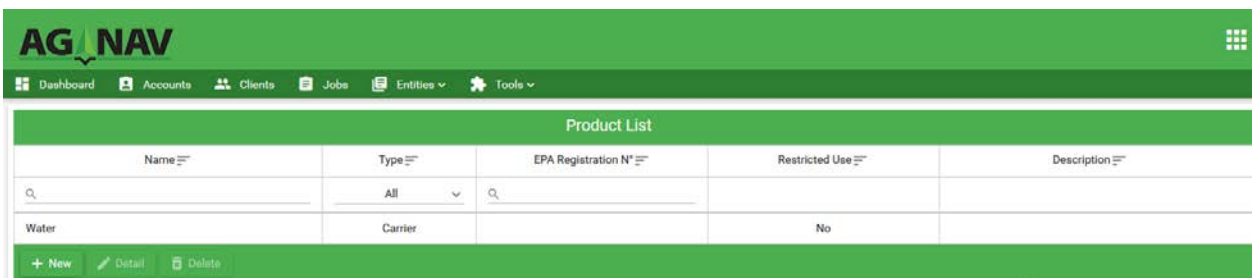
A screenshot of the AG NAV software interface. The top navigation bar is green with the 'AG NAV' logo and a hamburger menu icon. Below the navigation bar, there are tabs for 'Dashboard', 'Accounts', 'Clients', 'Jobs', 'Entities', and 'Tools'. The main content area is titled 'Product List' and contains a table with columns: 'Name', 'Type', 'EPA Registration N°', 'Restricted Use', and 'Description'. The table has one row with 'Water' as the name, 'Carrier' as the type, and 'No' as the restricted use. Below the table are buttons for '+ New', 'Detail', and 'Delete'.

Figure 2 - 21: Product List

- k) Click 

- l) The Product Information page is shown.

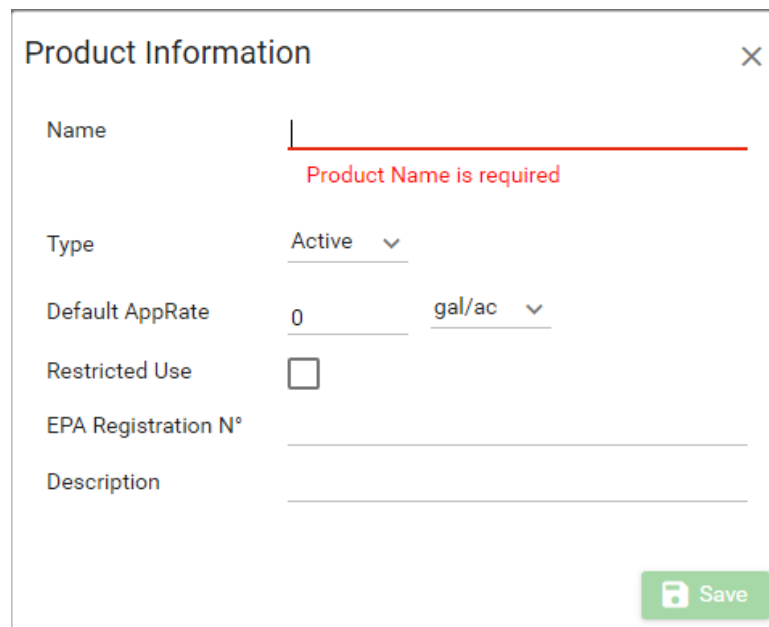
A screenshot of the 'Product Information' form. The form has a title bar with a close button. The fields are: 'Name' (with a red error message 'Product Name is required'), 'Type' (dropdown menu set to 'Active'), 'Default AppRate' (input field with '0' and a unit dropdown set to 'gal/ac'), 'Restricted Use' (checkbox), 'EPA Registration N°' (input field), and 'Description' (input field). A green 'Save' button is at the bottom right.

Figure 2 - 22: New Product Information

- m) Enter Product information. The Product Name should have maximum 20 characters. Product Type can be Active ingredient or Carrier.

Product Information ✕

Name

Type

Default AppRate

Restricted Use

EPA Registration N°

Description

Save

Figure 2 - 23: Enter Product Information

- n) Click the “**Save**” button.

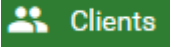
If you have more products for spraying, you can repeat the same procedure to add them to the list.

AG NAV				
Product List				
Name	Type	EPA Registration N°	Restricted Use	Description
<input type="text" value=""/>	<input type="text" value="All"/>	<input type="text" value=""/>		
Water	Carrier		No	
2,4-D Ester 700	Active	27820	No	Nufarm - 2,4-D

+ New
✎ Detail
🗑 Delete

Figure 2 - 24: Product List - Updated

3. Create New Jobs

Before creating a new job, a client must be selected. To do this, click  Clients menu. Then click the Client that you want to create a job for.

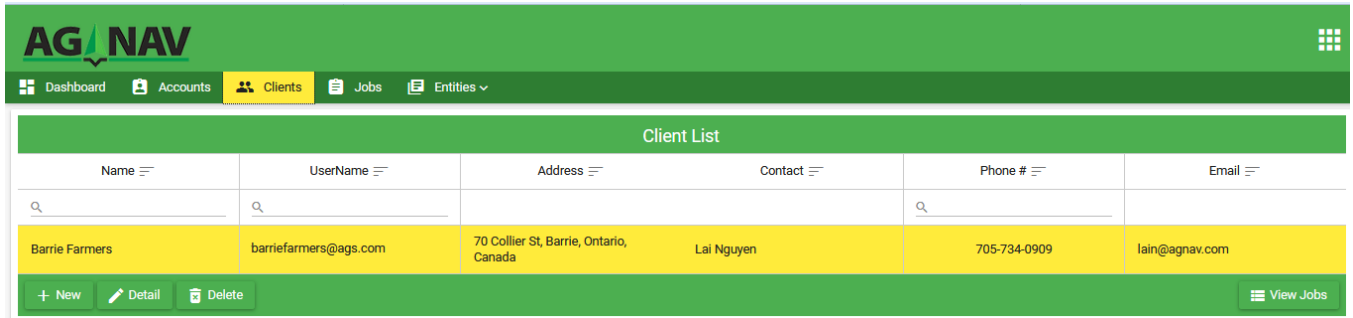


Figure 3 - 1: Select Client

3.1 Job Information

To create a job for the selected Client,

- a) Click  Jobs menu.

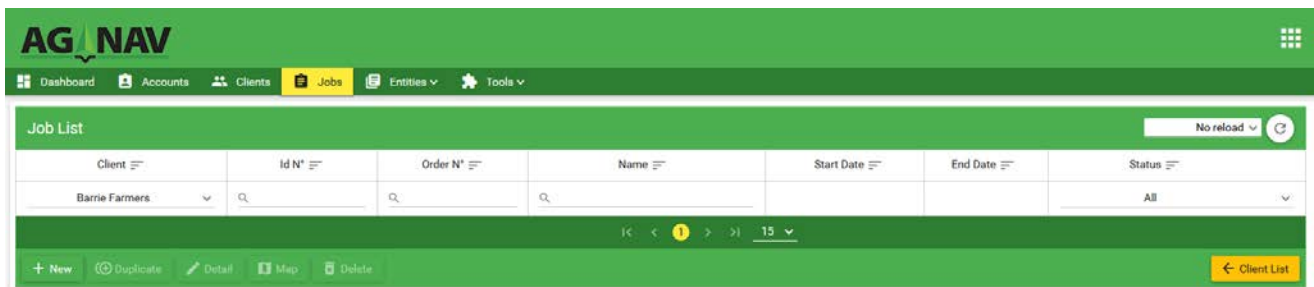



Figure 3 - 2: Job List

- b) Click 
- c) Enter job information.

Job Information

Order Number

Name Job Name is required and must not contains special characters

Start Date

US Measurement Unit

Swath Width ft

PRODUCTS
—

Water
+
Rate/Acre
gal
≡+

Name <input type="text"/>	Type <input type="text"/>	Rate/Ac	Unit	
No product. Please select application products.				

Application Rate gal/ac

Pilot +

Aircraft +

Flight Number

Farm/Spray Location

Crop/Job

Status

End Date

Remark

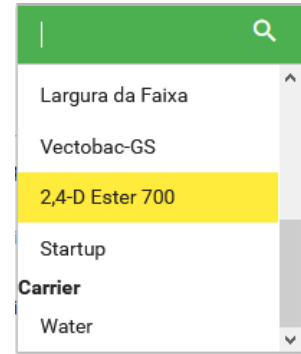
+ Create
← Job List

Figure 3 - 3: Job Information

- d) Each job will be assigned a unique ID by AgMission.
- e) Order Number: Enter your order number for this job. This can be the internal Work Order number.
- f) Name: Enter job name. Do not use a space or special characters.
- g) Start Date: Enter when the job should be carried out.
- h) US Measurement Unit: Slide the button to select U.S. measurement units or metric units.
- i) Swath Width: Enter the swath width in appropriate unit, i.e. feet or meters.

j) Product: Click the “v” button to show the list of products.


- These products were entered in the Entities → Products. Select the desired one.
- Product Rate/Acre: Enter the application rate. This is the rate used for mixing product. Check Unit.




PRODUCTS

2,4-D Ester 700 + Rate/Acre 0.281 lit

Name	Type	Rate/Ac	Unit
No product. Please select application products.			

- Click  to add the product to the list.

PRODUCTS

2,4-D Ester 700 + Rate/Acre 0.281 lit **Add product** 

Name	Type	Rate/Ac	Unit
2,4-D Ester 700	Active	0.28	lit

- You can add more products to the list if desired.


PRODUCTS

Startup + Rate/Acre 2.0 lit



Name	Type	Rate/Ac	Unit
Water	Carrier	1.4	gal
Startup	Active	2	lit
2,4-D Ester 700	Active	0.28	lit

Figure 3 - 4: Enter Products

k) Application Rate: This is the planned rate used for spraying the mixture of all products.




- l) Operator: Enter or select an operator name. You can select one from the list of pilots by clicking the “v” button.
- m) Aircraft: Enter or select an aircraft name.
- n) Flight Number: Enter the flight number.
- o) Farm/Spray Location: Enter the farm name or spray location name.
- p) Crop/Job: Enter or select a crop name or type of job from the Crop List.
- q) Status: Job status. It represents the status or progress of the job along the whole application process.
- New: New job for view only, wait for approval. New job can not be assigned for download.
 - Ready: Job approved, ready for application.
 - Downloaded: Job was downloaded for spray.
 - Sprayed: Area were sprayed. Job was done.
- r) End Date: Enter the date when this job should be finished.
- s) Remark: Enter any notes that you want the operator to know.
- t) When all information has been entered, click .


Job Information

Job Id 239
Order Number Ord# Serv1234
Name JoeFarm-Innisfil
 Created Date
Start Date 10/02/2018 
 US Measurement Unit 
Swath Width 60 ft

PRODUCTS
—

Prosaro 250EC + Rate/Acre 10 gal +


Name v	Type ≡	Rate/Ac	Unit	
Water	Carrier	1.4	gal	
Startup	Active	2	lit	
2,4-D Ester 700	Active	0.28	lit	

Application Rate 2 gal/ac v
Applicator Type Nozzles
System Pressure 30 psi
Pilot Jose Ticar +
Aircraft C123FW +
Flight Number FN123
Farm/Spray Location JoesFarm
Crop/Job Weed Control +
Status New v
End Date v 
Total Mission Time _____ hrs
Remark Check Power Lines

Save
← Job List

Figure 3 - 5: Creating Job – Sample Information

3.2 Map Display

After clicking , AgMission shows the Job Map screen for you to enter spray areas.

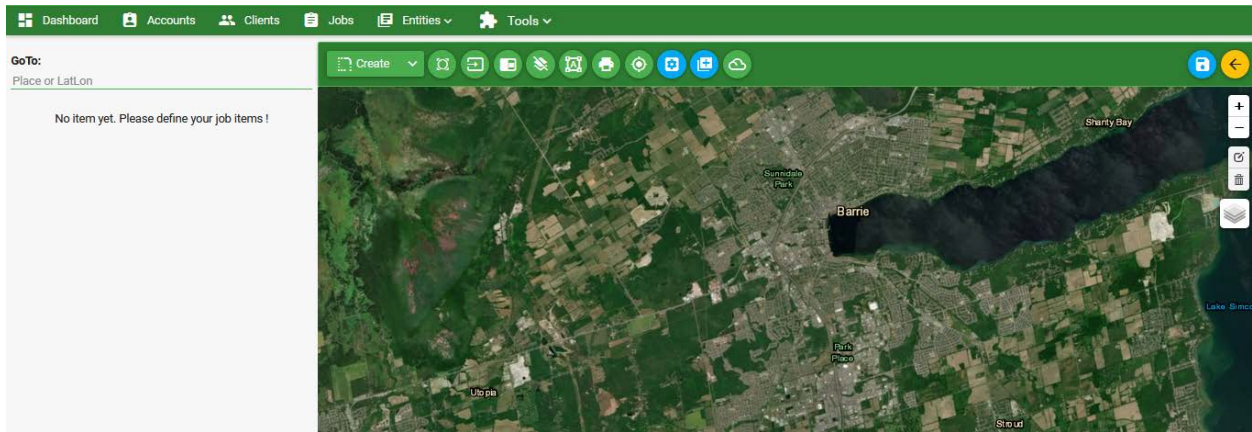
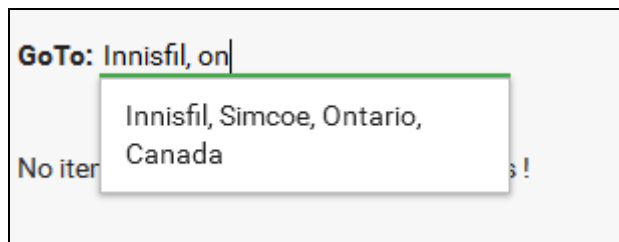


Figure 3 - 6: Map Display

To show map at a different location, click the “Go To” line and enter the address or coordinates (Latitude, Longitude) of the place you want to see on the map. For example, if the spray farms are in Innisfil, Ontario.



If there are more locations shown, click the one that shows the closest location.

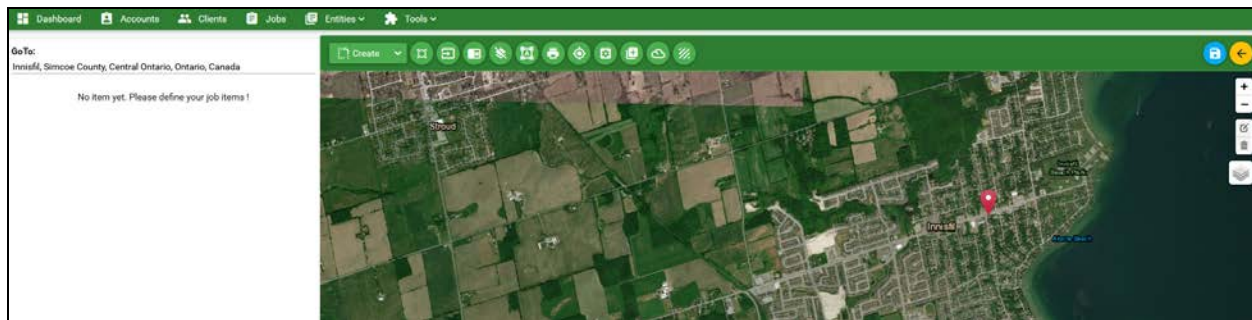












Figure 3 - 7: Map Display – Searched Location

Total Area and **Product Amount** will be shown below the job items list.








Total Area: shows total acreage of all spray areas excluded the contained exclusion zones.

Product Amount: shows the total amount of product mixture needed for this job.

Controls on the Map screen:

- Create  : This allows you to create a spray area, exclusion zone, buffer zone, waypoint, place mark and tower or an obstacle.
- Zoom To All  : If you have many spray areas shown the screen, click this button to view all areas.
- Download Mission  : When the job status is new, this button allows you to download the map background image to a USB key or computer for use in the Platinum. When the job is ready for spray, this button allows you to download the job. The job file will include all spray areas, exclusion zones, buffer zones and also map background. You can change the job status on the job detail page.
- Load Spray Data  : If you have spray or as-applied data available, click this button to load and display spray data.
- Show/Hide Spray Data  : When spray data is shown on screen, click this button to turn off spray data display. Click it again to show spray data.
- Show/Hide Measurements  : When you create a spray area, the length of each side and size (ha or acres) of area are shown. Click this button to show or hide the measurement info.
- Print Report  : Click this button to print a pre-mission report. This will print the image you see to a dbf file and brief information about the job. When the job is done and spray data uploaded, click this button to print an application report.
- Show Coordinates  : If you want to check the coordinates of spray area, click this button to show the coordinates at the cross-hair cursor. The coordinates are displayed at the bottom right corner of map. Click a coordinate value to change its display format.
- Settings  : Click this button to show the AgMission settings for spray data plotting and obstacles.
- Add Areas  : Click this button to open the area controls. You can select to show the spray areas and exclusion zones from other jobs. This function allows you to

save all spray areas to a common job. Then, from this job, you can you can pick up the areas to add to the current job.

- Show Weather  : Click this button to show the weather. The cursor is changed to a crosshair. Click on the map to get the weather near or at the clicked location. When weather is shown, you can click the “details” link to show the weather broadcast.
- Create Grid Lines  : Click this button to create grid lines on the spray areas. You can select the best heading for grid lines or enter the heading manually.
- Save Areas  : After all spray areas, exclusion zones, and other items have been created, click this button to save them to the job.
- Back to previous page  : After saving all areas to the job, click this button to go back to the previous page.
- Zoom In/Out  : Click “+” to zoom in, and “-“ to zoom out the map display.
- Edit/Delete Areas  : Click this button to edit the boundary of an area. You can move the corners to make more precise boundary. You can delete a whole area or all items by clicking the garbage can icon.
- Display Layers  : Click this button to change the base map type from satellite imagery to street map; show or hide other information layers such as Obstacles, Grid Lines, Flight Paths, Map Labels and Map Streets.

3.3 Create Spray Areas

To create a spray area or polygon, do the following:

- a) Zoom in to the map location where the spray area is.

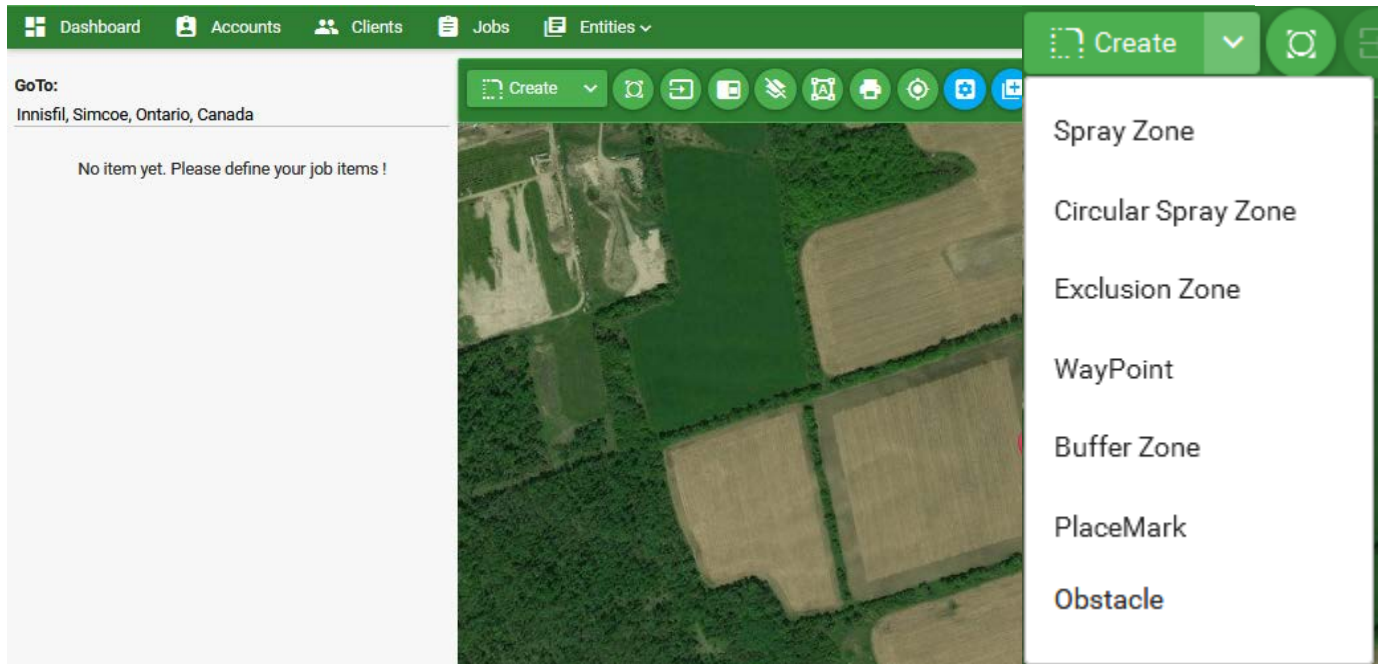


Figure 3 - 8: Map Display – Create Area

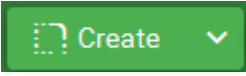
- b) Click . Then select “Spray Zone”.
- c) Move the mouse to the spray zone and click around the boundary on the map. The boundary is shown in blue.



Figure 3 - 9: Create Spray Zone

- d) Click the first point on the map or press <Enter> on the keyboard to finish the spray zone.
- e) The spray zone information is shown.

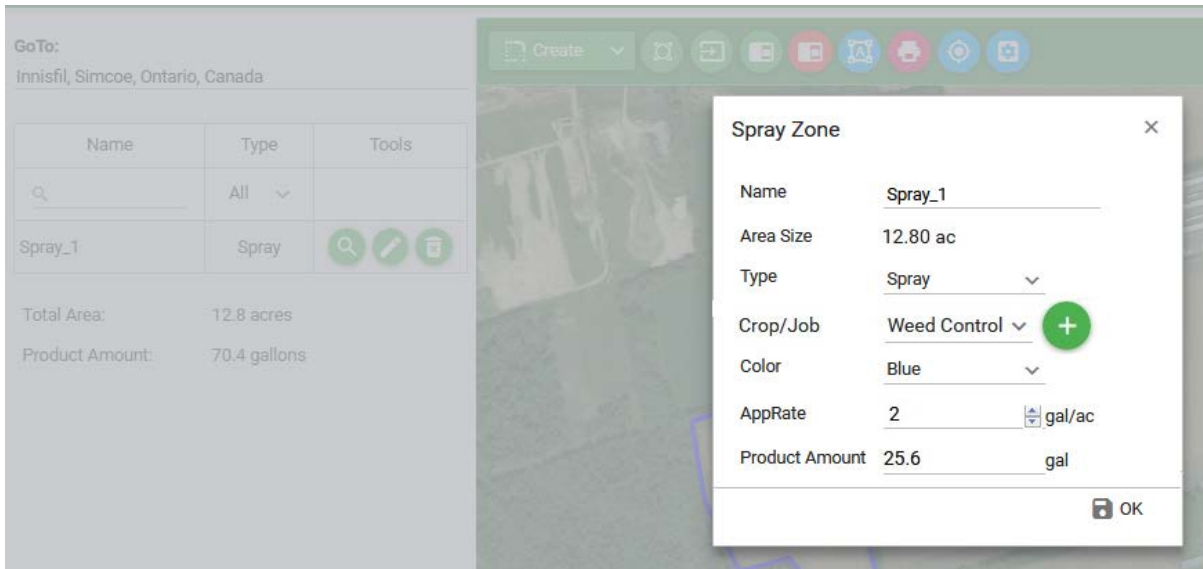
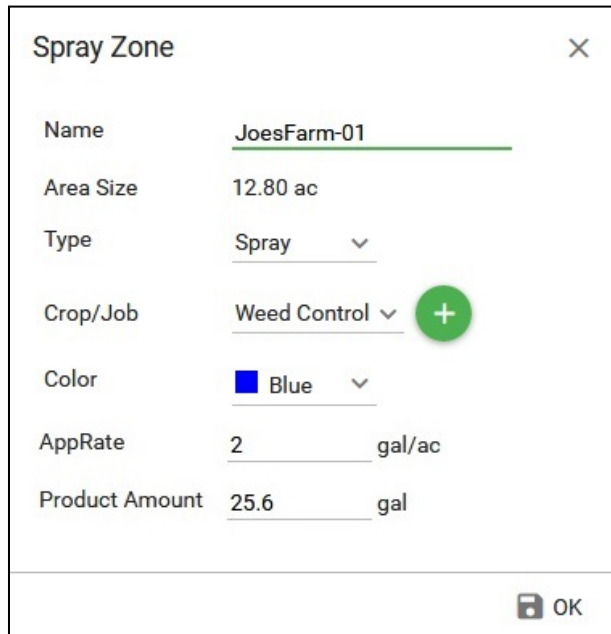


Figure 3 - 10: Spray Zone Information

- f) By default, the spray zone is named by item type with consecutive number suffixed, for example Spray_1. You can enter a more meaningful name, for example JoesFarm-01. This name will be shown during flight for pilot to identify the spray zone. Area size is in acres or hectares depending on the selected Measurement Unit. Color is the boundary color. You can change it to show more contrast on the map. AppRate is the desired application rate in gal/ac, lbs/ac, or L/ha and kg/ha. Product Amount is calculated based on the AppRate and Area Size.



- g) Click “OK” to accept the information and close the dialog.

- h) If you have more spray zones to create, repeat steps a) to g) above.

- i) If you have an exclusion zone, click  and select Exclusion Zone.

- j) Move the cursor to the exclusion boundary and click around the boundary.

- k) When done, click the first corner on the map or press <Enter> on the keyboard to close the exclusion zone.

- l) The exclusion zone information is shown on screen. By default, the exclusion zone name is the same as the spray zone name created just before it. Click “OK” to accept the info.

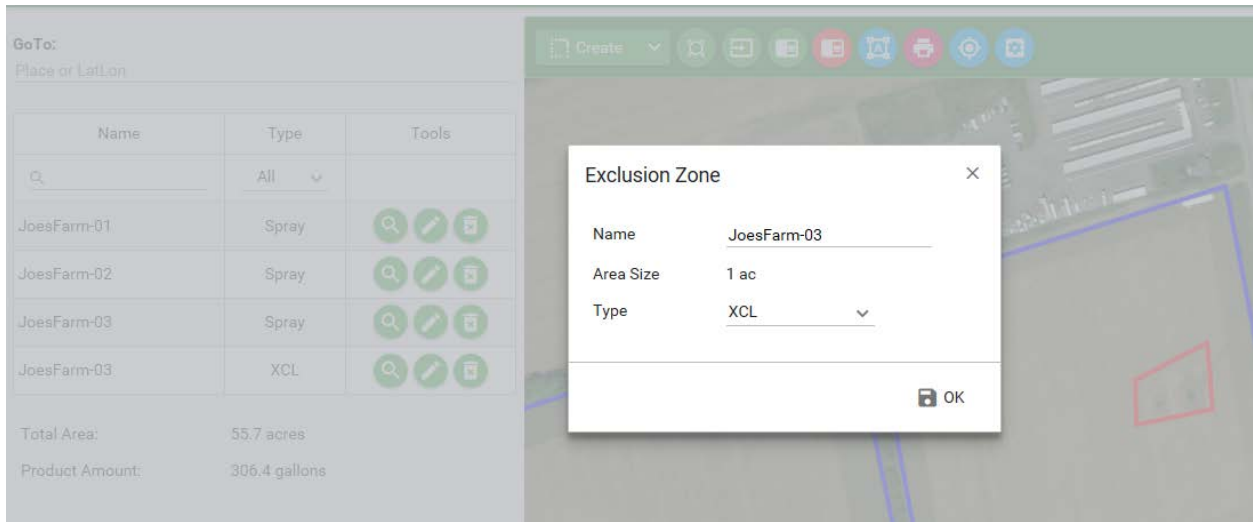


Figure 3 - 11: Create Exclusion Zone

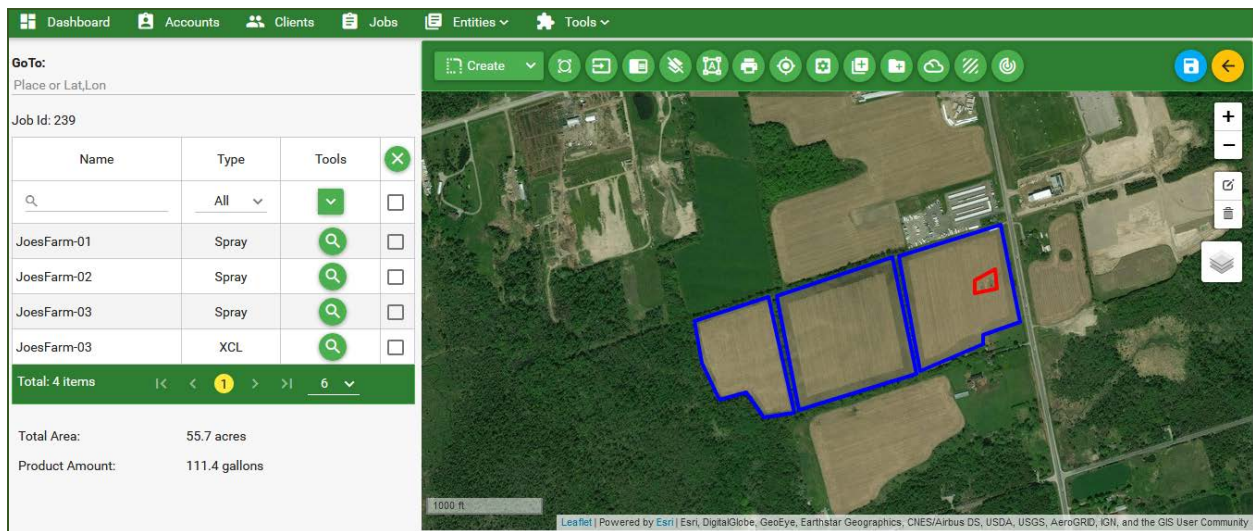




Figure 3 - 12: Spray Area Creation - Done

m) Click  to save the spray zones and exclusion zone to the job. If the job is ready for application, select “Yes” on the Confirmation dialogue. AgMission will make the job “Ready” for download. If the job needs approval, select “No”. This will hold the job status as “New” and won’t be available for download. When the job is approved for spraying, change the Job Status on the Job Information page to “Ready” to enable the download function.

n) Click  to go back to the Job Information.

Area Tools:

If you need to edit information on a spray zone or exclusion zone, or delete it, you can use Area Tools.

First select the desired areas by clicking on the squares on the area list.

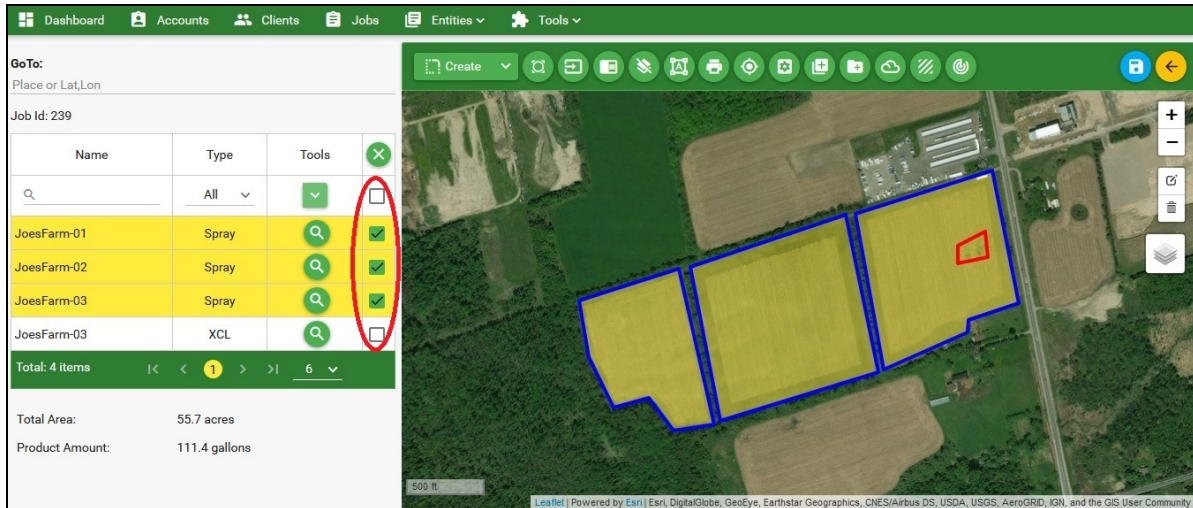


Figure 3 - 13: Select Areas

Then click on **Tools** button. Then select Edit or Delete from the drop down menu.

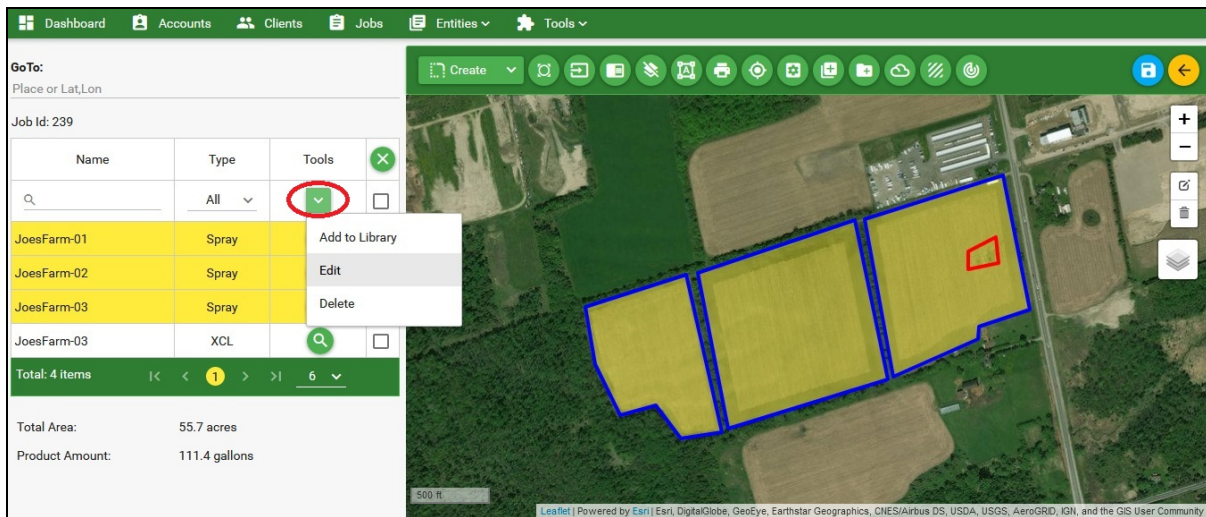


Figure 3 - 14: Area Tools – Edit / Delete

3.4 Job Tools

The Job Tools are found on the Job Information page. If you don't see the Tools at the right side of screen, move the display up to see the Job Tools at the bottom of screen.

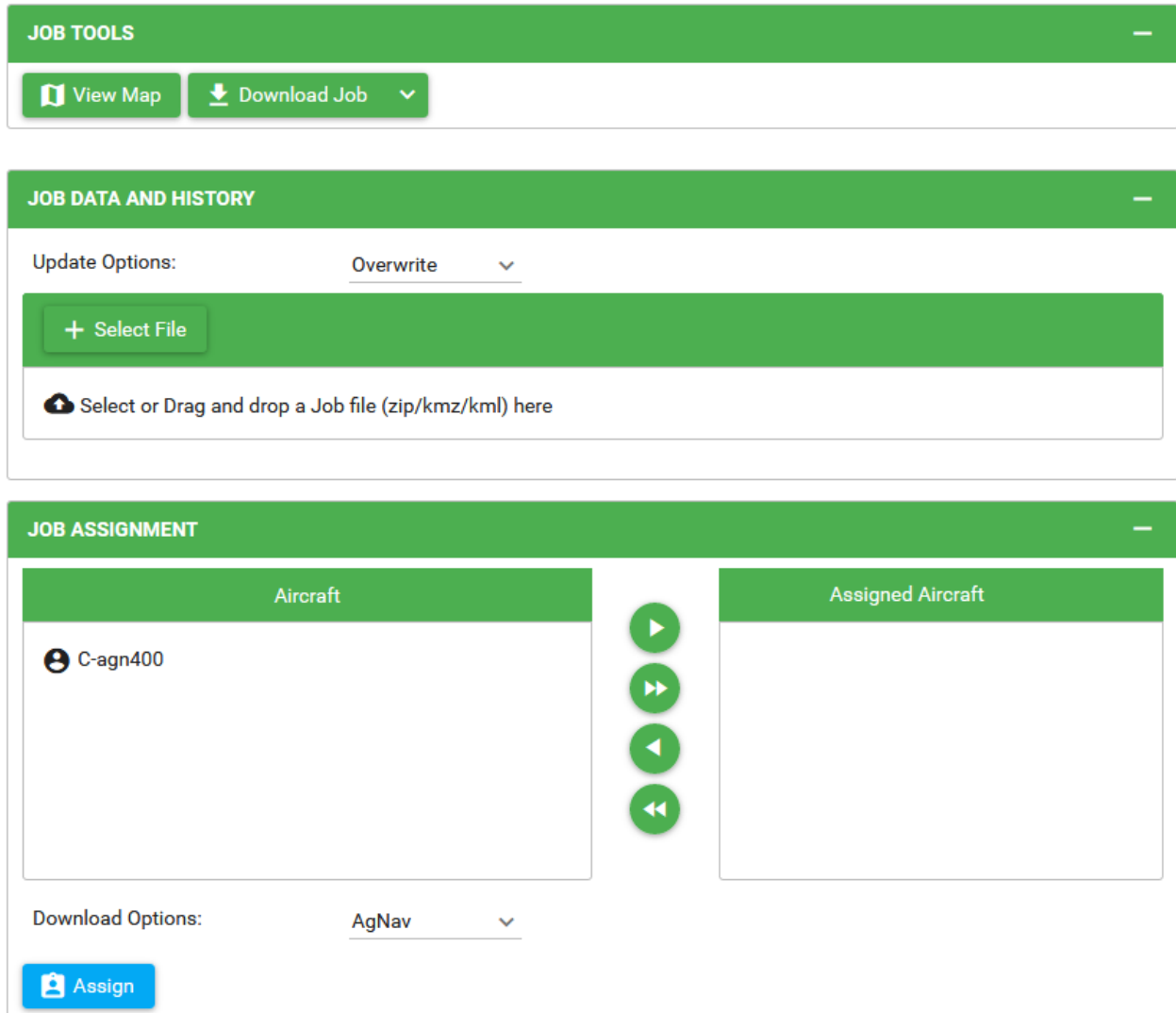


Figure 3 - 15: Job Tools

- View Map: To open Job Map screen to view/edit job items such as spray zones.
- Download Job: To download the job without map background to a USB key or hard drive in your computer.
- Job Data and History: If you have spray areas and exclusion zones in a shape file, KML/KMZ or AgNav no1/prj file, you can import the file to AgMission to have the spray areas and exclusion zones. The uploaded files are shown in the Job Data and History section. Note that the shape and AgNav files must be compressed to make a zip file before uploading.

- Job Assignment: If you have an aircraft account for a Platinum, you can send the job to the aircraft directly. The list of aircraft is shown in the Job Assignment section.

3.6 Add Areas

If you have areas that you spray frequently year after year, you can save them all to a mission. As an example, let's name this mission "AllSprayAreas". This can be considered your own spray area database. The AllSprayAreas may look like this:

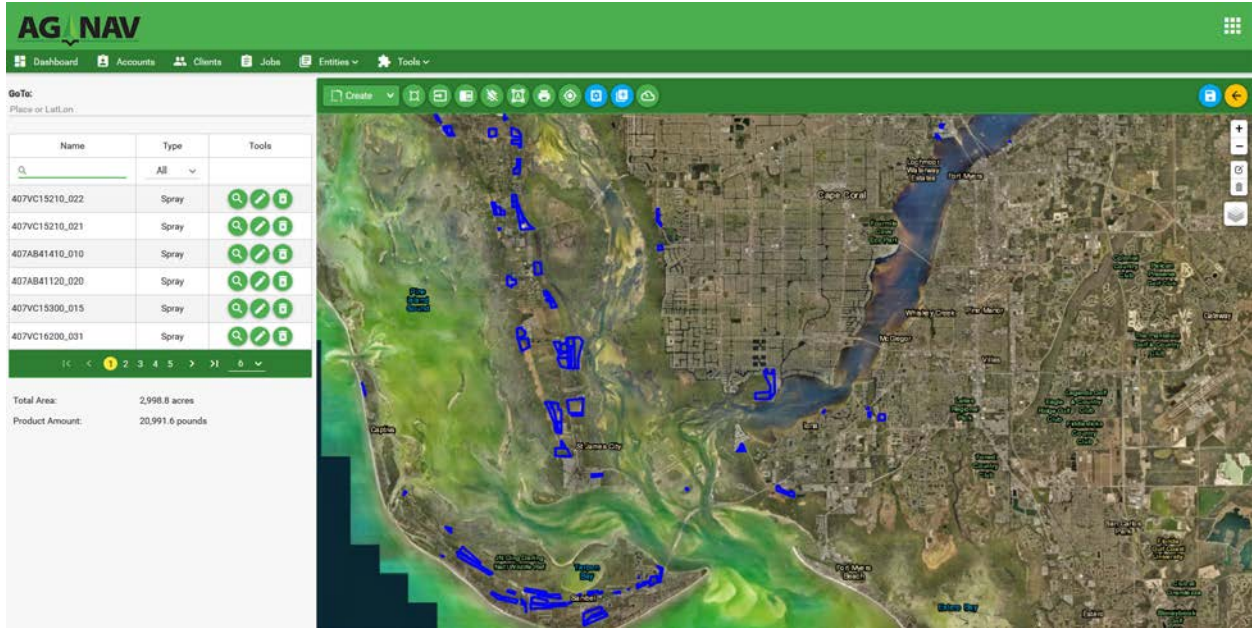


Figure 3 - 16: Spray Area Database Display

The spray areas and exclusion zones can be imported from AgNav, KML/KMZ or shape files into this mission to make the spray area database. To create a new mission, select the Client and click the Jobs tab.

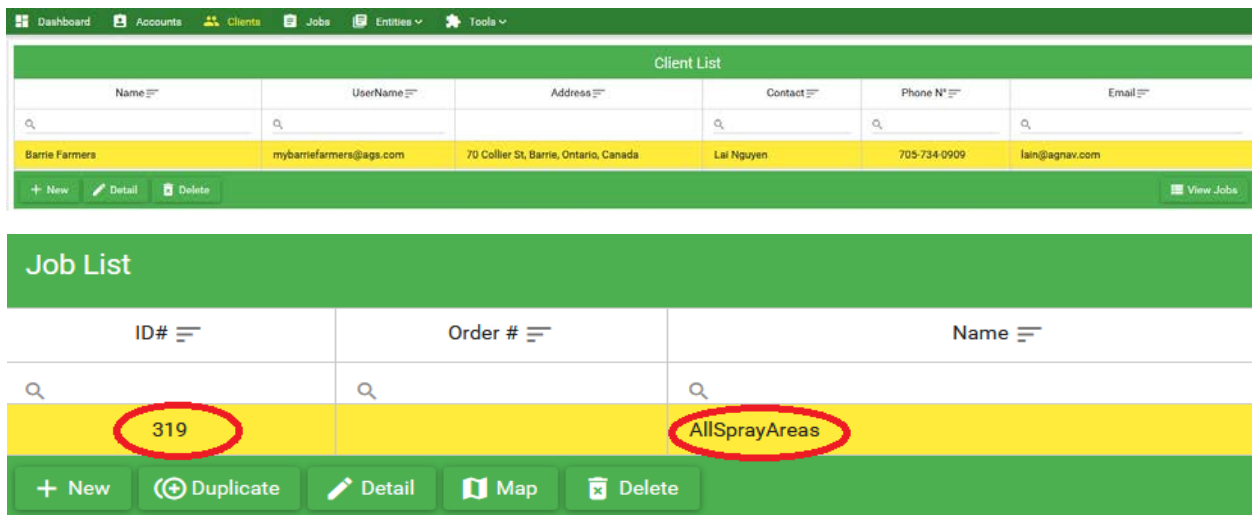




Figure 3 - 17: Making New Mission

From the Jobs List, we know that the **AllSprayAreas** mission has ID# 319.

Click  to make a new job. Fill in the Job Information. You can highlight a job then click “Duplicate” to duplicate that job. There will be less info to enter.

Then click  to create a new job.

When the map is shown, click the Add Areas button .

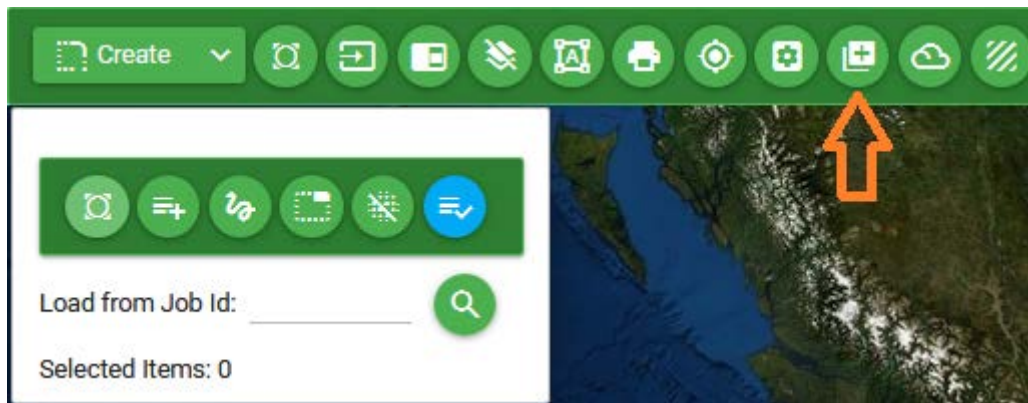







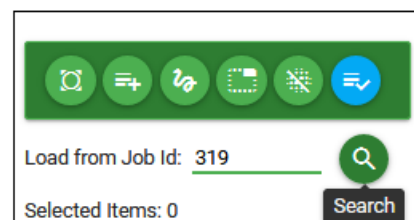



Figure 3 - 18: Add Areas Controls

The Add Areas controls are shown.

-  : Click this button to center display on areas of the selected job.
-  : Click this button to select a single spray area. To select an area, just click on the area. Click on the area again to deselect the area.
-  : Click this button to select many spray areas.
-  : Click this button to deselect all areas.
-  : Click this button to remove all areas from the map.
-  : Click this button to add selected areas to the current mission.
-  : After entering the Job ID number, click this button to search and load the areas from the job.



To load areas from the AllSprayAreas mission, click the **Load from JobId**: then enter the job ID of AllSprayAreas which is 319 as in the example.

Click the search button  .

When all areas are shown, zoom in and move the map to show the desired areas.

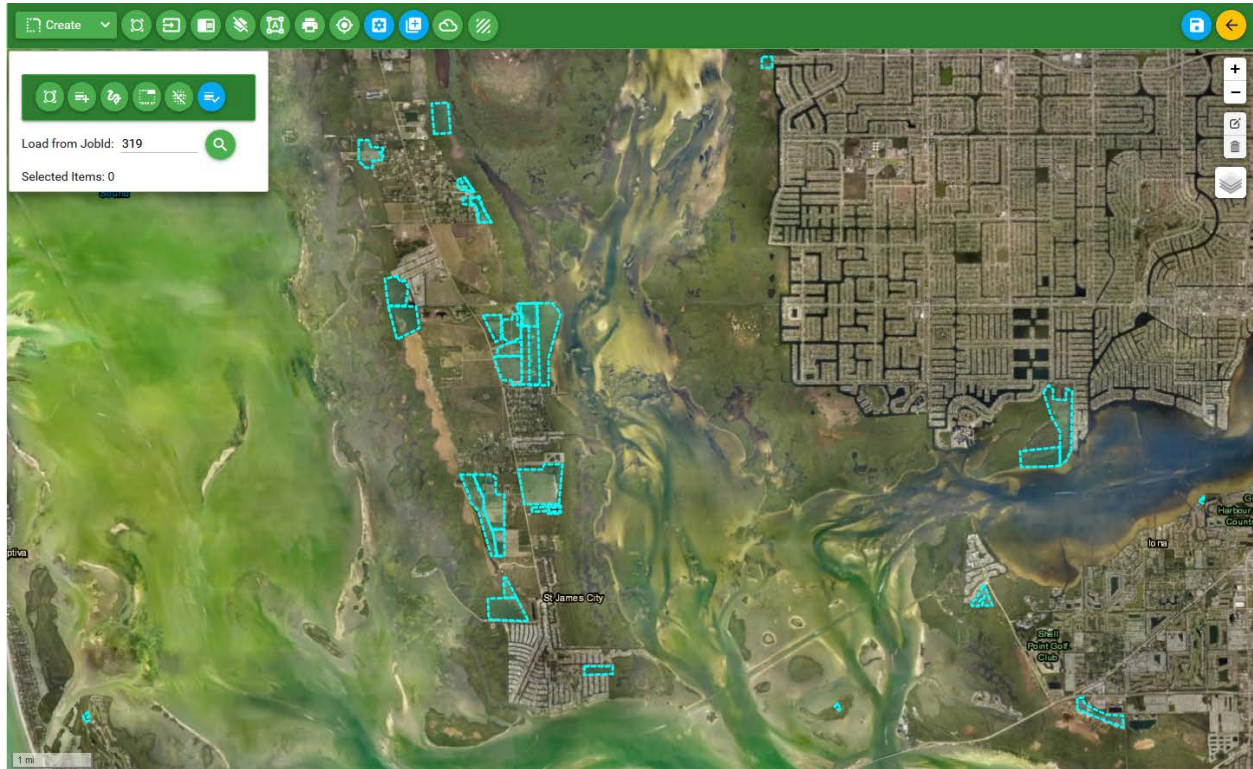


Figure 3 - 19: Spray Areas Loaded from Selected Job

To select one area at a time, click  . Then click on the desired area.

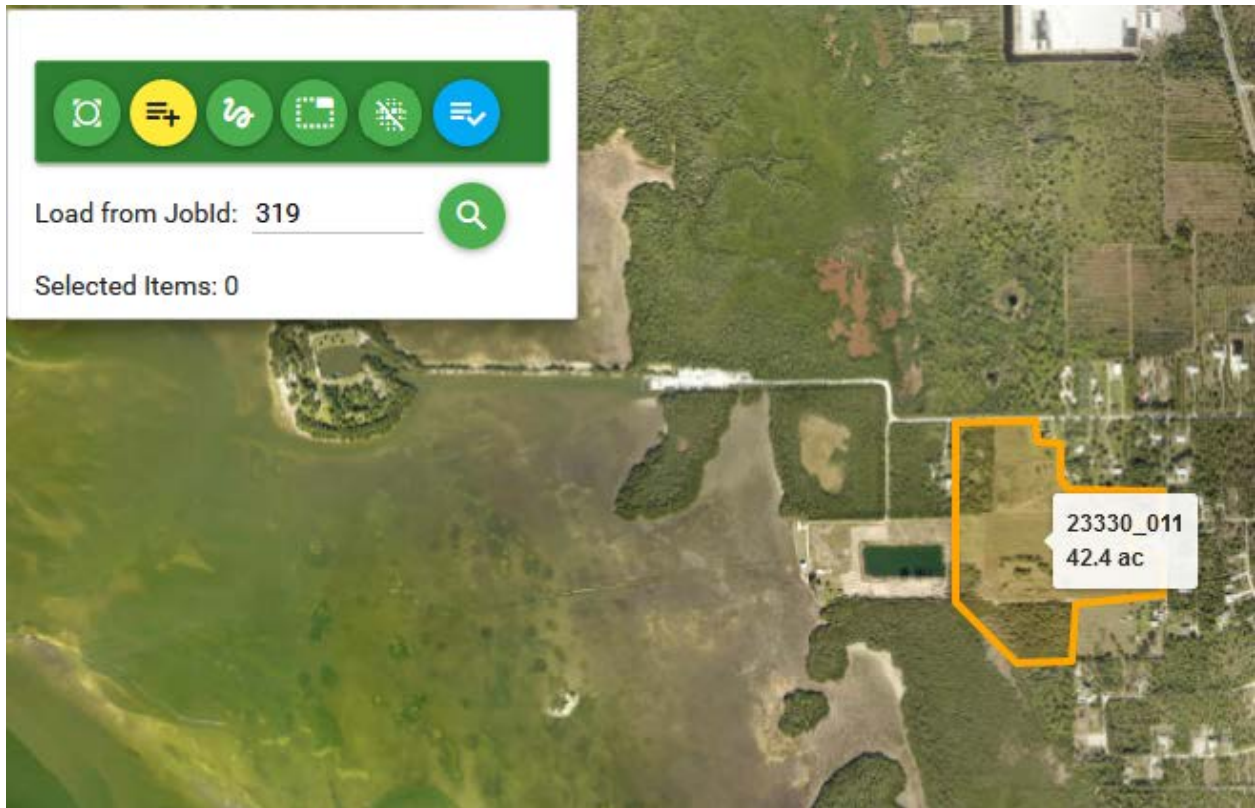


Figure 3 - 20: Select Single Area

When the area is selected, it will be plotted in bright green.

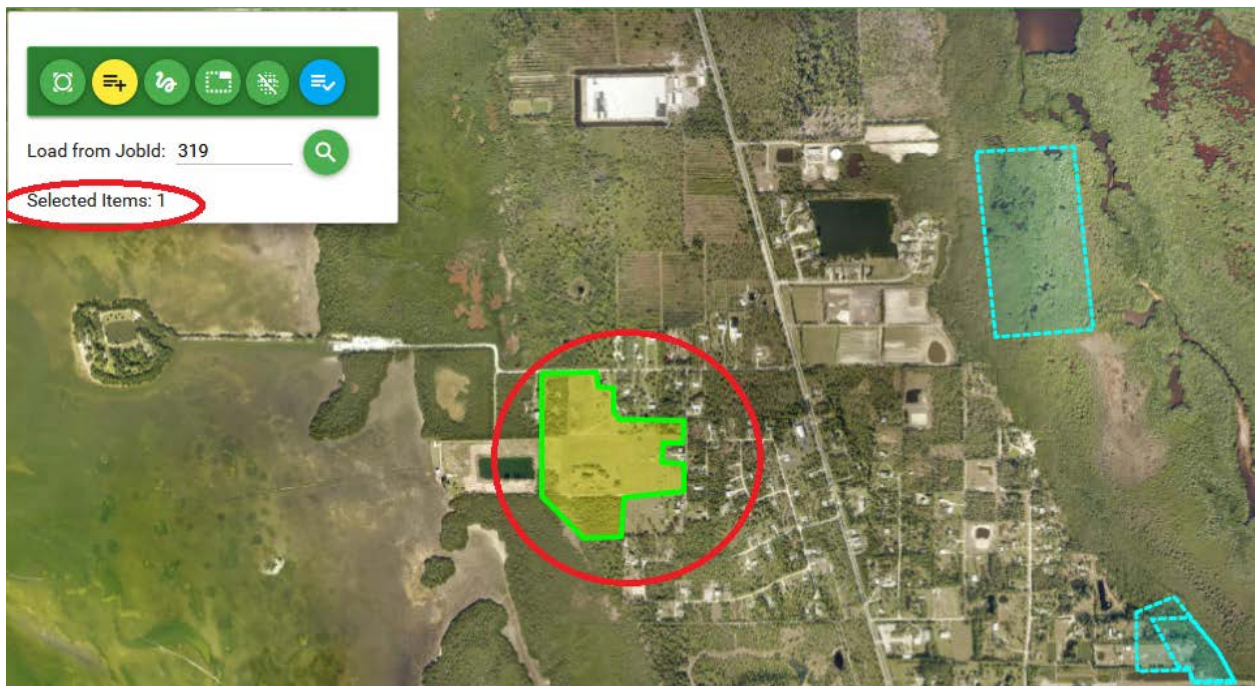



Figure 3 - 21: Single Area Selected

If you want to select many areas at the same time, click . Then move the mouse to the desired areas. Hold down the left mouse key and drag the mouse to circle the areas.

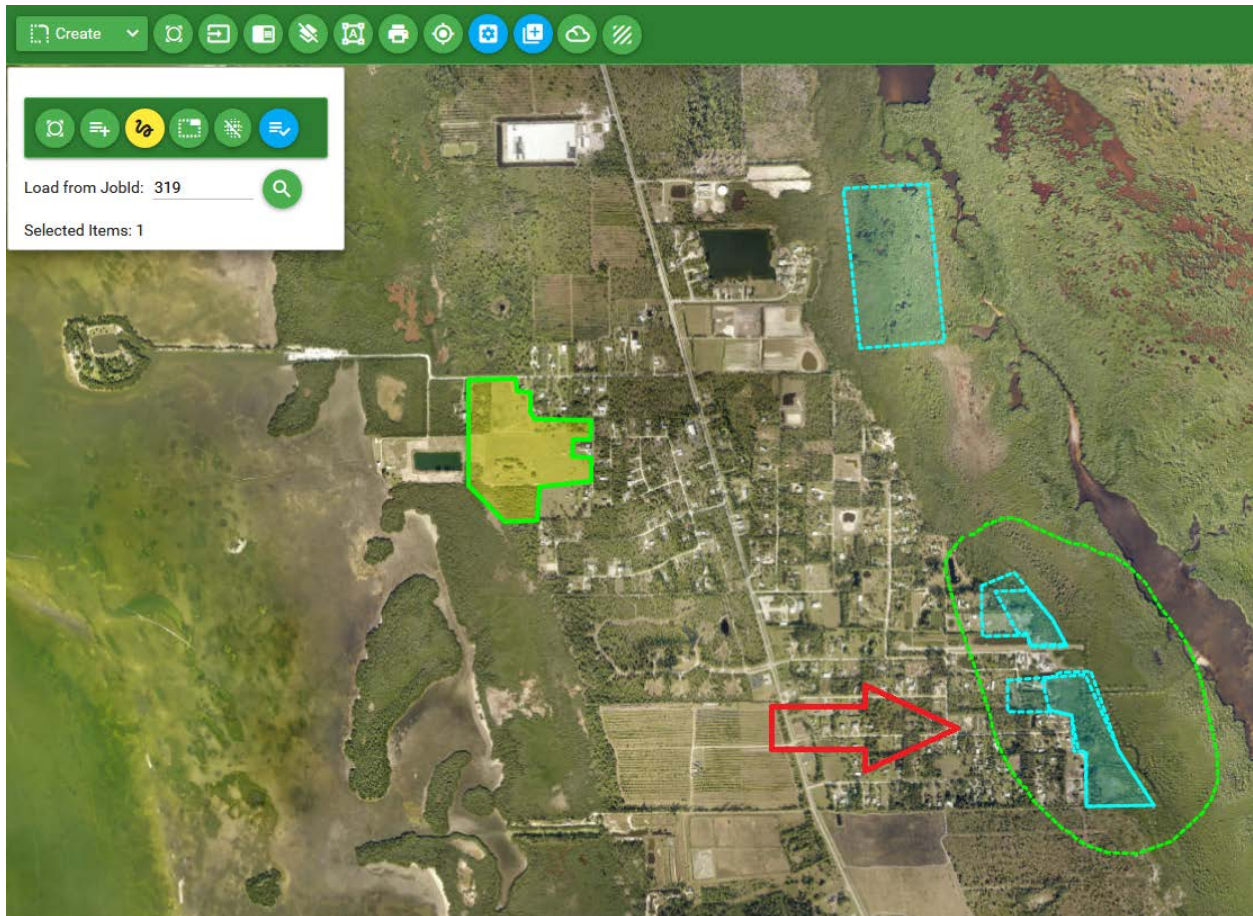


Figure 3 - 22: Select Multiple Areas

Release the mouse button to select the areas.

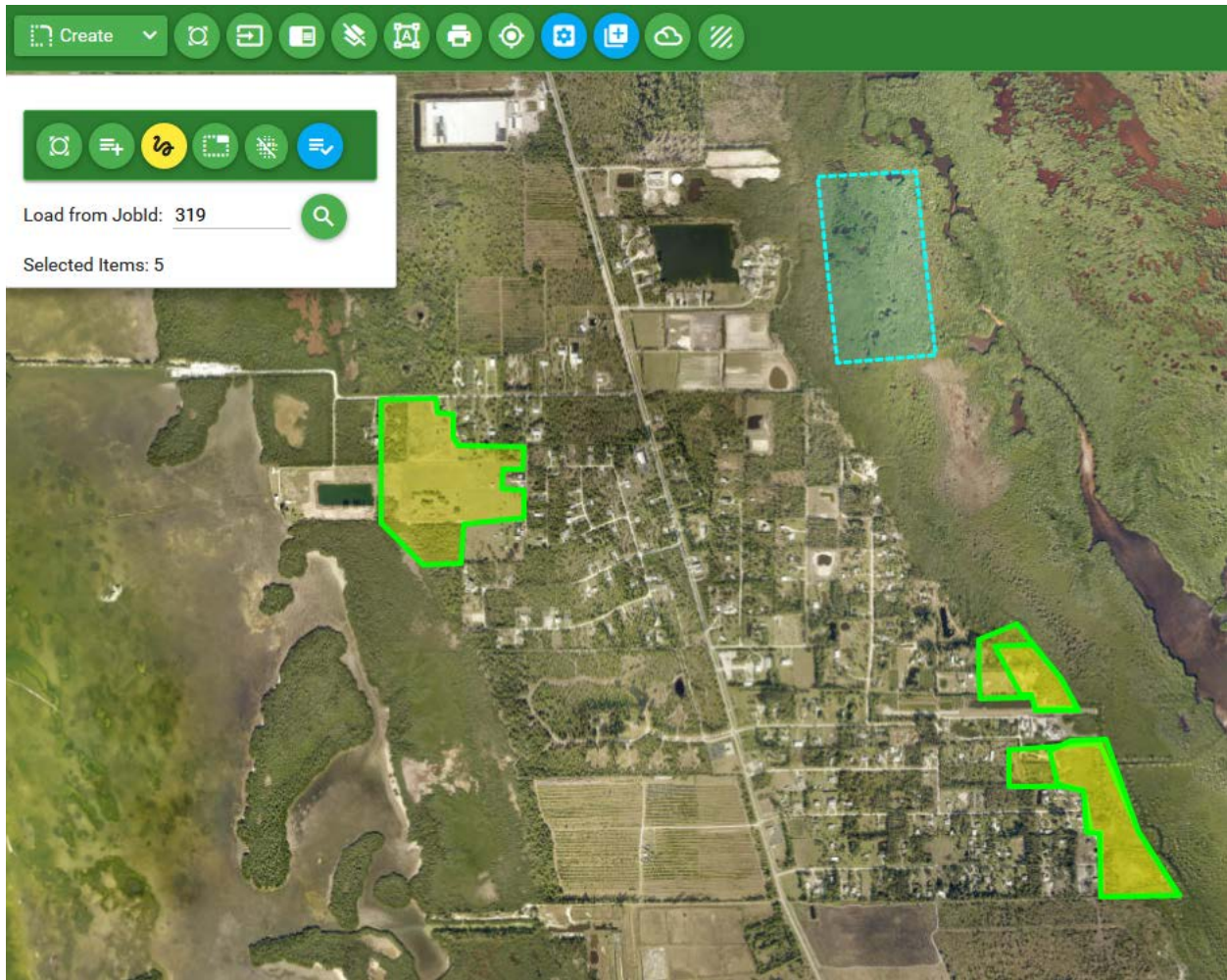




Figure 3 - 23: Multiple Areas Selected

Note that after clicking , you cannot use the mouse to move the map. You can use the Up, Down, Left, Right keys to move the map. If you want to use the mouse to move the map, you have to click  again to turn off this function.

When all desired areas are selected, click  to add them to the current mission.

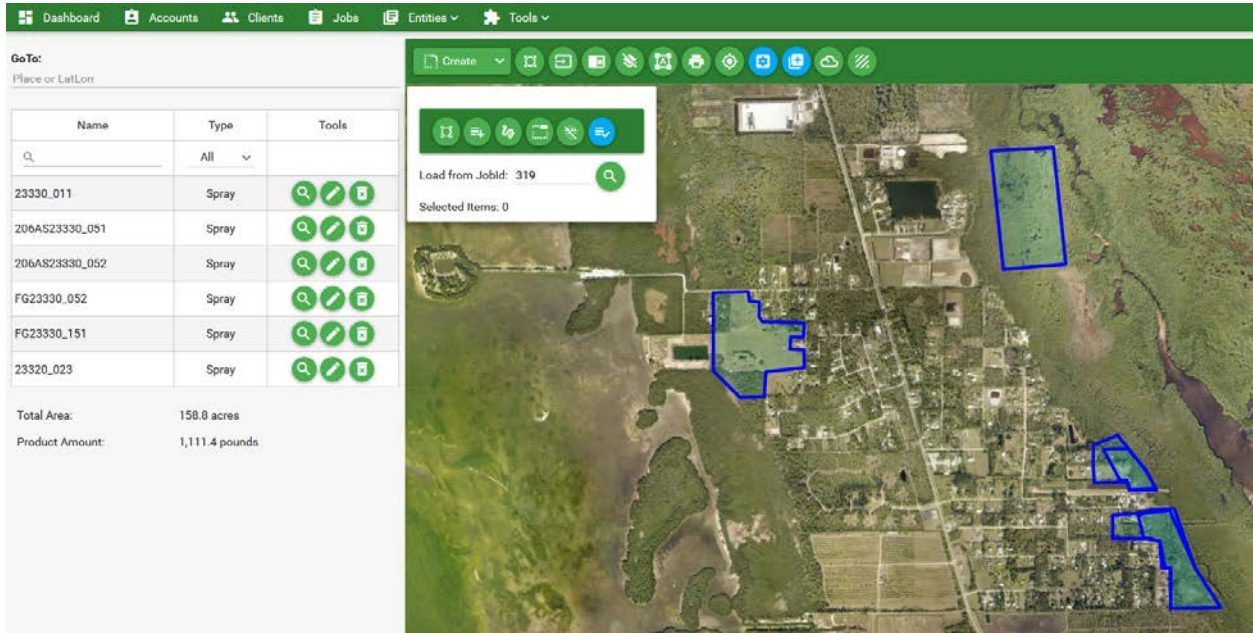



Figure 3 - 24: Add Areas to Mission

Click  to close the Add Area Controls.

Finally click  to save the mission.

3.7 Create Areas Library

If your clients have areas that you spray year after year, you can create an area library or area list for each client. When creating a job for a client, you can select spray areas from the area list created for that client. There are 2 ways to make an area library:

- a) Tools → Manage Area Library: If you have polygons saved in a shape, kml, or AgNav file, you can load the polygons to the library. To do this,
 - If you have shape files, zip the .shp, .shx, .dbf and .prj files together. If you have AgNav files, zip the .no1, .prj, .dsp, .xcl files together. If you include other files such as .xyz, .log, and spray data files, they will be ignored. If you have .kml or .kmz files, you don't have to zip them.
 - In Clients, select a Client that you want to create area library for.

Client List					
Name	UserName	Address	Contact	Phone N°	Email
<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>
Barrie Farmers	mybarriefarmers@ags.com	70 Collier St, Barrie, Ontario, Canada	Lai Nguyen	705-734-0909	lain@agnav.com
Ramom		Brazil	Ramom Lopes		
FKMCD		Florida Keys, USA	Mark Regelmann		
Barrie Farmers		AgNav	Lai Nguyen		
Sopfim		Quebec, Canada	Nicholas		

Figure 3 - 25: Select Client for Area Library

- Click Tools then select Manage Area Library. The map is shown.

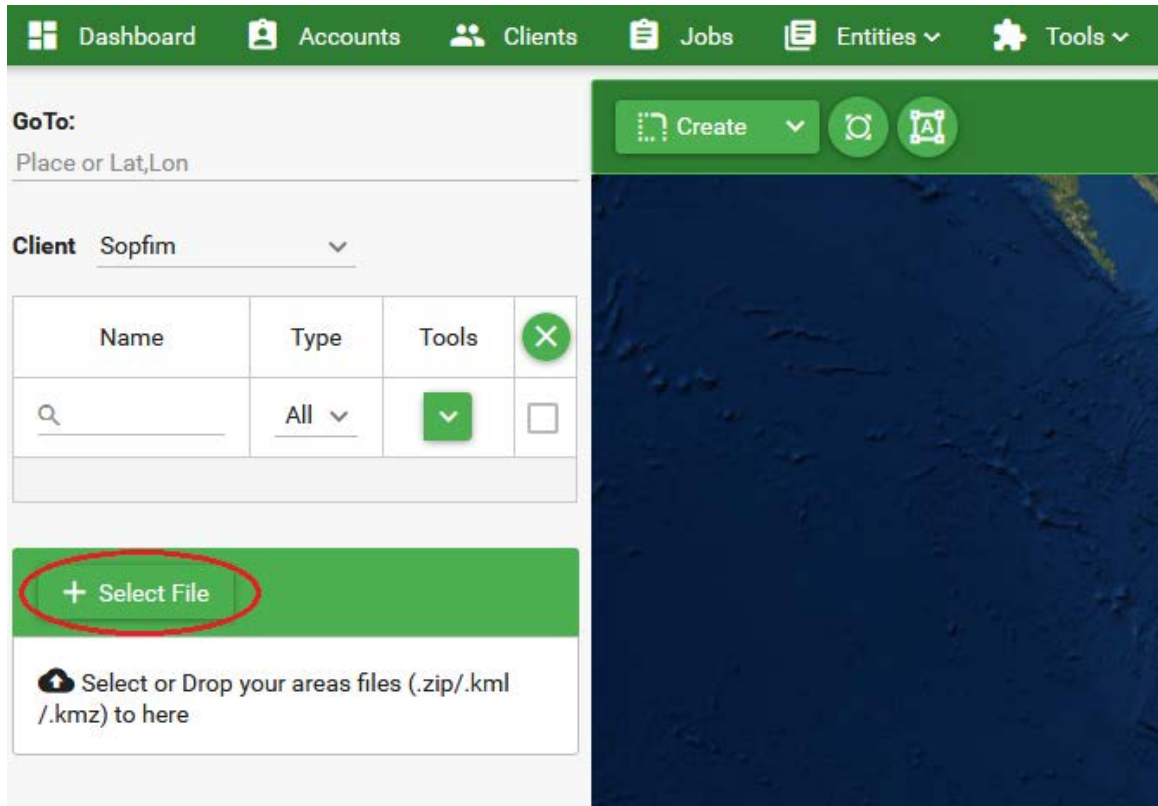


Figure 3 - 26: Create Area Library

- Click “+ Select File”
- Select the kml file or zip file that has spray polygons.

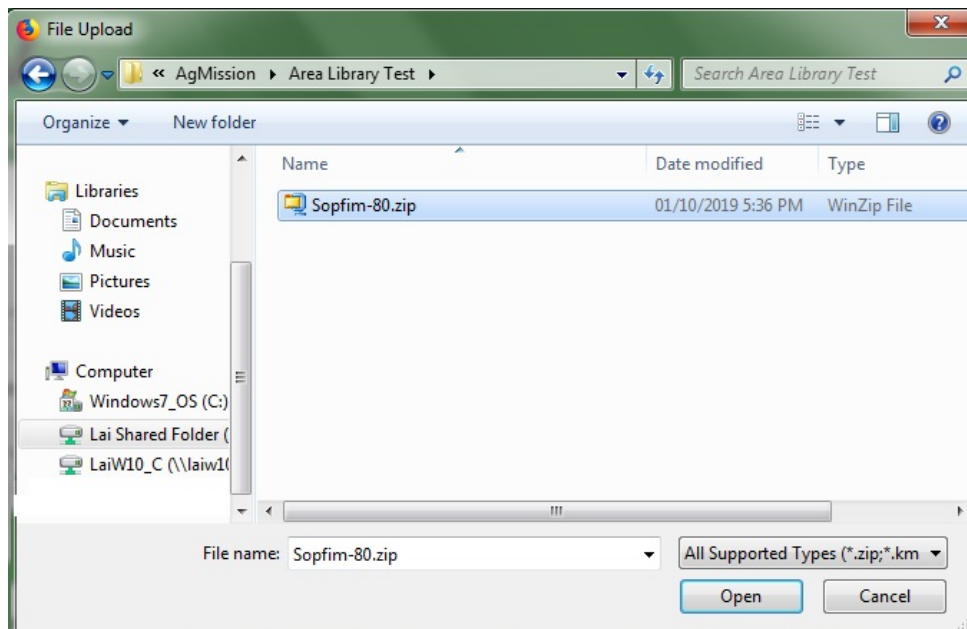


Figure 3 - 27: Select File for Area Library

- AgMission reading the file then show the polygons on the map.

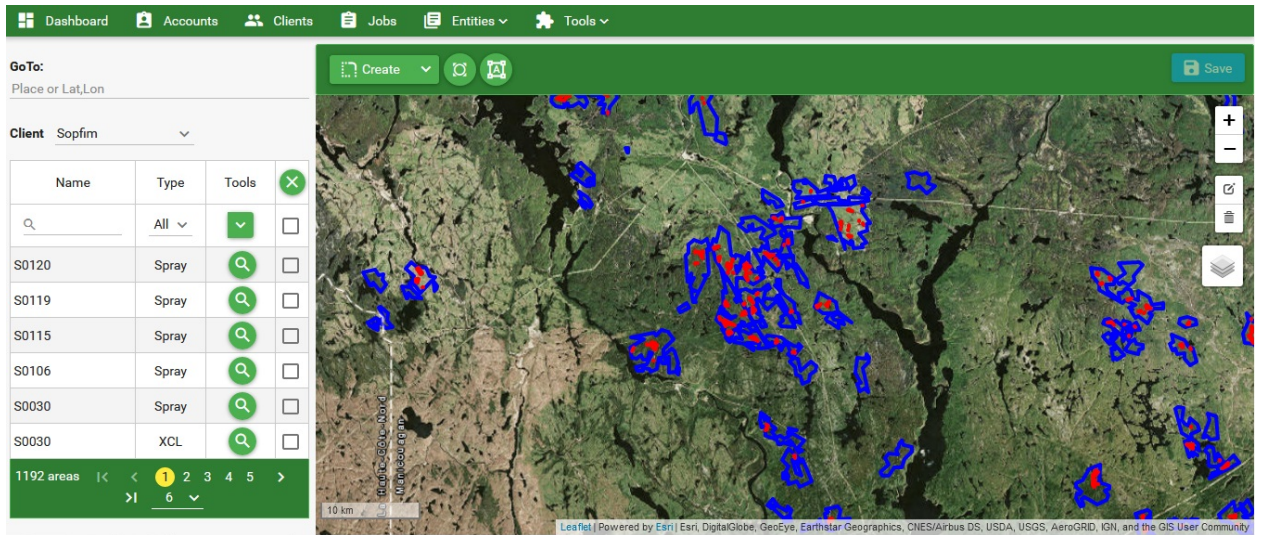


Figure 3 - 28: Area Library – Show Polygons

- You can edit the area information or delete unwanted polygons by selecting polygons then click Tools.

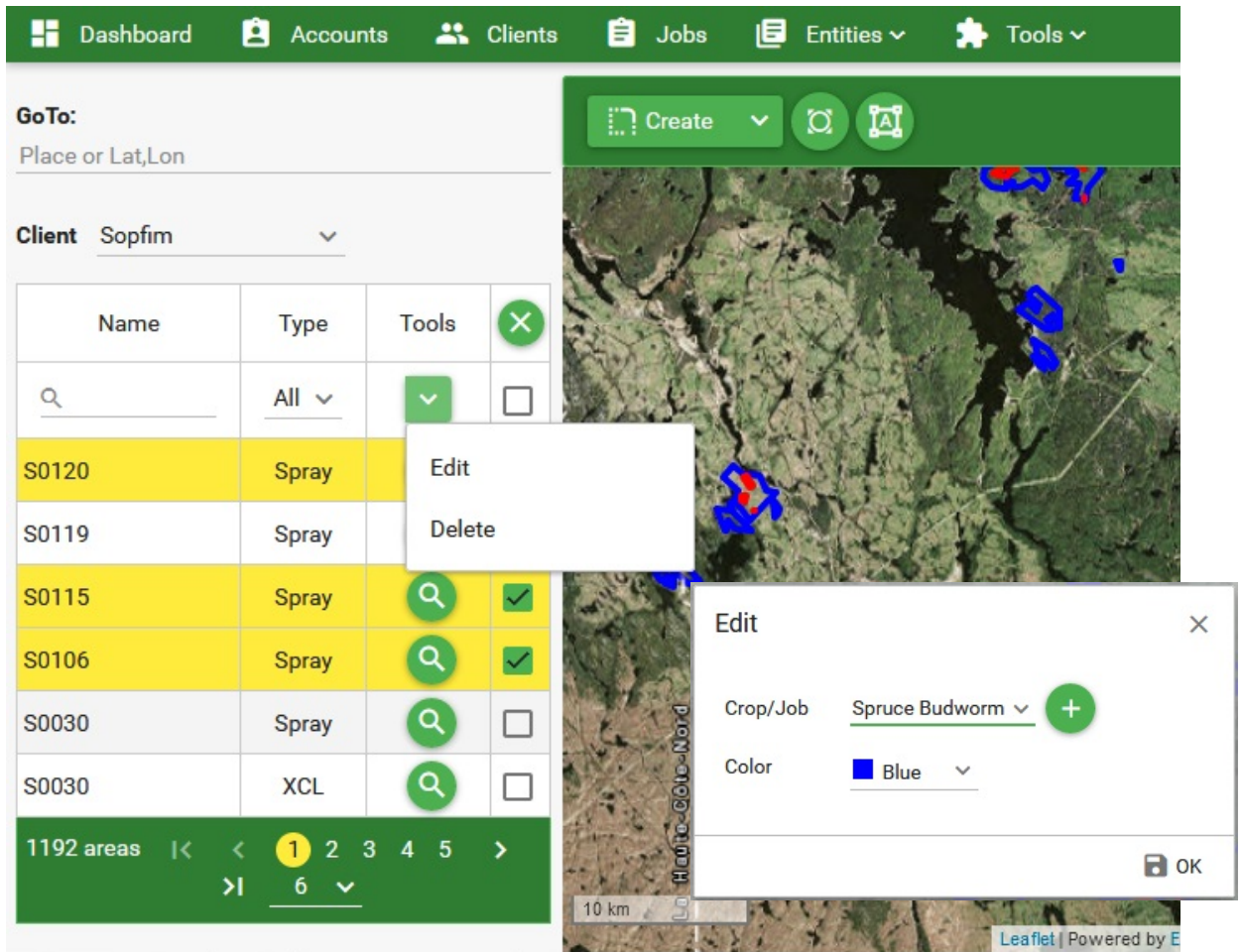


Figure 3 - 29: Edit / Delete Polygons

- Click the desired task, i.e. Edit or Delete.
- If Edit, you can assign the Crop Type or Job Type to the selected polygons. The color assigned to Crop/Job type is used. You can change the color if desired. For example plotting all restricted areas in purple or orange.
- If Delete, the selected polygons will be deleted from area library.
- You can create more polygons by clicking **“Create”** then select the type of polygon or zone.

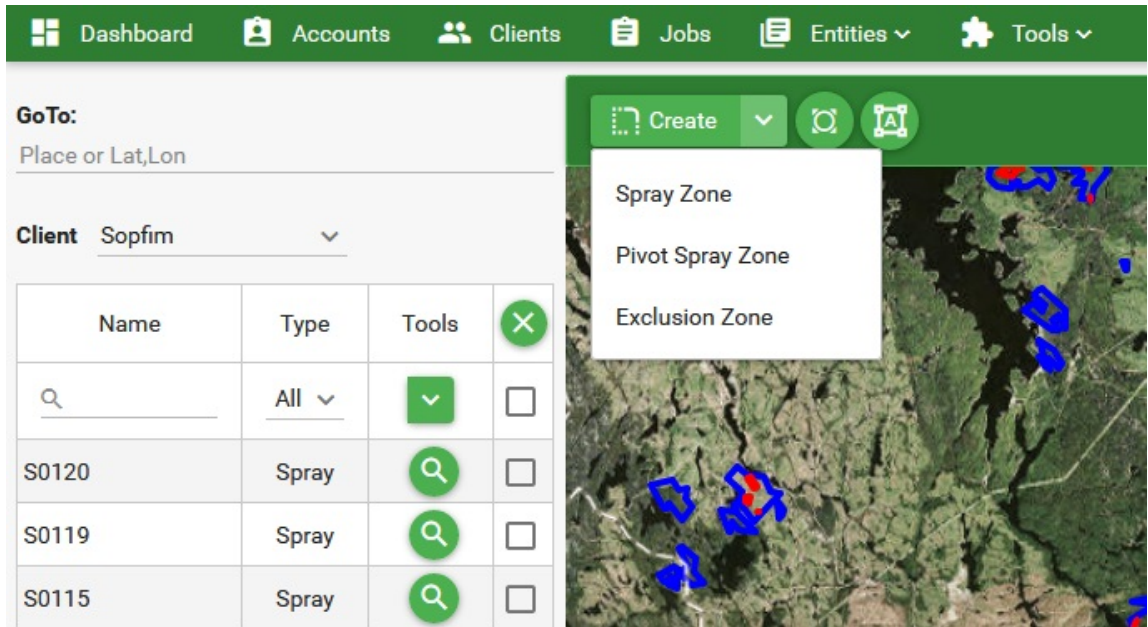


Figure 3 - 30: Creating Polygons for Area Library

- Creating a polygon for library is the same as creating an area for a job.
- When all done, make sure you click **“Save”** to save the area library.

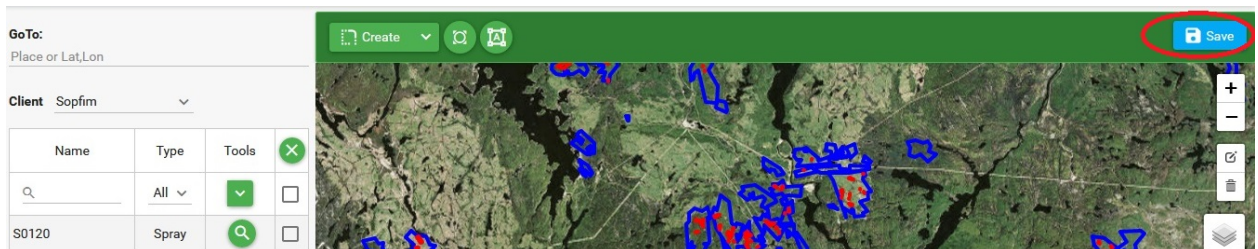


Figure 3 - 31: Save Area Library

- b) By using “Add to Library” in Job Map screen: When creating or editing a job for a client, you can add the spray zones and exclusion zones to the area library for this client. To do this,
- Select a Client.
 - Create a job or open an existing job.

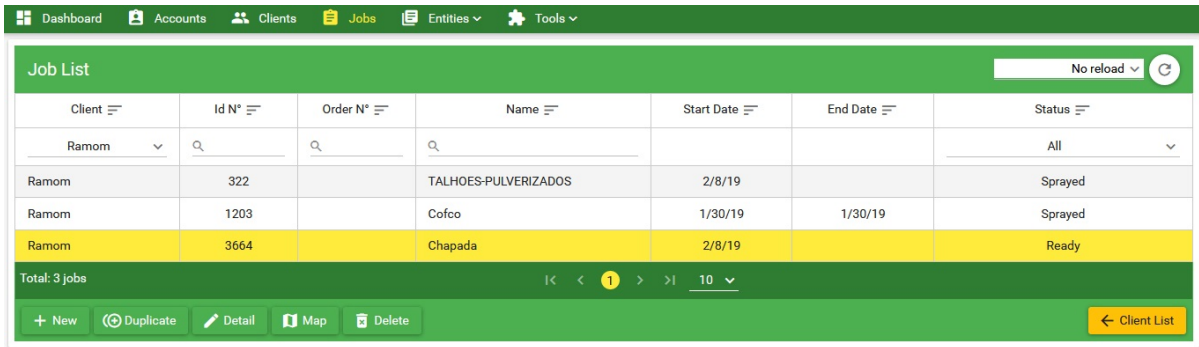


Figure 3 - 32: Select Job for Area Library

- Click “Map” to view spray areas on map.

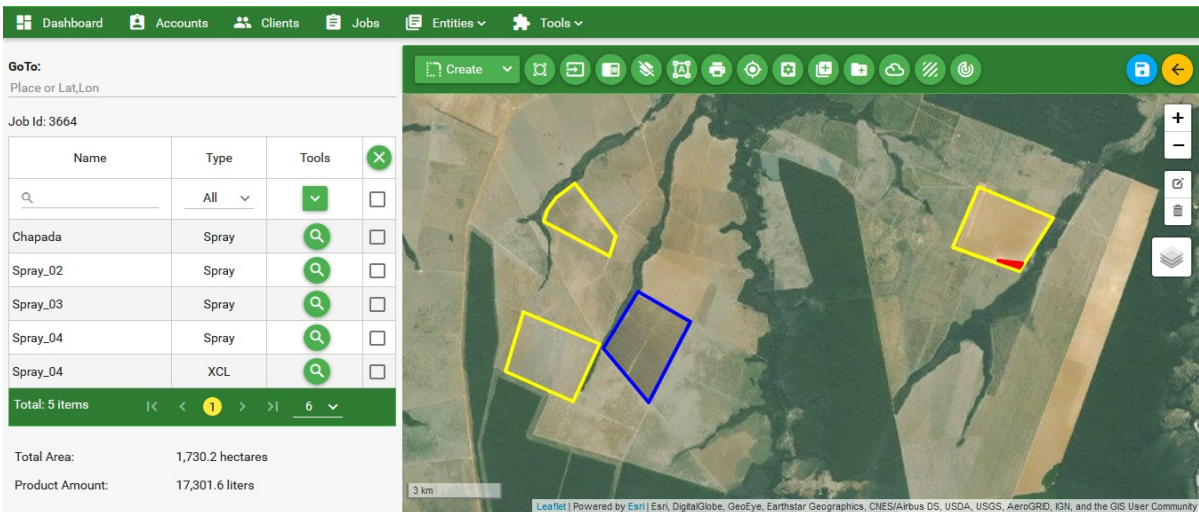


Figure 3 - 33: View Job on Map

- On the left panel, tag the polygons you wish to add to library.
- Click Tools then select “Add to Library”.

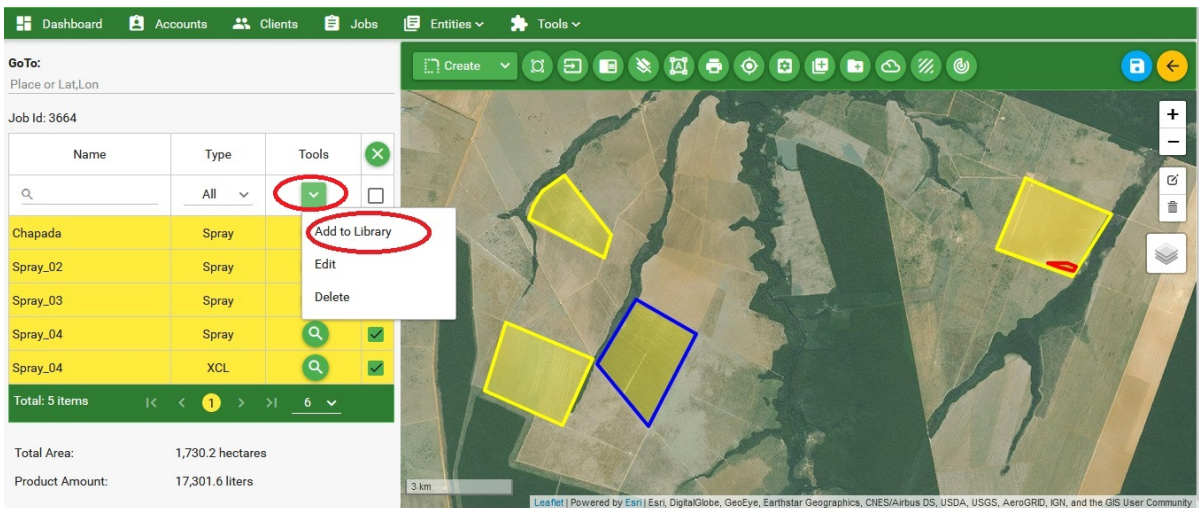



Figure 3 - 34: Add Areas to Library

- AgMission will confirm if area adding to library is successful or not. It will check if any area is duplicated in library and ignore the area if this happens.

When creating a job, you can load areas from library by clicking 

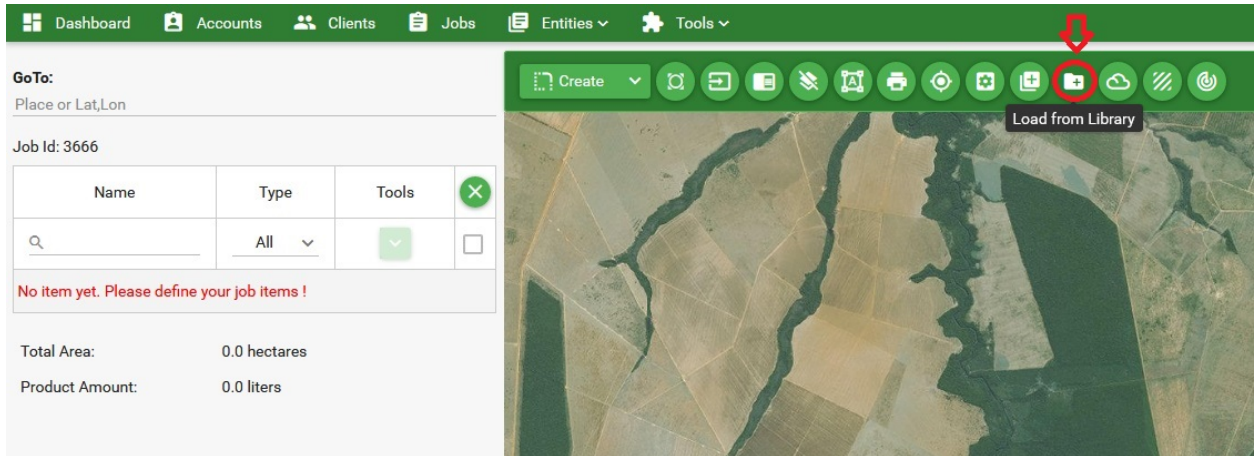


Figure 3 - 35: Load from Library

The polygons from library will be shown.

You can select the desired polygons for the new job by entering polygon names or clicking on the polygons on map.



Figure 3 - 36: Polygons from Area Library

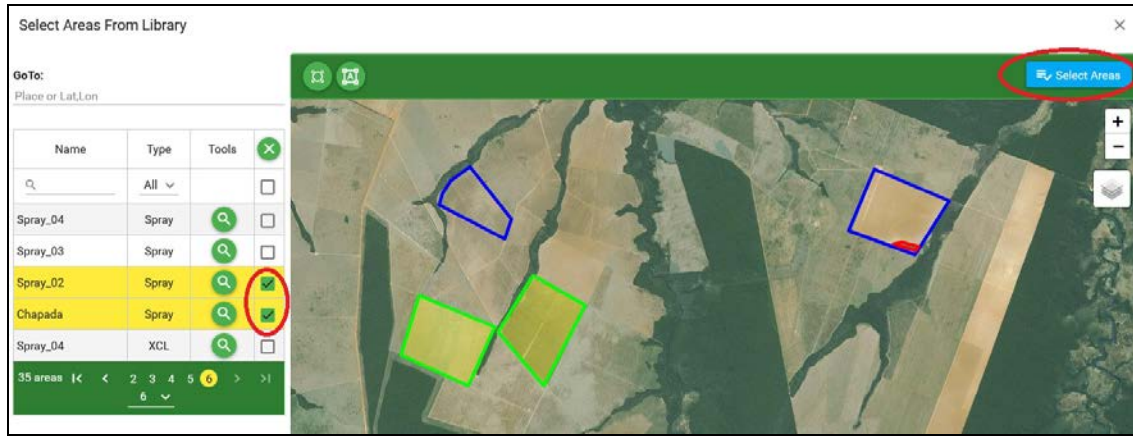


Figure 3 - 37: Select Polygons from Area Library

The selected polygons are highlighted. Click [Select Areas](#) to add polygons to job.

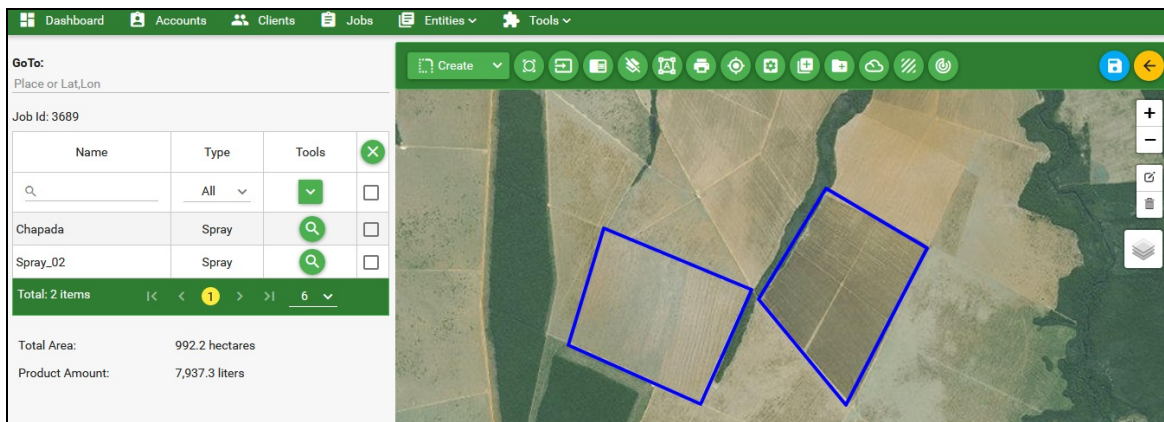


Figure 3 - 38: Add Polygons to Job

You can add or create more polygons if desired. Finally save the job.

Manage Area Library:

To view polygons in area library,

- Select **Client** from the Client List.
- Click Tools → Manage Areas Library.

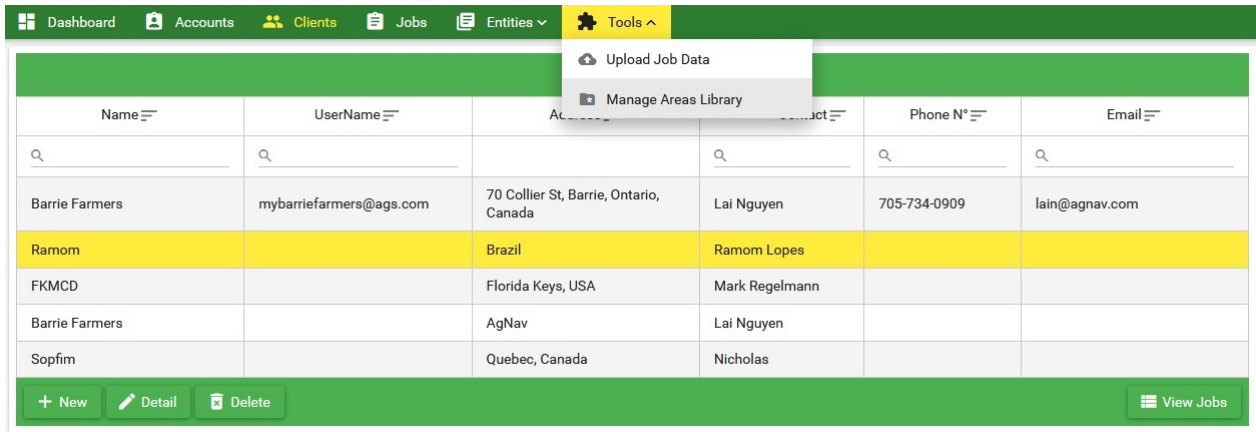


Figure 3 - 39: Tools – Manage Area Library

- When the map is shown, you can zoom in or out to view the polygons.



Figure 3 - 40: Manage Area Library – View Polygons

- You can delete, modify existing polygons; or add more polygons. For restricted areas, you can assign a new Crop/Job Type, for example “Residential” or “BeeHives”, to the polygons and plot them in orange or red.

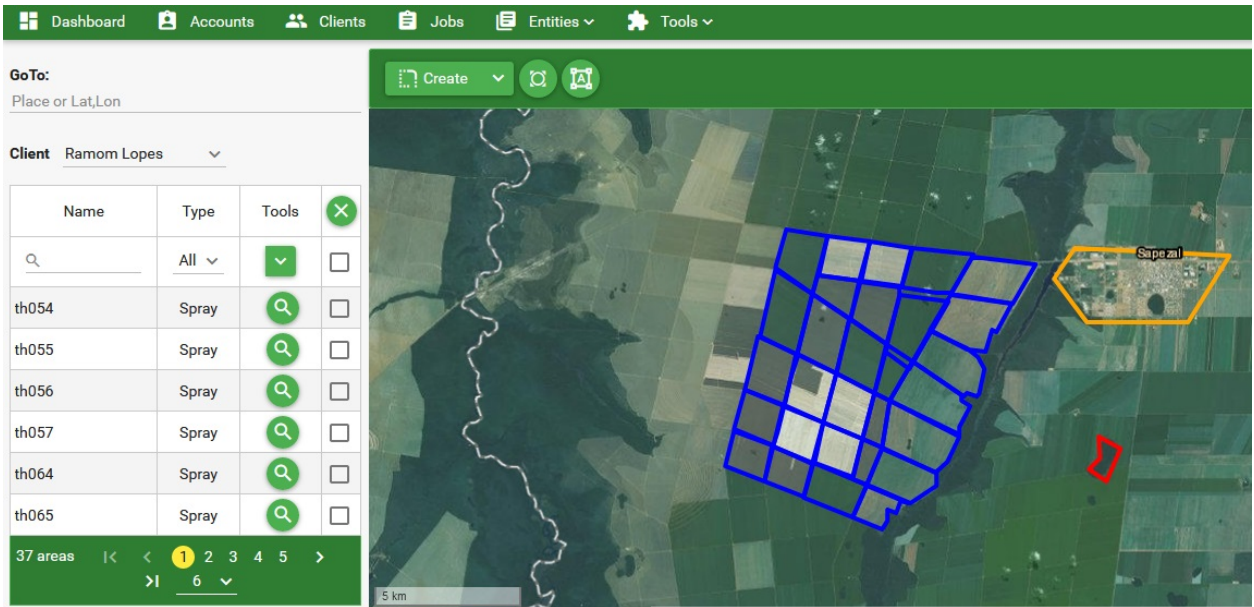


Figure 3 - 41: Manage Area Library – Add Polygons

- Save the area library when done.

4. Download or Assign Jobs to a Platinum

Along the application process, once a job was created and ready, approved with “Ready” status, the next step is to transfer the job to an aircraft for spraying.



There are two options to transfer the job to a Platinum within an aircraft:

1. Download the job files into a USB stick then copy the jobs to the Platinum.
2. Assign the job to an aircraft if there is internet available at the airport.

Notes: This requires setting up a unique aircraft account mentioned in Section 2.6 and apply the account to the assigned aircraft, section 5.1, Platinum Agmission settings.

4.1 Download Jobs to USB Stick

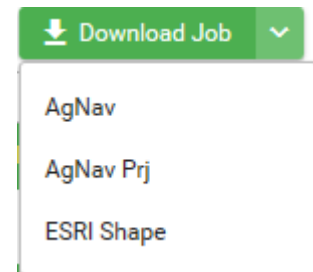
To download a job, the Job Status must be changed to “Ready”. To do this, select the Status on the Job Information screen. If the current selection is “New”, change it to

“Ready”, . Then click .

a) Download Job without Map Background: in “Map Tools” section, when the

 button is enabled, click the “v” button to show the file options.

- Select “AgNav” if you want to spray the areas in the job separately. AgMission will create a single *.no1 file for each spray area.
- Select “AgNav Prj” if you want to spray the areas in the job together. AgMission will create a project *.prj file for all spray areas.
- Select “ESRI Shape” if you want to save all spray areas in the job to a shape file.



After selecting the file format, AgMission creates a job file which is a zip file with filename the same as the Job Name. For example if the Job Name is “**JoeFarm-Innisfil**”, the job filename will be “**JoeFarm-Innisfil.zip**”.

Depending on the browser used to run AgMission, the job file may be saved in the “Downloads” folder on your computer; or it may prompt you to select where to save the file. If the browser does not prompt you to select the folder, search in the “Downloads” folder on your computer for the job file. Copy it to a USB key, then copy the job file to the Guia system.

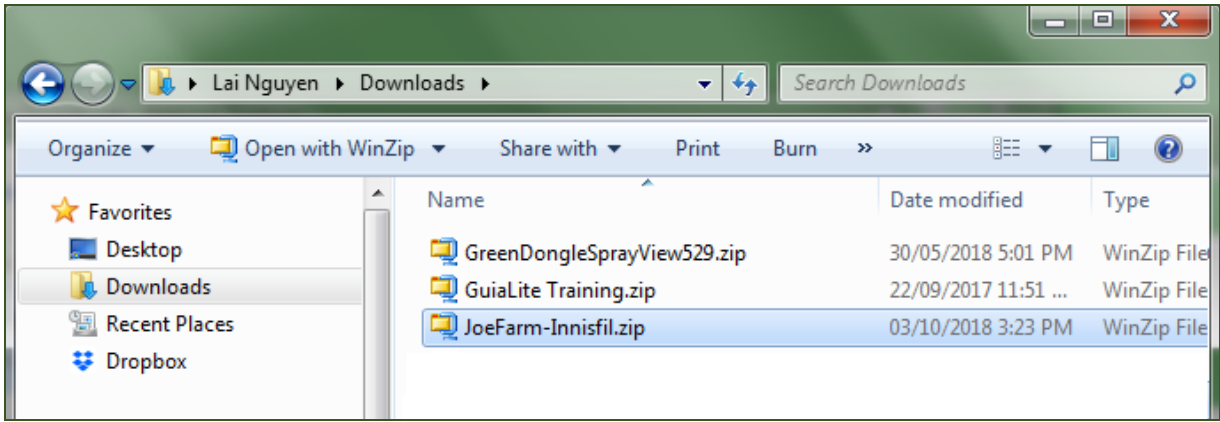


Figure 4 - 42: Search for Job File

If the browser prompts you to select where to save the job file, you can choose to save the file to a USB key or to a folder on your computer.

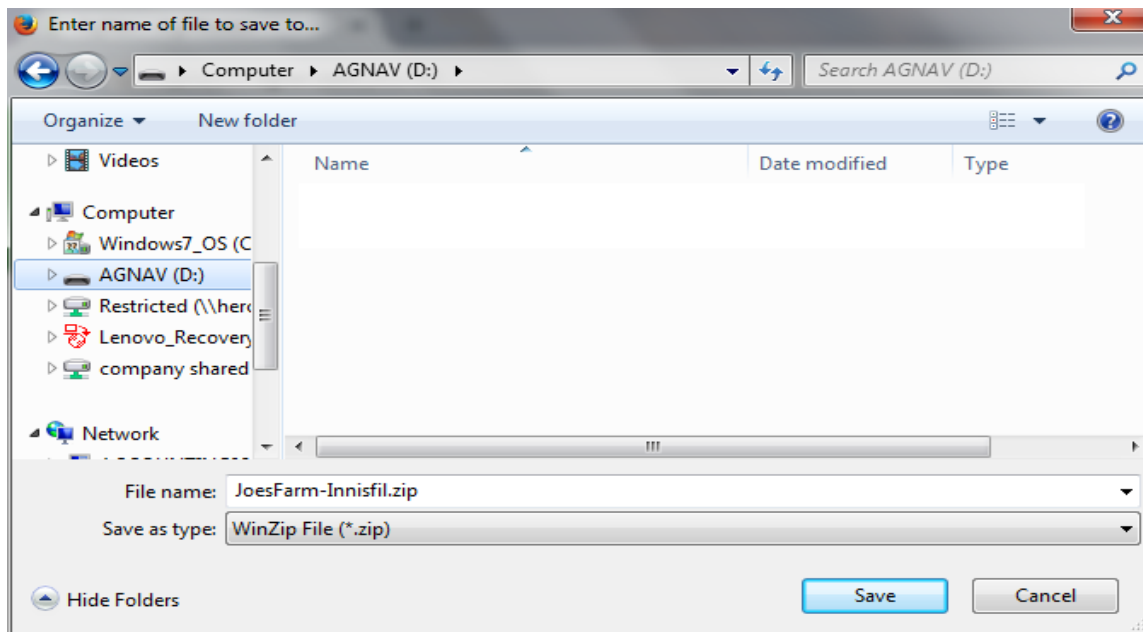




Figure 4 - 2: Save Job File

b) Download Job with Map Background: You can download a job with the map background. To do this,

- Click  the Map information screen or  in Job List screen to view the job on Job Map screen. Adjust the map scale to fit the spray areas. What you see on the map is what you get for display on the Platinum. Do not select too large scale, i.e. > 5 miles left to right.

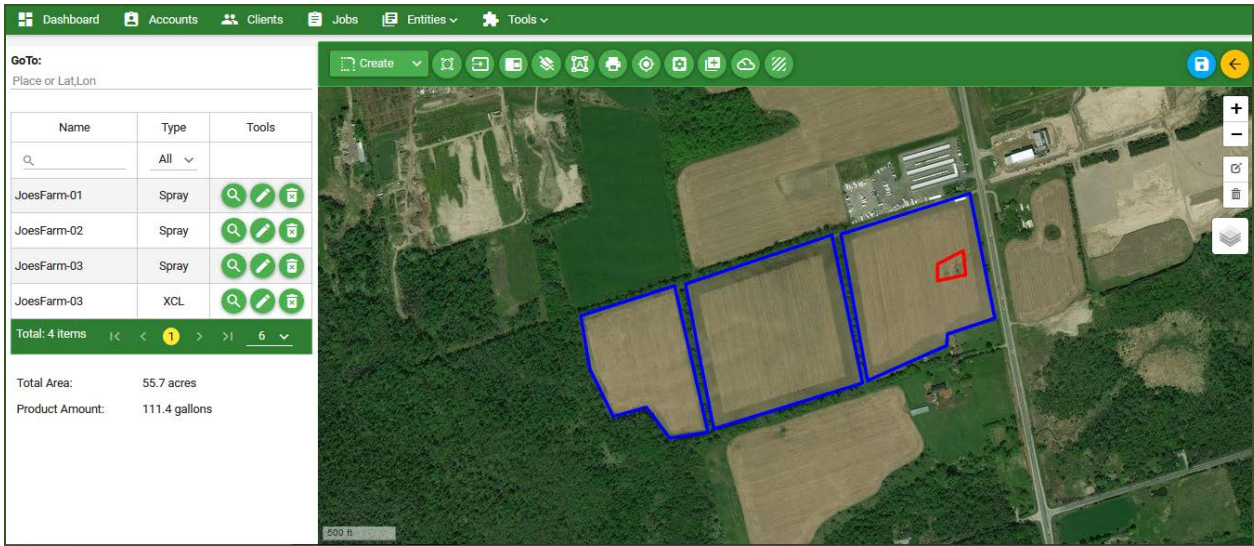

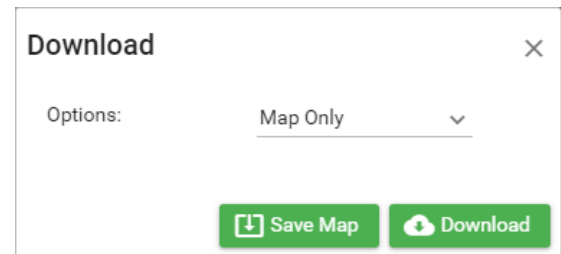
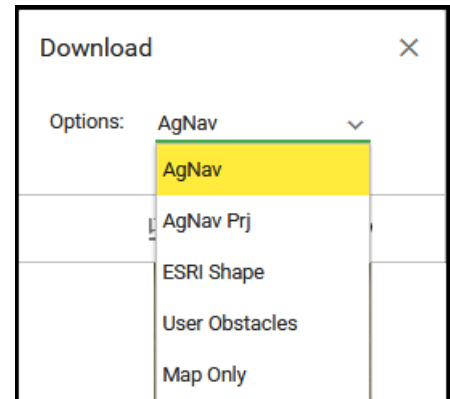


Figure 4 - 3: View Job on Map

- Click the download  button. The file format options are shown.
- Select the desired option. “AgNav”, “AgNav Prj” and “ESRI Shape” download spray areas, exclusion zones and map background. “Map Only” will download map background only. Select this if you want to download more maps for the job.
- Click the “Download” button. AgMission will create a job file which is a zip file with filename the same as the Job Name. For example if the Job Name is “**JoeFarm-Innisfil**”, the job filename will be “**JoeFarm-Innisfil.zip**”.
- Depending on the browser used to run AgMission, the job file may be saved in the “Downloads” folder on your computer; or it may prompt you to select where to save the file. If the browser prompts you to select the folder, choose to save the job file to a USB key or a folder on your computer.
- If you use Job Assignment instead, described next, click the “Save Map” button to save the map background.



Notes: When you have a job file copied to a USB key, use the File Manager in the Guia Platinum, Gold or Silver to copy the job file to your guidance system.


4.2 Assign Jobs to a Platinum

If you have an AgNav Platinum system and have internet access in the Platinum, you can use this function by creating an aircraft account for it in Entities > Aircraft. Then, the account username and password must be entered in the AgMission settings in the Platinum for auto logging to AgMission to receive the job or send it back to Agmission with spray data when done. When the setup is done, you can assign a job to the Platinum by selecting its name within the “Aircraft” list within Job Assignment section in the Job Information screen.



Figure 4 - 4: Job Assignment

As an example, we have created an aircraft account named c-agn400@ags.com for a Platinum. The aircraft name “C-agn400” is shown in the “Aircraft” list under “**Job Assignment**”. To assign the job to this aircraft:

- Click the aircraft name to highlight it.
- Click this  button. The aircraft name is moved to the “Assigned Aircraft” list.
- Select the file format in the “Download Options”. Choose “AgNav” for a single no1 file for each spray area in the job, “AgNav Prj” for a project file combining all areas, and “ESRI Shape” for a shape file for all areas.

Note: If map background was saved before in the Map screen, the map background file will be saved to the job file as well.

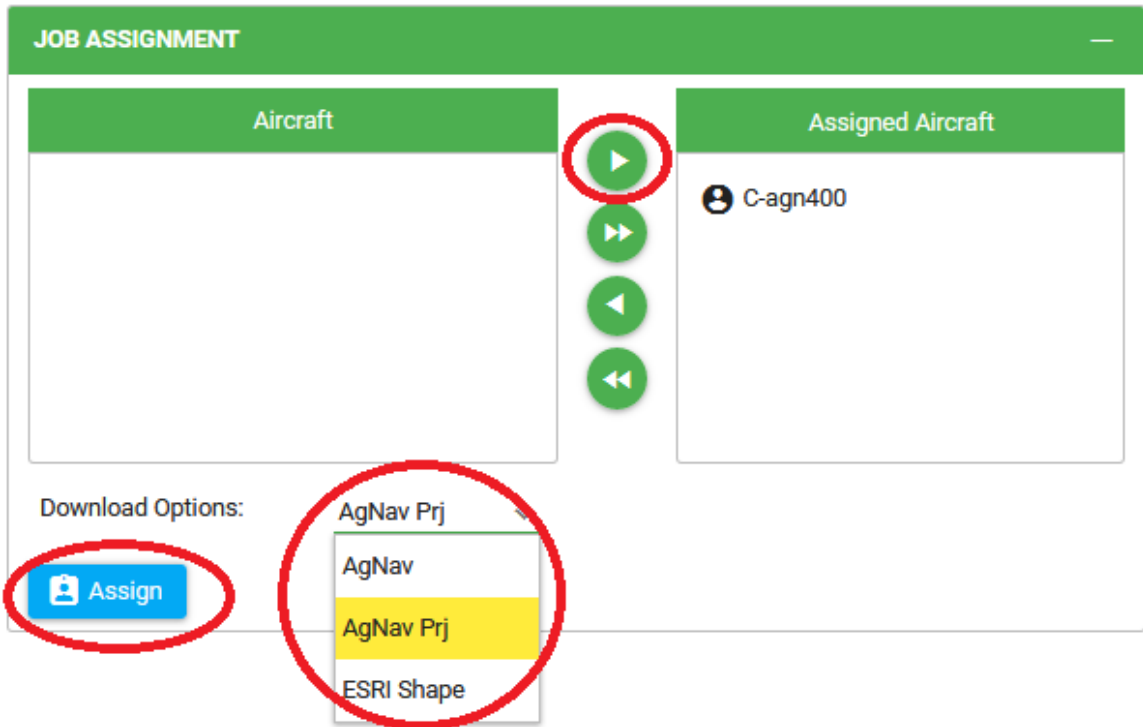



Figure 4 - 5: Assign Job to Aircraft

- Click the  button to send the job file to the assigned aircraft.

Notes: If the mission has only one spray area, **do not select to output job to AgNav Project, i.e. "AgNav Prj"**.

5. Perform assigned Jobs in a Platinum

For the Platinum system to connect to AgMission, an aircraft account must be created for the Platinum (Section 2.6). As an example, an aircraft account was created with the following information:

Aircraft Information

Name	C-agn400	Description	AgNav Aircraft
------	----------	-------------	----------------

Access Account in Guia Platinum

UserName	c-agn400@ags.com	Password	agn400
----------	------------------	----------	--------

Figure 5 - 1: Aircraft Account

5.1 Platinum AgMission Settings

To setup an aircraft account for the Platinum, on the Platinum Main menu, select Settings.

- 1) Tap the AgMission button.

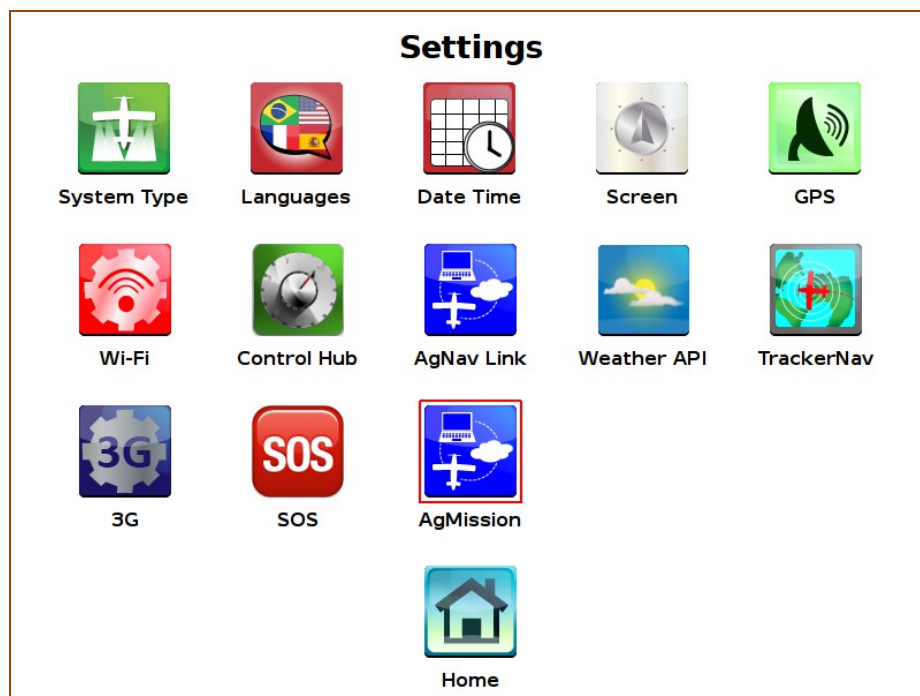
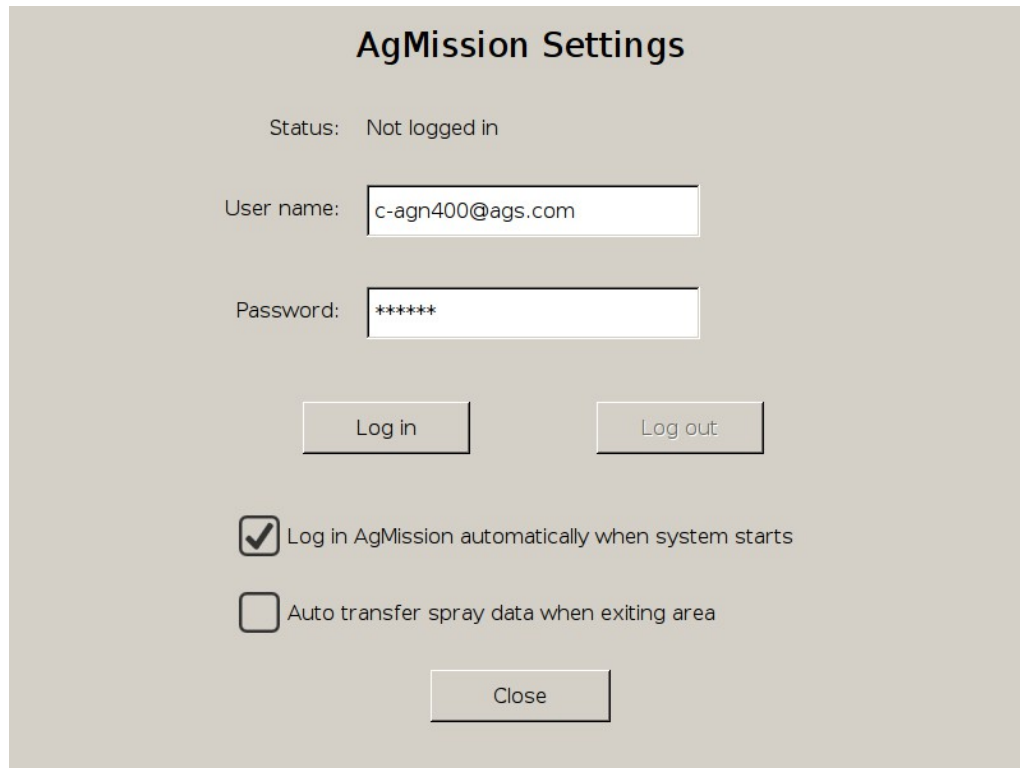


Figure 5 - 2: Settings - AgMission

- 2) Enter the username and password which were created for this aircraft in AgMission. As in our example, the username is c-agn400@ags.com and password “agn400”.



The screenshot shows a dialog box titled "AgMission Settings". At the top, it displays "Status: Not logged in". Below this are two input fields: "User name:" containing "c-agn400@ags.com" and "Password:" containing "*****". There are two buttons: "Log in" and "Log out". Below the buttons are two checkboxes: the first is checked and labeled "Log in AgMission automatically when system starts", and the second is unchecked and labeled "Auto transfer spray data when exiting area". At the bottom is a "Close" button.

Figure 5 - 3: Enter AgMission Authentication

- 3) Check mark the “**Log in AgMission automatically when system starts**”.
- 4) Optional. Check mark the “**Auto transfer spray data when exiting area**” if you want flight data to be uploaded to AgMission automatically every time you exit an area. You will be prompted when this is done.
- 5) Tap the “Log in” button to log in to AgMission. If the username and password are correct and internet available, the connection status will be “Logged in”. It will be “failed” if not successful. If there are jobs sent to the Platinum up to that time, the number of jobs will be shown as well.

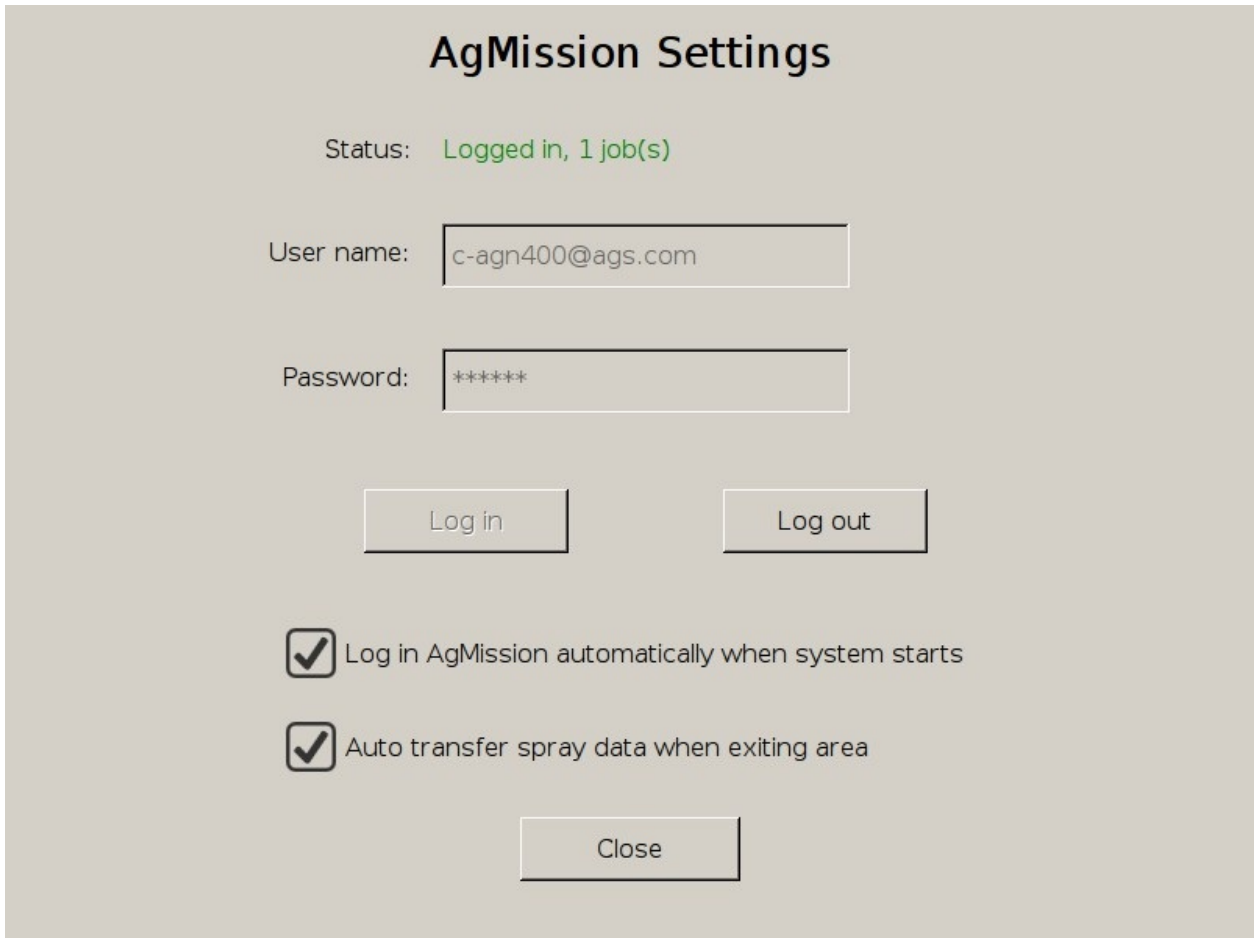


Figure 5 - 4: Log In to AgMission

6) Tap “Close” to exit AgMission settings.


When returning to the Main menu, check the indicators at the top right corner of screen. The AgMission connection status is shown. The bright green  indicates good connection. If there are jobs waiting for download, the number of jobs will be shown as well.



Figure 5 - 5: Platinum Main Menu

5.2 Download Assigned Jobs

If the Main menu shows you have jobs to download, do the following:

- 1) Run File Manager.
- 2) The new job alert is shown. Click "OK".
- 3) Tap the AgMission icon at the bottom right corner to show the list of new jobs. As an example, we have one new job named "JoeFarm-Innisfil" with job ID 239 sent by AgMission. It is shown on the right side of File Manager.



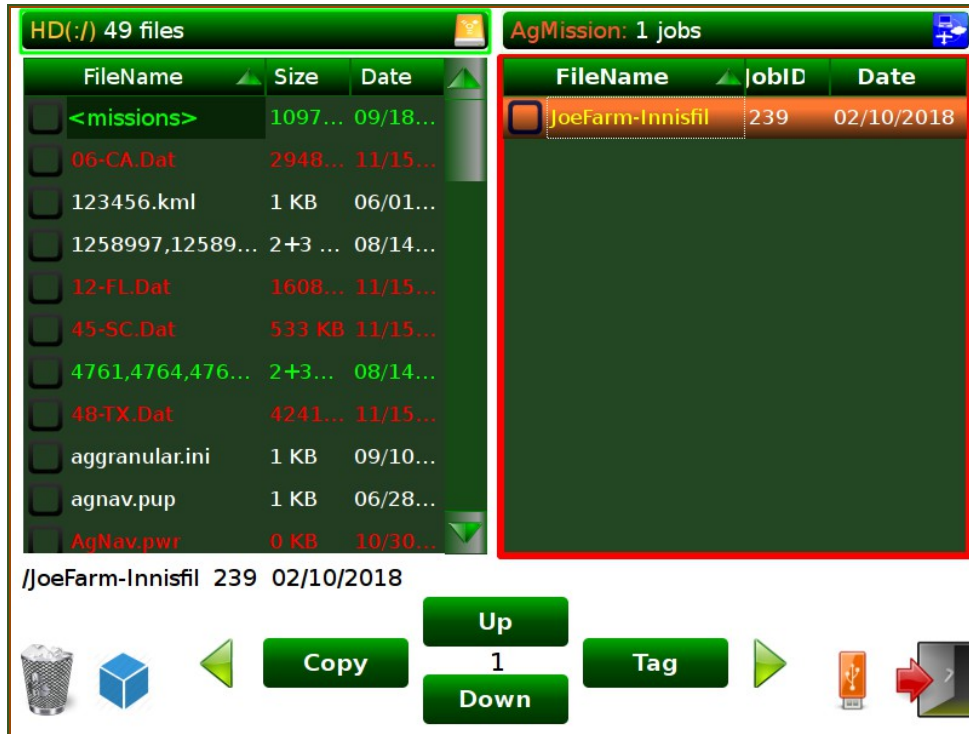


Figure 5 - 6: Select Job to Copy

- 4) Select the job.
- 5) Tap the “Copy” button to copy or download the job to Platinum.
- 6) When the job is copied successfully to Platinum, it will disappear from new jobs list. The job status in AgMission will be changed to “Downloaded” for office staff or other pilots to know that the job was downloaded for spray.
- 7) You can verify and check what files were downloaded by tapping the icon at top right corner of the Hard Drive (left) side. The list of missions will be shown.
- 8) Select the mission name, for example JoeFarm-Innisfil.

Notes: After being copied to a Platinum, “Job” will be referred as “Mission”.

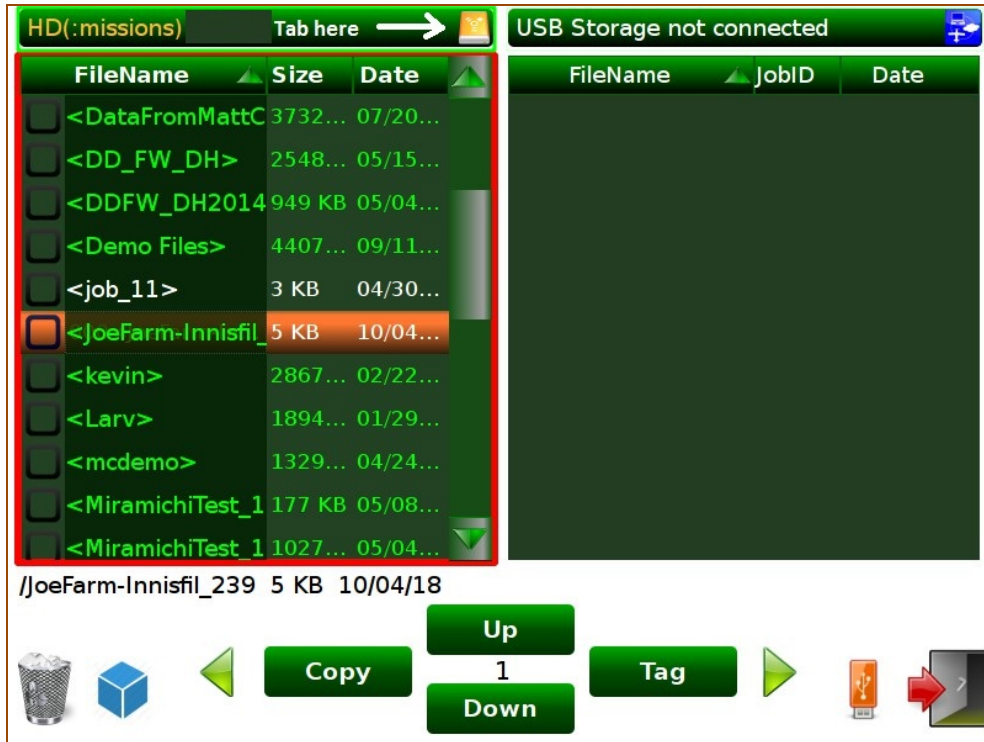


Figure 5 - 7: List of Missions

- 9) Optional. Tap the top right icon again to open the mission folder. The list of area, project, or shape files is shown.
- 10) The job or mission download is done. Tap the Exit button to exit File Manager.




Notes: if you have downloaded the job to a USB key, just plug the USB key to the Platinum and run File Manager. The job will be shown on the USB side (right) and you can copy the job to Platinum in the same way.

5.3 Fly the Mission

In the Platinum, to fly the mission,

- 1) Run Navigate on the Main menu.

- 2) Tap the Mission icon . If Mission function was off, change “Mission: No” to “Yes”.



- 3) Select the desired mission, for example JoeFarm-Innisfil_239. Then tap 

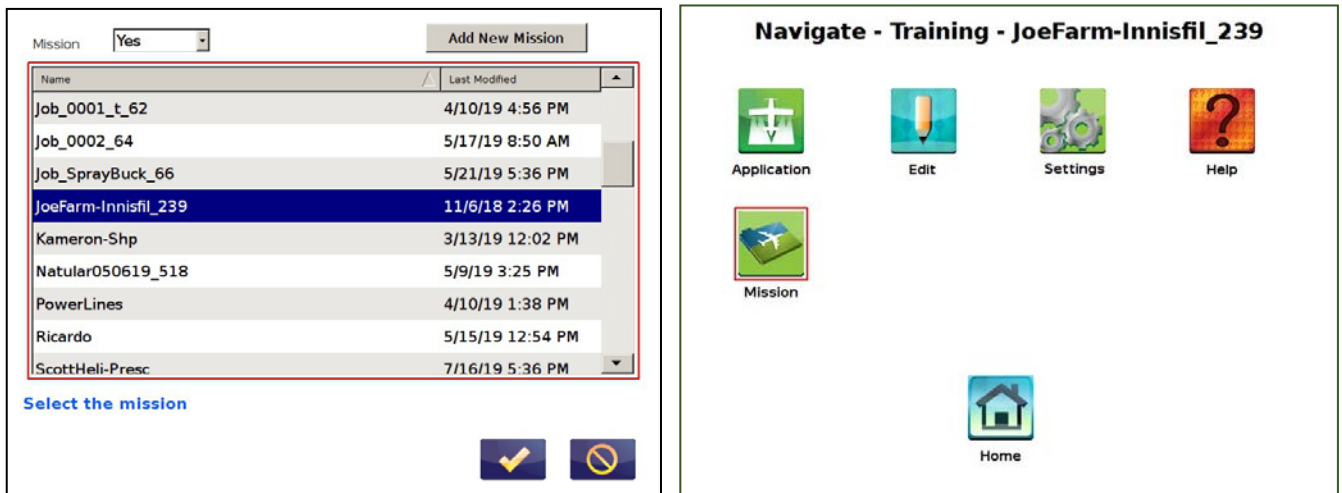


Figure 5 - 8: Select Mission to Fly

- 4) The mission name is displayed at the top of screen.
- 5) The default settings are used for the new mission. Check the Settings to make sure everything is OK for spray.
- 6) When done, tap the Application icon. Check Swath Width.
- 7) The job information entered in AgMission Job Information screen is used for Pilot Info, so you don't have to enter it. However you can edit the info if desired.

Client	Barrie Farmers	Crop	Grass
Farm	JoesFarm	Weather DataSource	Auto
Field	Grass	Remark	Check Power Lines
Operator	Jose Ticar		
Aircraft	C123FW		
Flight	FN123		
Job	Weed Control		

Client name










Figure 5 - 9: Pilot Information

8) Tap “Old Area” to select the areas to spray.

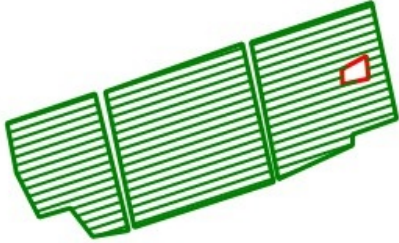



Name			
<input type="checkbox"/>	joesfarm-innisfil.prj		
<input type="checkbox"/> Select All			
Application Type	<input type="text" value="New"/>	Application Rate	<input type="text" value="2.00"/>
Spray Material	<input type="text" value="StartUp"/>	App Rate Unit	<input type="text" value="gals/acr"/>
Spray Mult Zones	<input type="text" value="Together"/>	Tank Volume	<input type="text" value="500.0"/>
joesfarm-innisfil.prj, last modified: 10/4/18 3:25 PM, area: 55.7 ac			
			

Figure 5 - 10: Select Areas to Spray

9) The Spray Material and Application Rate are what were preplanned in AgMission. Enter the Tank Volume and how you want to spray multiple zones in the project.

10) Tap  to continue.

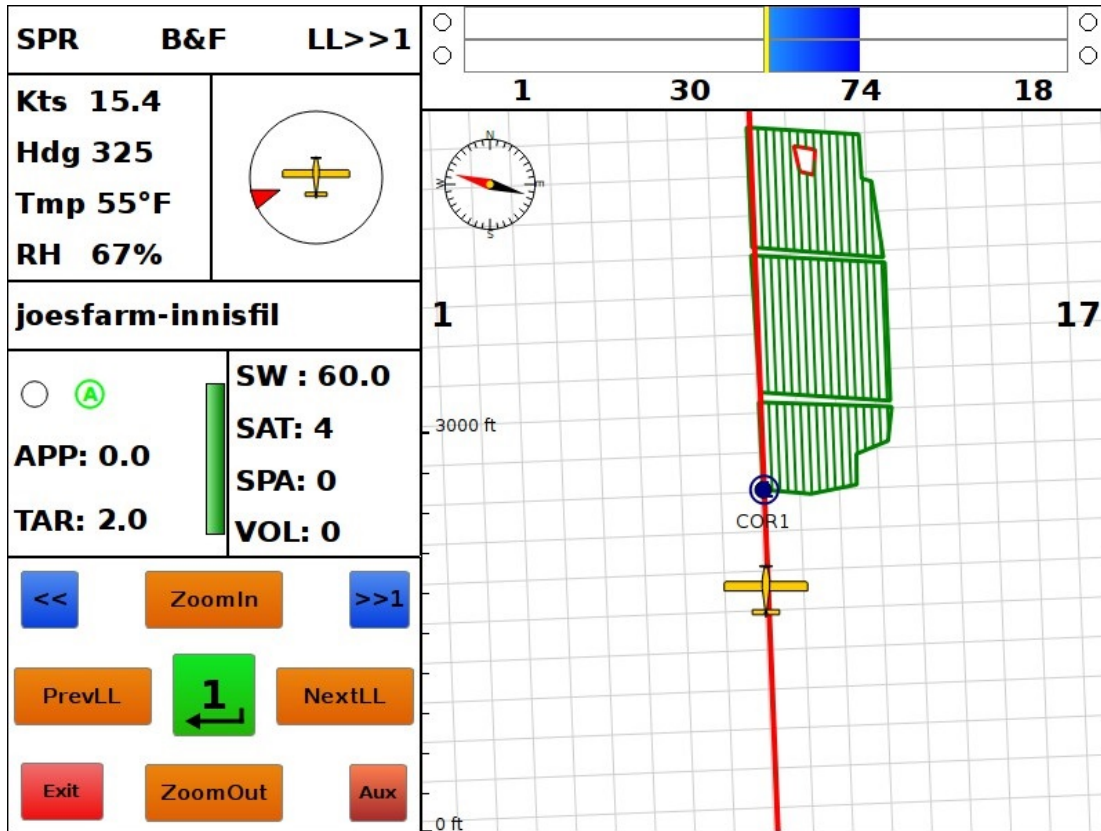


Figure 5 - 11: Spray Area Display on Platinum

Change the grid lines to spray in the desired direction by using <NewGrid> or <BestHead>. If on the ground, go to the Map mode to check the areas and grid lines. You have more functions for grid line generation in the Map mode.

When the grid lines are good, follow the guidance to spray the areas.

Note: The application rate defined for each spray zone will be used for flow control. If each spray area has a different application rate, AgMission will create a prescription file *.vfr in AgNav format. You can select "Variable Rate" on the Application menu and select the .vfr file to apply the prescribed rate for each area. This can be done if you have a flow controller.

6. Upload Spray Data and Print Report

When the pilot finished the job, the spray data or as-applied data files can be uploaded directly to AgMission to update the job for reviewing or printing reports.

Notes: this section only applies for jobs created in Agmission then followed the steps described in section 4 and section 5 above.

6.1 Upload Spray Data Directly to AgMission

To do this,

- 1) Run File Manager. **Do not plug in a USB key.**



- 2) Tap the AgMission icon at the bottom right corner.
- 3) Highlight “<missions>” on the left side to show the mission list.
- 4) Tap the desired mission, for example “JoeFarm-Innisfil”

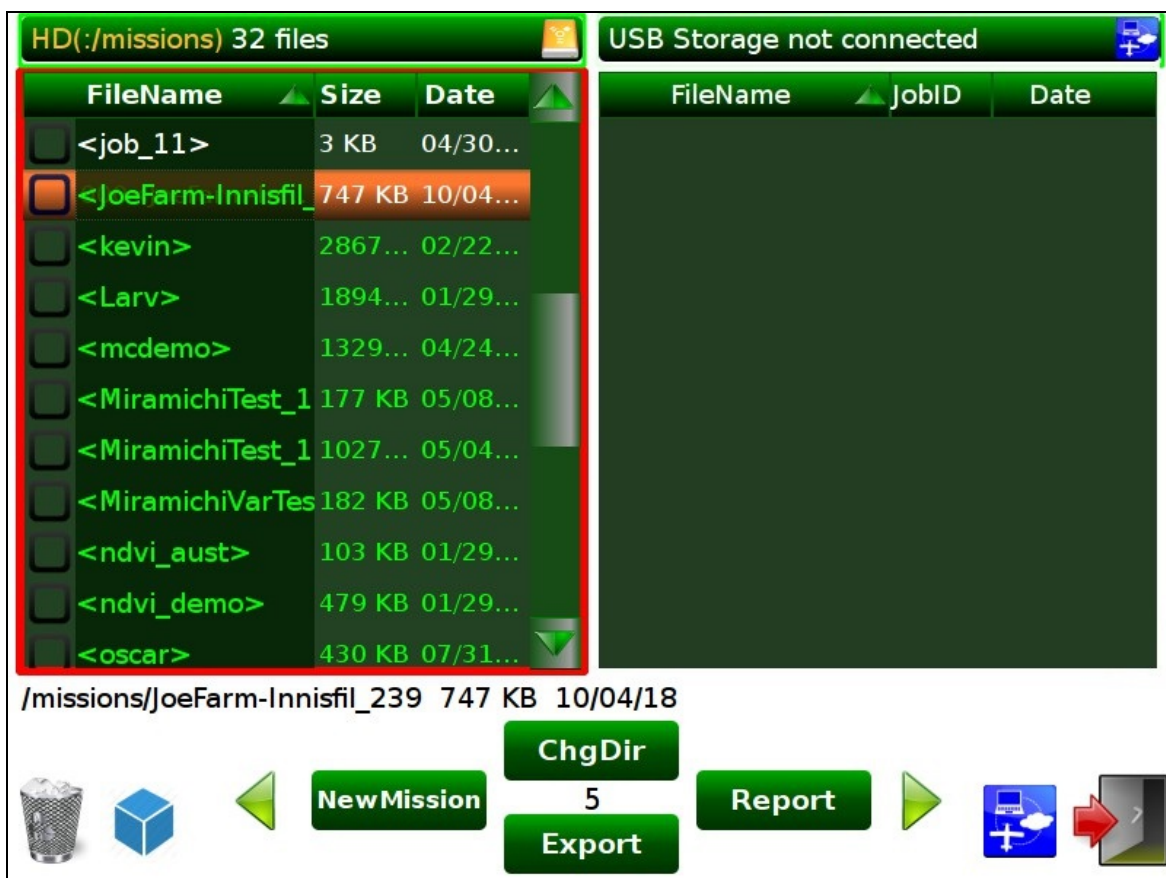


Figure 6 - 1: Select Mission to Export

- 5) Tap  to change the function menu until you see the “Export” button.
- 6) Tap “**Export**”.
- 7) Tap “Yes” to confirm Export.
- 8) If Export is done successfully, the confirmation is shown. Tap “OK”.
- 9) Exit File Manager.



The as-applied data files exported directly by File Manager to AgMission are displayed under the Job Data and History for the corresponding job in Job Information screen.

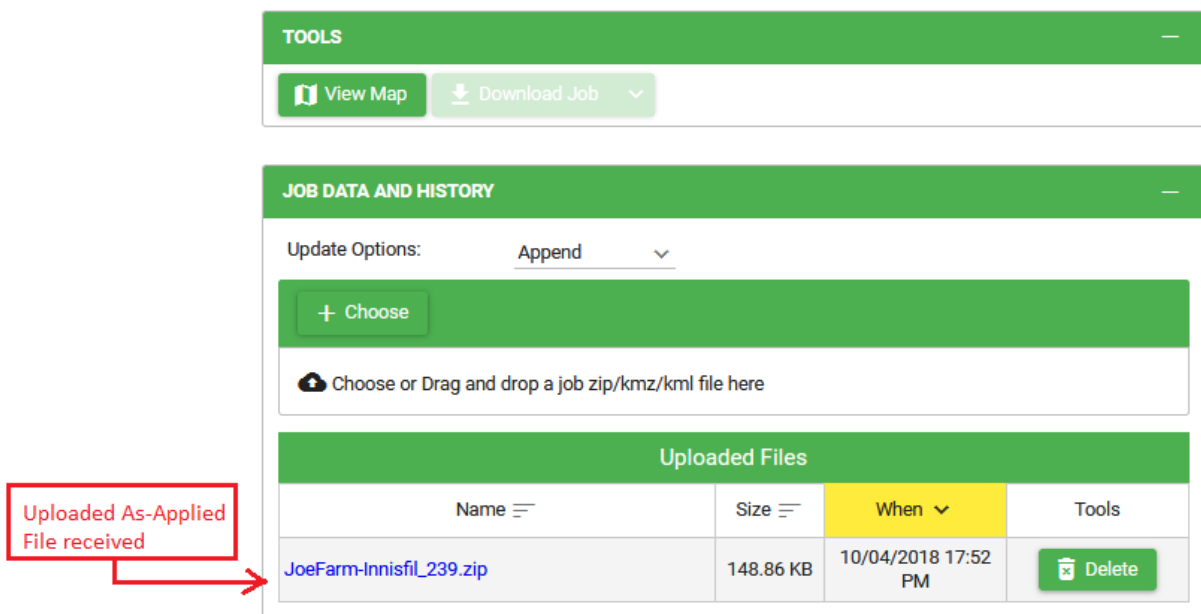


Figure 6 - 2: Exported File Display

6.2 Upload Spray Data by USB Key

If you don't have the connection to AgMission, you can copy the as-applied data file to a USB key. You can do this for the Guia Gold and Silver. To do this,

- a) Plug a USB key to the Guia Platinum, Gold or Silver.
- b) Run File Manager.
- c) Open the "missions" folder to show the list of missions.

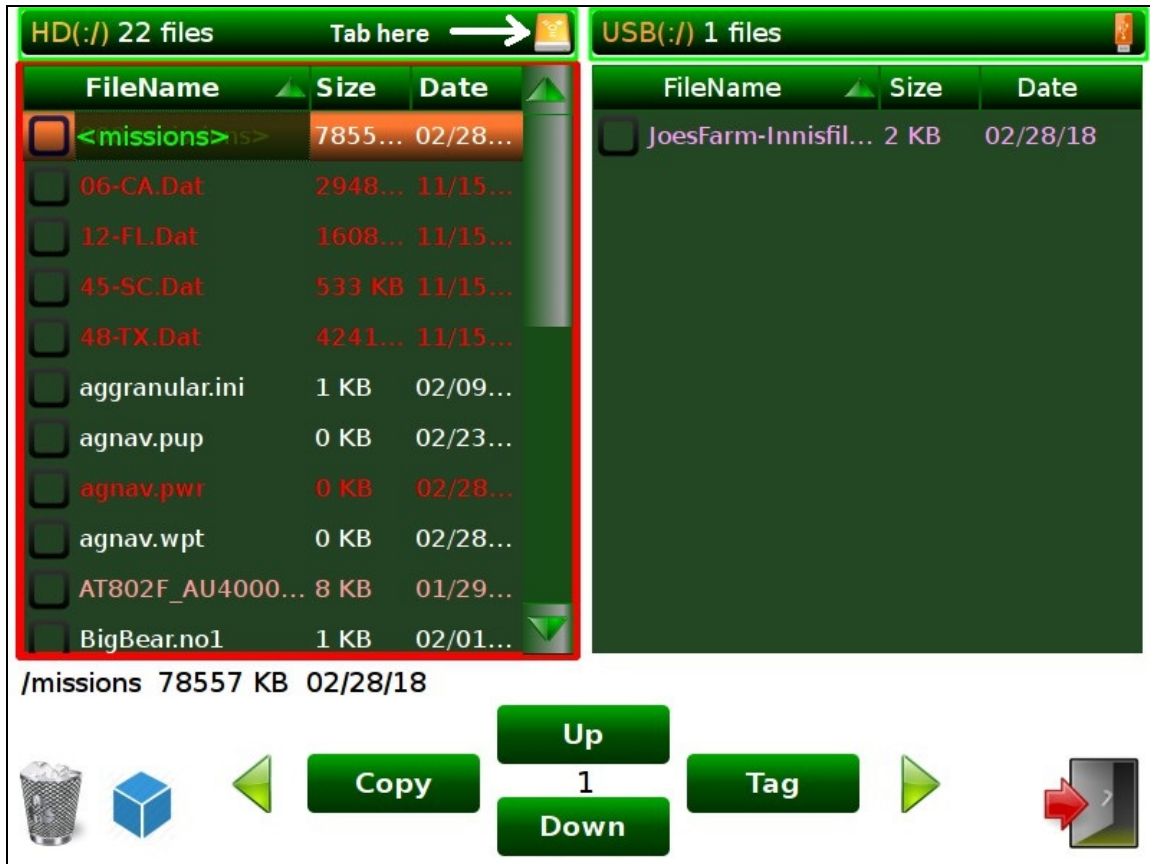


Figure 6 - 3: File Manager - Missions

- d) Select the desired mission, for example "JoesFarm-Innisfil".

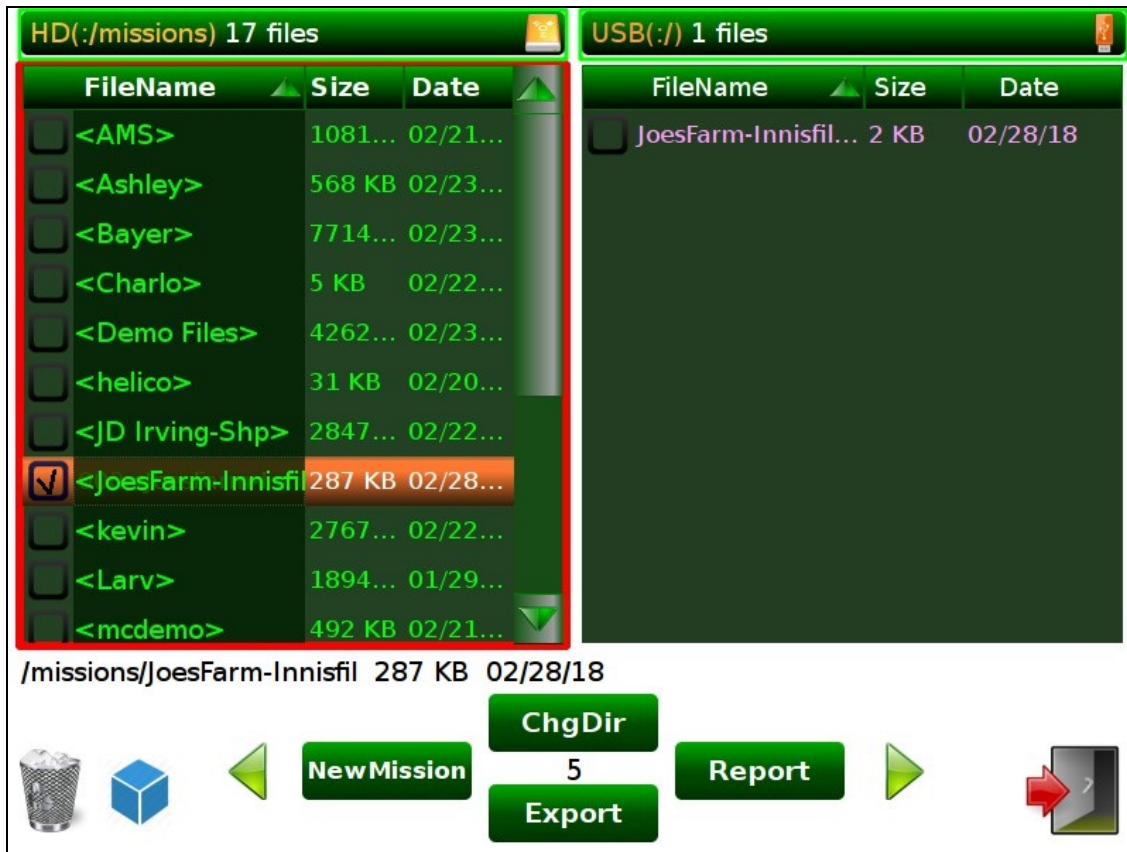




Figure 6 - 4: File Manager – Select Job Folder

- e) Tap  to change the function menu until you see the “Export” button.
- f) Tap “**Export**”.
- g) Enter as-applied data filename. You can use the same name as the job filename.
- h) Tap .

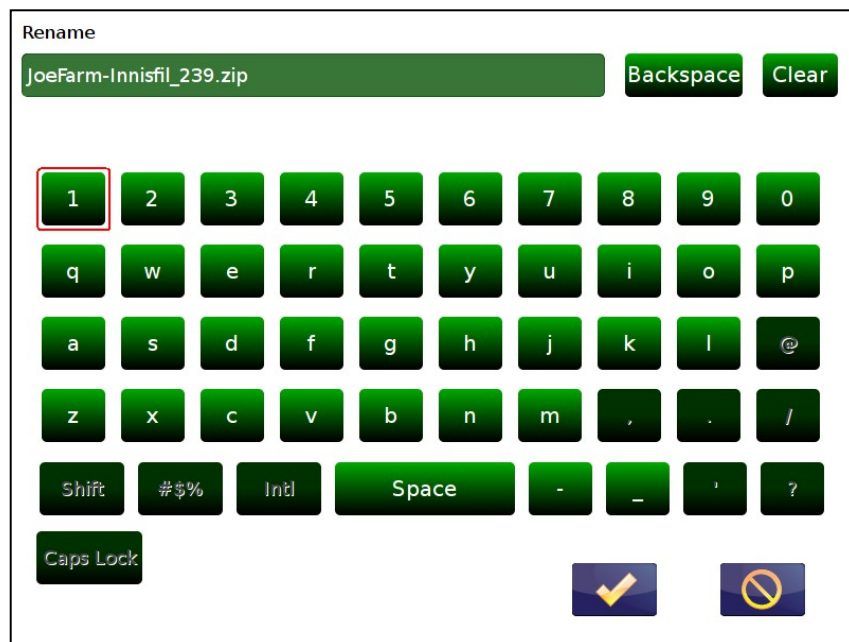


Figure 6 - 5: Enter As-Applied Filename

- i) File Manager will export a zip file with all spray data to the USB key. Overwrite the file if it already exists on the USB key.
- j) Exit File Manager. Unplug the USB key from the Guia system.

- k) To upload the as-applied file to AgMission, plug this USB key to your computer.
- l) Run AgMission, agmission.agnav.com
- m) Select Client. Then click Tools → Upload Data.

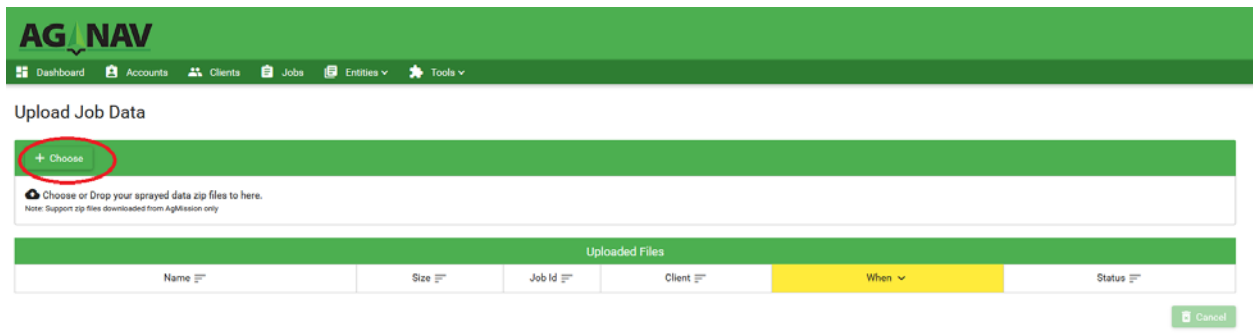
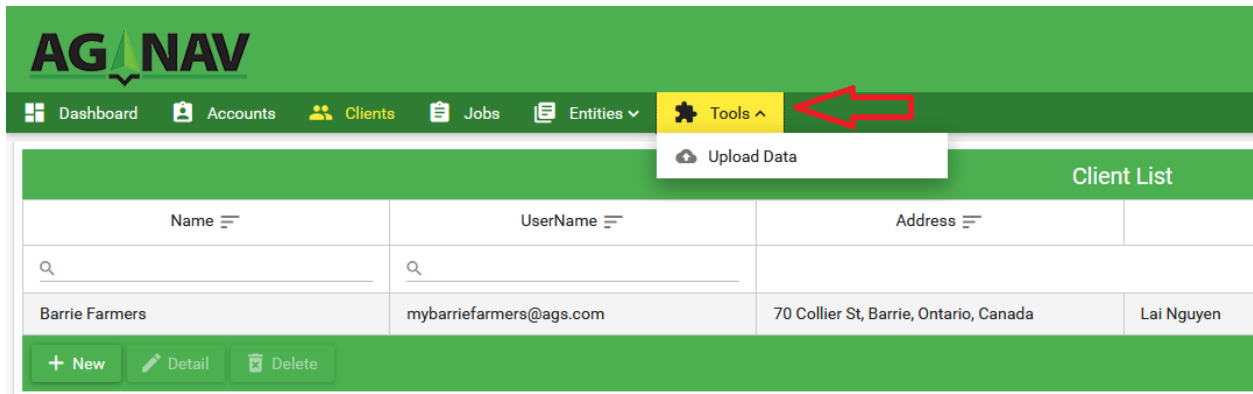
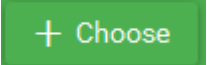


Figure 6 - 6: Tools → Upload Data

- n) Click .
- o) Select the spray data file, for example “JoeFarm-Innisfil_239.zip “, on the USB key then click Open.

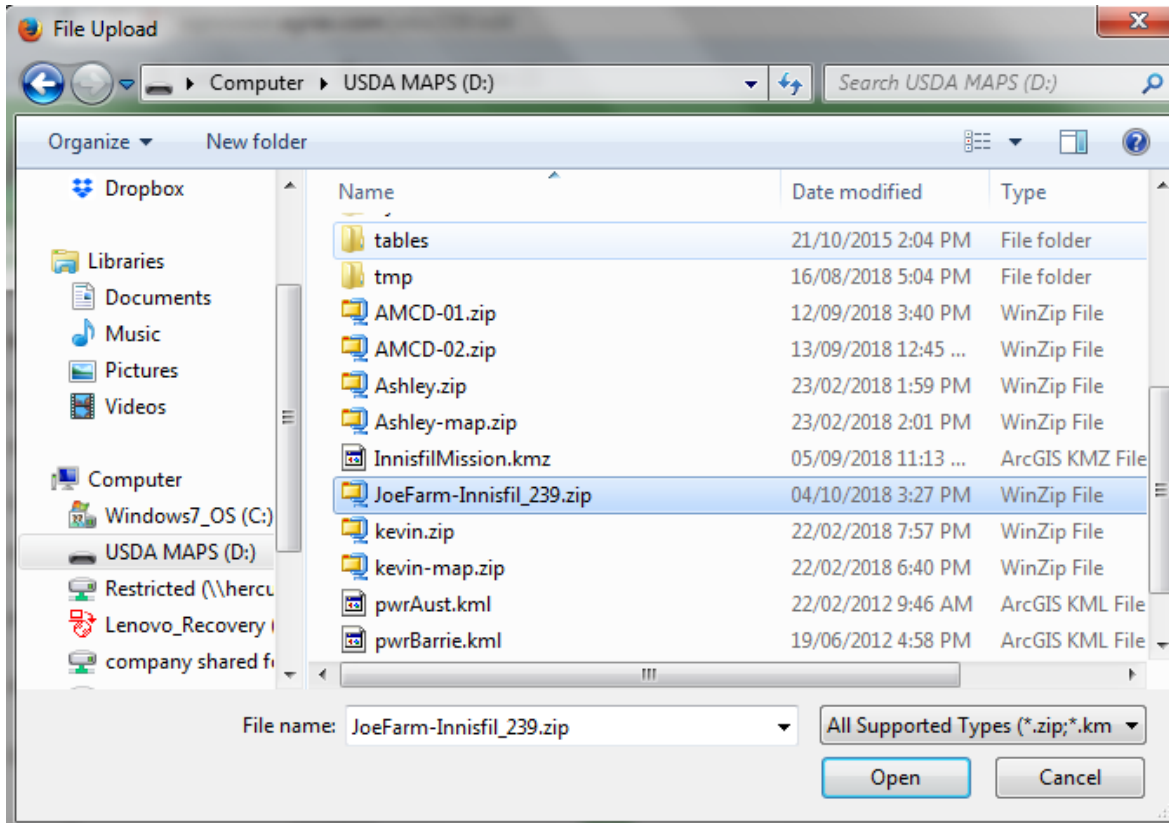


Figure 6 - 7: Choose File to Upload

AgMission will load the selected file, read the job information in the zip file, and add spray data to the job.



Figure 6 - 8: Uploaded File Received

p) If you have more data file to load, repeat steps n) and o).

6.3 Upload Spray Area and Data for Jobs not planned with Agmission

If you have spray areas and spray data created by the AgNav guidance system without following the process described from section 3 to 6, you can also upload them into a Job in AgMission. To do this,

Compress or zip the area or project file and spray data associate with it. For example, if the project file is Kevin.prj, you should zip all files named Kevin and the Kevin folder. The output file will be Kevin.zip.

Name	Date modified	Type	Size
kevin	01/03/2018 4:59 PM	File folder	
kevin.dsp	22/02/2018 8:56 PM	DSP File	1 KB
kevin.jpg	01/03/2018 4:42 PM	JPEG image	590 KB
kevin.kev	22/02/2018 8:57 PM	KEV File	39 KB
kevin.log	01/03/2018 5:00 PM	Text Document	1 KB
kevin.pbm	01/03/2018 4:42 PM	PBM File	1 KB
kevin.prj	22/02/2018 8:56 PM	PRJ File	2 KB
kevin.rem	22/02/2018 8:56 PM	REM File	2 KB
kevin.xcl	22/02/2018 8:56 PM	XCL File	1 KB
kevin.xyz	22/02/2018 7:38 PM	XYZ File	8 KB

Figure 6 - 9: File Compression for Upload

Note: You can save the area files (.no1, .prj, .agn, .shp, .shx, .dbf) and all related files (.dsp, .xcl, .xyz, .kev, .log) including spray data folder to a separate folder, and then compress the folder. For example, you can create a folder called “kevin-010318” for “kevin” project sprayed on 01/03/2018. Copy all “kevin” files and the folder “kevin” into “kevin-010318” folder. Then zip the folder “kevin-010318”. The zip filename will be “kevin-010318.zip”.

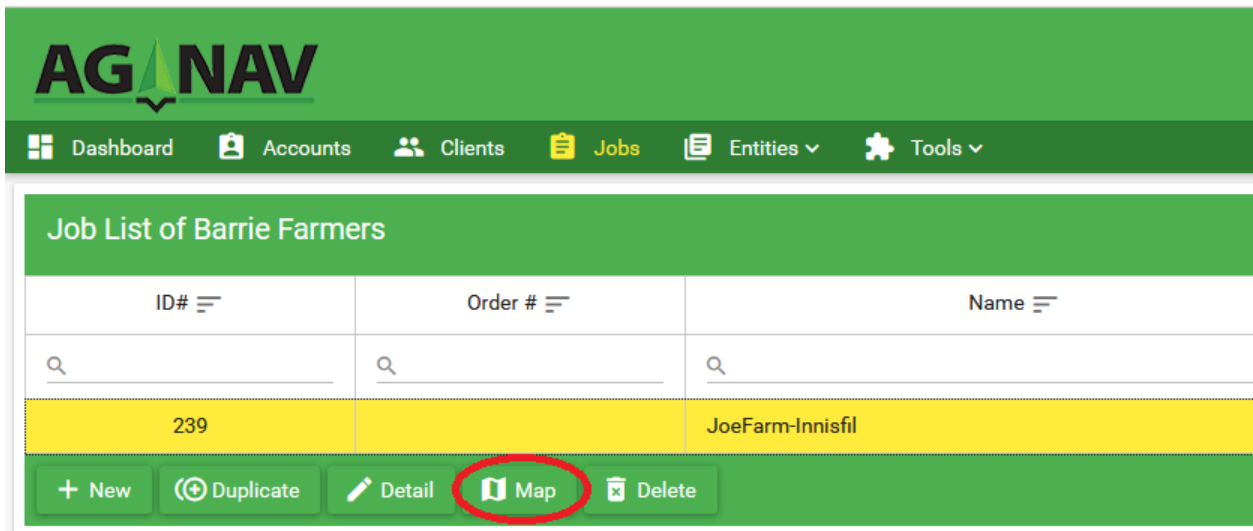
Do steps l) to o) in the previous procedure to upload data to AgMission. Note that if the Client whom this job was done for does not exist, create a new Client and select it.

After the upload is done, a new job will be created for the uploaded zip file. Note the job ID number and job name. The job name is normally the same as the zip filename. You can select this job in the Job List screen to view the data on map. Likewise, you might want to open the job in Job Information screen to edit the job information by click on “Detail” button.

6.4 View Spray Data and Print Report

To view spray data of a job, normally with “Sprayed” status, do the following:

- a) Select the Client and Job.



- b) Click the  button.

- c) On the Job Map screen, click  to load and display spray data.

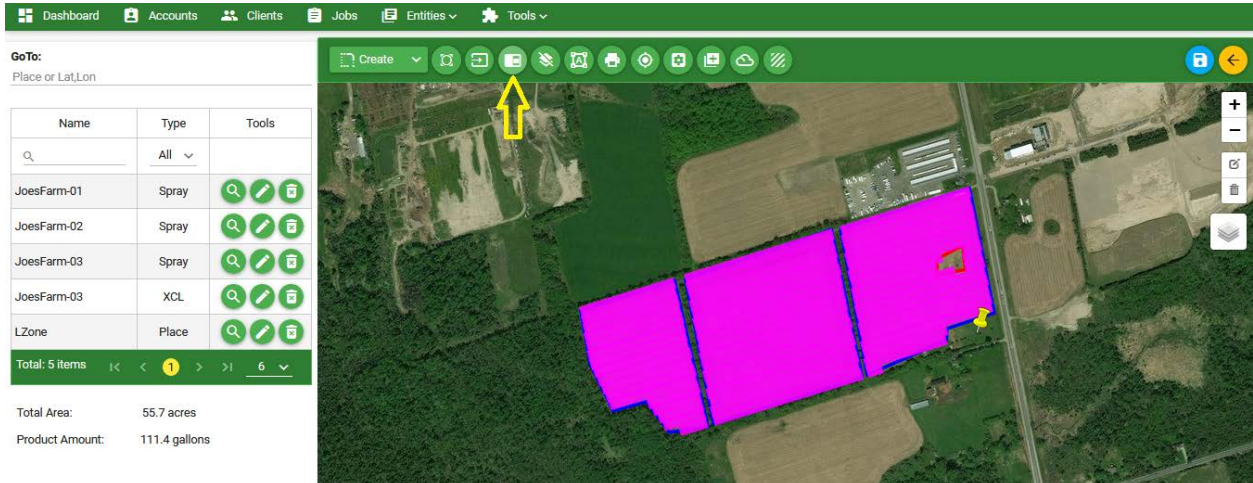


Figure 6 - 10: View Map and Spray Data


- d) To turn on/off measurement information, click .

- e) To print an application report, click .

- f) Check the Report Settings for information that will be printed on the report. You can change the information as desired. When you change Spray Coverage or App Rate, Spray Volume will be recalculated.
- g) Click “Preview”. The report will be shown in Report Viewer screen within a new browser Tab. You then can print or save the report to a PDF or Excel file.

Report Settings ×


Area Size:	<input type="text" value="55.7"/>	ac	<input checked="" type="checkbox"/>
Spray Coverage:	<input type="text" value="56.0"/>	ac	
AppRate:	<input type="text" value="2.00"/>	gal/ac	
Spray Volume:	<input type="text" value="112.0"/>	gal	

 Preview

AgNav - AgMission x AgNav - AgMission x +

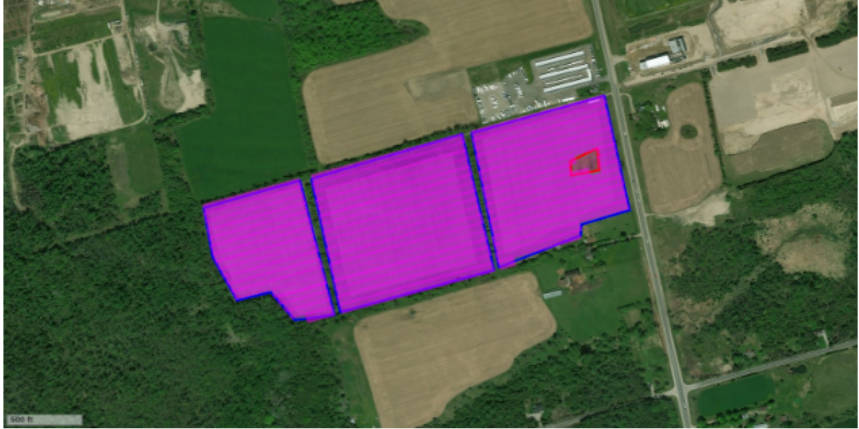
agmission.agnav.com/#/report?rid=app&p=app_239_a3emef2khkt28s2&c=0&lang=en

Print Save Page 1 of 1 100% Single Page



Application Report

AG-NAV INC
30 Churchill Drive, Barrie, Ontario, L4N 6M5



Job #: 239
Name: JoeFarm-Innisfil
Pilot: Jose Ticar
Address: 30 Churchill Dr, Barrie, Ontario, Canada
Aircraft: C123FW
Flight #: FN123
Farm: JoesFarm
Crop: Weed Control

Customer: Barrie Farmers
 70 Collier St, Barrie, Ontario, Canada
 Lai Nguyen - 705-734-0909

Products:

Name	Restricted Use	EPA Reg#	Rate/Ac	Total Volume Used
Startup	No	29498	2 lit	112 lit
2,4-D Ester 700	No	27820	0.28 lit	15.68 lit

Carriers:

Water	No	1.4 gal	78.4 gal
-------	----	---------	----------

Application	Rate	Area Size	Coverage	Total Volume Used
	2 gal/ac	55.7 ac	58 ac	112 gal

Planned App. Date		Actual App. Date		Actual App. Time	
Start Date	End Date	Start Date	End Date	Start Time	End Time
Oct 02, 2018	Sep 18, 2019	Oct 04, 2018	May 13, 2019	14:55:20	15:09:36

Wind Speed	Wind Direction	Temperature	Humidity	Flight Data File(s)
15.2	NW	54°F	67%	JoeFarm-Innisfil_239.zip

Remark:

Figure 6 - 11: Application Report

7. Manage Jobs by Uploading Files

This section describes how you can create or update existing jobs provided that you have areas and/or spray data files. Refer to section 6.3 above, if you want to upload files to create a new job.

As mentioned in section 3 above, assumed that you have existing jobs and want to update the job items (areas, exclusion zones, etc.) or spray data manually by uploading files. To do that,

1. Zip all the files into one zip file as mentioned in section 6.3.
2. Click on Jobs menu to open the Job List screen.
3. Select the job then click “Detail” button to open the job in Job Information screen.

The screenshot shows the 'JOB DATA AND HISTORY' section of a software interface. At the top, there is a green header with the text 'JOB DATA AND HISTORY'. Below this, there is a section for 'Update Options' with a dropdown menu currently set to 'Append'. The dropdown menu is open, showing options: 'Append' (highlighted in yellow), 'Overwrite', 'Data Only', and 'XCLs'. To the left of the dropdown is a '+ Select File' button. Below the dropdown is a text area with a cloud icon and the text 'Select or Drag and drop a Job (File) here'. Below this is a table with a green header 'Files'. The table has columns: 'Name', 'Size', 'When', and 'Tools'. One row is visible with the file name 'JoeFarm-Innisfil_239.zip', size '165.65 KB', and time '5/13/19 14:58'. Below the 'Files' table is a 'Download History' section with a green header. It has a table with columns 'When' and 'By User'. Two rows are visible: one with time '9/17/19 17:36' and user 'agmanual@agnav.com', and another with time '10/4/18 14:20' and user 'c-agn400@ags.com'.

Figure 7 - 12: Update Job Options

Look for the “JOB DATA and HISTORY” section, on the “Update Options” options, select the desire one.

- Append: all founds areas, waypoints and data to be appended.
- Overwrite: replace all existing job items with the ones found including the data.
- Data Only: add data found only.

- XCLs: all areas found will appended as exclusion zones.

4. Click on **+ Select File** the select the zip file, click on “Open” button.

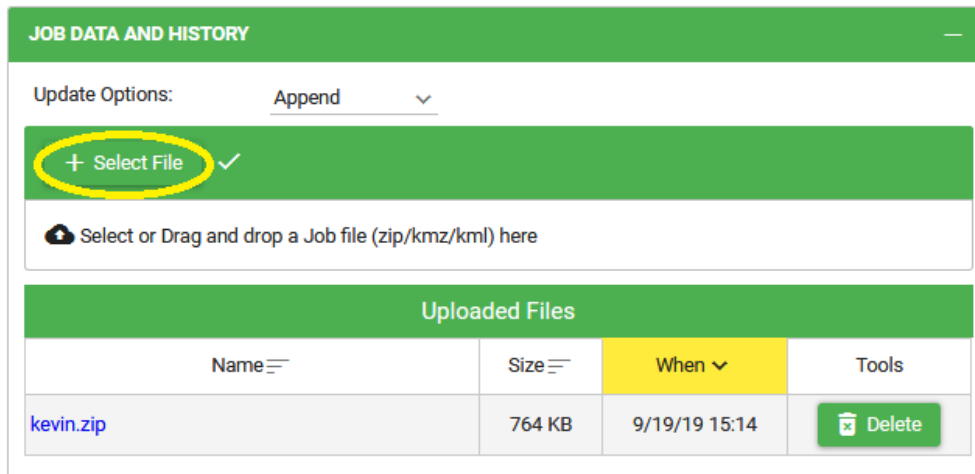
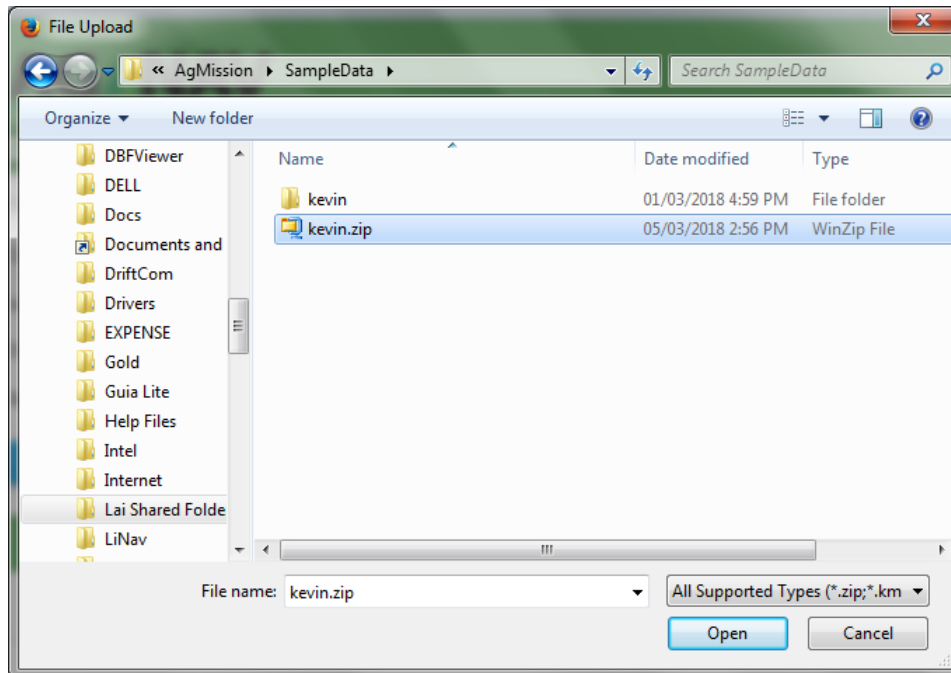



Figure 7- 2: Upload Job Files

Agmission processes the upload file, when finished; the file will be added to the “Uploaded Files” list.

5. Optional. You might want to click on “” to open the job in Job Map screen to check the job items, view the spray data or print the application/pre-mission report.

Notes: you can delete the uploaded files by clicking on the  button. Agmission will only remove the data found within the zip filed. All changed to job items will not be reversed.

7.1 Upload Shape Files

The shape file format includes a spatial file *.shp, index file *.shx, database file *.dbf, and map projection file *.prj. Remember to compress all files together into one zip file.

7.2 Upload Google Earth Files

If you create spray areas in Google Earth, the result is a kml or kmz file. You can upload the file to AgMission as is, i.e. no need to compress it. A kml/kmz file can have one or more spray polygons, exclusion zones, buffer zones, and place marks. A buffer zone is a multipath line. The width of buffer zone must be defined in the multipath name. For example, if a buffer zone is 10m wide, the name of multipath line should be “buffer zone: 10m”.

8. More on Create Job Items

This section describes each of the functions to create Job items within Job Map screen. After creating a job and show the map at the desired location, you can do the following:

8.1 Create Pivot Spray Zone

- a) Click  and select Pivot Spray Zone.

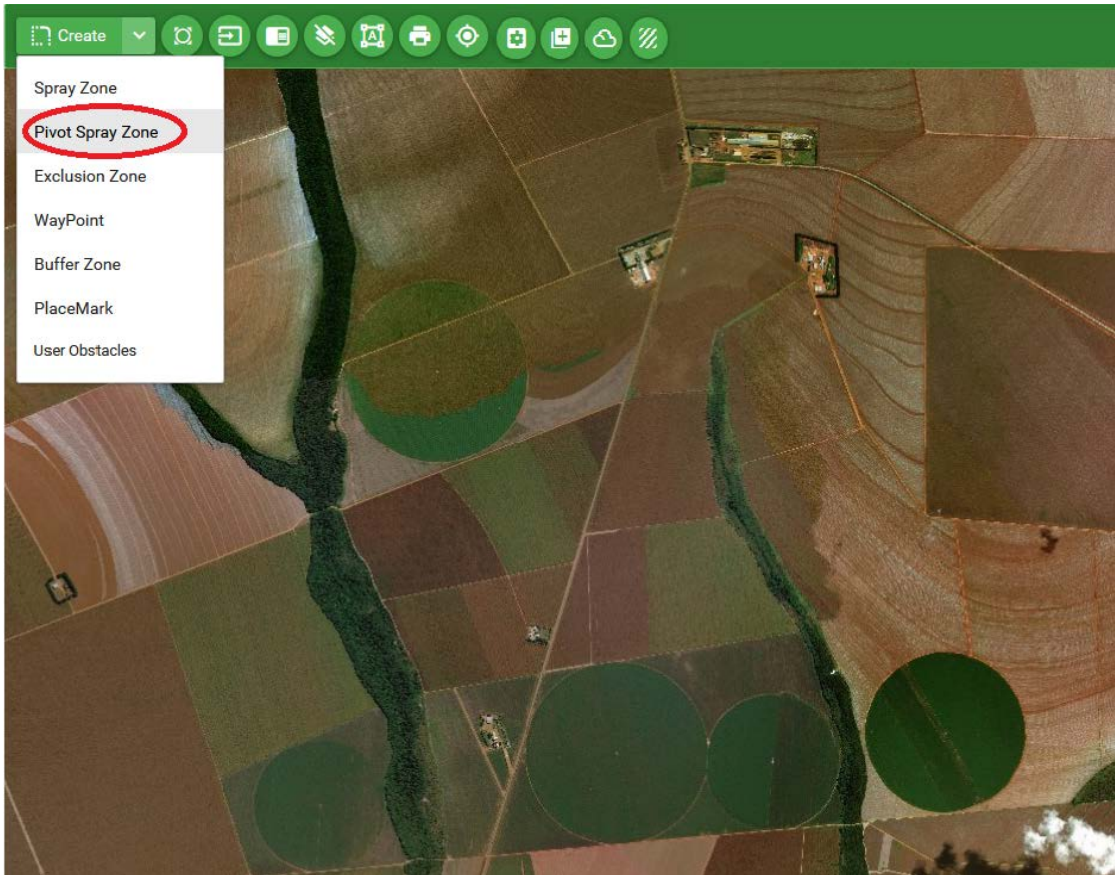


Figure 8 - 1: Create – Pivot Spray Zone

- b) Move the cursor to the center of the pivot spray area.
c) Hold down the left mouse key and drag the mouse to the edge of pivot area.

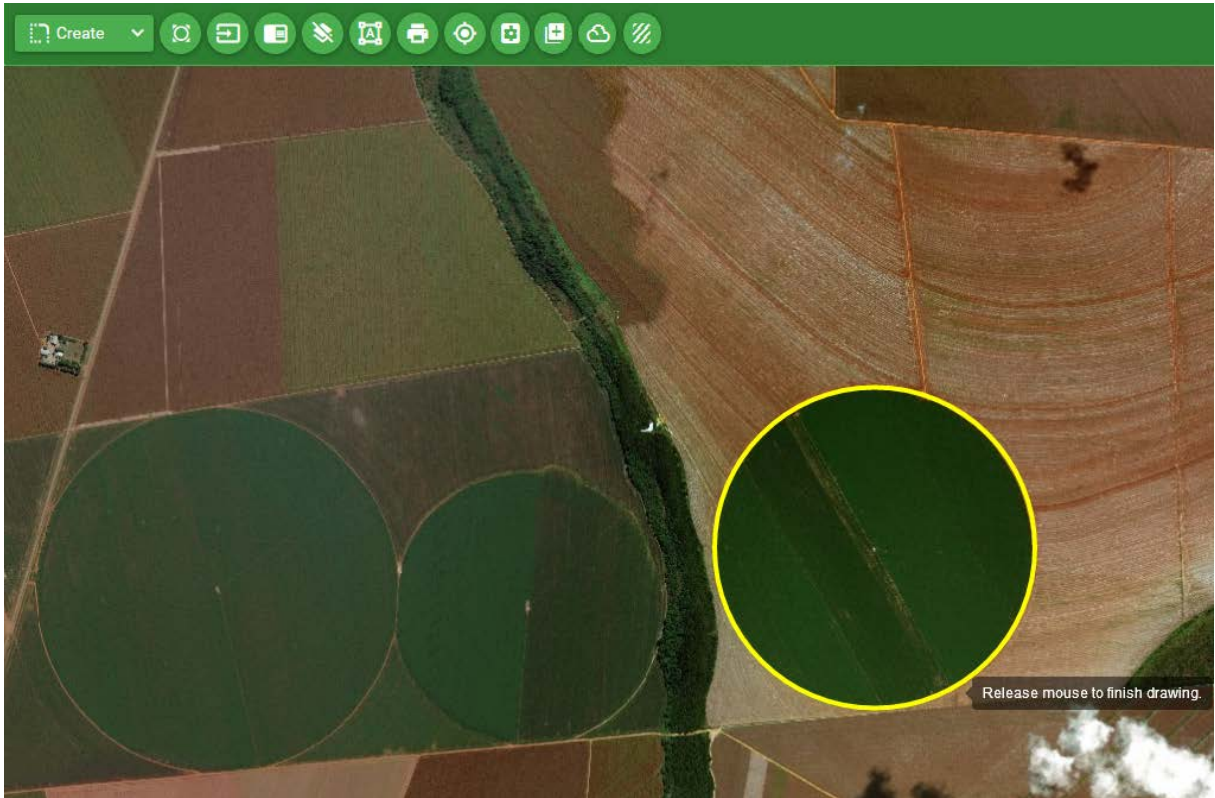


Figure 8 - 2: Creating Pivot Area

- d) Release the mouse button when the circle matching with pivot area.
- e) The area information is shown. You can rename it or change boundary color. Click OK to close it.
- f) Note that a pivot area is actually created with 18-side polygon. The area size of polygon shown on the Spray Zone info is slightly smaller than the size of circle.

Spray Zone
✕


Name	<input type="text" value="Spray_01"/>	
Area Size	119.67 ha	
Radius	618 m	
Type	Spray ▼	
Crop/Job	<input type="text" value="Weed Control"/> ▼ +	
Color	 <input type="text" value="Blue"/> ▼	
AppRate	<input type="text" value="10"/>	lit/ha
Product Amount	<input type="text" value="1,196.7"/>	lit

OK




Figure 8 - 3: Showing Measurement – Area Size

g) You can create a mix of pivot areas and polygons for the same mission. You can use a pivot area to mark a no-spray zone such as bird nest, bee hives, or school. In this case, when the Spray Zone information is shown, you can change the Type to Exclusion Zone and change Color to Red.

h) When all areas have been made, click  to save the mission.

8.2 Create Buffer Zone

A buffer zone is a no-spray zone between a sensitive zone and a spray zone. It is created and saved as an exclusion zone in mission. To create a buffer zone:

- Click  and select Buffer Zone.
- Move the mouse to the buffer zone.
- Click along the buffer zone.

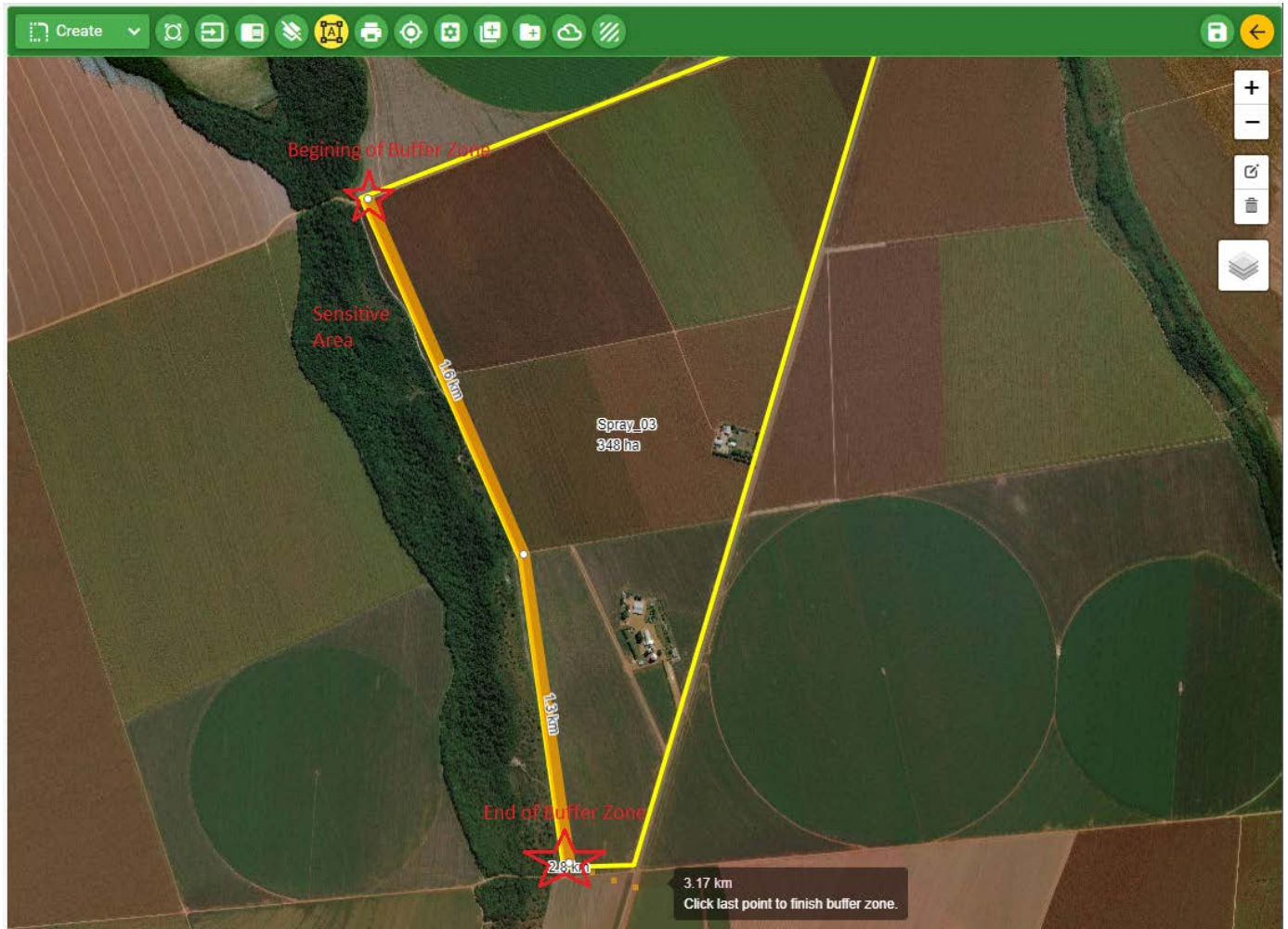


Figure 8 - 4: Create Buffer Zone

- d) When reaching the end of buffer zone, click the last point twice to finish.
- e) The Buffer Zone information is shown. Enter the width of buffer zone as required. Click OK to finish buffer zone.

Buffer Zone ×


Name


Width met

OK



Figure 8 - 5: Buffer Zone Done


f) When all areas have been made, click  to save the mission.

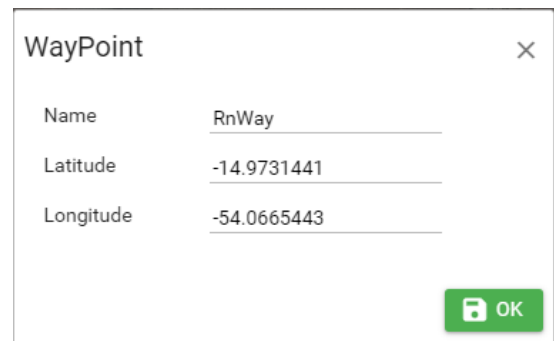
Notes: While creating spray/pivot zones, exclusion zones, buffer zones, if you want to show detail measurements click on Show Info  button.

8.3 Create Waypoints


A waypoint is a point or location that pilot wants to get guidance to fly to. A waypoint can be a local airport, loading zone, or dumping zone. When you create waypoints in AgMission, the waypoints will be saved to the area files (.no1, .prj, .agn) for use during mission application.

To create a waypoint for a mission, the mission must have at least one spray area. You cannot make a mission just to have waypoints. So you should make spray areas first. Then add the waypoints. To add waypoints, do the following:

- a) Click  and select "WayPoint".
- b) Move the map to the desired location.
- c) Click at the location.
- d) When Waypoint info dialog is shown, you can change the waypoint name. Note that for a waypoint name to be shown properly on the Guia systems, it should have maximum 5 characters and without a space. You can change the coordinates if needed.



The image shows a dialog box titled "WayPoint" with a close button (X) in the top right corner. It contains three input fields: "Name" with the value "RnWay", "Latitude" with the value "-14.9731441", and "Longitude" with the value "-54.0665443". At the bottom right of the dialog is a green button with a white floppy disk icon and the text "OK".

- e) When all waypoints have been created, click  to save the mission.

Go To:
Place or LatLon

Name	Type	Tools
<input type="text"/>	All v	
Pivot_Area1	Spray	
Pivot_Area2	Spray	
Spray_03	Spray	
Buffer_01	Buffer	
RnWay	WPT	
LZ01	WPT	

Total Area: 537.4 hectares
Product Amount: 5,374.2 liters



Create v

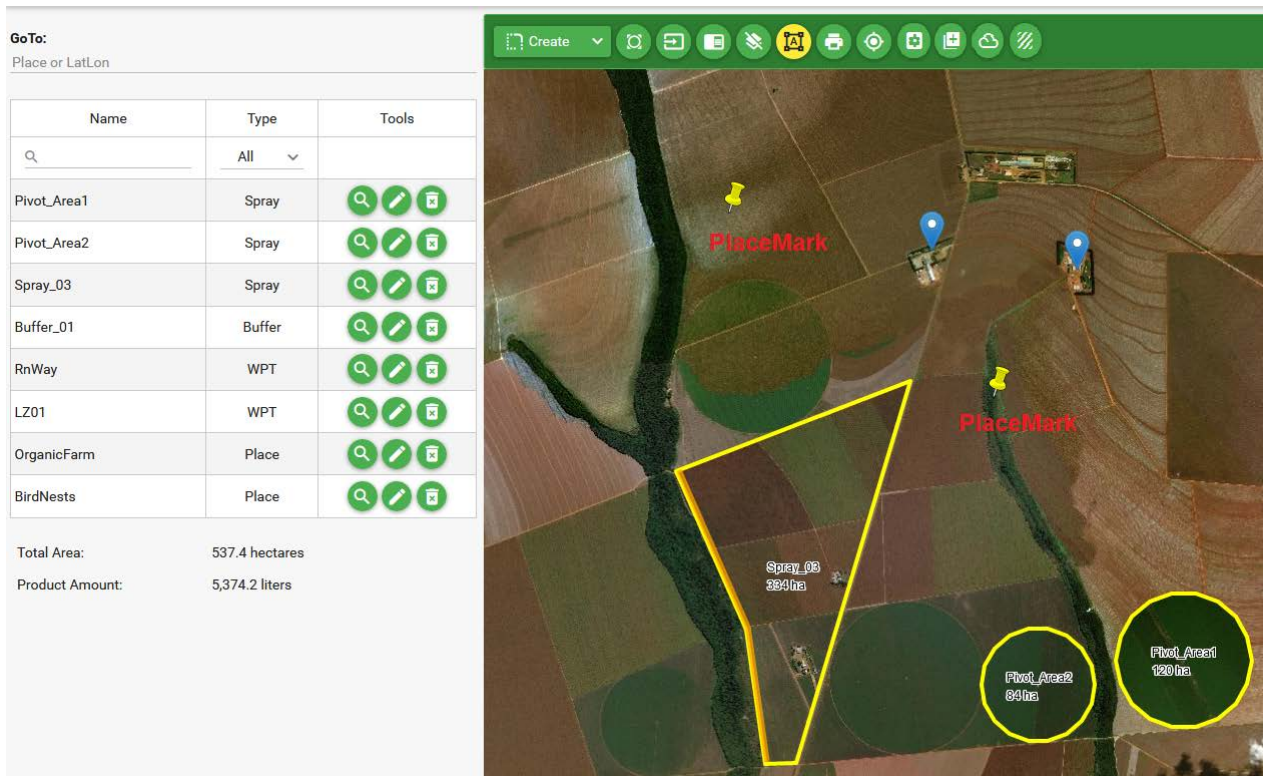
Figure 8 - 6: Create Waypoints – Done

On the map, waypoints are shown as balloon symbols.

























8.4 Create PlaceMarks

A PlaceMark is used to mark a special place on the map. PlaceMarks are not saved to a mission file for use during flight. If you want to show PlaceMarks on the Guia, you should enter them as waypoints. To create a PlaceMark:

- Click  then select PlaceMark.
- Move the map to the desired location.
- Click at the location.
- When PlaceMark information is shown, you can change the PlaceMark name.
- When all PlaceMarks have been entered, click  to save the mission.



The screenshot displays the AgMission software interface. On the left, there is a 'GoTo:' section with a search bar and a table of mission elements. The table has columns for Name, Type, and Tools. Below the table, there are summary statistics for Total Area and Product Amount. On the right, a satellite map shows a field with several PlaceMarks indicated by yellow pushpin symbols. Two PlaceMarks are labeled 'PlaceMark' in red. A yellow polygon outlines a spray area labeled 'Spray_06' with '384ha'. Two circular spray areas are labeled 'Pivot_Area2' (84ha) and 'Pivot_Area1' (120ha). The top toolbar includes a 'Create' button and various map navigation tools.

Name	Type	Tools
Pivot_Area1	Spray	  
Pivot_Area2	Spray	  
Spray_03	Spray	  
Buffer_01	Buffer	  
RnWay	WPT	  
LZ01	WPT	  
OrganicFarm	Place	  
BirdNests	Place	  

Total Area: 537.4 hectares
Product Amount: 5,374.2 liters

Figure 8 - 7: Create - PlaceMark


On the map, PlaceMarks are shown as pushpin symbols.

8.5 Create and Show Obstacles

An obstacle is a high object that may cause air accident. An obstacle can be a tower, wind mill, power line, or high tree. Obstacle awareness is the key to avoid accidents during aerial application at low flight height above ground. For this reason, obstacles can be marked on the map around the spray areas for pilot to know before flight.

For spray areas in the United States, Canada and Mexico, the obstacles recorded by FAA are read and displayed on the map.



To show obstacles on the map, click  then select Obstacles.

Obstacles are shown as tower symbols on the map. The colors of obstacles are defined based on their height.

When pointing the mouse to an obstacle, the obstacle information is shown. The information includes the obstacle ID or name, coordinates, type, and height above ground.

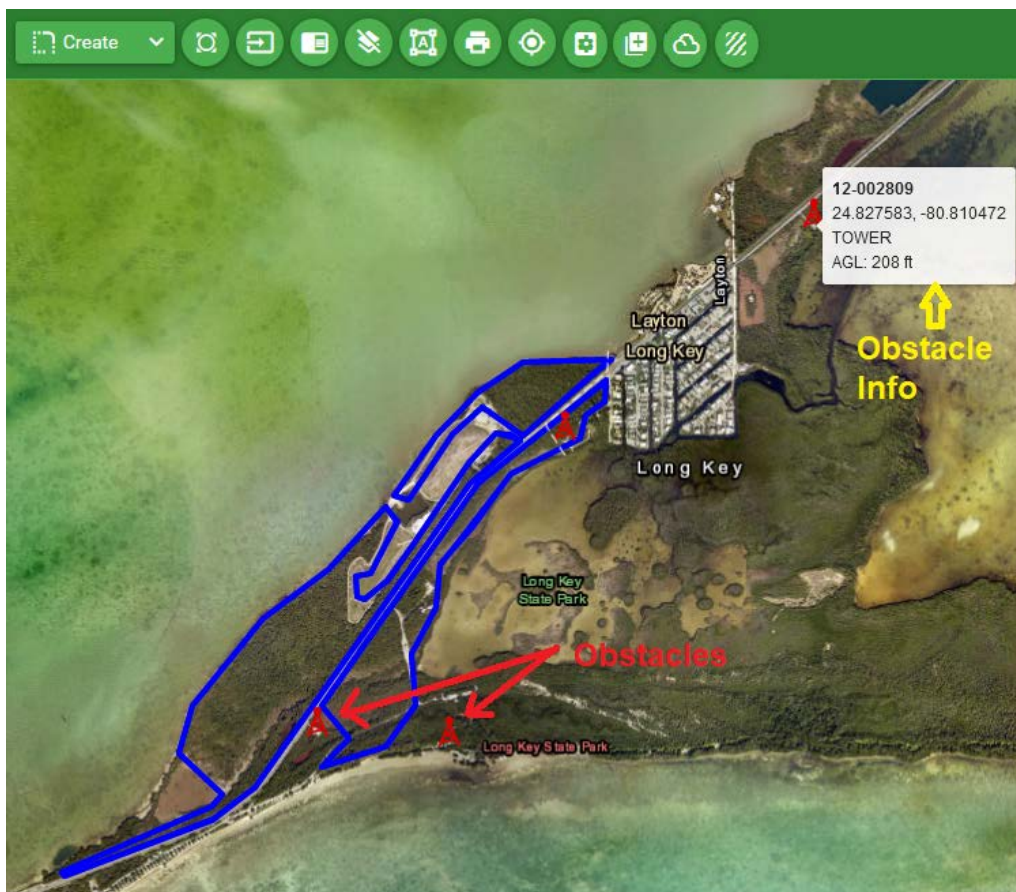
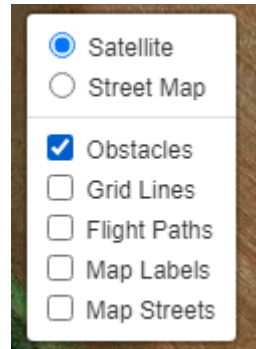
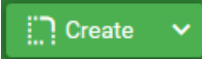


Figure 8 - 8: Obstacle Display

Besides the FAA obstacle database, you can create an obstacle database for yourself for use in AgMission for all missions.

To create an obstacle:

- a) Click  then select “User Obstacles”.
- b) Move the map to the obstacle location.
- c) Click at the location.

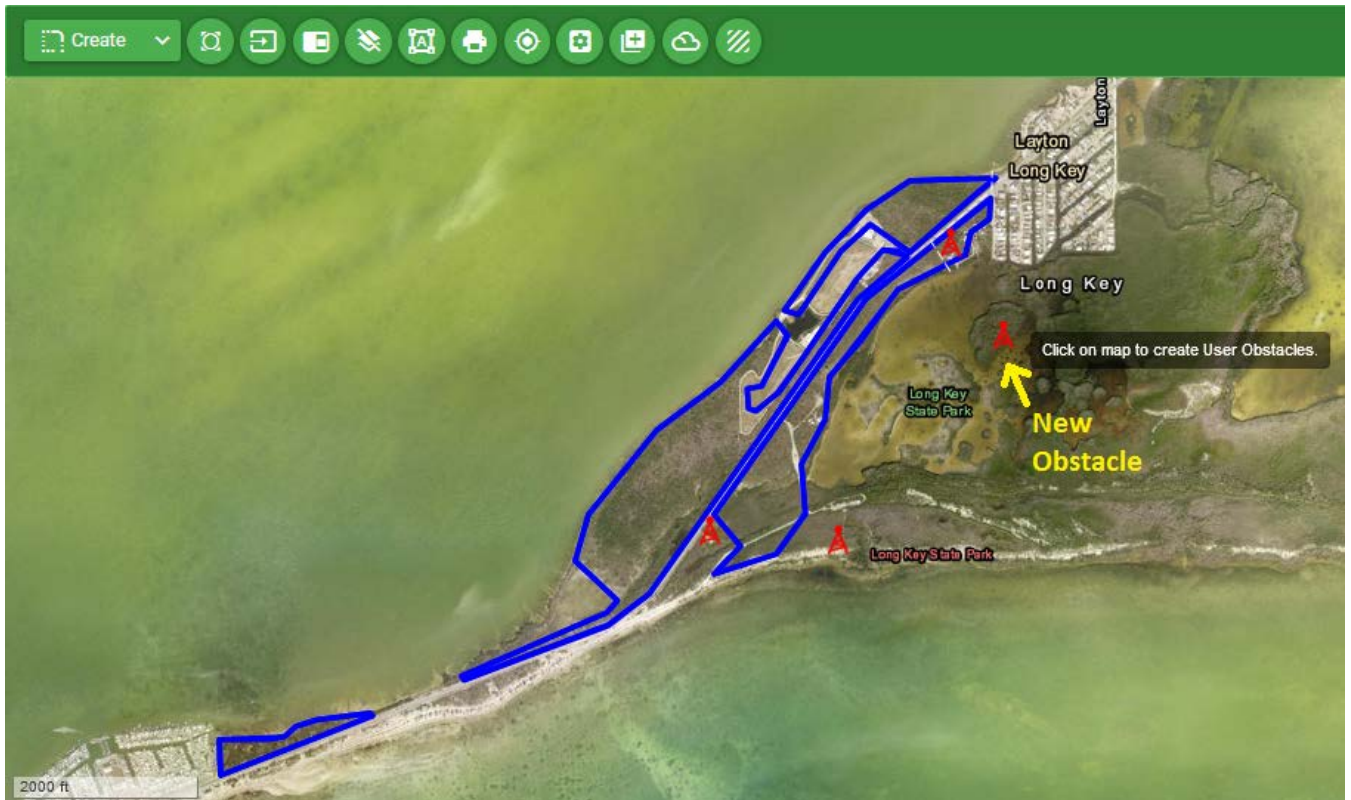


Figure 8 - 9: Create – New Obstacle

- d) When Obstacle Information is shown, you can edit the information. “Name” can have up to 15 characters. “Height” is the height above ground (AGL) of obstacle. “MSL Height” is read from the map for height relative to mean sea level. When you enter the “Height”, the “MSL Height” will be adjusted.

Obstacle information ×

Name:	<input type="text" value="Weather_Tower"/>
Location:	24.818796, -80.816286
Height:	<input type="text" value="50"/> ft
MSL Height:	<input type="text" value="50.0"/> ft

- e) Click Save to save the info. New obstacle will be shown in color depending on its height.

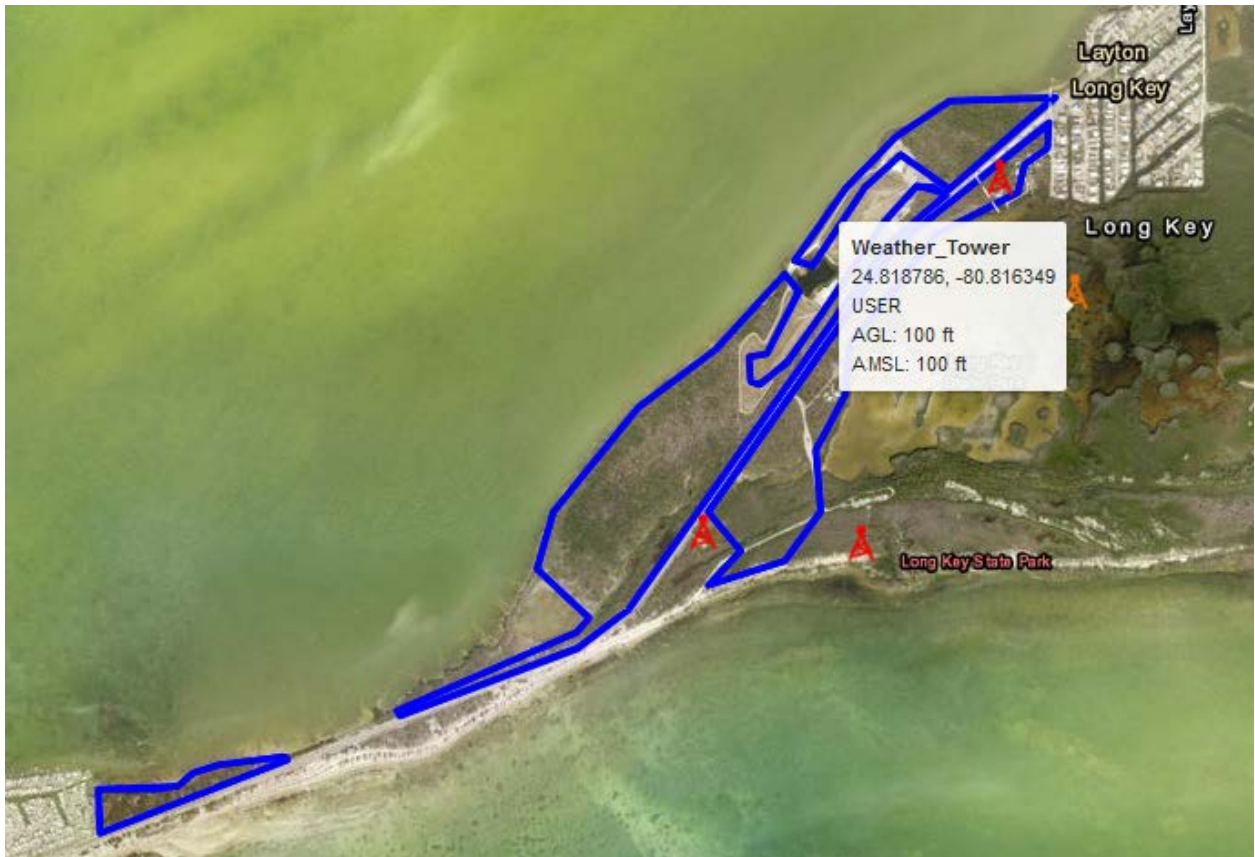


Figure 8 - 60: New Obstacle Display

If an obstacle is created by the user, the type of obstacle will be **"USER"**.

To change the obstacle information or delete obstacle, click on the obstacle. The obstacle information is shown again for you to edit or delete it.


Note that only obstacles created by you can be edited or deleted.

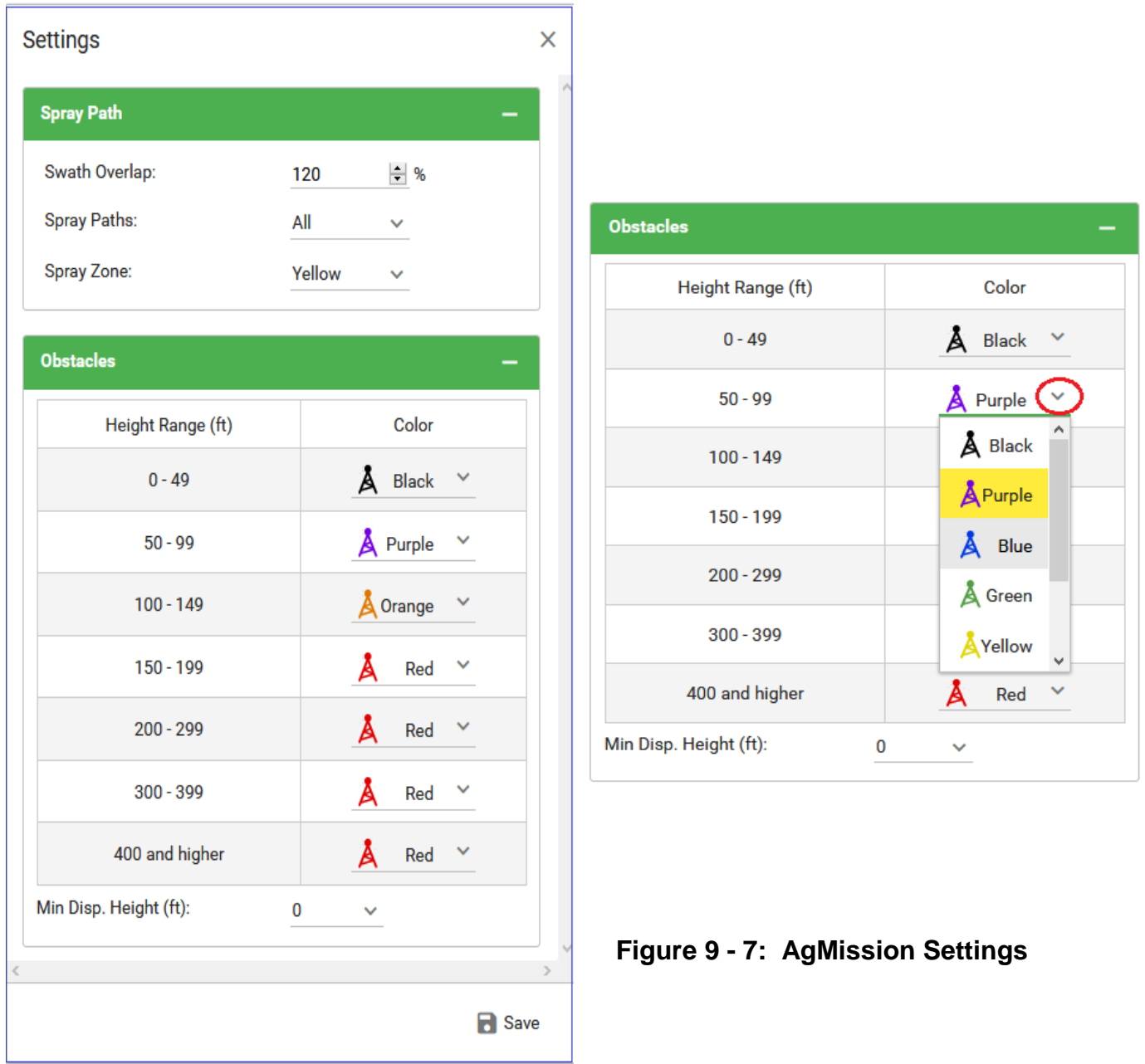
9. More on Display Functions

This section describes on additional display functions within the Job Map screen.

9.1 Obstacle Settings

To view and change the obstacle colors, do the following:

- I. Click  to show the Job Map Settings.



The screenshot shows the 'Settings' dialog box with the 'Obstacles' section expanded. The 'Obstacles' table is as follows:


Height Range (ft)	Color
0 - 49	Black
50 - 99	Purple
100 - 149	Orange
150 - 199	Red
200 - 299	Red
300 - 399	Red
400 and higher	Red

The 'Min Disp. Height (ft):' is set to 0. A dropdown menu is open for the 50-99 ft range, showing the following color options: Black, Purple (highlighted), Blue, Green, and Yellow. A red circle highlights the dropdown arrow.

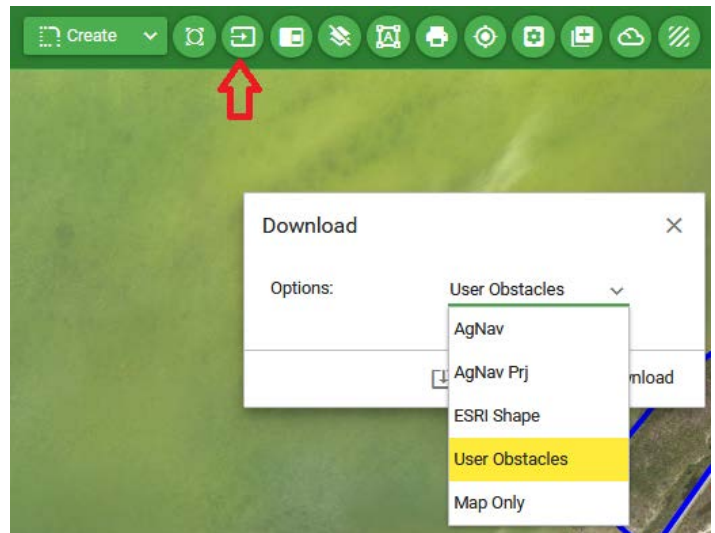
Figure 9 - 7: AgMission Settings

- II. The obstacle colors are defined based on the Height Ranges. You can change the color for each range by clicking the down arrow button beside the color.
- III. Select the color from the drop down list.
- IV. You can filter out the obstacles by entering the “Min Disp. Height”. Any obstacles lower than this height will not be shown on the map. By default, the minimum display height is 0 feet or meter.
- V. When done, click the “Save” button to save the settings.

9.2 Download User Obstacles


To download User Obstacles for use in a Guia system, click  and select “User Obstacles”.

- Click the “**Download**” button.
- Save obstacle file. The default file name is “obstacles.dat”. You can change the file name but the file extension must be “.dat” for the Guia to recognize it to be an obstacle file.



9.3 Weather Display

As part of flight planning, you may want to know if the weather is good for application. To view the weather at the current time around the spray location,

- a) Click the weather button . The mouse cursor is changed to cross-hair.
- b) Click the desired location on the map to show the weather.

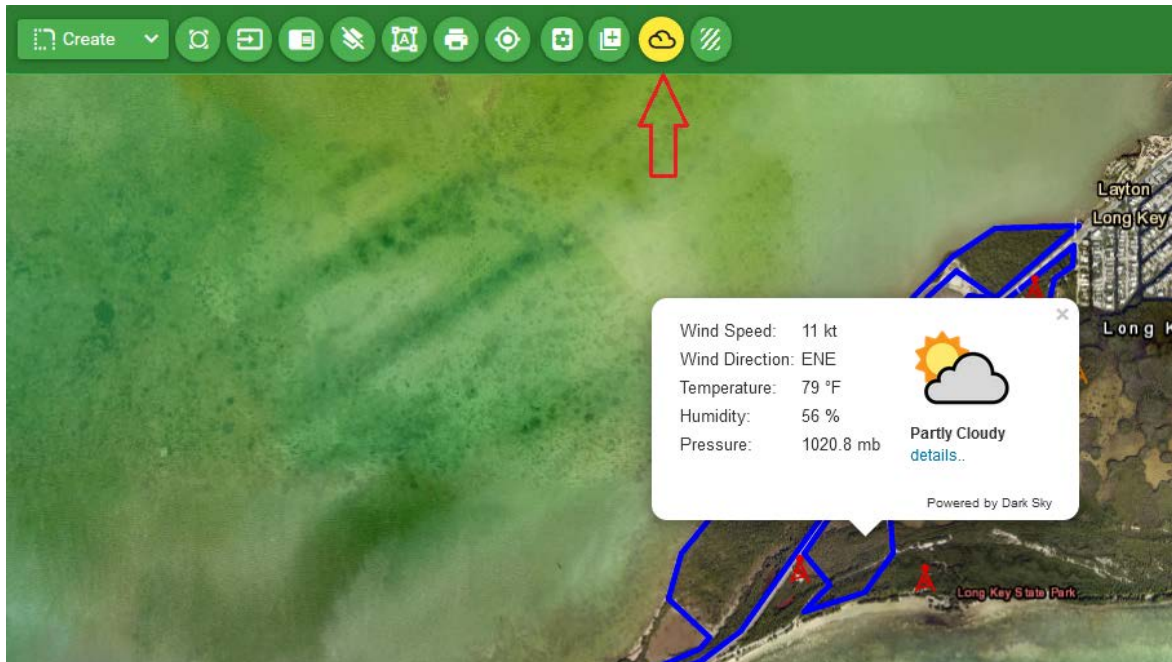



Figure 9- 2: Map Display - Weather

- c) To view the weather broadcast, click the “**details..**” link on the weather information.
- d) To turn off weather display, click  again.

Note that the weather information is obtained from the internet. The accuracy depends on where the closest weather station is and when the information was updated.

9.4 Coordinates Display

To view the coordinates on the map,


- Click this button . The mouse cursor is changed to cross-hair.
- A cross-hair symbol is displayed at the center of the map. The coordinates shown at the bottom right corner of map is the coordinates at this cross-hair.



Figure 9- 3: Map Display - Coordinates

- By default, the coordinates are shown in degrees of Latitude and Longitude. To change the coordinate format, double click on the coordinate box.

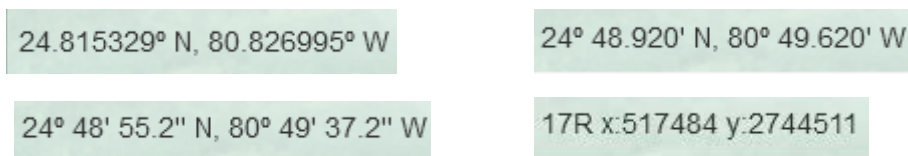



Figure 9- 4: Coordinate Formats

- To show coordinates at other location, hold down the left mouse button and move the map so that the desired location is at the cross-hair symbol at the center of display.

9.5 Grid Line Display and Generation

Depending on the shapes of areas, locations of sensitive areas and obstacles, you can determine what would be the direction that pilot should fly and spray. AgMission allows you to create grid lines over the spray areas when making flight plans. To create grid lines on the spray areas:

- a) Turn on grid line display by clicking .
- b) Check mark "Grid Lines".

If grid lines were not generated on the spray areas, "Best Heading" will be used to create grid lines on each area.









Figure 9- 5: Grid Line Display – Best Heading

- c) Click the GridLine generation button  to open the functions to create grid lines.



Figure 9- 6: Grid Line Generation – Functions

The controls include:

-  : Center map on selected areas.
-  : Select a single area for grid line generation.
-  : Select multiple areas for grid line generation.
-  : Deselect all areas.
-  : Create grid lines with the Best Heading on selected areas.
-  : Create grid lines with heading defined by two points, i.e. the AB line.

The information shows:

- Line heading of selected area(s). If it's the first time grid lines are shown, the first area in the area list on the left panel is the selected area.
- Total number of lines on the selected area(s).
- Number of areas selected for grid line generation.



d) To create grid lines on a single area, click  then click on the desired area.



Figure 9- 7: Grid Line Generation – Select Single Area

You can click on the area again to deselect it.

e) To create grid lines on multiple areas, click .

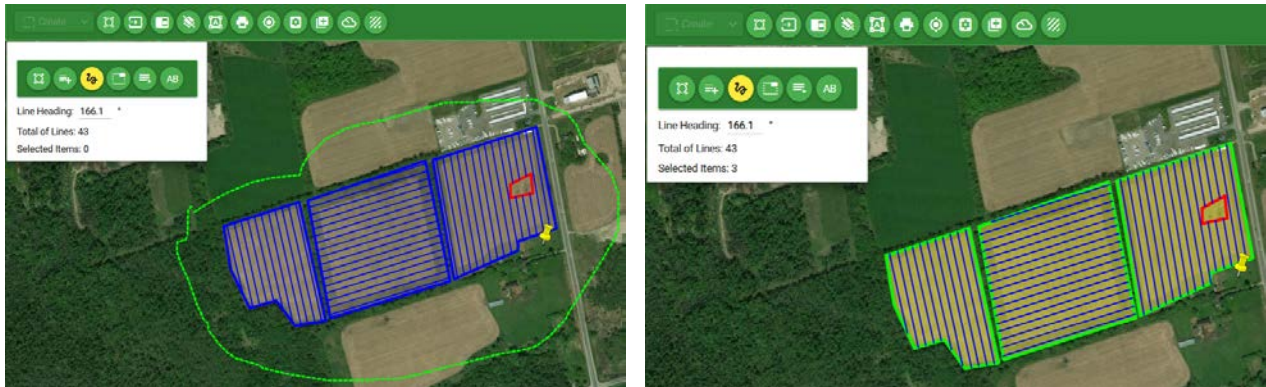


Figure 9- 8: Grid Line Generation – Select Multi Areas

f) Hold down the left mouse button and draw around the desired areas.

You can click  to deselect all areas.



g) After selecting areas, to create grid lines by using the best heading on the areas, click . The Line Heading and Number of Lines on all selected areas are shown.



Figure 9- 9: Grid Line Generation – Best Heading

- h) To create grid lines by the AB line, click .
- i) Move the mouse to a desired location then left click to mark point A.

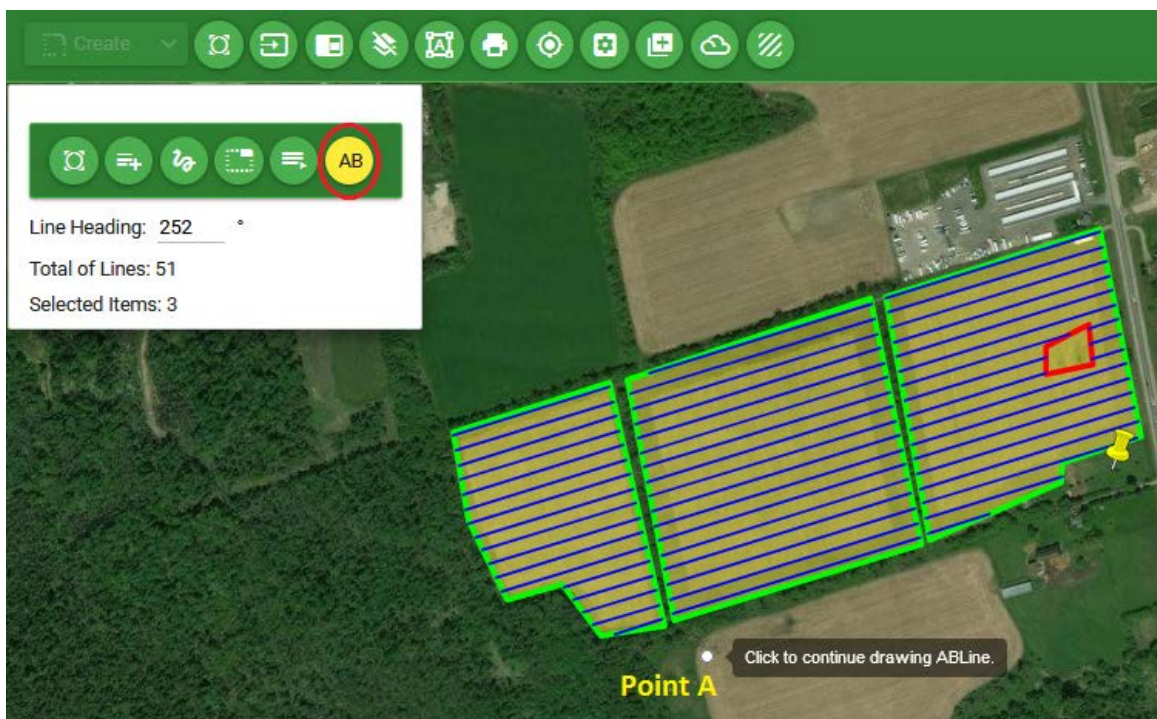


Figure 9- 10: Grid Line Generation – Mark Point A

- j) Move the mouse to the desired location. A dotted line plotted on screen.

- k) Left click the mouse to mark point B. The AB line is shown and grid lines are generated on the selected areas.

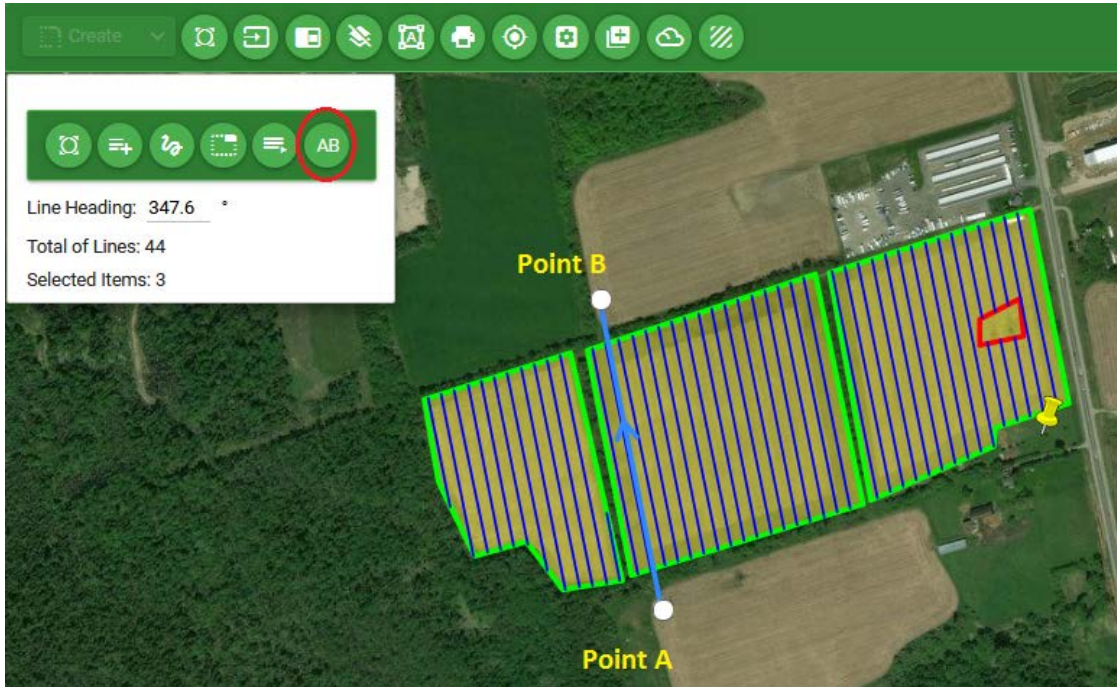


Figure 9- 11: Grid Line Generation – AB Line

- l) Note that you can change the line direction by pointing the mouse to point A or point B then holding down the left mouse button and moving the point to a new location. Then release the mouse to enter point B.

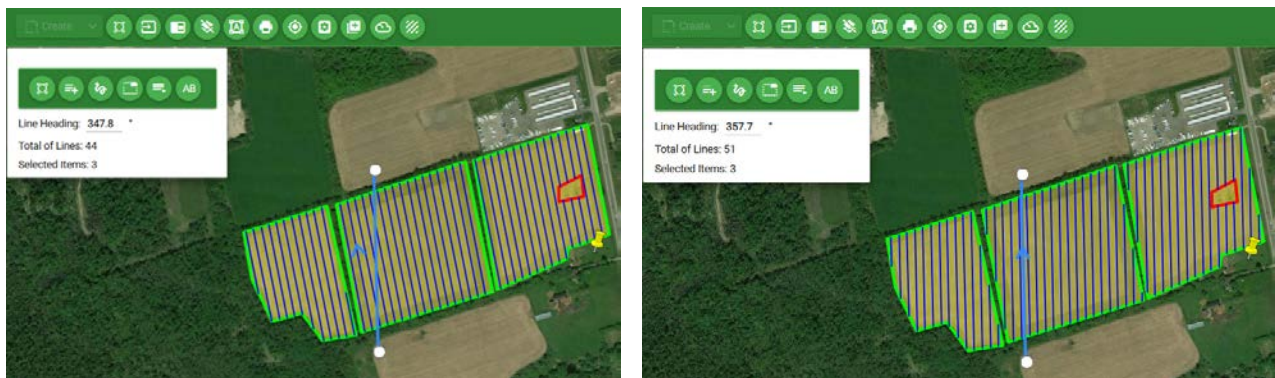




Figure 9- 22: Grid Line Generation – Change AB Line

- m) When grid line generation is done, click  to turn off the functions.
- n) Click  to save the grid lines.

10. Aircraft and Ground Crew Tracking

This section describes on how the Agmission Tracking works and how to setup and use the Tracking function in Agmission.

Agmission Tracking function allows the users to track aircraft which are performing application missions in real time.

In addition, it also can track the location of the ground crew and allows sharing current location of the ground crew to Platinum. When using AgMission in the field, pilot and ground crew can send their current locations to each other for tracking and guidance. This function is helpful when the team, i.e. pilot and ground crew, has to move from job to job. The ground crew location can be a loading zone or landing strip for the next job. By clicking “Send Location”, AgMission will send ground crew location to the Platinum for pilot to know where the loading zone is. Platinum will display the location as a dynamic waypoint and provide pilot with guidance to fly to the loading zone. The Platinum also sends its location to the ground crew. All current aircraft position and ground crew are shown on AgMission Tracking screen.

10.1 Prerequisites

To enable tracking function with Agmission, you need to do:

1. Update the aircraft profile with a UnitID and aircraft Account. Click on Entities > Aircraft menu.
 - a) The unique Id can be defined by your convention based on the tail number then prefix it with ‘0’ to form a 10 digit number. For example 0000000001. Make sure there is no duplication error.

Notes: **Do not use UnitID from 1 to 10.** These IDs are reserved to AgNav for testing purpose only.

The screenshot shows a web form titled "Aircraft Information". It contains several input fields and dropdown menus. The "Name" field is filled with "Test AC 03". The "Aircraft Type" dropdown is set to "Helicopter". The "Unitid" field is highlighted in red and contains the placeholder text "[Your unique unit Id]". The "Color" dropdown is set to "Yellow". Below these fields is a section titled "Access Account in Guia Platinum" which contains two sub-fields: "UserName" and "Password". At the bottom of the form are two buttons: a green "Save" button and a yellow "Back" button with a left-pointing arrow.

Figure 10 - 1: Aircraft Information – Tracking UnitID

- b) Create an aircraft account. If you want Platinum to see the shared locations of the ground crew, enter the UserName and Password in “Access Account in Guia Platinum” box. If this is the case, you also need to enter the account in Platinum’s Agmission Settings as mentioned in section 5.1.
- c) Click on “Save” button.

Next, in order to enable the tracking function in Platinum, you will need to enter the UnitID to Platinum’s TrackerNav settings.

2. Enter the UnitID to Platinum’s TrackerNav Settings.

On the Platinum Main menu, select Settings, tap on “TrackerNav” button, then change “TrackerNav Service” to “Enabled”, enter the UnitID then tap on the checkmark button to confirm.

Notes: You do not need to enter the prefix ‘0’ digits of the UnitID. **Do not use UnitID from 1 to 10.** These IDs are reserved to AgNav for testing purpose only.

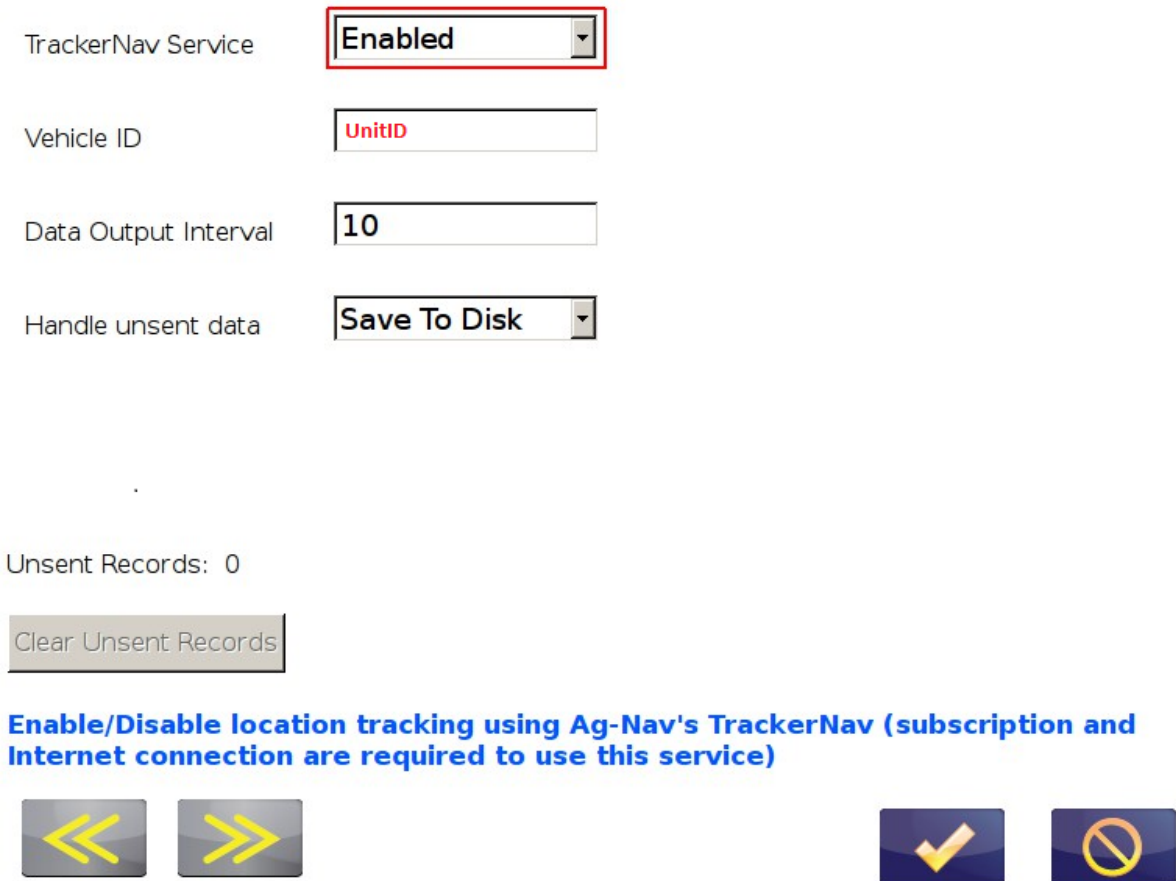


Figure 10 - 2: TrackerNav Settings – Enter UnitID

After this configuration, the Platinum will send tracking data to Agmission when and where there are GPS signal and internet access.

3. Enable Location Access in browser

The device or PC running Agmission must have internet and allowing location access permission in browsers. When you first open the Tracking screen (click on Tracking menu), the browser will ask you for permission to use the location for the ground crew tracking function to work.

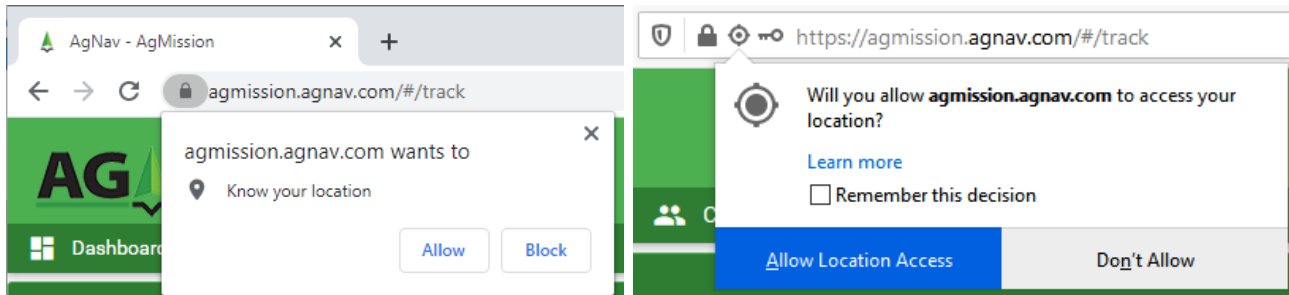


Figure 10 - 3: Location Access – In Chrome and FireFox

Click on “Allow” in Chrome or “Allow Location Access” in FireFox to confirm. If the browser can obtain your current location, it will show your current location with a red user icon.

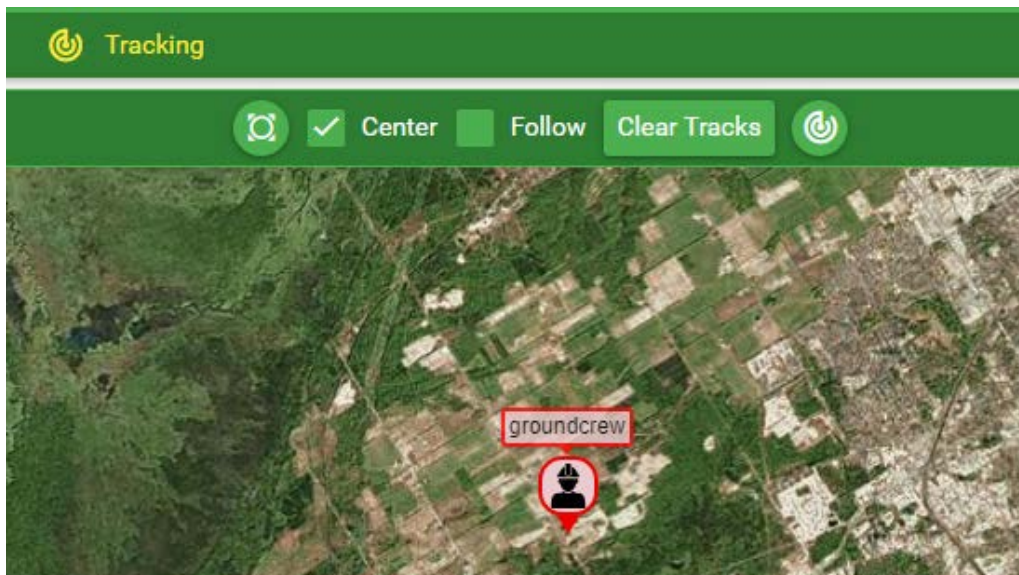


Figure 10 - 4: User Current Location

4. Tracking Display Measurement Unit Settings

The display of measurement units of tracking information in “Tracking Info” panel is determined based on the General Settings.

To change the Settings,

- a) Click on Tools > Settings menu to open the Settings screen

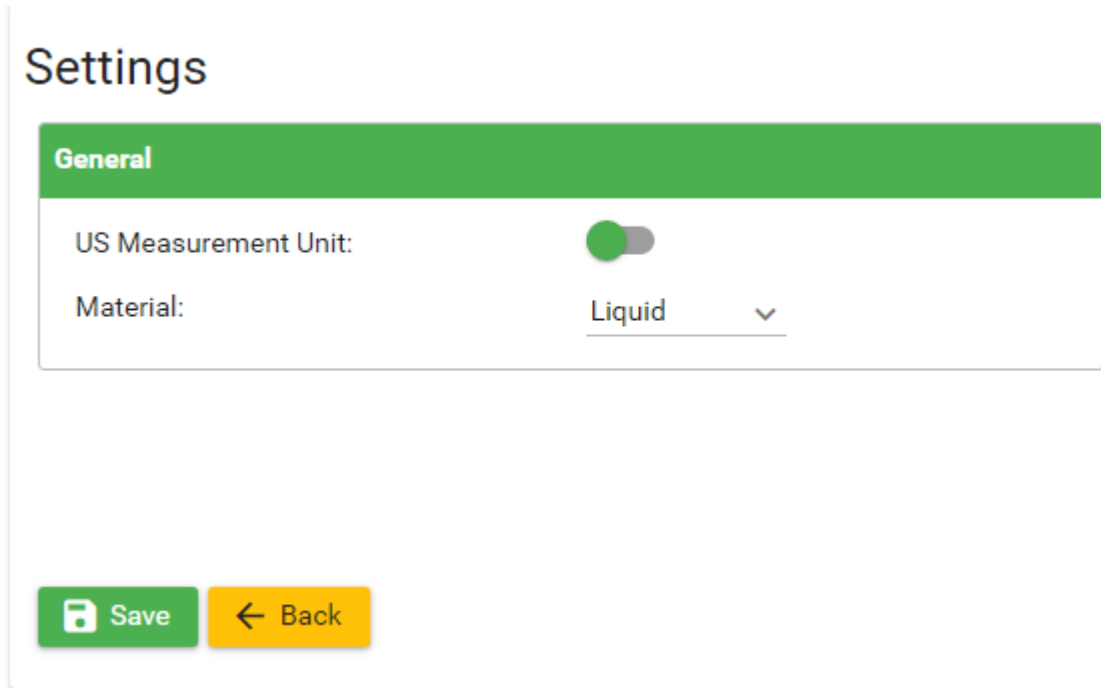


Figure 10 - 5: Tracking Measurement Unit Settings

“US Measurement Unit”: Slide the button to select U.S. measurement units or metric units.

“Material”: Select the type of material (Liquid or Solid) used in your application.

- b) Click on “Save” button to confirm.

10.2 Tracking with Agmission

To access the Tracking function in Agmission, click on “Tracking” menu to open Tracking screen.

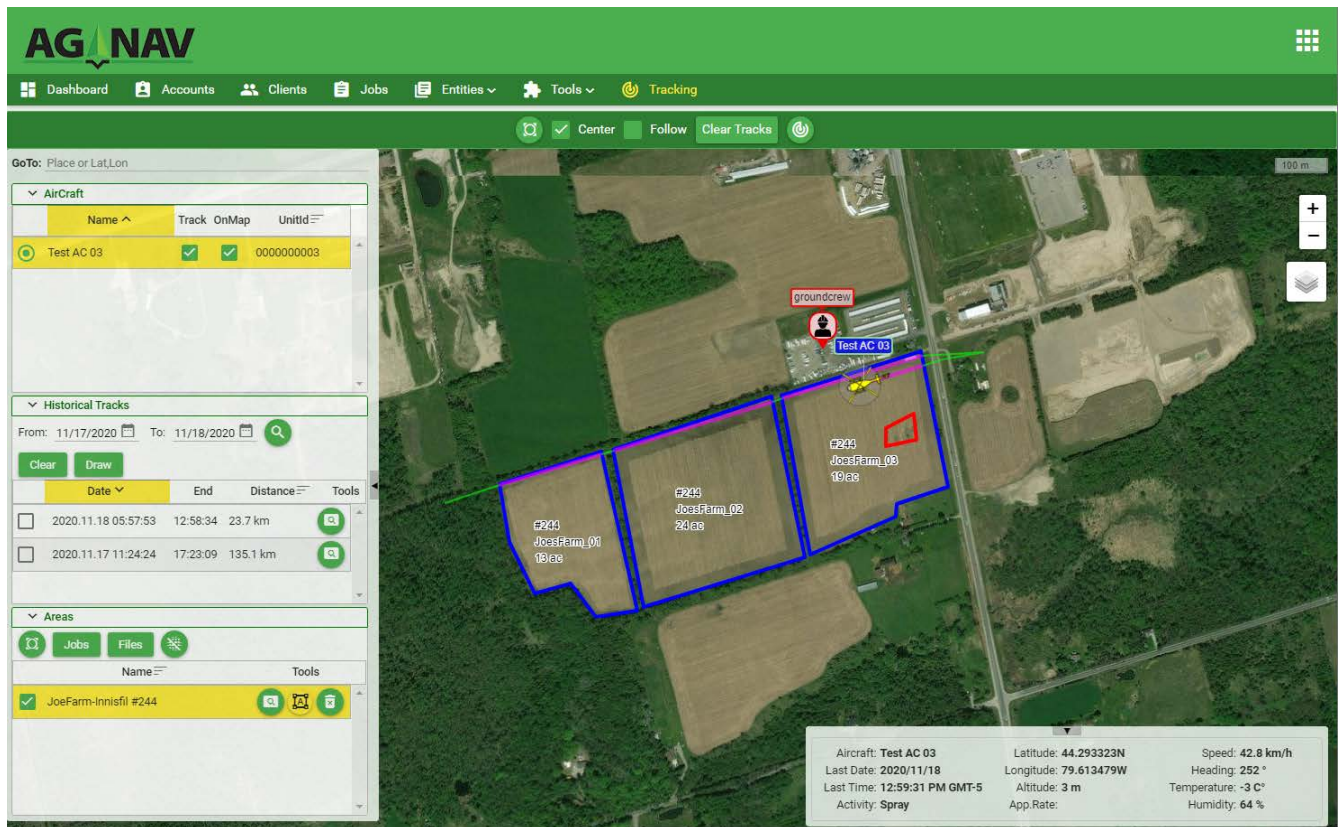


Figure 10 - 6: Live Tracking in Agmission

Tracking functions are designed for maximum user intuition. To track an aircraft, check mark on the “Track” column of the aircraft in “AirCraft” list. When a new position of the aircraft is received, Agmission will plot a line connecting from the previous position to the current position. All the line segments form a tracking line or drive/flight path. On the map the drive/flight path is plotted in green. When spray is on, the path is plotted in magenta.

The “AirCraft”, “Historical Tracks” list, the “Tracking Tools” Center Follow and the “Tracking Info” panel are connected together when an aircraft is selected.

1. Tracking Tools menu



: Zoom to all AirCraft. Click on this button to adjust the map view to see all aircraft.

Center: Center selected AirCraft. When check marked, the aircraft will be centered on the map screen every time you selected an aircraft.

Follow: Follow selected AirCraft. When check marked, the selected aircraft is always centered on the map view whenever there is new location.

Clear Tracks: Clear all live Tracks. Click on this button will clear all live track paths of all aircraft on the map view.

Send My Location: Send My Location. For ground crew user only. Click on this will send the current location to all others users and all Platinum. With the crew member shown in Platinum navigation screen, the pilot can select this waypoint for guidance, if desired.

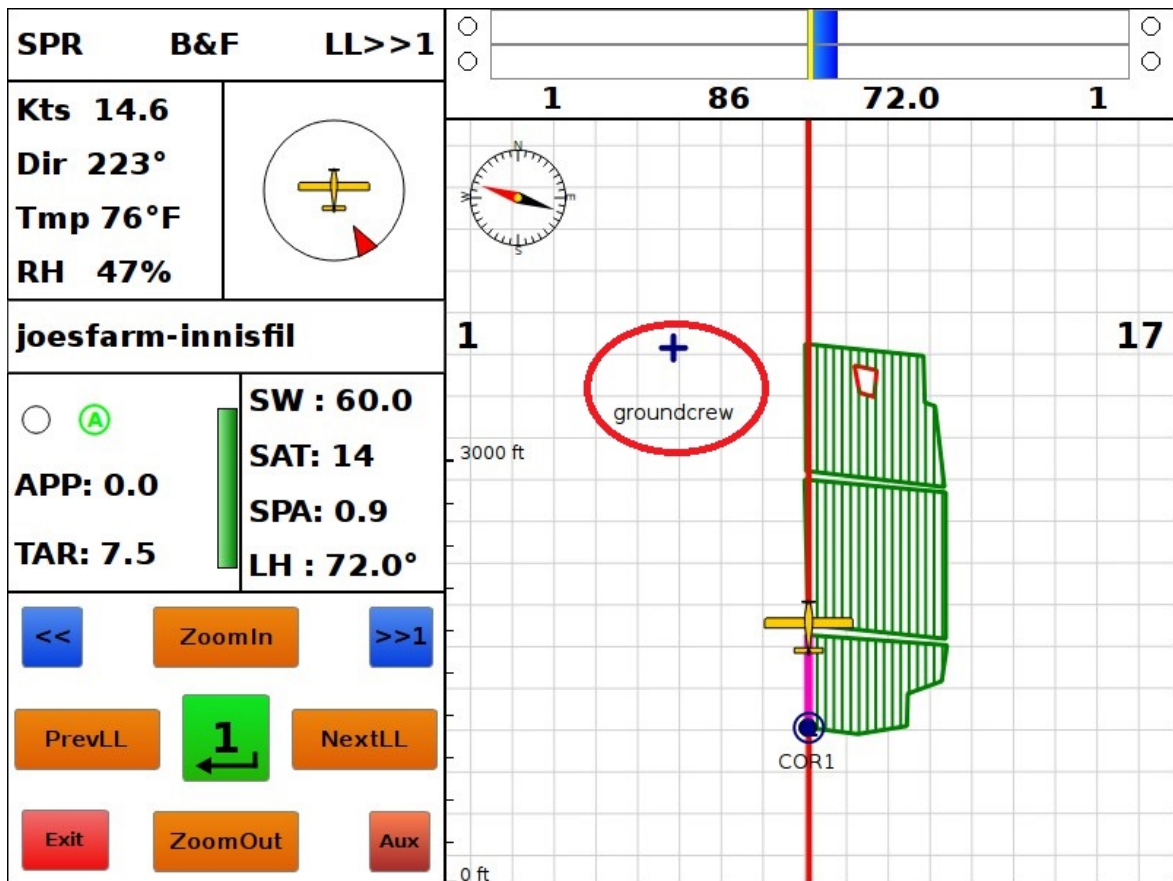
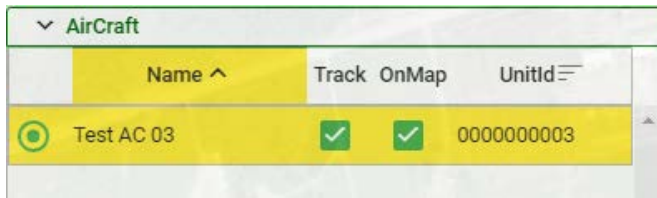




Figure 10- 7: Ground Crew Location Display on Platinum

Note that if there are more than one ground crew team members or more than one aircraft flying, all of their locations will be shown both on the Agmission Tracking screen and on each Platinum navigation screen.


2. AirCraft List



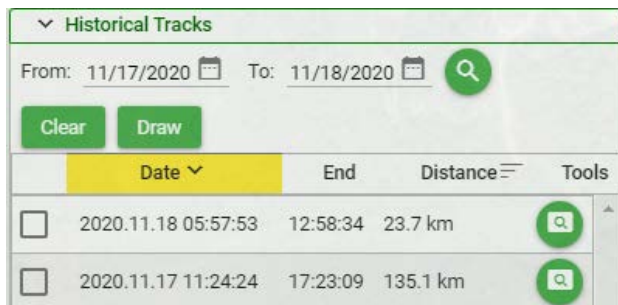
Name ^	Track	OnMap	UnitId
Test AC 03	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0000000003



: To select or unselect an aircraft. When you select an aircraft, if there was tracking data received by Agmission from this aircraft, its current tracking information will be shown in “Tracking Info” panel. The aircraft icon will be centered on the map view if you selected  Center. Likewise, the “Historical Tracks” will also work based on this aircraft.


“Track” : when check marked, it will plot the live tracks to new locations.


“OnMap” : check to show or uncheck to hide the aircraft icon on the map view.


3. Historical Tracks




Date	End	Distance	Tools
<input type="checkbox"/> 2020.11.18 05:57:53	12:58:34	23.7 km	
<input type="checkbox"/> 2020.11.17 11:24:24	17:23:09	135.1 km	

When an aircraft is selected, you can search and display tracks in the past. Select the date range in “From” and “To” then click on the Search  button.

: To plot selected tracks. Old tracks are grouped by date, when there are old tracks in the list; you can check mark on the ones with the date desired then click on this button to draw the track paths.

: To clear all plotted old tracks on the map view.

: To show or hide the track on the map view.

: To center the map view on the old track paths.

4. Areas List



“Areas List” functions allow you to load areas from jobs or files to show on the map view while tracking aircraft performing missions.

Jobs: Load areas from Jobs. To show “Select Jobs” dialog to search and select the jobs to show their areas on the tracking map view.

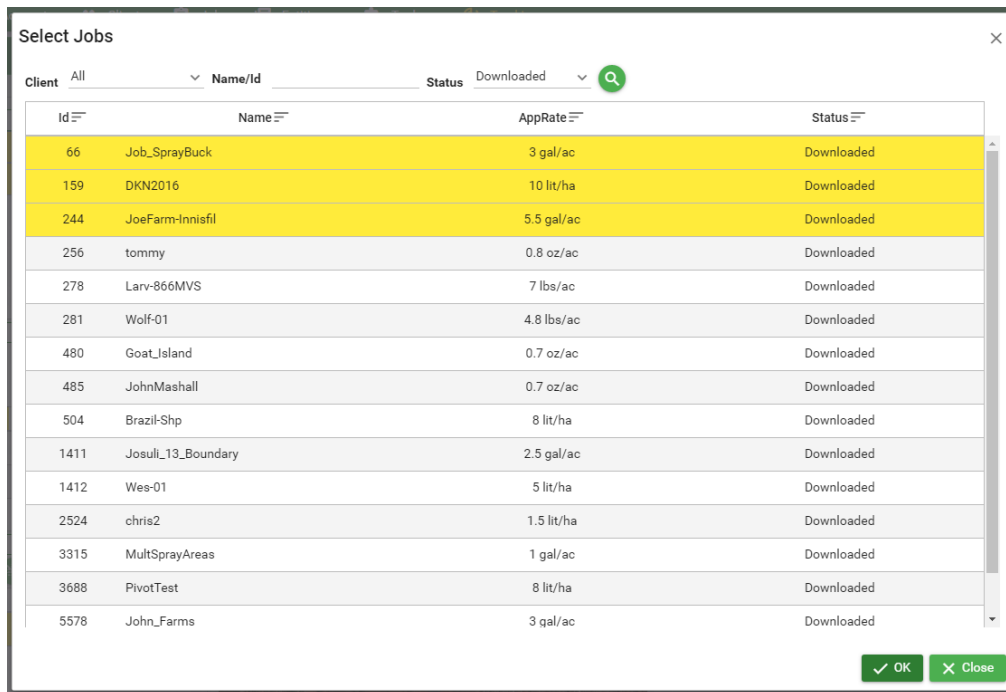


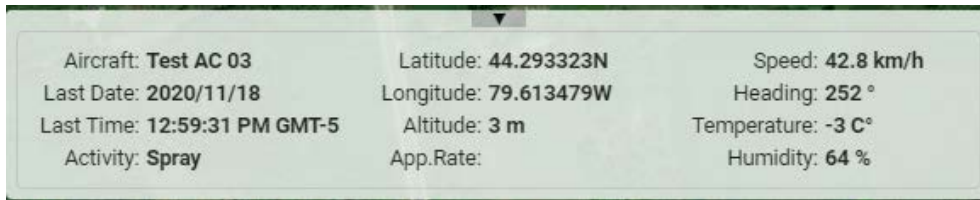
Figure 10- 8: Ground Crew Location Display on Platinum

Files: Load areas from files. To show select a (.zip/.kml/.kmz) file that contains areas to show on the map view.



: Clear all. To clear the list and all plotted areas on the map view.

5. Tracking Info panel



The screenshot shows a 'Tracking Info' panel with a dropdown arrow at the top center. The panel contains the following information:

Aircraft: Test AC 03	Latitude: 44.293323N	Speed: 42.8 km/h
Last Date: 2020/11/18	Longitude: 79.613479W	Heading: 252 °
Last Time: 12:59:31 PM GMT-5	Altitude: 3 m	Temperature: -3 C°
Activity: Spray	App.Rate:	Humidity: 64 %

“Tracking Info” panel, located on the bottom right of the map view, shows the last known detail tracking information of the selected aircraft. It will also be automatically updated when there is new tracking data received by Agmission.

The measurement units of the fields are determined by the “Measurement Unit” setting in Tools > Settings.