



Surveillance Information Management System (SIMS)

Tools and processes for collection, management and
analysis plant health surveillance data

International Plant Health Program
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Contents

Data Management: Workflow and Procedures

I.	Summary	4
II.	File structure for database and supporting files.	5
III.	Field collection overview	6
IV.	Data processing	7
V.	Database management	9

2. P-tracker Kit: Field Use Manual

I.	Introduction	11
II.	Activating the satellite GPS	12
III.	Sample collection	13
IV.	Reviewing saved data	14
V.	Exporting and storing data	15
VI.	GPSPhotoLink	16
VII.	GPS Tracking	21

Plant Health Database: Basic User Manual

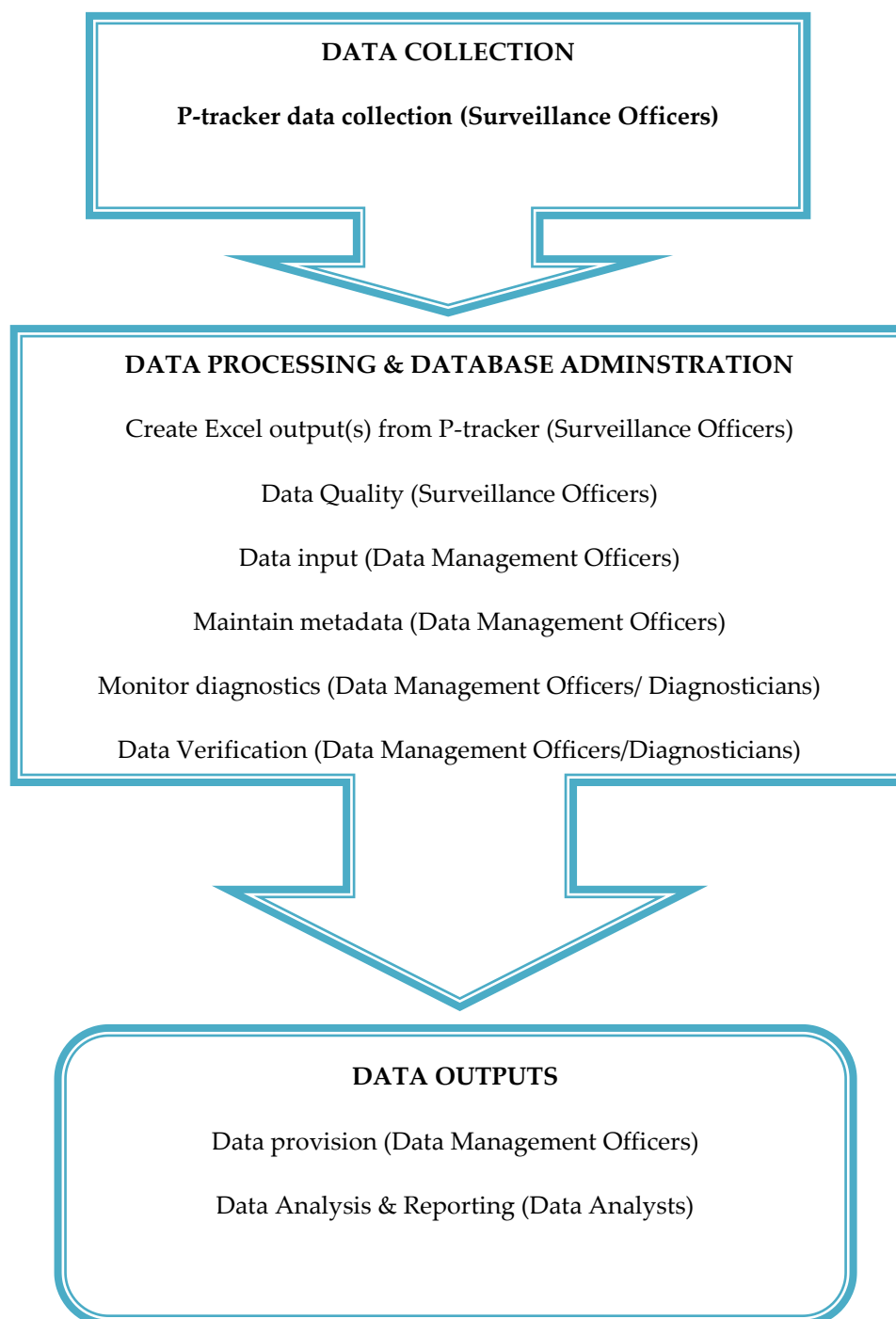
	Foreward	23
I.	The Main Menu	24
II.	Survey data entry	25
	i. Survey information entry form	25
	ii. Importing survey data from Excel	27
III.	Diagnostics	31
	i. Navigating the diagnostics form	31
	ii. Updating diagnostic results	32
	iii. Exporting diagnostic results	34
IV.	Querying the database	36
	i. Pest Lists by commodity	36
	ii. Navigating the pest records form	38
	iii. Search records	39
	iv. Filtering records further	41
	v. Exporting search results	42
V.	Backing up the database	44



Data Management: Workflow and Procedures

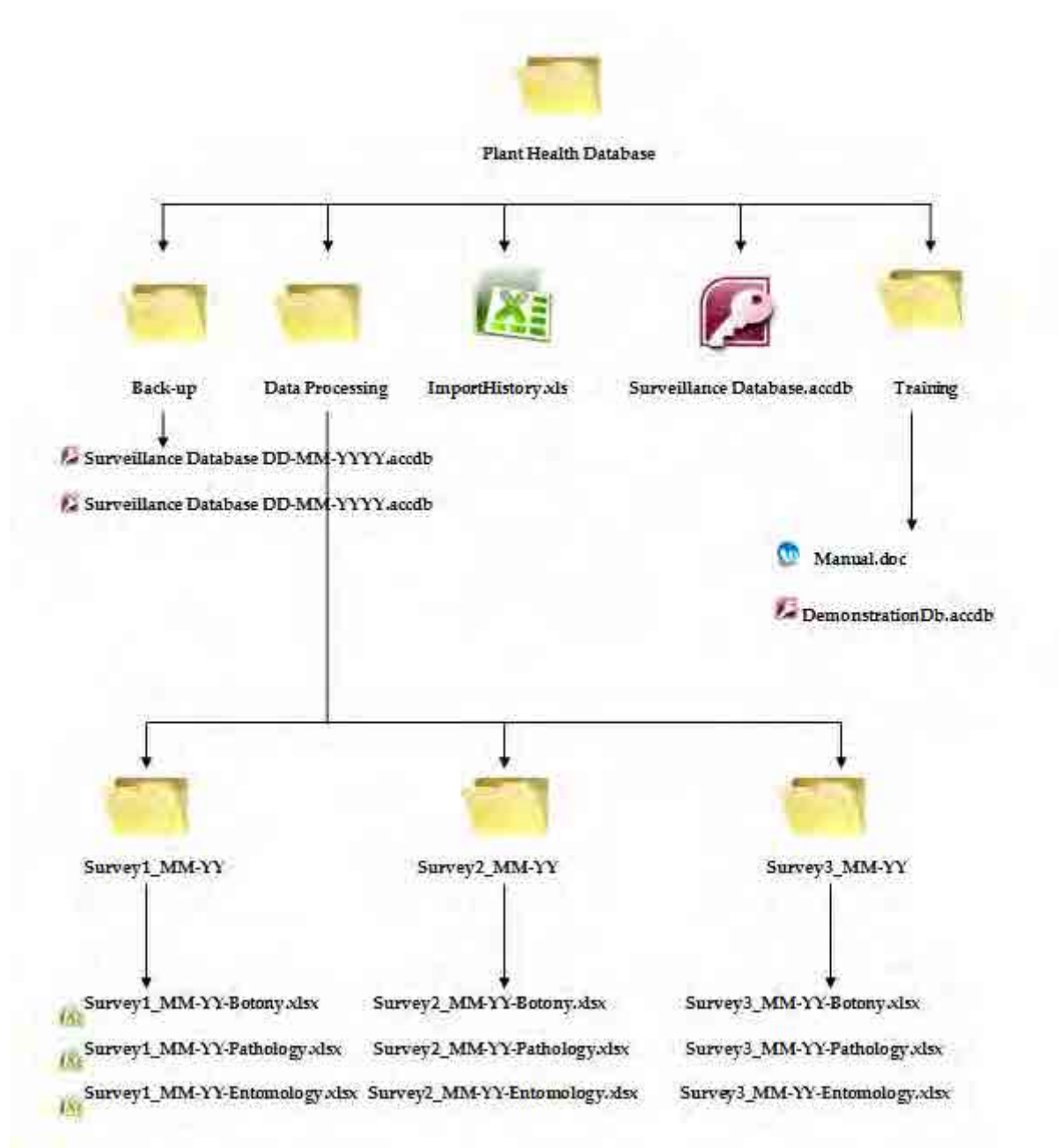
I. Summary

This document describes the data management processes required to support the Plant Health Surveillance Database. The diagram below provides a summary of the data management workflow. Each phase of the workflow is detailed in subsequent sections of this document.



II. File structure for database and supporting files.

The diagram below show how the folder containing the database is structured. The structure is closely related to the **Data Processing** and **Data Base Management** components of the workflow. Each of the nodes, supporting files and their functions are described in relation to these.



III. Field Data Collection Overview

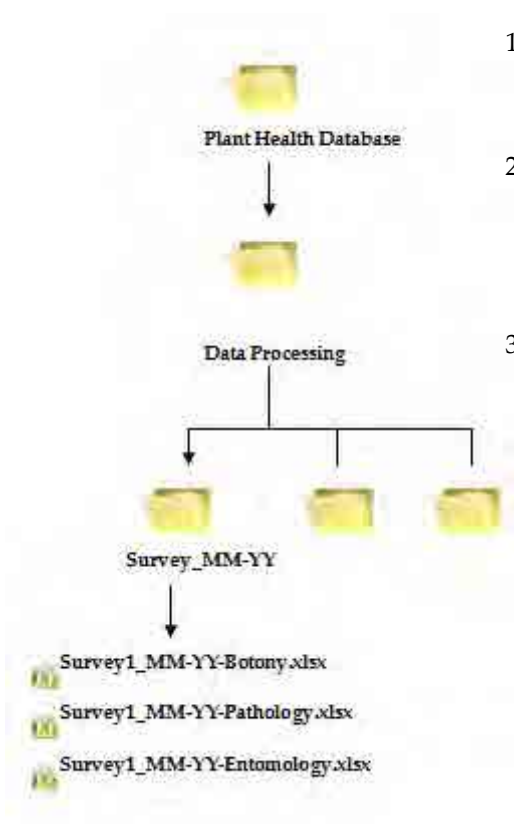
1. **P-tracker sequence (pre-survey).** The fields should be aligned with the key database fields exactly. Only the **Key Database Fields** will be imported and should not be altered in any way.

	Field Name	Definition
KEY DATABASE FIELDS	SurveyID	Unique code for the survey
	CollectionID	Unique code for the specimen or observation
	CollectionDate	date the sample was collected or date of observation.
	HostCommon	Common name of the host e.g Lemon
	HostGenus	Genus e.g Citrus
	HostSpecies	Species e.g Limon
	PestOrder	e.g <i>Rhizobiales</i>
	PestFamily	e.g <i>Phyllobacteriaceae</i>
	PestGenus	e.g <i>Liberibacter</i>
	PestSpecies	e.g <i>asiaticus</i>
	PestCommonName	e.g Citrus greening
	PestCategory	A description of the traits of the pest e.g weed, virus, fungus, weevil.
	Location_Level1	The first level of administrative division e.g Province
	Location_Level2	the second level of administrative division e.g District
	Latitude	GPS coordinate
	Longitude	GPS coordinate
	Collector	the name of the field officer who makes the collection or observation
	CollectionMethod	method used to collect the pest e.g trap, net, hand
	RecordType	Specimen a physical specimen has been collected
		Observation: present visual inspection indicates the pest is present
		Observation: absent visual inspection indicates the pest is absent
	DiagnosticStatus:	Positive positive diagnostic result for the pest (present)
		Negative negative diagnostic result for the pest (absent)
		Unknown unable to identify the pest
		Pending the result of diagnostics are not yet confirmed/complete
	Unit	the unit of inspection e.g Plant, Square meter, trap
	NumberInspected	number of hosts inspected in the unit.
	NumberPositive	number of detections of the target pest.
	IdentificationMethod	how the pest was identified e.g Visual, DNA
	IdentificationDate	date the pest was identified DD/MM/YYYY
	Identifier	name of the person who identified the pest
	References	Taxonomic reference. e.g (Wakef.) Nakasone & Gilb., Folia cryptog. Estonica 33: 87 (1998)

	Notes	e.g soil type; host damage; part of plant affected; habitat;
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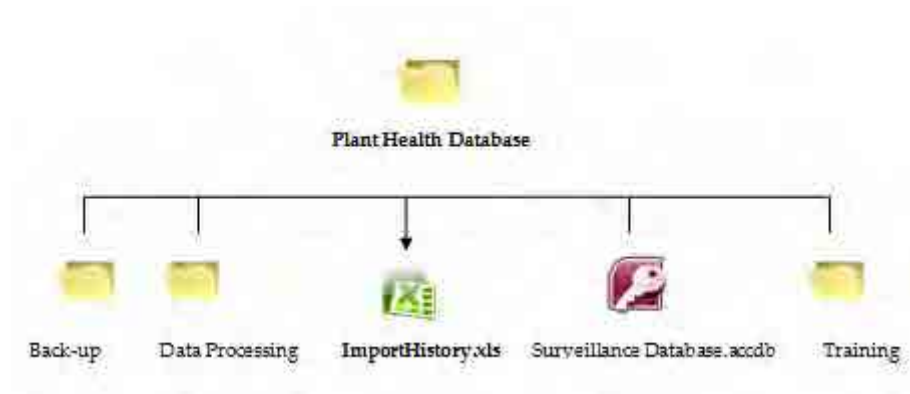
2. **Collect surveillance data.** Instructions for collection of field data using the P-tracker device are outlined in the **P-tracker Field Use Manual**.
3. **Store collection data.** The data stored on the P-tracker device should be backed-up at the end of each day using the Laptop and the external storage device included in the kit (hard drive, USB drive etc). (see **P-tracker Field Use Manual**)

IV. Data Processing



1. Transfer the Excel outputs from GPS photolink to the database laptop.
2. Create a new folder in the folder **Data Processing**, according to the following convention: 'SurveyName_MMY_ discipline'.
3. Save the Excel sheets for each discipline in the survey folder.
4. Check spelling and correct field data entry errors in the Excel sheet
5. Complete pest taxonomic information and Host scientific, common name and other details to the extent possible.
6. Update the **Diagnostic Status** column where necessary.
Notes:
 - 'Diagnostic Status' will be defaulted to 'Pending' on the P-trackers. In the lab, as specimens as examined and diagnostics complete, this field should be updated to 'Positive', 'Unknown or 'Negative'.
 - Specimen's that cannot be fully identified (i.e down to species level) and need to be sent to an external provide to complete diagnostics should be left as 'Pending'.
 - Tentative ID's should be left as 'Pending' until confirmation.
7. Ensure data column names match the field names; or import will fail in Microsoft Access.

8. Import the Excel spreadsheet into the database. (See the *Plant Health Surveillance Database Basic User Manual* for instructions)
9. Complete the **ImportHistory.xlsx** log. This contains the spreadsheets metadata which includes information about what data has been imported into the database and when. This is to avoid data duplication as well as track data input when multiple sheets are being imported.

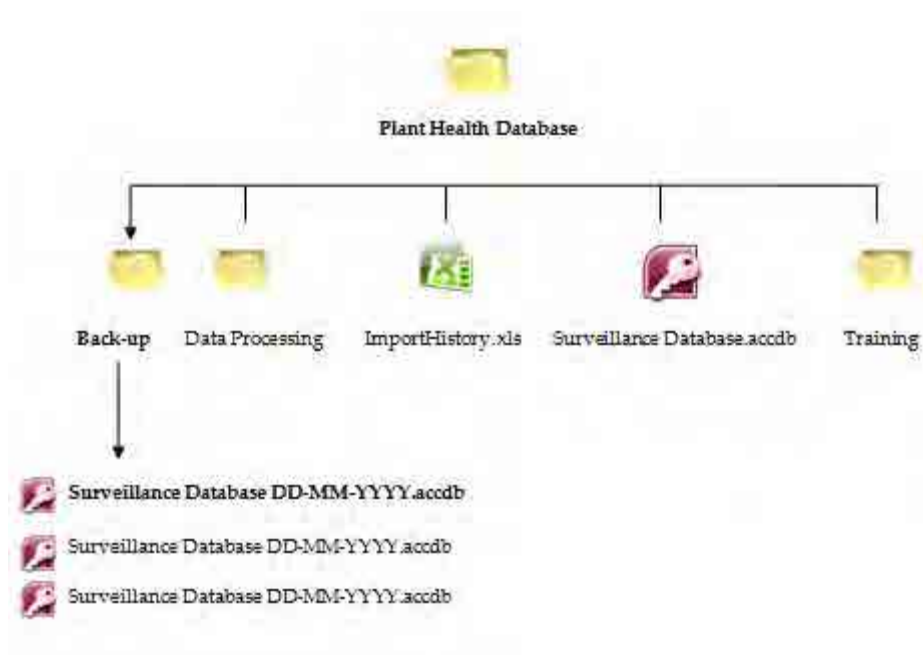


V. Database Management

1. **Updating the database.** Update and complete database records as outstanding specimens are confirmed. (see the *Plant Health Surveillance Database Basic User Manual III. Updating Existing records* instructions).



2. **Back-up database file to the Backup folder.** This creates a copy of the database indicating the back-up data. This will safeguard against loss of data through file corruption. (For instructions on how to back up see the *Plant Health Surveillance Database Basic User Manual VI. Backing up the Database*)



3. **Back-up database folder to External Hard-drive.** The entire database and supporting files should be periodically backed up to an external hard drive.





P-tracker field use manual

I. Introduction

The 'P- tracker' offshore surveillance system is a self contained and readily deployable field surveillance kit, consolidating a suite of data collection, consolidation, diagnostic, analysis and mapping tools into a 'field ready' unit. Each kit comprises three data collection units (field equipped smartphones with Geojot equipped software) for each of the biosecurity plant disciplines (entomology, botany, plant pathology). These units are used to record digital images, GPS locations and specimen collection details during plant health surveillance and biosecurity activities. Surveillance data is uploaded from the smart phone 'trackers' onto the standalone computer for consolidation, analysis and mapping by the GPS Photolink software. 'Dina-lite' digital microscope equipment and scientific reference material is also contained within the kit, providing basic field based diagnostic capabilities.

The P-tracker kit contains:

- 1 x 'Vanguard' field equipped weatherproof case
- 1 x HP Folio 13 1008TU 'Ultrabook' laptop unit
- 3 x Smart Phone Units + accessories (64GB Capacity)
- 1 x Geojot GPS application program (i-phone based)
- 1 x GPS Photolink Software Program (laptop based)
- 1 x 500GB external hard drive (weather and shock proof unit)
- 1 x Garmin 'Montana' mapping enabled GPS.



This manual is designed for field surveillance officers and biosecurity specialists. The manual details;

- How to use the GeoJot software for data collection using the P-tracker.
- How to back-up and export data from the P-tracker
- How to create a GPS track file with the Garmin GPS device.

II. Activating the satellite GPS

In remote locations, where it is not possible to triangulate your position from network towers (using network assisted GPS), you will need to activate the smart phones satellite GPS.

Step 1: Go to 'Settings' on the main menu

Step 2: Turn 'Airplane Mode' on and off again by sliding the panel from left to right. The smart phone will then automatically activate the satellite GPS when it is unable to find a network.




III. Selecting a Data Sequence

Before taking a sample you will need to select a sequence that you will use to enter details of an observation. To do this, open the **GeoJot Mobile Application**, located on the main menu. This will bring up the GeoJot main menu.

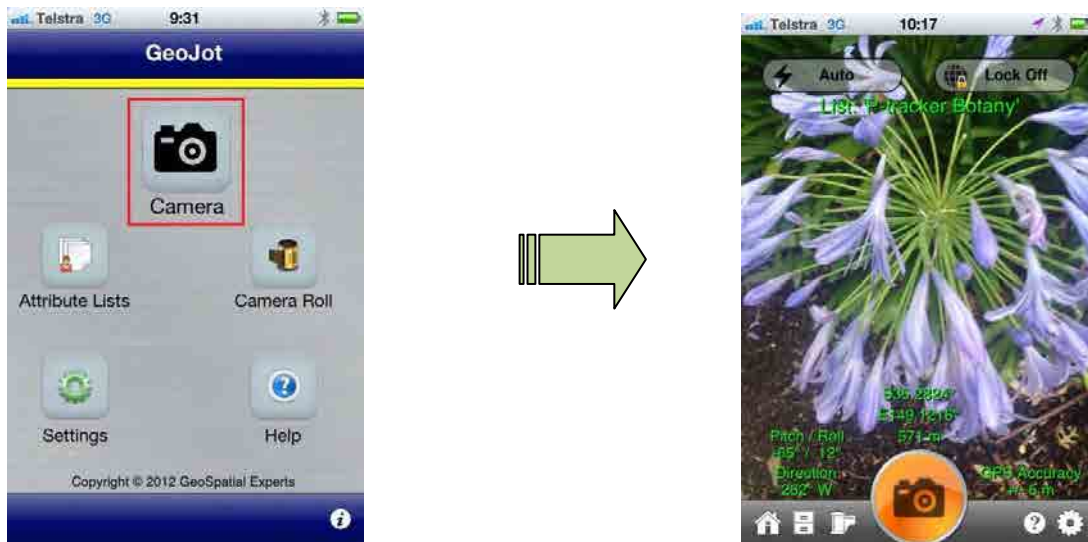


Next select '**Attribute Lists**' to choose from a list of pre-programmed sequences by pressing the tick box on the left handside of the screen. A green tick will appear next to the selected sequence.

Now press the home symbol  located at the top left-hand corner of the screen to return to the main menu

III. Sample Collection

Step 1. Select the camera icon from the Geojot Main Menu. This will bring up the camera view.



Step 2. When you are ready to take a photo of your sample press the camera icon located at the bottom of the screen. The data sequence headed '**Enter Values**' will then appear.



Step 3. Enter values into each field by pressing on the heading. There are two types of data fields:



← **Free text fields.** You can enter text using the keypad at the bottom of the screen, press 'Done' to complete the entry. This will return you to the data sequence list.



Drop down fields. These are pre-populated values that you can choose from. Once a value is selected, press 'Done' to complete the entry. Again this will return you to the data sequence where you can fill in the remaining fields. →



Step 4. Once you have completed the sequence, press the 'Save' button, located in the top right hand corner of the screen. This returns you to the camera view and you are ready to take your next sample.

NOTE: You must enter values against all fields, otherwise the error message shown on the right screen shot will appear. An orange asterix will also appear next to the incomplete field.



IV. Reviewing Saved Data

Saved records are stored in the Camera Roll. To view your photos and their attributes (collection notes), select 'Camera Roll' from the **GeoJot** menu. This will display all the samples. Selecting an entry allows you to review the photo, coordinate data and collection notes.



← The **Attributes** tab contains your collection notes. Blue text represents the surveyor's entries, black text the data field.

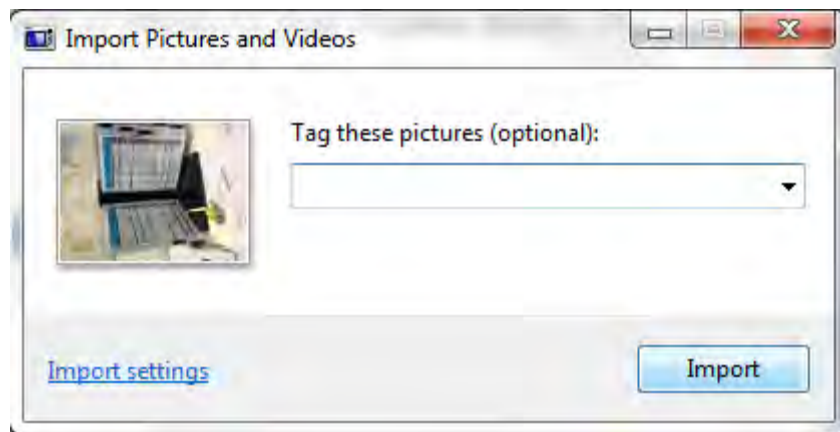
The **Map** tab allows you to review the coordinate data, collection time and date →



V. Exporting and storing data from P-tracker

The data stored on the P-tracker device should be backed-up at the end of each day using the Laptop and the external storage device included in the kit (hard drive, USB drive etc).

1. Plug the USB cable into the P-tracker and the laptop's USB port.
2. The laptop will automatically recognise the smart phone and the following dialog box will appear. Click '**Import**'.



3. The images, along with their attributes (i.e your collection notes), will then be imported into 'My Pictures' in My Computer.
4. Enter file names according to the following filename convention DD-MM-YY_SURVEY_DISCIPLINE.(e.g 20-08-12_SanDaun_Botony).
5. Once data has completed upload, save data on the external hard drive, via the link on the desktop.



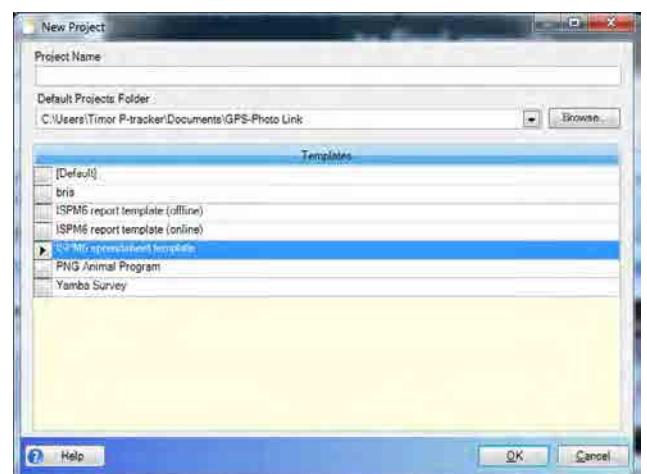
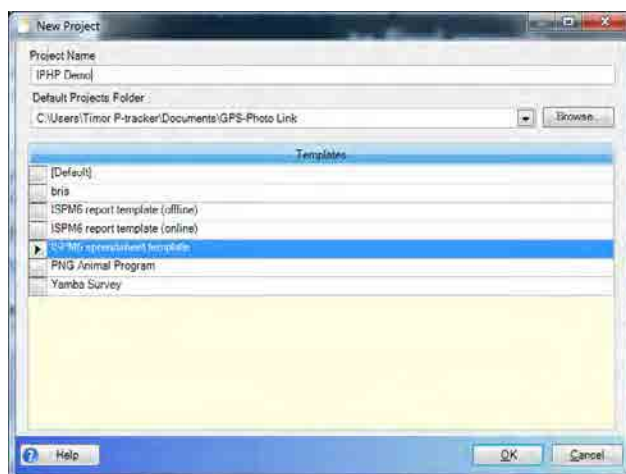
VI. GPS PhotoLink

The GPS PhotoLink application is used to generate outputs from the P-tracker. This section only covers creating a spreadsheet (.csv) output.

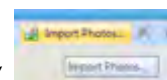
1. Open the GPS Photolink application.
2. Click the 'New Project' button located in the top left hand of the screen.

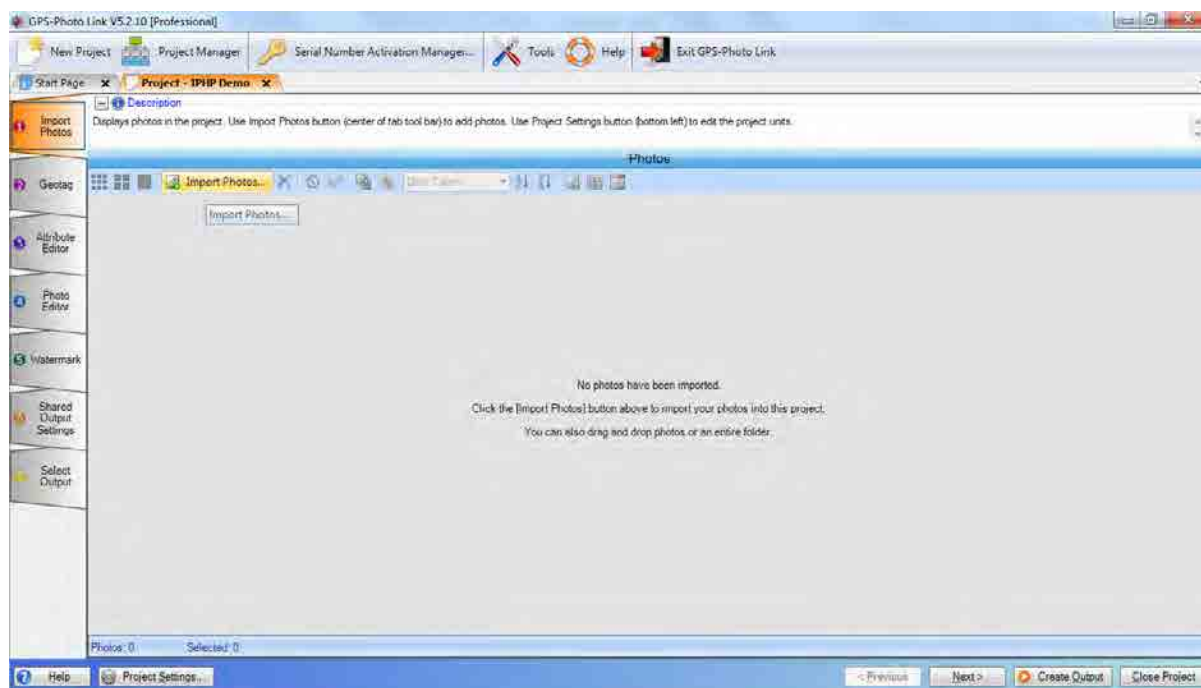


3. Select the ISPM6 spreadsheet template, enter a project name and then click 'OK'.

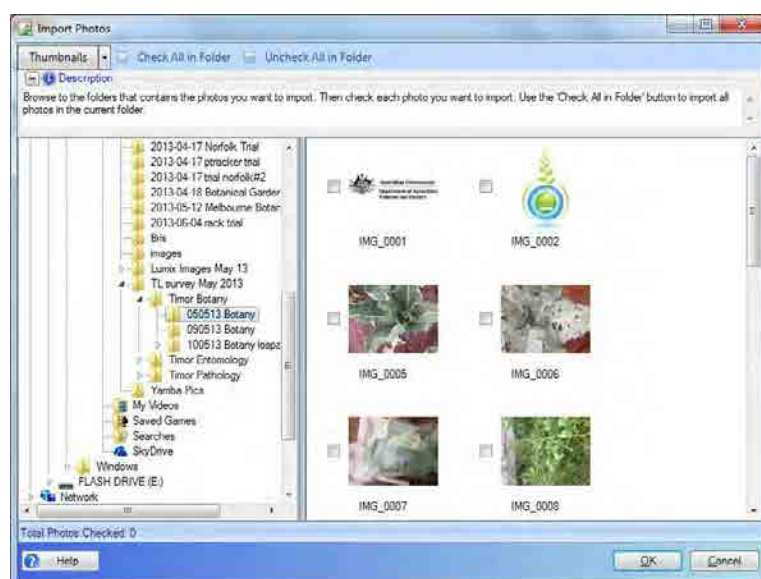
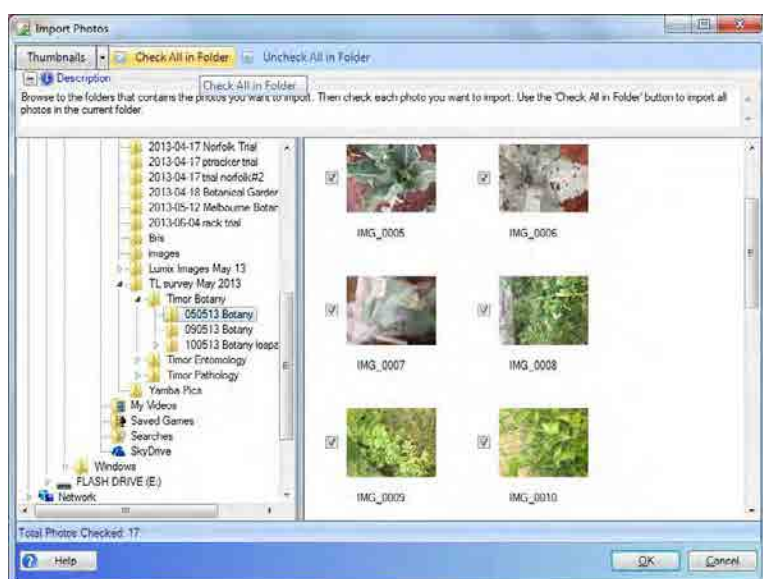


4. Next select the 'Import Photos' tab from the side bar and click on 'Import Photos'

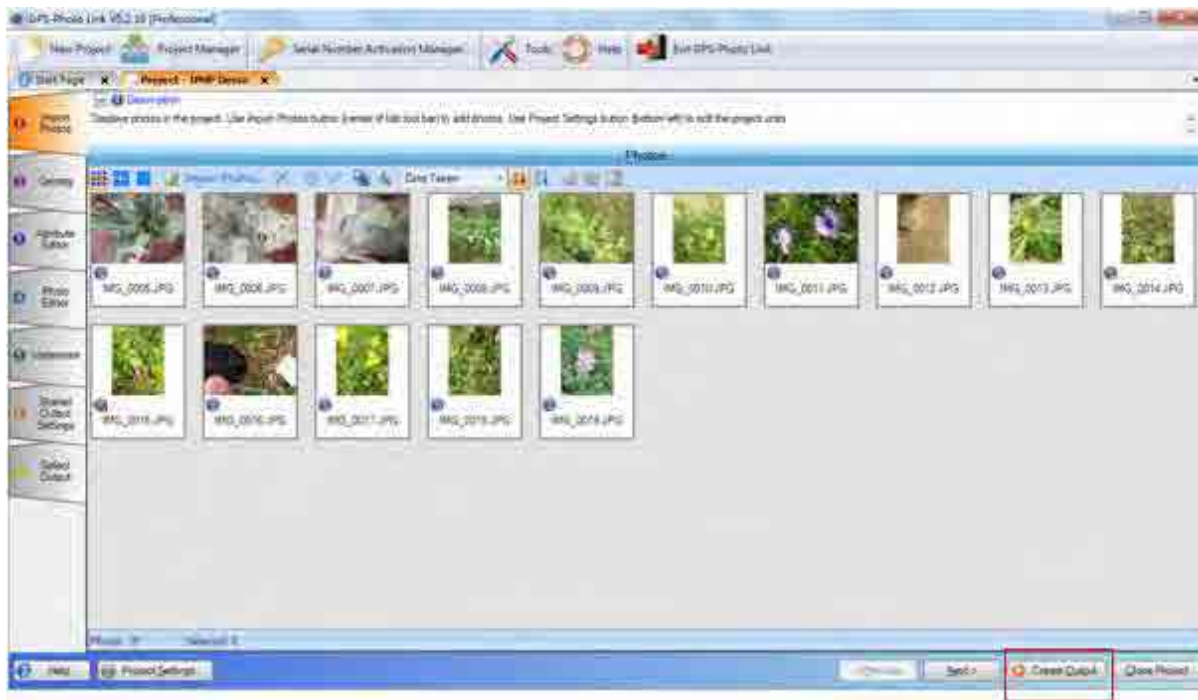




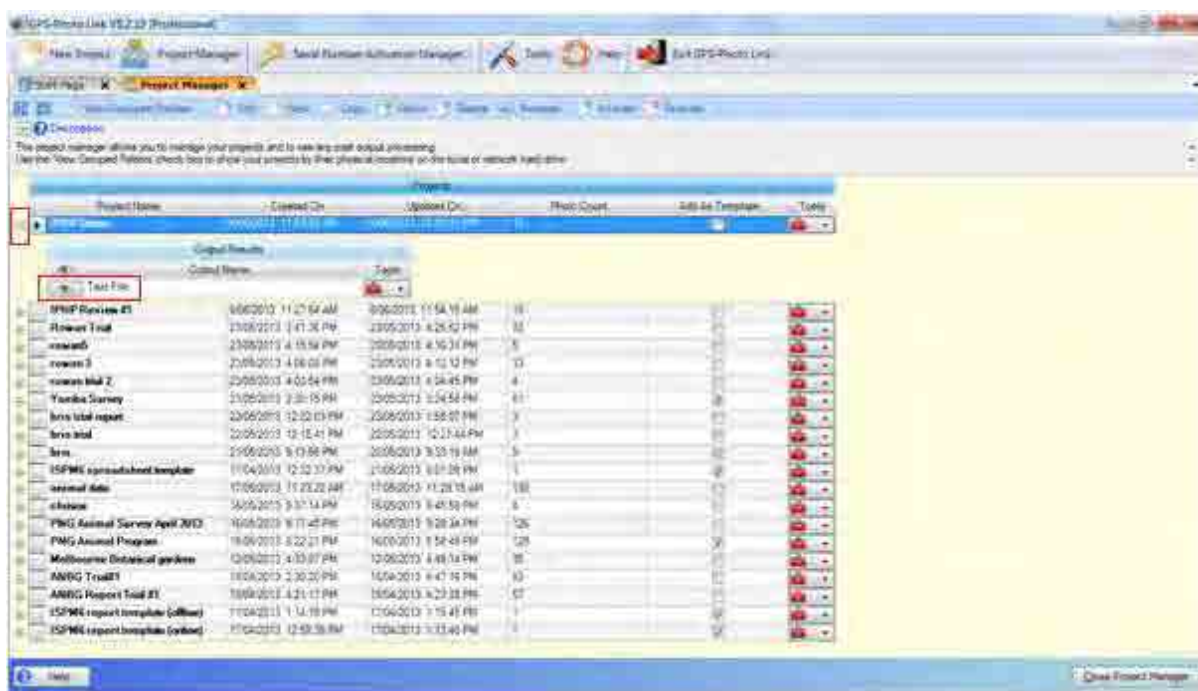
5. Select the folder containing the photo downloaded from the P-tracker from the left hand side of the dialogue box. Check the images you wish to import then press 'OK'.



6. The selected photos appear will appear in GPS PhotoLink as shown below. To create a spreadsheet output click on 'Create Output' at the bottom right of the screen.



7. To view the spreadsheet first click on the + on the left hand side of the Project Name , then click on 'Text File'. This will open the spreadsheet in Microsoft Excel.



Lat	Lon	Ele	Dir	FOV	Collection Date Stamp	HostCommon	HostGenus	HostSpecies	PestOrder	PestFamily	PestGenus	PestSpecies	PestCommon	Prevalence	Country	Location	latitude	longitude
-8.81376	125.5978	1467	307	42	almin1	cauliflour	TBC	TBC	TBC	TBC	TBC	tb	high	Timor	allieu	\$ 08.81376 E		
-8.81374	125.5978	1466	11	42	dale1	kubis	TBC	TBC	TBC	TBC	TBC	tb	high	Timor	allieu	\$ 08.81374 E		
-8.81374	125.5978	1464	243	42	GS01	cauliflour	TBC	TBC	TBC	TBC	TBC	tb	medium	Timor	allieu	\$ 08.81374 E		
-9.16271	125.7187	33	50	42	1	none	None	TBC	Ageragucer	Asteraceae	tb	Unknown	low	Timor	same nula	\$ 09.16271 E		
-9.16273	125.7187	30	106	42	2	none	None	TBC	Ageragucer	Asteraceae	tb	Unknown	low	Timor	same nula	\$ 09.16273 E		
-9.1632	125.7182	27	246	42	5	none	None	TBC	Verbenaceae	Stachtarpl	tb	Unknown	low	Timor	same nula	\$ 09.1632 E		
-9.16329	125.7163	21	96	42	6	none	None				tb	Unknown	low	Timor	same nula	\$ 09.16329 E		
-9.1637	125.7186	22	109	42	7	none	None				tb	Unknown	low	Timor	same nula	\$ 09.1637 E		
-9.16391	125.7184	25	119	42	7	none	None				tb	Unknown	low	Timor	same nula	\$ 09.16391 E		
-9.16459	125.7189	15	52	42	7	m pudica	None				tb	Unknown	low	Timor	same nula	\$ 09.16459 E		
-8.89383	125.5182	1884	51	42	sancha de	na	None		asteraceae	tbcbidens	Pilosa	daisy	high	Timor	ainaro vatubico	\$ 08.89383 E		
-8.89364	125.5182	1896	272	42	sancha de	na	Baleria		acanthaceae	baleria	Prionitis	baleria	high	Timor	ainaro vat	\$ 08.89364 E		
-8.87175	125.5898	1603	343	42	sancha de	ipomea	Baleria		convulvaceae	hederiviae	ipomea	baleria	high	Timor	ainaro vat	\$ 08.87175 E		
-8.87175	125.5898	1604	322	42	sancha de	common	Pudoca	mimosaceae	mimosa	hederiviae	ipomea	baleria	high	Timor	allieu	\$ 08.87175 E		

8. The .csv output contains additional fields that are not required for the **Plant Health Database** these will need to be deleted, so that they don't interfere with import into the database. Select the columns headed **Ele Dir** and **FOV**, right click on the column heading and select 'delete' from the menu.

FILEHOMEINSERTPAGE LAYOUTFORMULASDATAREVIEWVIEW

ClipboardFontAlignmentNumber

General

Conditional Formatting

Format as Table

Cell Styles

InsertDeleteFormat

AutoSumFillClear

Sort & Filter

Sign in

Calibri11A⁺⁻

Wrap Text

General

\$ % & 1/2 1/4 3/8 1/2 3/4 5/8 7/8 1

Number

C1

fx

E1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	lat	lon	Ele	Dir	FOV	CollectionID	Date Stamp	HostCommon	HostGenus	HostSpecies	PestOrder	PestFamily	PestGenus	PestSpecies	PestCommonName
2	-8.813763	125.597763	1467	307	42	almin1	2/05/2013	cauliflour	TBC	TBC	TBC	TBC		TBC	tb
3	-8.813735	125.597771	1466	11	42	dale1	2/05/2013	kubis	TBC	TBC	TBC	TBC		TBC	tb
4	-8.81374	125.597763	1464	243	42	GS01	2/05/2013	cauliflour	TBC	TBC	TBC	TBC		TBC	tb
5	-9.162713	125.718656	33	50	42		1 3/05/2013	none	None	TBC	Ageragucer	Asteraceae	tb	Unknown	tb
6	-9.16273	125.718735	30	106	42		2 3/05/2013	none	None	TBC	Ageragucer	Asteraceae	tb	Unknown	tb
7	-9.163197	125.718215	27	246	42		5 3/05/2013	none	None	TBC	Verbenaceae	Stachtarpheta	tb	Unknown	snakeweeds
8	-9.163280	125.718267	21	96	42		6 3/05/2013	none	None				tb	Unknown	tb
9	-9.163698	125.718566	22	109	42		7 3/05/2013	none	None				tb	Unknown	tb
10	-9.163908	125.718403	25	119	42		7 3/05/2013	none	None				tb	Unknown	tb
11	-9.164593	125.718919	15	52	42		7 3/05/2013	m pudica infestation	None				tb	Unknown	tb
12						sancha de	4/05/2013	na	None			asteraceae	tbcbidens	Pilosa	daisy
13	-8.893832	125.518219	1884	51	42	sancha de	4/05/2013	na	None			asteraceae	tbcbidens	Pilosa	daisy
14	-8.893641	125.518216	1896	372	42	sancha de	4/05/2013	na	Baleria			acanthaceae	baleria	Prionitis	baleria
15	-8.871747	125.589795	1603	343	42	sancha de	4/05/2013	ipomea	Baleria			convulvaceae	hederiviae	ipomea	baleria
16	-8.871747	125.589795	1604	322	42	sancha de	4/05/2013	common sensitive plant	Pudoca	mimosaceae		mimosa pudora	hederiviae	ipomea	baleria
17															
18															
19															
20															
21															
22															
23															

IPHP Demo

READY

AVERAGE: 329.86364COUNT: 47SUM: 14514

9. The .csv file should then be saved according the steps outlined in section **IV. Data Processing of Data Management: Workflow and Procedures**

VII. GPS Tracking

This section shows how to create a GPS track-file using the Garmin GPS. The purpose of the track-file is to provide precise GPS data on locations the surveillance team visits irrespective of whether a collection is made. This gives measure of surveillance effort, which can later be used for mapping and analysis.



1. Open the '**Track Log**' Application on the main menu. This will record GPS coordinates automatically at one minute intervals.

2. At the conclusion each day's surveillance, press '**Track Log Off**', located at the bottom left hand of the screen. This will automatically save the track-file.



3. To export the track-file
 - Plug the USB cable into Garmin GPS and the laptop's USB port. The track-file will be automatically exported into 'Garmin Base Camp'.
 - Enter file names according to the following filing name system DD-MM-YY-SURVEYNAME
 - Once data has completed upload, save the track-file on the external hard drive via the link on the desktop.



Plant Health Surveillance Database: Basic User Manual

Foreward

The **Plant Health Surveillance Database** is a Microsoft Access based database. The database is designed to store data collected from early detection, targeted and monitoring surveillance activities.

The database was developed by the International Plant Health Program within the Commonwealth Department of Agriculture Fisheries & Forestry.

The database is designed for users who have no or very basic skills in Microsoft Access. Queries can be performed using a basic search engine and filters.

The **Basic User Manual** shows how allows users how to perform basic operations such importing, querying and exporting pest surveillance data.

I. The Main Menu

The **Main Menu** has four options, which allow the user to navigate the database:

1. **Survey data.** This allows you to input survey data from .xls
2. **Records search.** Search and extract pest records by several criteria.
3. **Diagnostics.** This allows you to track and manage diagnostics from surveillance activities
4. **Pest List.** This allows you to query for pests associated with a commodity




II. Survey data entry

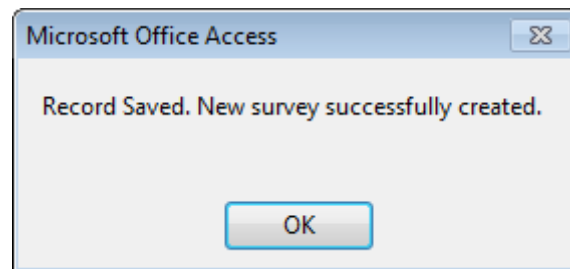
i. Survey information entry form

1. Click the **Survey Data** button from the **Main Menu**. This will bring up the survey data dialog box. To enter a new survey click the **Add new survey** button located at the top left of the dialog box. This will bring up a blank data entry form.

A screenshot of a software window titled "Survey data". The window has a dark blue header bar with a logo on the left and a "Return to main menu" button on the right. Below the header bar, there is a search bar with a "Search" button and a "Show All Records" button. Underneath the search bar, there are two buttons: "Add new survey" and "Save Record". The main area of the window is titled "Data entry form" and contains several input fields: "SurveyID:", "SurveyName", "StartDate:", "EndDate:", "Location_Level:", and "SurveyType:". There is also a button labeled "Import survey data" and a text label "Click to refresh and review imported data". At the bottom of the form, there is a table with five columns: "SurveyID", "CollectionID", "RecordType", "DiagnosticResult", and "CollectionD". The table has one row with an asterisk (*) in the first column. At the very bottom of the window, there is a status bar with the text "Record: 1 of 1" and a "Search" button.

v) **SurveyType.** Select a description of the type of survey undertaken from the drop menus

4. **Save the survey information** by clicking the  button located at the top of the form. This is an important step importing surveillance will not work unless the record is saved. The following dialog box will appear when the survey record is successfully created.

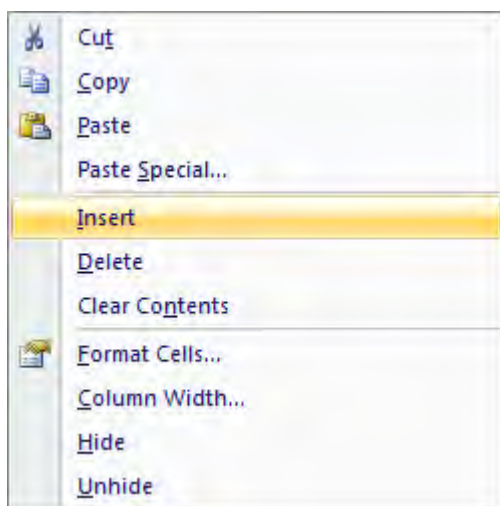
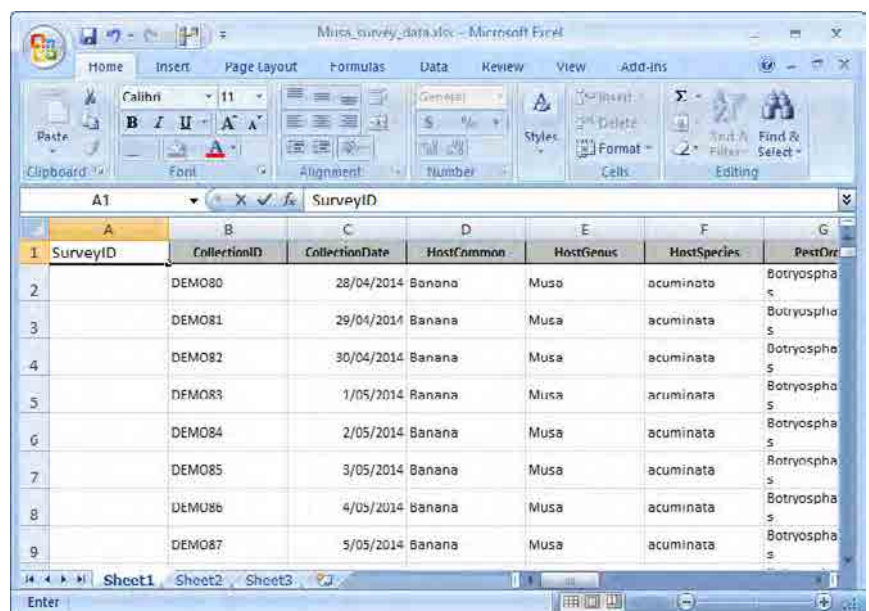


ii. Importing survey data from Excel.

We are now ready to import the surveillance data from **Excel**.

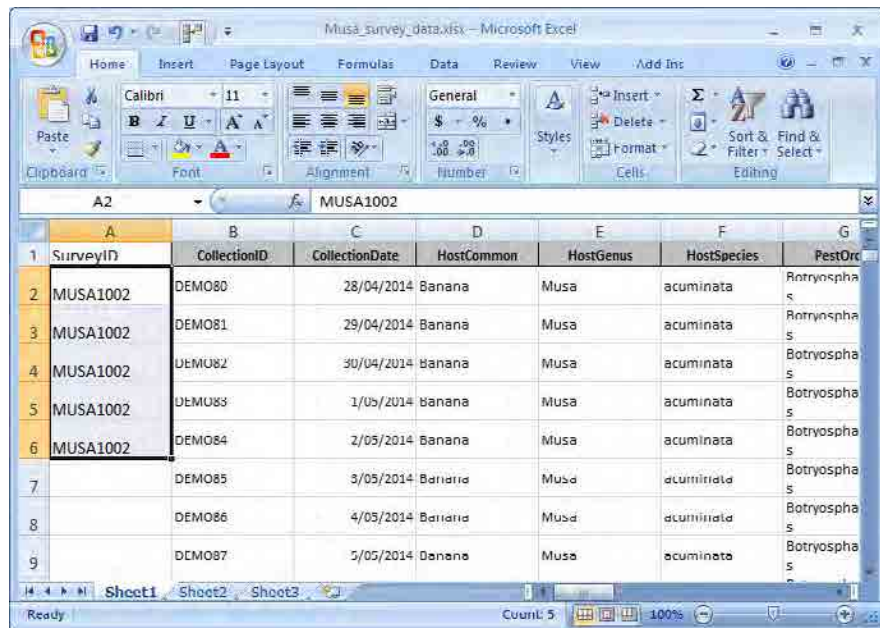
1. First, ensure all your data for import matches the database fields. This is important as Access will not import data into an existing table unless the column (field) names match exactly. The output from the *P-tracker*, however, should be aligned with the database fields.

2. Create a new column in the excel spreadsheet called **SurveyID**. By right clicking on the first column.

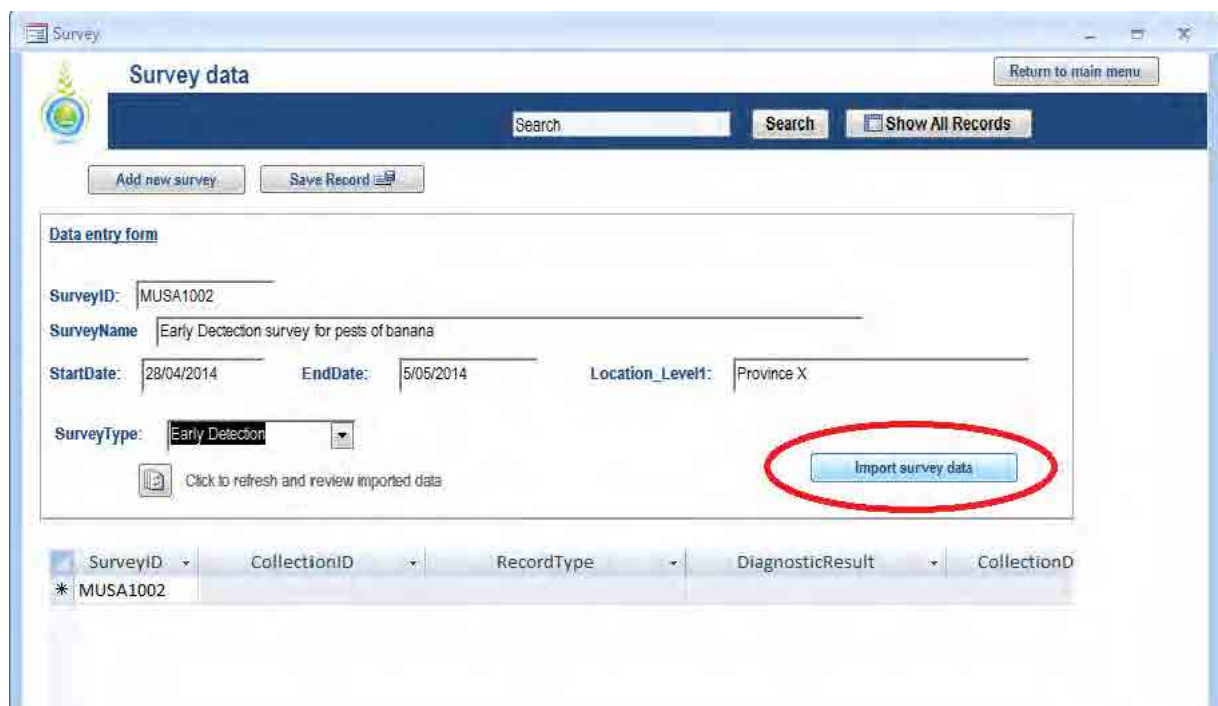
	A	B	C	D	E	F	G
	SurveyID	CollectionID	CollectionDate	HostCommon	HostGenus	HostSpecies	PestOrg
1		DEMO80	28/04/2014	Banana	Musa	acuminata	Botryospha
2		DEMO81	29/04/2014	Banana	Musa	acuminata	Botryospha
3		DEMO82	30/04/2014	Banana	Musa	acuminata	Botryospha
4		DEMO83	1/05/2014	Banana	Musa	acuminata	Botryospha
5		DEMO84	2/05/2014	Banana	Musa	acuminata	Botryospha
6		DEMO85	3/05/2014	Banana	Musa	acuminata	Botryospha
7		DEMO86	4/05/2014	Banana	Musa	acuminata	Botryospha
8		DEMO87	5/05/2014	Banana	Musa	acuminata	Botryospha

3. Each row of this column should match the **SurveyID** we created in the database form. In the previous example we had *MUSA1002* as the **SurveyID** so we would populate the column with this ID.



	A	B	C	D	E	F	G
	SurveyID	CollectionID	CollectionDate	HostCommon	HostGenus	HostSpecies	PestOccurrence
2	MUSA1002	DEMO80	28/04/2014	Banana	Musa	acuminata	Botryosphaeria
3	MUSA1002	DEMO81	29/04/2014	Banana	Musa	acuminata	Botryosphaeria
4	MUSA1002	DEMO82	30/04/2014	Banana	Musa	acuminata	Botryosphaeria
5	MUSA1002	DEMO83	1/05/2014	Banana	Musa	acuminata	Botryosphaeria
6	MUSA1002	DEMO84	2/05/2014	Banana	Musa	acuminata	Botryosphaeria
7		DEMO85	3/05/2014	Banana	Musa	acuminata	Botryosphaeria
8		DEMO86	4/05/2014	Banana	Musa	acuminata	Botryosphaeria
9		DEMO87	5/05/2014	Banana	Musa	acuminata	Botryosphaeria

4. The Excel sheet is now ready to be imported. Click the **Import survey data** button. This will bring up the import dialog box, which contains instructions about importing data. Click **'Import'**.



Survey data

Return to main menu

Search Search Show All Records

Add new survey Save Record

Data entry form

SurveyID:

SurveyName:

StartDate: EndDate: Location_Level1:

SurveyType:

Import survey data

SurveyID	CollectionID	RecordType	DiagnosticResult	CollectionID
* MUSA1002				

6. Chose the import source File Name, then choose 'Append a copy of the records to the table: **'Records'**'. This will ensure that data is imported into the existing database table, otherwise Access will create a new table not linked to existing queries or the search form. Click 'OK'.

Get External Data - Excel Spreadsheet

Select the source and destination of the data.

Specify the source of the data.

File name: C:/Musa_survey_data.xlsx

Browse...

Specify how and where you want to store the data in the current database.

☐ Import the source data into a new table in the current database.

If the specified table does not exist, Access will create it. If the specified table already exists, Access might overwrite its contents with the imported data. Changes made to the source data will not be reflected in the database.

2. Select Append a copy

☒ **Append a copy of the records to the table:**

If the specified table exists, Access will add the records to the source data. Changes made to the source data will not be reflected in the database.

diagnostics
filters
Name AutoCorrect Save Failures
Records
Survey

☐ Link to the data source by creating a linked table.

Access will create a table that will maintain a link to the source data in Excel. Changes made to the source data in Excel will be reflected in the linked table. However, the source data cannot be changed from within Access.

4. Click 'OK'

OK Cancel

Select the sheet that contains the data you wish to import, then click 'Next'.

Import Spreadsheet Wizard

Your spreadsheet file contains more than one worksheet or range. Which worksheet or range would you like?

☒ Show Worksheets

☐ Show Named Ranges

Sheet1
Sheet2
Sheet3

Sample data for worksheet 'Sheet1'.

	SurveyID	CollectionID	CollectionDate	HostCommon	HostGenus	HostSpecies	PestOrder
1	MUSA1002	DEM080	28/04/2014	Banana	Musa	acuminata	Botryosphaeri
2	MUSA1002	DEM081	29/04/2014	Banana	Musa	acuminata	Botryosphaeri
3	MUSA1002	DEM082	30/04/2014	Banana	Musa	acuminata	Botryosphaeri
4	MUSA1002	DEM083	1/05/2014	Banana	Musa	acuminata	Botryosphaeri
5	MUSA1002	DEM084	2/05/2014	Banana	Musa	acuminata	Botryosphaeri
6	MUSA1002	DEM085	3/05/2014	Banana	Musa	acuminata	Botryosphaeri
7	MUSA1002	DEM086	4/05/2014	Banana	Musa	acuminata	Botryosphaeri
8	MUSA1002	DEM087	5/05/2014	Banana	Musa	acuminata	Botryosphaeri
9	MUSA1002	DEM088	6/05/2014	Banana	Musa	acuminata	Botryosphaeri
10	MUSA1002	DEM089	7/05/2014	Banana	Musa	acuminata	Botryosphaeri
11	MUSA1002	DEM090	8/05/2014	Banana	Musa	acuminata	Botryosphaeri
12	MUSA1002	DEM091	9/05/2014	Banana	Musa	acuminata	Botryosphaeri
13	MUSA1002	DEM092	10/05/2014	Banana	Musa	acuminata	Botryosphaeri
14	MUSA1002	DEM092	10/05/2014	Banana	Musa	acuminata	Botryosphaeri

Cancel < Back Next > Finish

13. Ensure that **First Row Contains Column Headings** is checked. Then click **'Next'**. On the final screen click **'Finish'**.

Import Spreadsheet Wizard

Microsoft Access can use your column headings as field names for your table. Does the first row specified contain column headings?

☒ First Row Contains Column Headings

	SurveyID	CollectionID	CollectionDate	HostCommon	HostGenus	HostSpecies	PestOrder
1	MUSA1002	DEMO80	28/04/2014	Banana	Musa	acuminata	Botryosphaeri
2	MUSA1002	DEMO81	29/04/2014	Banana	Musa	acuminata	Botryosphaeri
3	MUSA1002	DEMO82	30/04/2014	Banana	Musa	acuminata	Botryosphaeri
4	MUSA1002	DEMO83	1/05/2014	Banana	Musa	acuminata	Botryosphaeri
5	MUSA1002	DEMO84	2/05/2014	Banana	Musa	acuminata	Botryosphaeri
6	MUSA1002	DEMO85	3/05/2014	Banana	Musa	acuminata	Botryosphaeri
7	MUSA1002	DEMO86	4/05/2014	Banana	Musa	acuminata	Botryosphaeri
8	MUSA1002	DEMO87	5/05/2014	Banana	Musa	acuminata	Botryosphaeri
9	MUSA1002	DEMO88	6/05/2014	Banana	Musa	acuminata	Botryosphaeri
10	MUSA1002	DEMO89	7/05/2014	Banana	Musa	acuminata	Botryosphaeri
11	MUSA1002	DEMO90	8/05/2014	Banana	Musa	acuminata	Botryosphaeri
12	MUSA1002	DEMO91	9/05/2014	Banana	Musa	acuminata	Botryosphaeri
13	MUSA1002	DEMO92	10/05/2014	Banana	Musa	acuminata	Botryosphaeri
14	MUSA1002	DEMO93	11/05/2014	Banana	Musa	acuminata	Botryosphaeri

Cancel < Back Next > Finish

Import Spreadsheet Wizard

That's all the information the wizard needs to import your data.

Import to Table:
Records

↑
Check import to correct table

☐ I would like a wizard to analyze my table after importing the data.

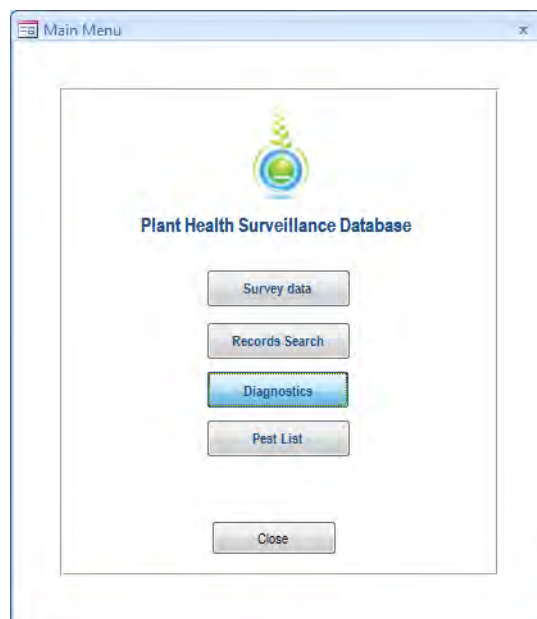
Cancel < Back Next > Finish

III. Diagnostics

The database also enables users to track and update diagnostic results. Often results from the field are tentative and it can be some time before final diagnostics are confirmed. The database has a function to support this.

i. Navigating the diagnostics form

1. Select **Diagnostics** from the **Main Menu**



2. This opens the Diagnostics dialog box. The form contains all records of specimens collected along with pest information and collection details.

SurveyName	Location	Level1	CollectionID	DiagnosticResult	PestOrder	PestFamily	PestGenus	PestSpecies	IdentificationMethod
Survey test	Province Y		DEMO1	Positive	Xanthomonadales	Xanthomonad	Xanthomonas	axonopodis	UNA
Survey test	Province Y		DEMO2	Positive	Xanthomonadales	Xanthomonad	Xanthomonas	axonopodis	DNA
Survey test	Province Y		DEMO3	Positive	Xanthomonadales	Xanthomonad	Xanthomonas	axonopodis	DNA
Survey test	Province Y		DEMO4	Positive	Xanthomonadales	Xanthomonad	Xanthomonas	axonopodis	DNA
Survey test	Province Y		DEMO5	Positive	Xanthomonadales	Xanthomonad	Xanthomonas	axonopodis	DNA
Survey test	Province Y		DEMO6	Positive	Xanthomonadales	Xanthomonad	Xanthomonas	axonopodis	UNA
Survey test	Province Y		DEMO7	Positive	Xanthomonadales	Xanthomonad	Xanthomonas	axonopodis	DNA
Survey test	Province Y		DEMO12	Positive	Xanthomonadales	Xanthomonad	Xanthomonas	axonopodis	DNA
Survey test	Province Y		DEMO13	Positive	Xanthomonadales	Xanthomonad	Xanthomonas	axonopodis	DNA
Survey test	Province Y		DEMO14	Positive	Xanthomonadales	Xanthomonad	Xanthomonas	axonopodis	DNA
Survey test	Province Y		DEMO15	Positive	Xanthomonadales	Xanthomonad	Xanthomonas	axonopodis	UNA
Survey test	Province Y		DEMO16	Negative	Rhizobiales	Phyllobacteria	Liberibacter	Liberibacter	DNA
Survey test	Province Y		DEMO17	Negative	Rhizobiales	Phyllobacteria	Liberibacter	Liberibacter	DNA

The search box at the top left hand corner of the form allows the user to filter specimen records by **Location**, **SurveyName**, **Collector**, **CollectionID** and **DiagnosticResult**. This function can be used to update records as diagnostics are confirm or track and export outstanding diagnostics for management purposes

ii. Updating diagnostic information

As results are confirmed from the labatory, specimen records should be updated to reflect the diagnostic result. Using the Diagnostics form's search box records can be found and updated. For example, a specimen DEMO106 has tested positive for Banana Freckle.

1. We type the CollectionID into the search box and press **Search**:

This will filter the data to display the specimen and associated information.

Diagnostics

Return to main menu

Search

DEMO106

Search

Clear

Search by: Location, survey, diagnostic result, collector or collection ID

Export Search Results

SurveyName:	Location_Level1	CollectionID	DiagnosticResult	PestOrder	PestFamily	PestGenus	PestSpecies	IdentificationMethod
Early Detection survey	Province X	DEMO106	Pending	Botryosphaerales	Botryosphaeri	Phyllosticta	maculata	DNA

2. The Diagnostic information can be updated by clicking in the data field and typing the information. In this example the Pending result is updated to reflect the positive result.

Diagnostics

Search

Search

Clear

Search by: Location, survey, diagnostic result, collector or collection ID

SurveyName:	Location_Level1	CollectionID	DiagnosticResult	PestOrder
Early Detection survey	Province X	DEMO106	Positive	Botryosphaerales

Other information relating to the specimen’s diagnostics such as the **idenfitication date** and name of the **identifier** can be updated in the same way.

Diagnostic

Return to main menu

Search

Search

Clear

Search by: Location, survey, diagnostic result, collector or collection ID

Export Search Results


SurveyName:	Location_Level1	CollectionID	DiagnosticResult	PestOrder	PestFamily	PestGenus	PestSpecies	IdentificationMethod	IdentificationDate	R
Early Detection survey	Province X	DEMO106	Positive	Botryosphaerales	Botryosphaera	Phyllosticta	maculata	UNA	30/04/2014	

iii. Exporting diagnostic results.

The diagnostics forms also allows you to export results to excel. This function is to allow users to view pending diagnostics so that they can be tracked and managed.

1. Utilising the search box we can filter the data to display all specimen records where the diagnostics are pending.

Diagnostics				
Search				
<input type="text" value="Pending"/> <input type="button" value="Search"/> <input type="button" value="Clear"/>				
Search by: Location, survey, diagnostic result, collector or collection ID				
<u>SurveyName:</u>	<u>Location_Level1</u>	<u>CollectionID</u>	<u>DiagnosticResult</u>	<u>PestOrder</u>
Early Detection survey	Province X	DEMO82	Pending	Botryosphaerales
Early Detection survey	Province X	DEMO83	Pending	Botryosphaerales
Early Detection survey	Province X	DEMO103	Pending	Botryosphaerales
Early Detection survey	Province X	DEMO105	Pending	Botryosphaerales
Early Detection survey	Province X	DEMO84	Pending	Botryosphaerales
Early Detection survey	Province X	DEMO85	Pending	Botryosphaerales

2. A full list of pending specimen diagnostics can be exported to excel by clicking on the  **Export Search Results** button.

Diagnostics							
Search							
<input type="text" value="Pending"/> <input type="button" value="Search"/> <input type="button" value="Clear"/>							
Search by: Location, survey, diagnostic result, collector or collection ID							
<u>SurveyName:</u>	<u>Location_Level1</u>	<u>CollectionID</u>	<u>DiagnosticResult</u>	<u>PestOrder</u>	<u>PestFamily</u>	<u>PestGenus</u>	<u>P</u>
Early Detection survey	Province X	DEMO82	Pending	Botryosphaerales	Botryosphaeri	Phyllosticta	m
Early Detection survey	Province X	DEMO83	Pending	Botryosphaerales	Botryosphaeri	Phyllosticta	m
Early Detection survey	Province X	DEMO103	Pending	Botryosphaerales	Botryosphaeri	Phyllosticta	m
Early Detection survey	Province X	DEMO105	Pending	Botryosphaerales	Botryosphaeri	Phyllosticta	m
Early Detection survey	Province X	DEMO84	Pending	Botryosphaerales	Botryosphaeri	Phyllosticta	m

3. From the Export dialog box, select a destination for the file and then click OK.

Export - Excel Spreadsheet

Select the destination for the data you want to export.

Specify the destination file name and format.

1. Select the directory to export the file

File name: C:\Diagnostics.xlsx Browse...

File format: Excel Workbook (*.xlsx)

Specify export options.

☒ Export data with formatting and layout.
Select this option to preserve most formatting and layout information when exporting a table, query, form, or report.

☒ Open the destination file after the export operation is complete.
Select this option to view the results of the export operation. This option is available only when you export formatted data.

☐ Export only the selected records.
Select this option to export only the selected records. This option is only available when you export formatted data and have records selected.

2. Click OK

OK Cancel

Diagnostics.xlsx - Microsoft Excel

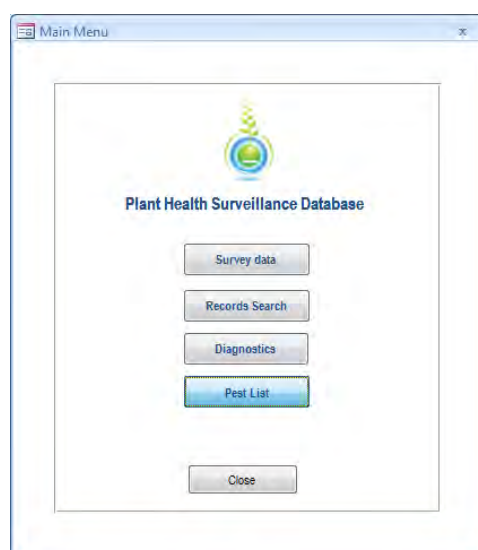
	A	B	C	D	E	F	G	H
	SearchBox	SurveyName	Location_Level1	CollectionID	DiagnosticResult	PestOrder	PestFamily	PestGenus
1								
2	Pending	Survey test	Province Y	DEMO1	Positive	Xanthomonadales	Xanthomonadaceae	Xanthomonas
3	Pending	Survey test	Province Y	DEMO2	Positive	Xanthomonadales	Xanthomonadaceae	Xanthomonas
4	Pending	Survey test	Province Y	DEMO3	Positive	Xanthomonadales	Xanthomonadaceae	Xanthomonas
5	Pending	Survey test	Province Y	DEMO4	Positive	Xanthomonadales	Xanthomonadaceae	Xanthomonas
6	Pending	Survey test	Province Y	DEMO5	Positive	Xanthomonadales	Xanthomonadaceae	Xanthomonas
7	Pending	Survey test	Province Y	DEMO6	Positive	Xanthomonadales	Xanthomonadaceae	Xanthomonas
8	Pending	Survey test	Province Y	DEMO7	Positive	Xanthomonadales	Xanthomonadaceae	Xanthomonas
9	Pending	Survey test	Province Y	DEMO12	Positive	Xanthomonadales	Xanthomonadaceae	Xanthomonas
10	Pending	Survey test	Province Y	DEMO13	Positive	Xanthomonadales	Xanthomonadaceae	Xanthomonas
11	Pending	Survey test	Province Y	DEMO14	Positive	Xanthomonadales	Xanthomonadaceae	Xanthomonas
12	Pending	Survey test	Province Y	DEMO15	Positive	Xanthomonadales	Xanthomonadaceae	Xanthomonas
13	Pending	Survey test	Province Y	DEMO16	Negative	Rhizobiales	Phyllobacteriaceae	Libibacter
14	Pending	Survey test	Province Y	DEMO17	Negative	Rhizobiales	Phyllobacteriaceae	Libibacter
15	Pending	Survey test	Province Y	DEMO18	Negative	Rhizobiales	Phyllobacteriaceae	Libibacter
16	Pending	Survey test	Province Y	DEMO19	Negative	Rhizobiales	Phyllobacteriaceae	Libibacter
17	Pending	Survey test	Province Y	DEMO20	Negative	Rhizobiales	Phyllobacteriaceae	Libibacter

IV. Querying the database

i. Pest Lists by commodity

A list of pests associated with a particular commodity is useful for supporting determinations of pest status for Import Risk Assessments (IRA), Pest Risk Analyses (PRA) and maintenance of trade and market access. Data collected from surveillance is an important source of information for pest status. The database has query function that returns a report of all pest records associated with a particular commodity, gathered as part of surveillance activities.

1. From the **Main Menu** click on **Pest List**



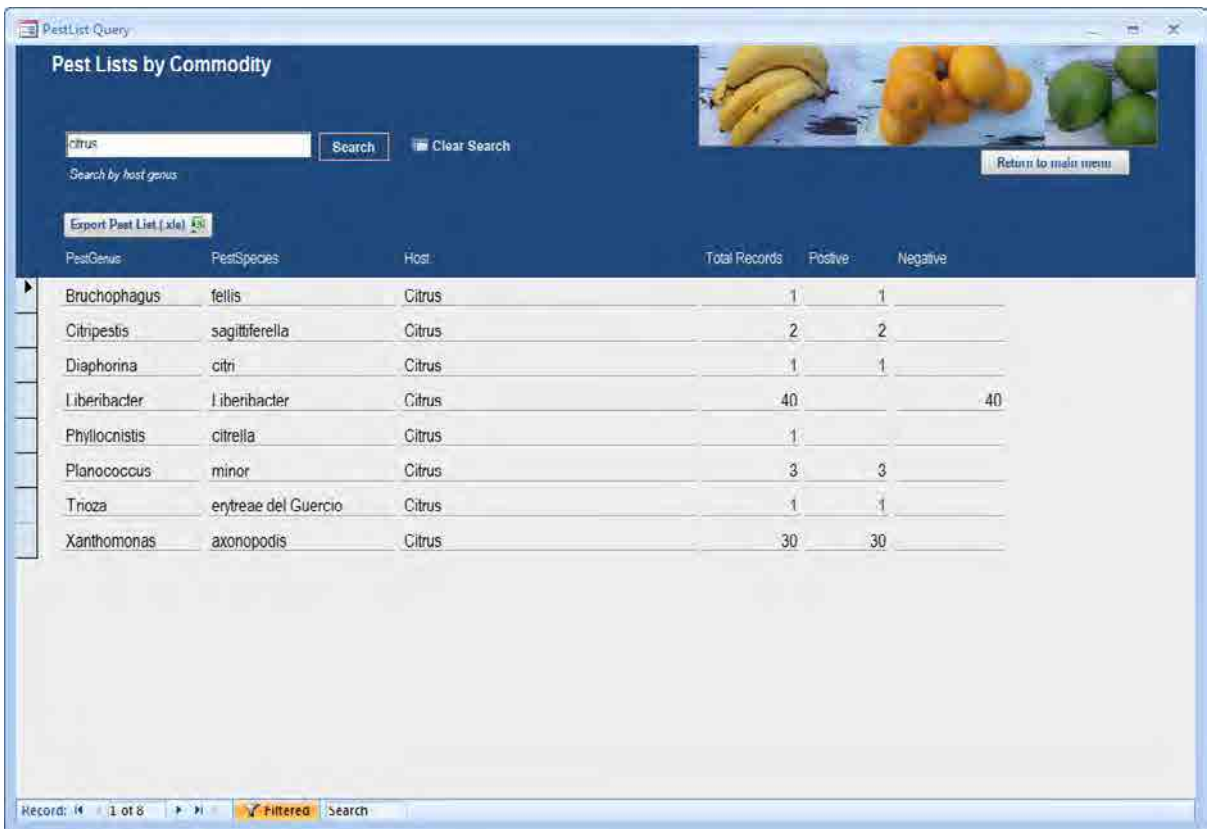
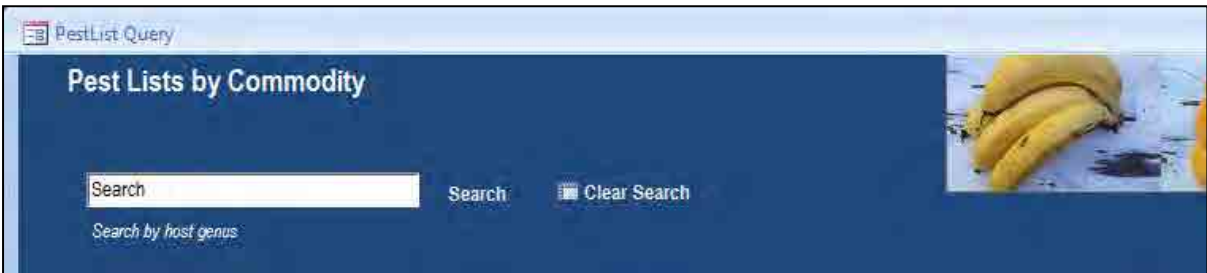
2. This will bring up a the **Pest Lists by Commodity** search form. The data in the form is a summary of both negative and positive surveillance records along with the associated commodity (host).

Pest Genus	Pest Species	Host	Total Records	Positive	Negative
Acacia	nilotica subsp. indica	Weed	2	2	
Acrida	uliginosa	Weed	2	2	
Alysicarpus	ovalifolius	Weed	2	2	
Asystasia	gangetica subsp. gangetica	Weed	2	2	
Boerhavia	erecta	Weed	2		2
Bruchophagus	fellis	Citrus	1	1	
Chaetanaphothrip	signipennis	Musa	3		
Citripestis	sagittiferella	Citrus	2	2	
Cleome	rufidosperma	Weed	2	2	
Colletotrichum	musae	Musa	1		
Cosmopolites	sordidus	Musa	3		
Crotalaria	incana	Weed	2	2	
Cyanthium	cinereum	Weed	2	2	
Cyperus	odoratus	Weed	2		2
Desmodium	gangeticum	Weed	2	2	
Diaphorina	citrifera	Citrus	1	1	
Diuraphis	hyemalis	Weed	2	2	

The total number of records, the number of positive and negative records are tallied in two columns.

PestGenus	PestSpecies	Host	Total Records	Positive	Negative
Bruchophagus	fellis	Citrus	1	1	

The search box at the top of the dialog allows the user to filter the records by the host genus.



ii. Navigating the Records form

1. From the main menu click on the **RecordsSearch** button.



The pest records query form contains data for all pest records collected from surveillance.

Search **Search**

Pest

PestOrder:
PestFamily:
PestGenus:
PestSpecies:
PestCommonName:

Location

Location_Level1:
Location_Level2:
Lat: Lon:

Collection and Diagnostic Information

RecordType:
Survey:
CollectionID:
Collector:
CollectionMethod:
DiagnosticResult:
Identifies:
IdentificationMethod:
IdentificationDate:

Host information

HostCommon:
HostGenus:
HostSpecies:

HostCommon	HostGenus	HostSpecies	PestOrder	PestFamily	PestGenus	PestSpecies	PestCommon	CollectionID	Collector	CollectionMethod
Lemon	Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO1	C Dale	Hand
Lemon	Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO2	C Dale	Hand
Lemon	Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO3	C Dale	Hand
Lemon	Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO4	C Dale	Hand
Lemon	Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO5	C Dale	Hand
Lemon	Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO6	C Dale	Hand
Lemon	Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO7	C Dale	Hand
Lemon	Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO8	C Dale	Hand
Lemon	Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO9	C Dale	Hand

The form contains summary information for each pest record, which pest and host information, the location details, as well as collection and diagnostic information. The bottom of the form contains the data in a tabulated format. By highlighting a row in the table, the summary information associated with that record will be displayed.

Pest							Location				
PestOrder:	Xanthomonadales						Location_Level1:	Country Name			
PestFamily:	Xanthomonadaceae						Location_Level2:	Province, District			
PestGenus:	Xanthomonas						Lat:	x	Lon:	y	
PestSpecies:	axonopodis						Collection and Diagnostic Information				
PestCommonName:	Citrus Canker						RecordType:	Specimen		DiagnosticResult:	Positive
Host information							Survey:	Survey test		Identifier:	C Dale
HostCommon:	Lemon						CollectionID:	DEMO3		IdentificationMethod:	DNA
HostGenus:	Citrus						Collector:	C Dale		IdentificationDate:	18/04/2014
HostSpecies:	limon						CollectionMethod:	Hand			

HostGenus	HostSpecies	PestOrder	PestFamily	PestGenus	PestSpecies	PestCommc	CollectionID	Collector	CollectionM	
Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO1	C Dale	Hand	Spec
Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO2	C Dale	Hand	Spec
Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO3	C Dale	Hand	Spec
Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO4	C Dale	Hand	Spec
Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO5	C Dale	Hand	Spec
Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO6	C Dale	Hand	Spec
Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO7	C Dale	Hand	Spec
Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO8	C Dale		Obse
Citrus	limon	Xanthomonad	Xanthomonad	Xanthomonas	axonopodis	Citrus Canker	DEMO9	C Dale		Obse

iii) Record searches.

Records can be filtered uses the search box at the top of the form.

Records

Pest							Location				
PestOrder:	Xanthomonadales						Location_Level1:	Country Name			
PestFamily:	Xanthomonadaceae						Location_Level2:	Province, District			
PestGenus:	Xanthomonas						Lat:	x	Lon:	y	
PestSpecies:	axonopodis						Collection and Diagnostic Information				
PestCommonName:	Citrus Canker						RecordType:	Specimen		DiagnosticResult:	P

The *search box* allows the user to search surveillance records by:

Collection ID

Collection Date

Collector

Host: Host Common Name, Host Genus or Host Species

Pest Name: Pest Common Name, Order, Family, Genus or Species

Location

By typing a search term into the *search box* and clicking on the **Search** button the user can filter the data to show all records matching the search criteria.

e.g Search for pests associated with Musa sp. (Banana)

Records

musa Search Show All Records Export Search Results Return to main

This will filter the data to show all records associated with the search term.

HostCommon	HostGenus	HostSpecies	PestOrder	PestFamily	PestGenus	PestSpecies	PestCommon	CollectionID	Collector	CollectionV	RecordType
Banana	Musa	acuminata	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO80	M Carne		Observation: Absent
Banana	Musa	acuminata	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO81	R Davis	Hand	Specimen
Banana	Musa	acuminata	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO82	R Davis	Hand	Specimen
Banana	Musa	acuminata	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO83	R Davis	Hand	Specimen
Banana	Musa	x paradisiaca	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO103	R Davis	Hand	Specimen
Banana	Musa	x paradisiaca	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO104	R Davis	Hand	Specimen
Banana	Musa	x paradisiaca	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO105	R Davis	Hand	Specimen
Banana	Musa	x paradisiaca	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO106	R Davis	Hand	Specimen
Banana	Musa	x paradisiaca	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO107	R Davis		Observation: Present
Banana	Musa	x paradisiaca	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO108	R Davis		Observation: Present
Banana	Musa	x paradisiaca	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO109	R Davis		Observation: Present
Banana	Musa	x paradisiaca	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO110	R Davis		Observation: Present
Banana	Musa	x paradisiaca	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO111	R Davis		Observation: Present
Banana	Musa	x paradisiaca	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO112	R Davis		Observation: Present
Banana	Musa	x paradisiaca	Botryosphaeri	Botryosphaeri	Phyllosticta	maculata	Banana Freckle	DEMO113	R Davis		Observation: Present

iv. Filtering records further

Records can be filtered further using the table as you would an Excel table. Say, for instance, we want to filter the data further to show records for Musa pests in a particular location.

Click on the filter button  on the top right hand corner of the 'Location' column brings up the filter menu.

CollectionID	Collector	CollectionM	RecordType	Location_Level1	Location_Level2	Lat	Lon
DEMO80	M Carne		Observation: Absent	Province No.1	District,Sub-di x	y	
DEMO81	R Davis	Hand	Specimen	Province No.1	District,Sub-di x	y	
DEMO82	R Davis	Hand	Specimen	Province X	District,Sub-di x	y	
DEMO83	R Davis	Hand	Specimen	New Province	District,Sub-di x	y	
DEMO103	R Davis	Hand	Specimen	Province No.1	District,Sub-di x	y	
DEMO104	R Davis	Hand	Specimen	Province No.2	District,Sub-di x	y	
DEMO105	R Davis	Hand	Specimen	Province No.1	District,Sub-di x	y	
DEMO106	R Davis	Hand	Specimen	Province X	District,Sub-di x	y	
DEMO107	R Davis		Observation: Present	Province No.1	District,Sub-di x	y	
DEMO108	R Davis		Observation: Present	Province X	District,Sub-di x	y	
DEMO109	R Davis		Observation: Present	Province X	District,Sub-di x	y	
DEMO110	R Davis		Observation: Present	Province No.1	District,Sub-di x	y	
DEMO111	R Davis		Observation: Present	Province X	District,Sub-di x	y	
DEMO112	R Davis		Observation: Present	Province No.2	District,Sub-di x	y	
DEMO113	R Davis		Observation: Present	Province No.1	District,Sub-di x	y	

2. Select '**Text Filters**', to bring up the filter sub-menu. Here you can choose how to filter the data. For this example click 'Contains'

RecordType	Location_Level1	Location_Level2	Lat	Lon	Identifier	Identificatic
Observation: Absent	Province No.1				M Carne	19/04/2014
Specimen	Province No.1				R Davis	28/04/2014
Specimen	Province X				R Davis	
Specimen	New Province				R Davis	
Specimen	Province No.1					
Specimen	Province No.2					
Specimen	Province No.1	District,Sub-di x	y			
Specimen	Province X	District,Sub-di x	y			
Observation: Present	Province No.1	District,Sub-di x	y			
Observation: Present	Province X	District,Sub-di x	y			
Observation: Present	Province X	District,Sub-di x	y			
Observation: Present	Province No.1	District,Sub-di x	y			
Observation: Present	Province X	District,Sub-di x	y			
Observation: Present	Province No.2	District,Sub-di x	y		R Davis	1/04/2014
Observation: Present	Province No.1	District,Sub-di x	y		R Davis	1/04/2014

1. The '**Custom Filter**' dialog box will appear. Type the location you want to filter the search by and then press 'OK'.

Custom Filter

Location_Level1 contains

Province X

OK

Cancel

2. This will filter the data so that it only shows records of Musa pests that location.

RecordType	Location_Level1	Location_Level2	Lat	Lon	Identifier	IdentificationDate	IdentificationMethod
Specimen	Province X	District,Sub-district name	x	y	R Davis		DNA
Specimen	Province X	District,Sub-district name	x	y	R Davis	30/04/2014	DNA
Observation: Present	Province X	District,Sub-district name	x	y	R Davis	1/04/2014	Visual
Observation: Present	Province X	District,Sub-district name	x	y	R Davis	1/04/2014	Visual
Observation: Present	Province X	District,Sub-district name	x	y	R Davis	1/04/2014	Visual
Observation: Present	Province X	District,Sub-district name	x	y	R Davis	1/04/2014	Visual
Observation: Present	Province X	District,Sub-district name	x	y	R Davis	1/04/2014	Visual
Observation: Present	Province X	District,Sub-district name	x	y	R Davis	1/04/2014	Visual
Observation: Present	Province X	District,Sub-district name	x	y	R Davis	1/04/2014	Visual
Observation: Present	Province X	District,Sub-district name	x	y	R Davis	1/04/2014	Visual
Observation: Present	Province X	District,Sub-district name	x	y	R Davis	1/04/2014	Visual
Observation: Present	Province X	District,Sub-district name	x	y	R Davis	1/04/2014	Visual
Observation: Present	Province X	District,Sub-district name	x	y	R Davis	1/04/2014	Visual
Observation: Absent	Province X	District,Sub-district name	x	y	R Davis	2/04/2014	Visual

The same approach can be applied to any of the field names, depending on what data you would like to find.

V. Exporting search results

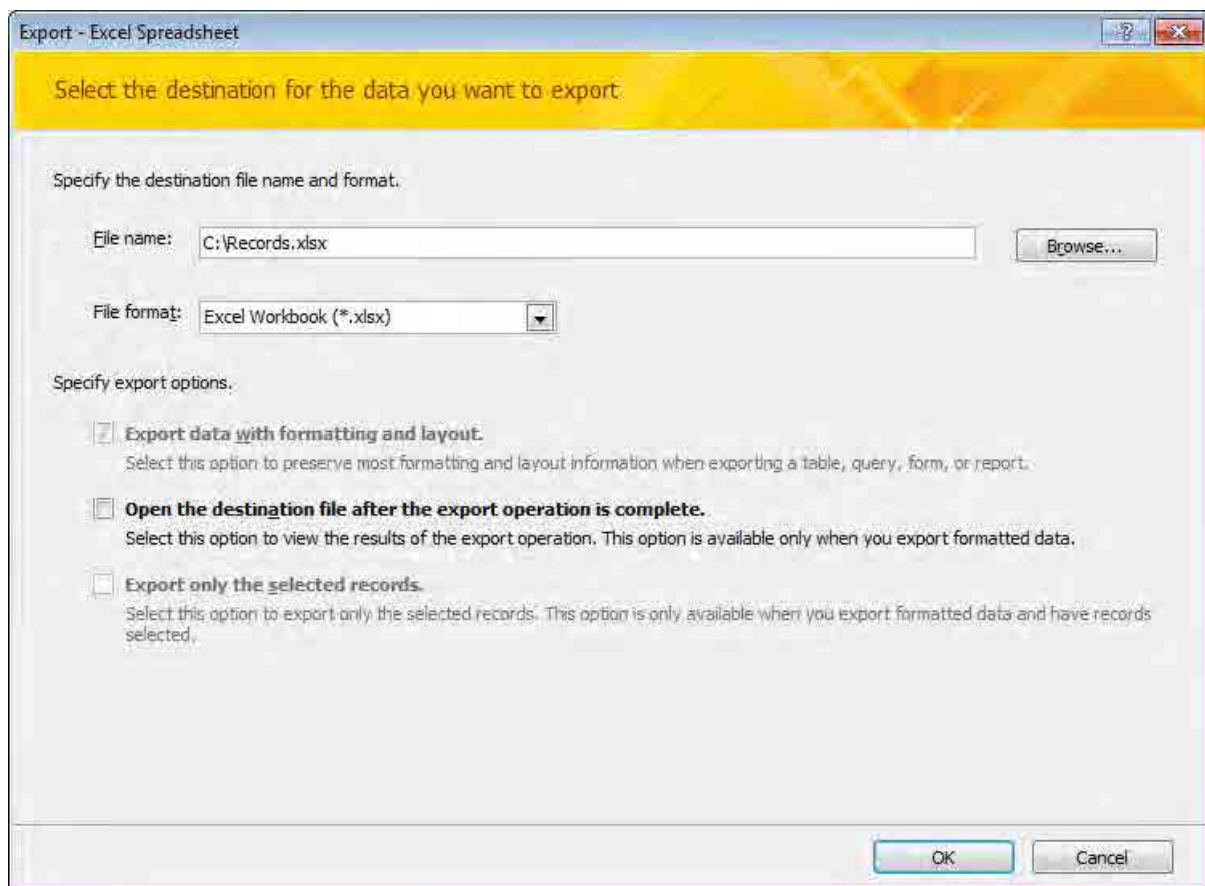
You can export the results of your query to excel.

1. After you have completed your query. Right click on the 'Export Search Results' button located at the top of form.

The screenshot shows a web application interface for managing records. At the top, there is a search bar with the text 'musa' and buttons for 'Search', 'Show All Records', 'Export Search Results' (circled in red), and 'Return to main'. Below the search bar, there are several filter sections: 'Pest' (with fields for PestOrder, PestFamily, PestGenus, PestSpecies, and PestCommonName), 'Location' (with fields for Location_Level1, Location_Level2, Lat, and Lon), and 'Collection and Diagnostic Information' (with fields for RecordType, Survey, CollectionID, Collector, and CollectionMethod). The 'Export Search Results' button is highlighted with a red circle. Below the filters, there is a table of records with columns: CollectionID, Collector, CollectionMethod, RecordType, Location_Level1, Location_Level2, Lat, and Lon. The table contains 13 rows of data, including specimens and observations.

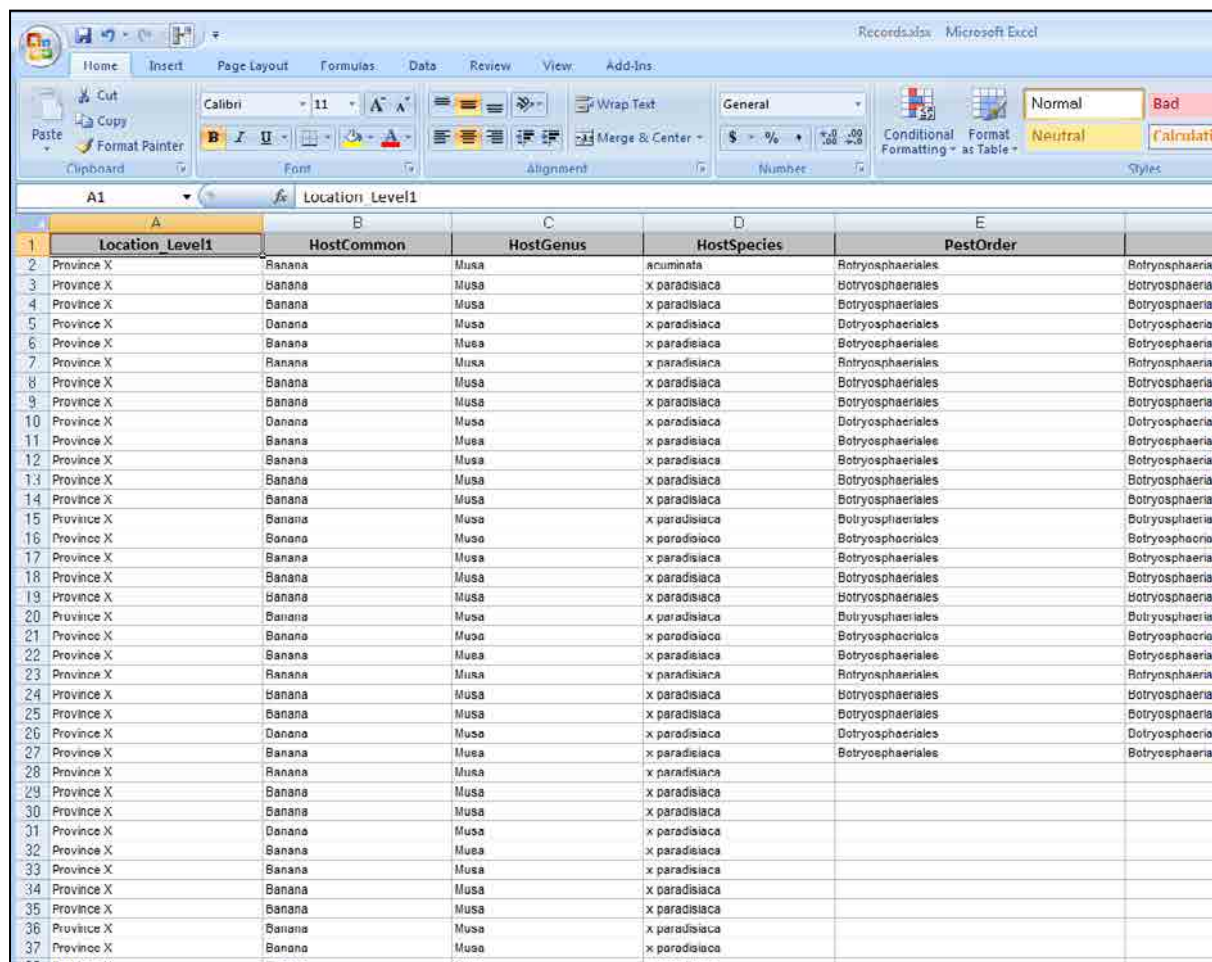
CollectionID	Collector	CollectionMethod	RecordType	Location_Level1	Location_Level2	Lat	Lon
DEMO82	R Davis	Hand	Specimen	Province X	District,Sub-district name	x	y
DEMO106	R Davis	Hand	Specimen	Province X	District,Sub-district name	x	y
DEMO108	R Davis		Observation: Present	Province X	District,Sub-district name	x	y
DEMO109	R Davis		Observation: Present	Province X	District,Sub-district name	x	y
DEMO111	R Davis		Observation: Present	Province X	District,Sub-district name	x	y
DEMO114	R Davis		Observation: Present	Province X	District,Sub-district name	x	y
DEMO115	R Davis		Observation: Present	Province X	District,Sub-district name	x	y
DEMO116	R Davis		Observation: Present	Province X	District,Sub-district name	x	y
DEMO117	R Davis		Observation: Present	Province X	District,Sub-district name	x	y
DEMO118	R Davis		Observation: Present	Province X	District,Sub-district name	x	y
DEMO119	R Davis		Observation: Present	Province X	District,Sub-district name	x	y
DEMO120	R Davis		Observation: Present	Province X	District,Sub-district name	x	y
DEMO121	R Davis		Observation: Present	Province X	District,Sub-district name	x	y
DEMO122	R Davis		Observation: Present	Province X	District,Sub-district name	x	y

This will bring up the following dialog box:



The dialog box is titled "Export - Excel Spreadsheet". It has a yellow header bar with the text "Select the destination for the data you want to export." Below this, there are two sections: "Specify the destination file name and format." and "Specify export options." In the first section, the "File name:" field contains "C:\Records.xlsx" and the "File format:" dropdown is set to "Excel Workbook (*.xlsx)". In the second section, there are three checkboxes: "Export data with formatting and layout." (checked), "Open the destination file after the export operation is complete." (unchecked), and "Export only the selected records." (unchecked). At the bottom right, there are "OK" and "Cancel" buttons.

2. Specify the destination you wish to export and then click 'OK'. The query will then be saved in an Excel spreadsheet.



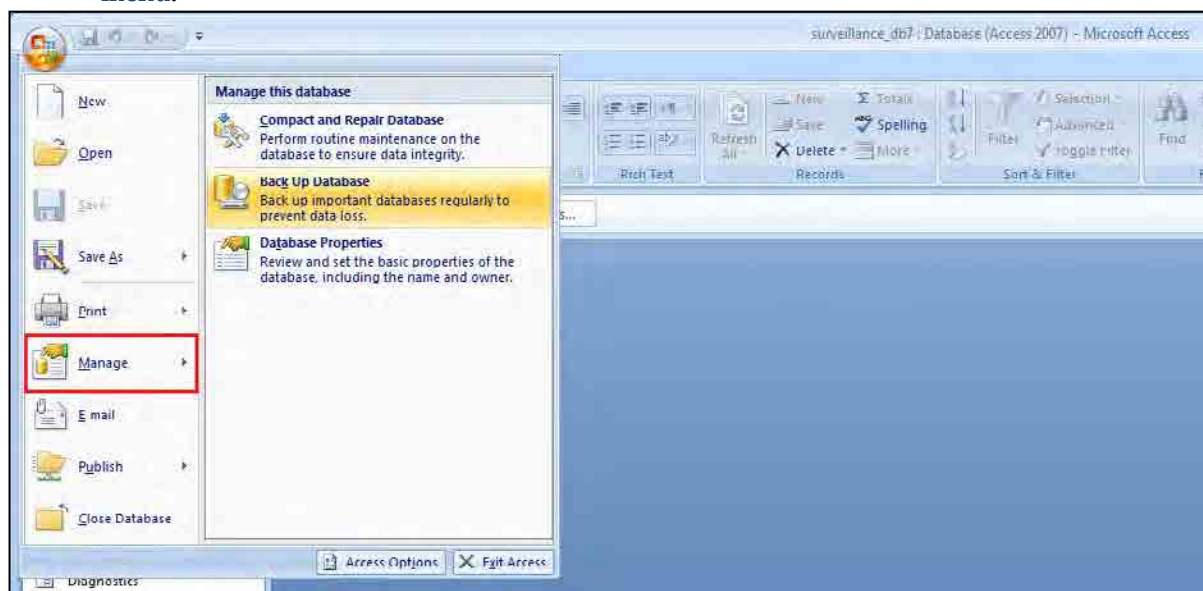
The screenshot shows a Microsoft Excel spreadsheet titled "Records.xlsx". The spreadsheet has a table with 6 columns: "Location_Level1", "HostCommon", "HostGenus", "HostSpecies", "PestOrder", and an unnamed column. The data is organized into rows, with the first row being a header. The table contains 38 rows of data, each representing a record from a query. The data is as follows:

	A	B	C	D	E	
	Location_Level1	HostCommon	HostGenus	HostSpecies	PestOrder	
2	Province X	Banana	Musa	acuminata	Botryosphaerales	Botryosphaeria
3	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
4	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
5	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
6	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
7	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
8	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
9	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
10	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
11	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
12	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
13	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
14	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
15	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
16	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
17	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
18	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
19	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
20	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
21	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
22	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
23	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
24	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
25	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
26	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
27	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
28	Province X	Banana	Musa	x paradisiaca	Botryosphaerales	Botryosphaeria
29	Province X	Banana	Musa	x paradisiaca		
30	Province X	Banana	Musa	x paradisiaca		
31	Province X	Banana	Musa	x paradisiaca		
32	Province X	Banana	Musa	x paradisiaca		
33	Province X	Banana	Musa	x paradisiaca		
34	Province X	Banana	Musa	x paradisiaca		
35	Province X	Banana	Musa	x paradisiaca		
36	Province X	Banana	Musa	x paradisiaca		
37	Province X	Banana	Musa	x paradisiaca		
38	Province X	Banana	Musa	x paradisiaca		

VI. Backing Up the Database

It is important to regularly back up the database to avoid loss of data due to file corruption.

1. Click on the Microsoft Office symbol on the top left of the screen.
2. Scroll down to '**Manage**' and select '**Back Up Database**' from the **Manage this database sub-menu**.



3. Select the file destination for the back-up copy and click '**Save**'.

