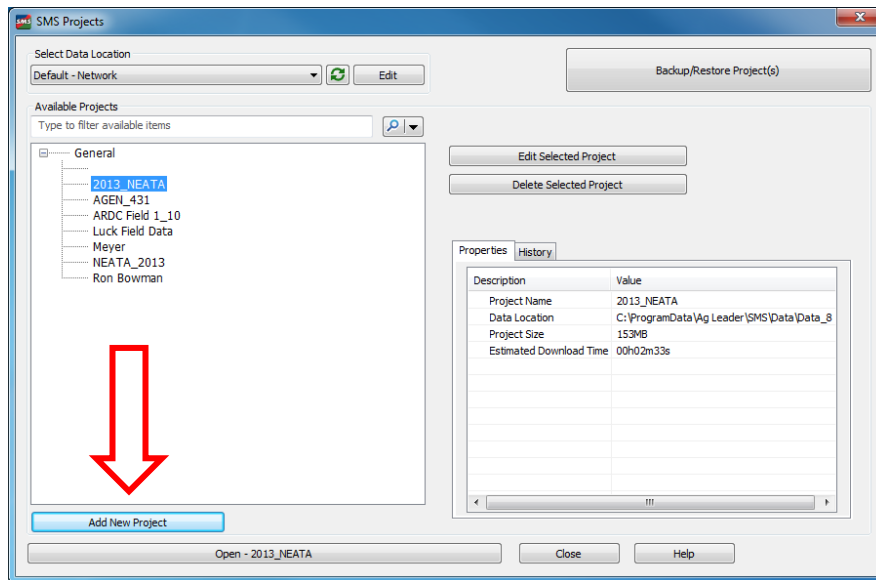
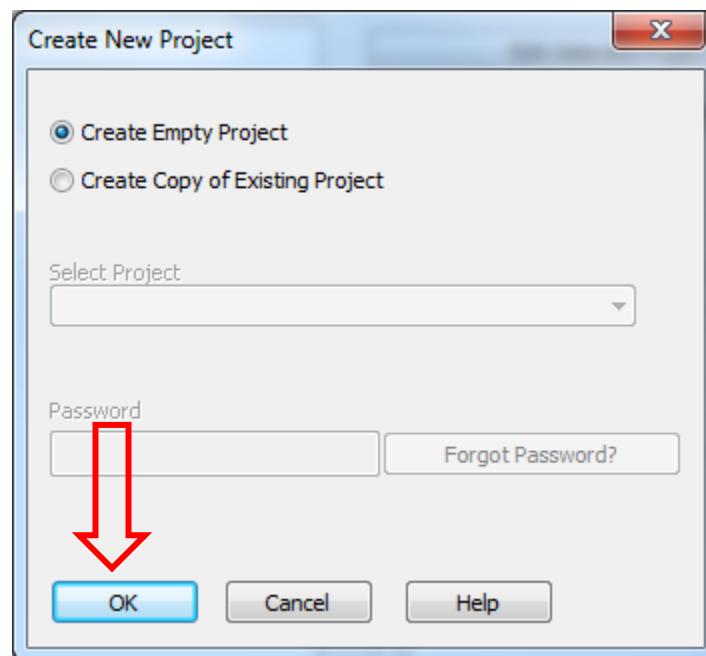


1. Creating a Comparison Analysis

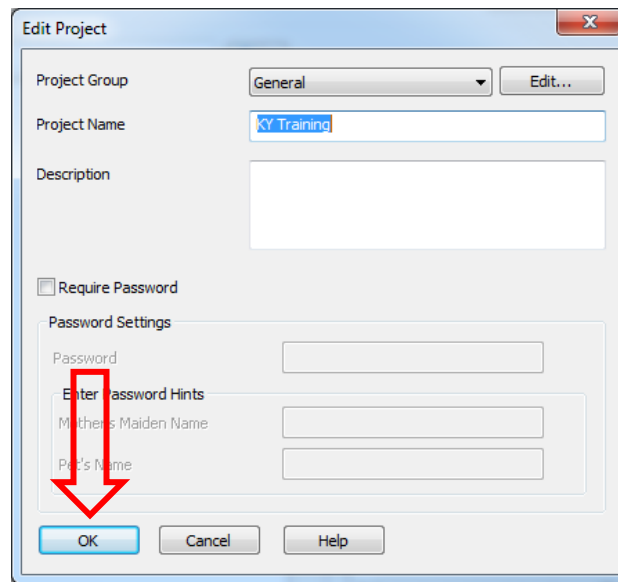
- a. We will use one of the fields from your yield data for this exercise. Open SMS and select Add New Project.



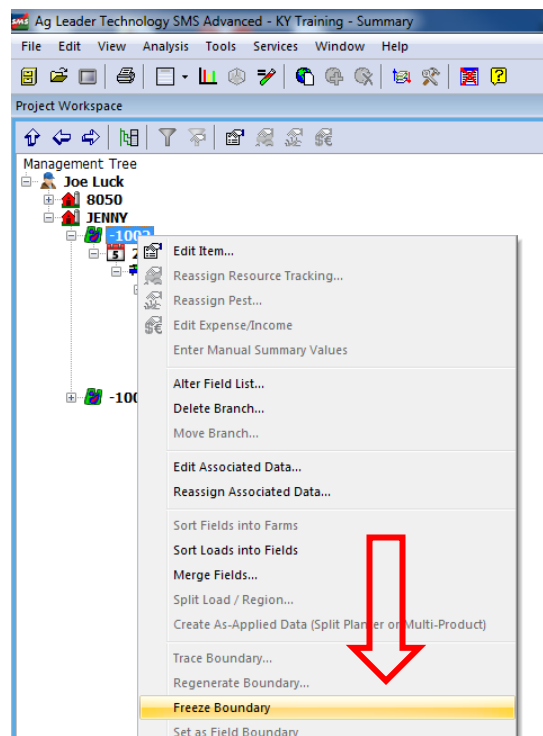
- b. On the next screen, make sure that the button next to Create Empty Project is highlighted, and click OK.



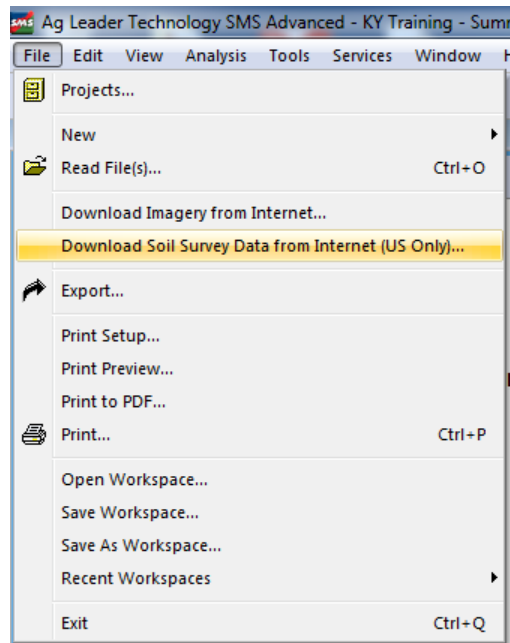
- c. Enter a Project Name (I'm using "KY Training") and click OK.



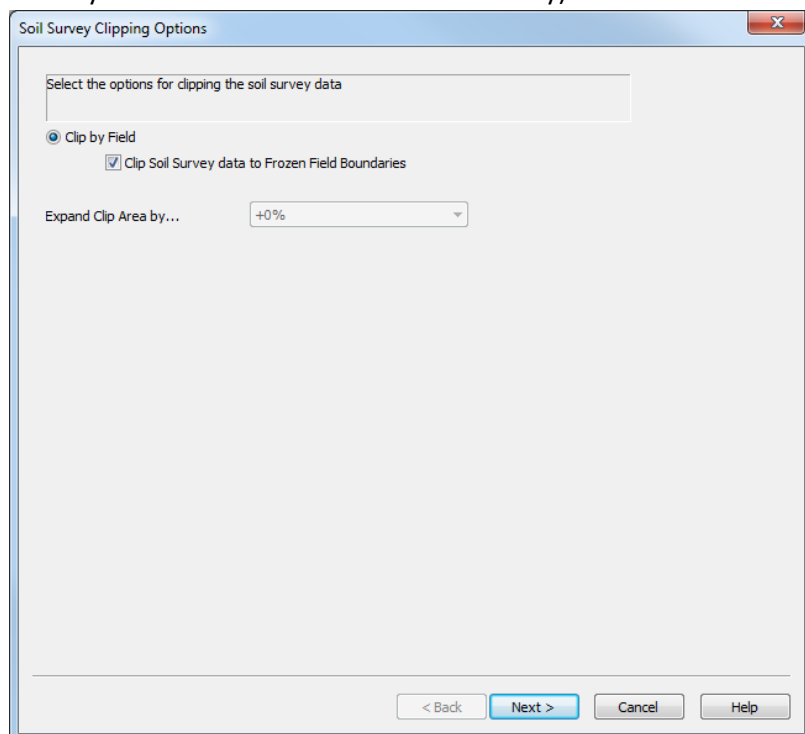
- d. Now, you should be back on the SMS Projects window, click on the Open-KY Training button at the bottom.
- e. Under the File menu, select the Read Files. Conduct an automatic search for your yield data using the type of monitor the data was collected on and allow the files to process. Refer back to the first tutorial, if necessary.
- f. When you've got your fields in the SMS management tree, right-click on the field you want to work on and when the dropdown menu appears, click on Freeze Boundary.



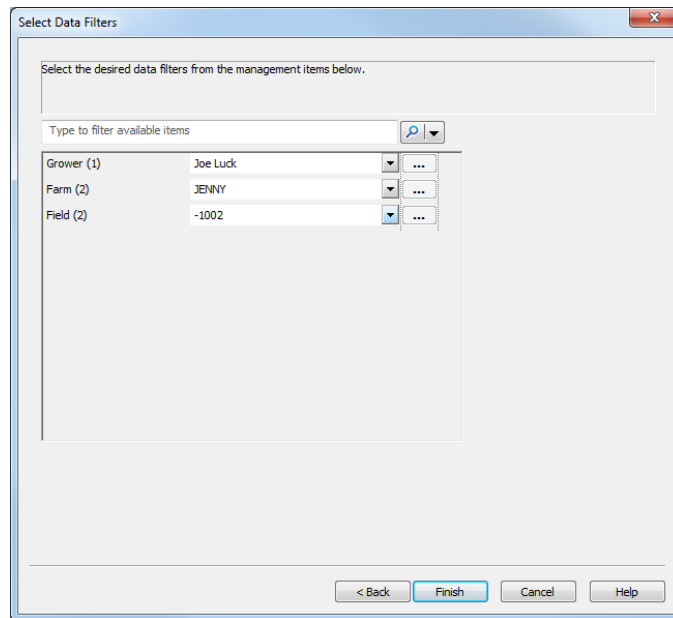
- g. For this exercise, we're going to select a soil boundary map to conduct our analysis. This is just one example of quantifying the data, perhaps if we had used the soil boundary maps to create our zones. First, we need to download the soil boundary map.
- h. Under the File menu, click on the Download Soil Survey Data from Internet option.



- i. When the Soil Survey Clipping option window appears, allow it to clip by field as shown below (that's why we chose to freeze the field boundary). Click Next.



- j. On the select Data Filters screen, enter your Grower, Farm, and Field that you want to work on and click Finish.



Select Data Filters

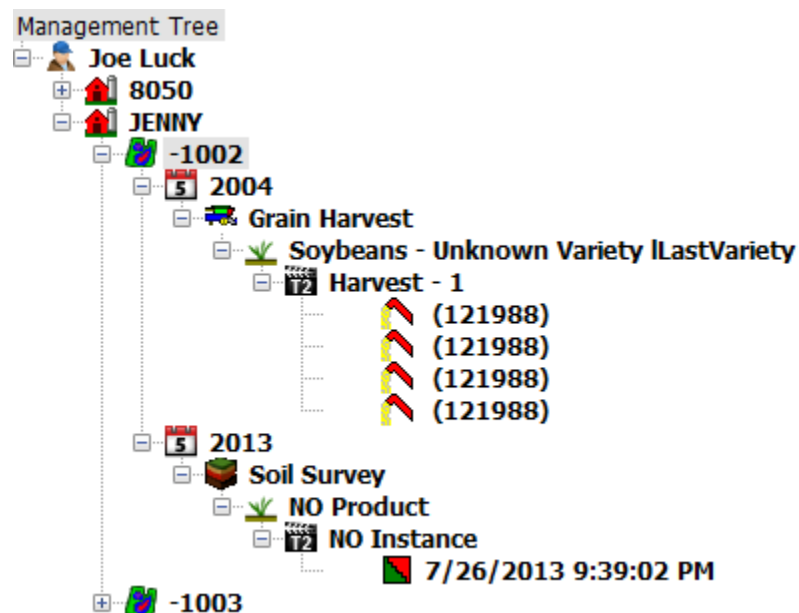
Select the desired data filters from the management items below.

Type to filter available items

Grower (1)	Joe Luck	...
Farm (2)	JENNY	...
Field (2)	-1002	...

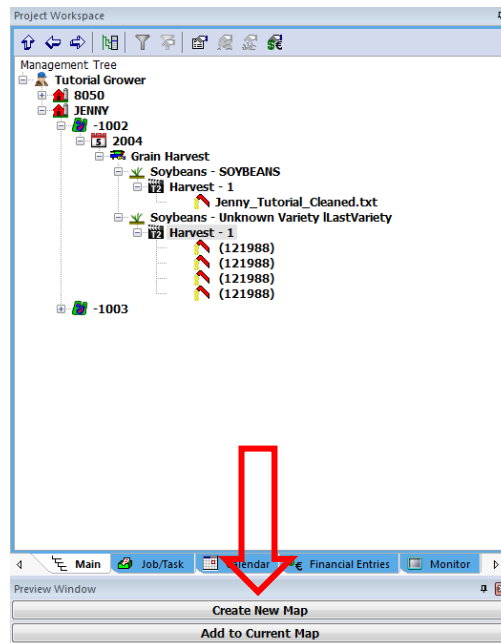
< Back Finish Cancel Help

- k. A screen may appear and ask you to select a year, select 2013 (if an option) and click OK. You should soon see an update in your Management Tree...expand the field to show the new soil data boundary layer.

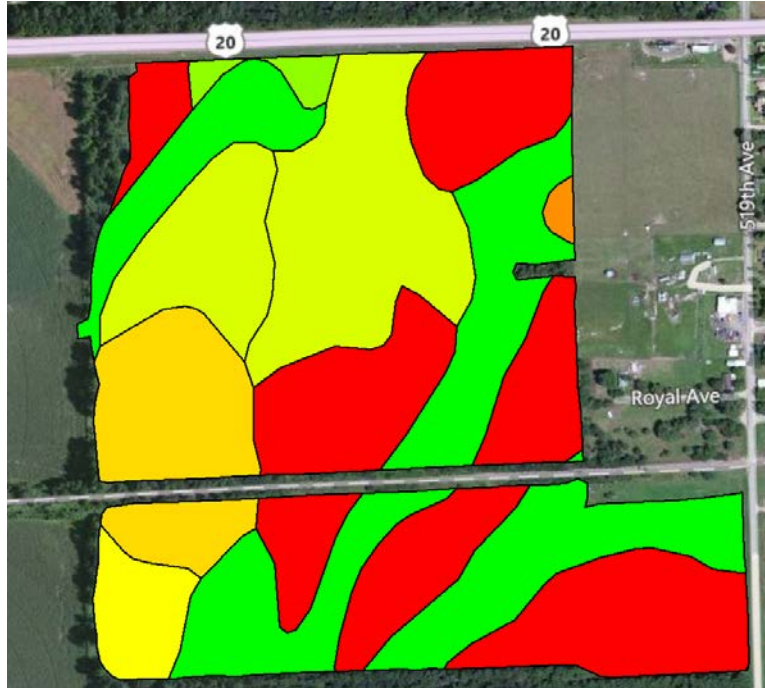


2. Creating a Map of Yield and Soil Data

- a. Click on the Soil Survey layer in the Management Tree and click on the Create New Map at the bottom of the Management Tree.



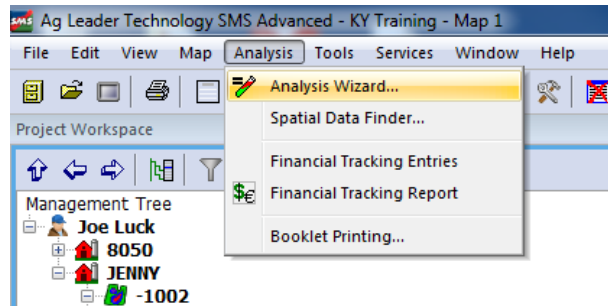
- b. When the new map appears with your soils data, you should see something like this:



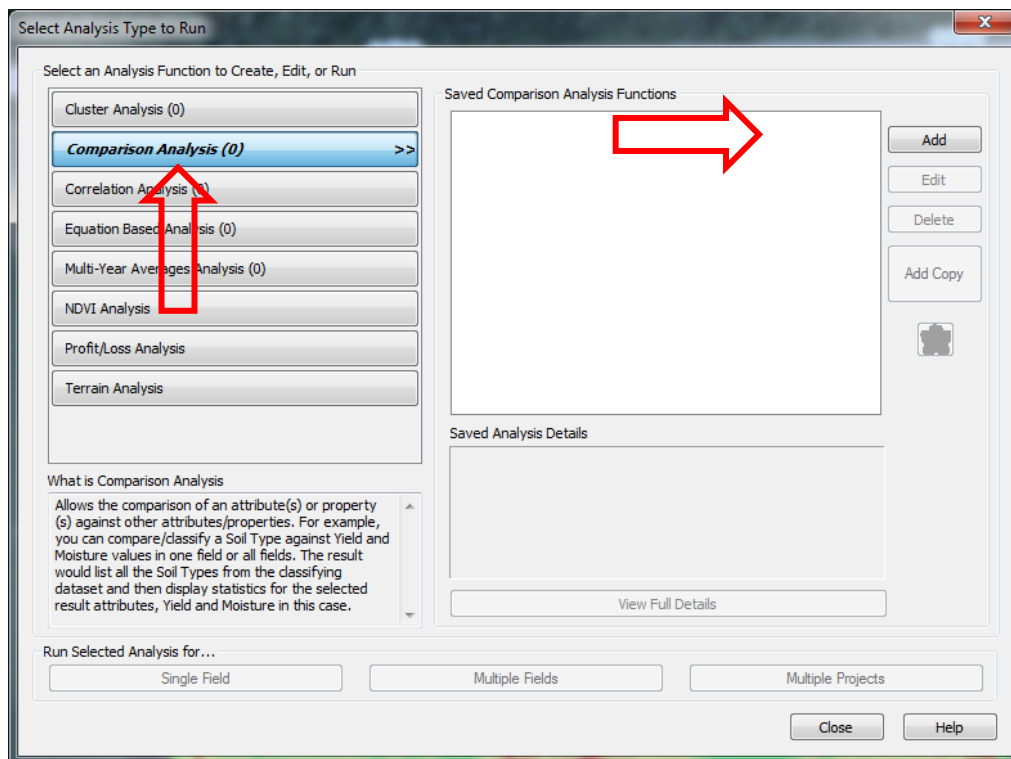
- c. Now click on your grain harvest layer in the Management Tree and click on the Add to Current Map. Now both the soil survey and yield layers should be shown in the same map.

3. Setting up the Comparison Analysis

- a. Now we will set up the analysis. Under the Analysis menu, select the Analysis Wizard.



- b. When the Select Analysis Type to Run window appears, click on the Comparison Analysis, then click on the Add button.



- c. Now, the Name/Description window will open. Name the analysis "Yield versus Soil Type" and click Next. The next screen is the Select Datasets for Comparison window.

Select Datasets for Comparison

Select an input dataset to be used in the comparison and then select the dataset(s) that will provide the attribute(s) and /or properties to classify the input dataset with.

Select Dataset for Comparison

Name: Input Dataset Edit

Current Selection:

Select Comparison Attribute/Property Dataset(s)

Name	Description
------	-------------

Add
Edit
Remove

☐ Use Point Overlay Method for Processing

Select this option to compare data such as Split Planter data, or any type of data where you need to compare pass by pass or point by point. This option does NOT use any interpolation and the grid size needs to be set to reflect the spacing of your point data or objects.

< Back Next > Cancel Help

- d. Click the Edit button. You'll be directed to a screen where you will input the Management Tree data for your Grain Harvest data. This is the input Data Layer.

Select Data Filters

Select the desired data filters from the management items below.

🔍 ▼

Grower (1)	Joe Luck	▼	...
Farm (2)	JENNY	▼	...
Field (2)	-1002	▼	...
Year (2)	2004	▼	...
Operation (1)	Grain Harvest	▼	...
Product - Crop Type (1)	(All)	▼	...
Product (1)	(All)	▼	...
Pest (1)	(All)	▼	...
Operational Instance (1)	(All)	▼	...
Dataset (4)	(All)	▼	...

☐ Search for All Uses of Product(s), i.e. Product Mixes

Optional Date Filter

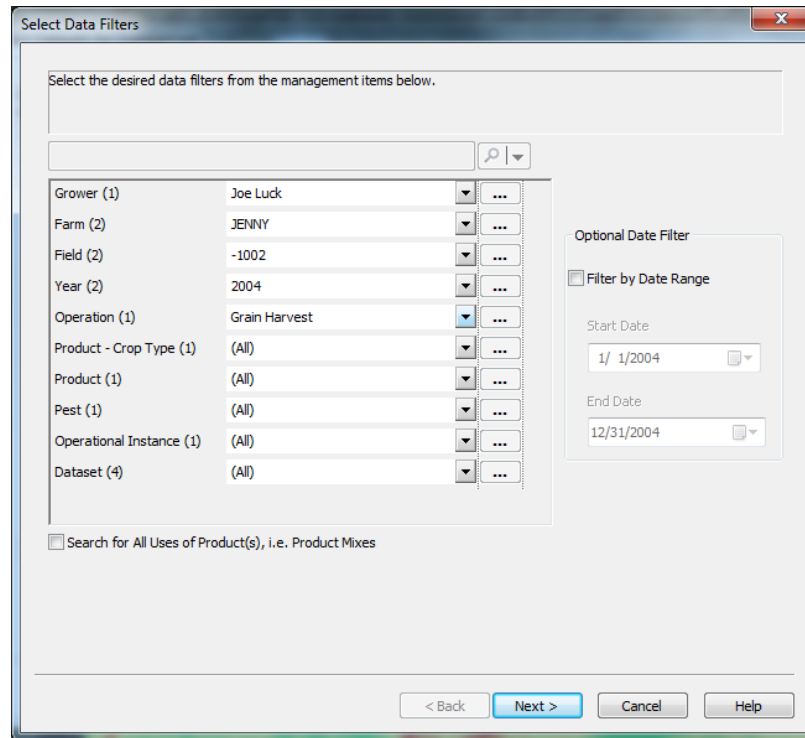
☐ Filter by Date Range

Start Date: 1/ 1/2004 📅

End Date: 12/31/2004 📅

< Back Next > Cancel Help

- e. Fill this portion out to identify the yield data file that you want to look at. When you've entered this data in, click Next.



Select the desired data filters from the management items below.

Grower (1)	Joe Luck	▼	...
Farm (2)	JENNY	▼	...
Field (2)	-1002	▼	...
Year (2)	2004	▼	...
Operation (1)	Grain Harvest	▼	...
Product - Crop Type (1)	(All)	▼	...
Product (1)	(All)	▼	...
Pest (1)	(All)	▼	...
Operational Instance (1)	(All)	▼	...
Dataset (4)	(All)	▼	...

☐ Search for All Uses of Product(s), i.e. Product Mixes

Optional Date Filter

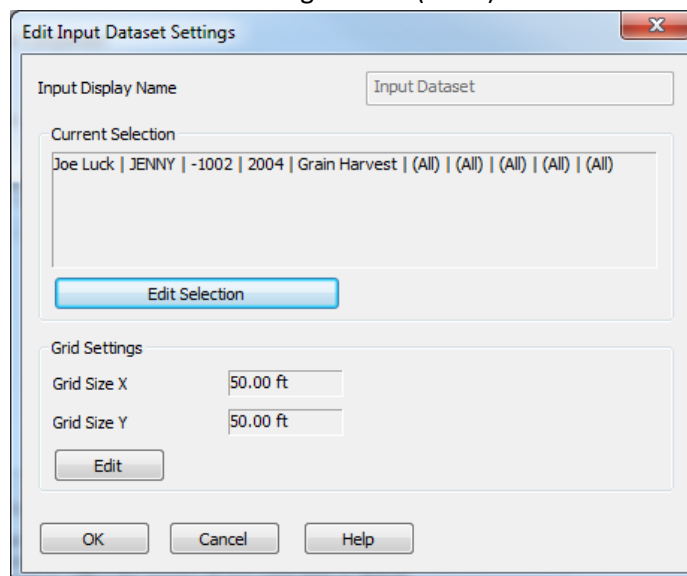
☐ Filter by Date Range

Start Date
1/ 1/2004

End Date
12/31/2004

< Back Next > Cancel Help

- f. You'll be prompted to Delete Unwanted Datasets, if the yield data file is correct, click Finish.
- g. Next the Edit Input Dataset Settings screen will ask you to verify the current selection and select a grid size. Leave the default grid sizes (50 ft.) and click OK



Input Display Name: Input Dataset

Current Selection
Joe Luck | JENNY | -1002 | 2004 | Grain Harvest | (All) | (All) | (All) | (All) | (All)

Edit Selection

Grid Settings

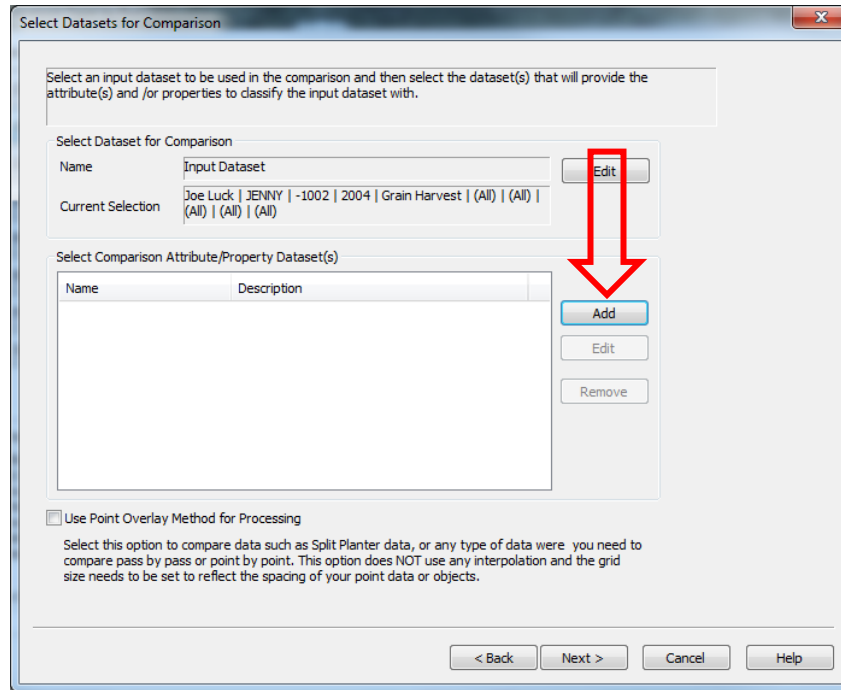
Grid Size X: 50.00 ft

Grid Size Y: 50.00 ft

Edit

OK Cancel Help

- h. Now we should be back on the Select Datasets for Comparison window. We need to input the Soil Survey data, so click Add under the Select Comparison Attribute/Property Dataset(s).



Select Datasets for Comparison

Select an input dataset to be used in the comparison and then select the dataset(s) that will provide the attribute(s) and /or properties to classify the input dataset with.

Select Dataset for Comparison

Name: Input Dataset [Edit]

Current Selection: Joe Luck | JENNY | -1002 | 2004 | Grain Harvest | (All) | (All) | (All) | (All) | (All)

Select Comparison Attribute/Property Dataset(s)

Name	Description
------	-------------

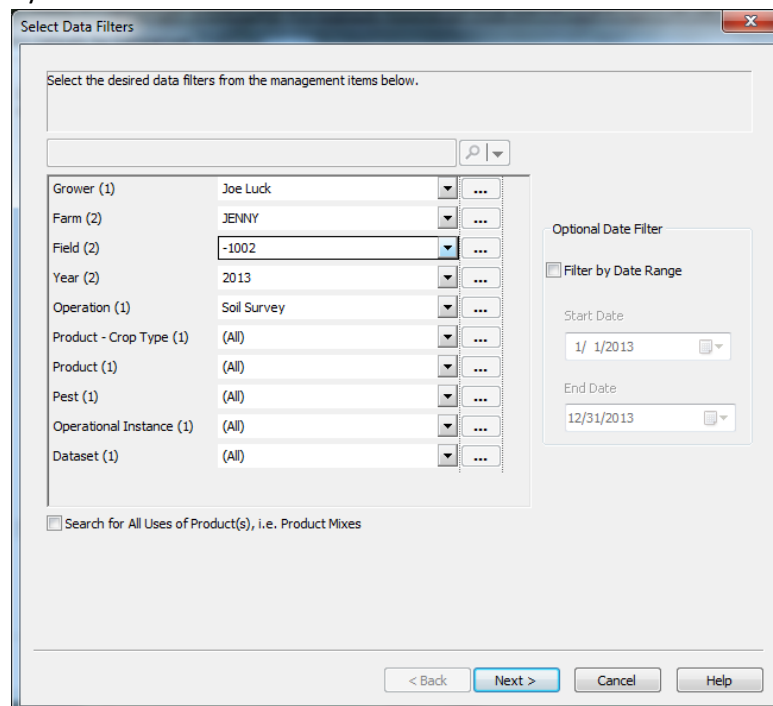
[Add] [Edit] [Remove]

☐ Use Point Overlay Method for Processing

Select this option to compare data such as Split Planter data, or any type of data where you need to compare pass by pass or point by point. This option does NOT use any interpolation and the grid size needs to be set to reflect the spacing of your point data or objects.

< Back Next > Cancel Help

- i. As before, you'll need to complete the Management Tree, this time, directed to the Soil Survey layer that we downloaded earlier:



Select Data Filters

Select the desired data filters from the management items below.

Grower (1): Joe Luck [v] [...]

Farm (2): JENNY [v] [...]

Field (2): -1002 [v] [...]

Year (2): 2013 [v] [...]

Operation (1): Soil Survey [v] [...]

Product - Crop Type (1): (All) [v] [...]

Product (1): (All) [v] [...]

Pest (1): (All) [v] [...]

Operational Instance (1): (All) [v] [...]

Dataset (1): (All) [v] [...]

☐ Search for All Uses of Product(s), i.e. Product Mixes

Optional Date Filter

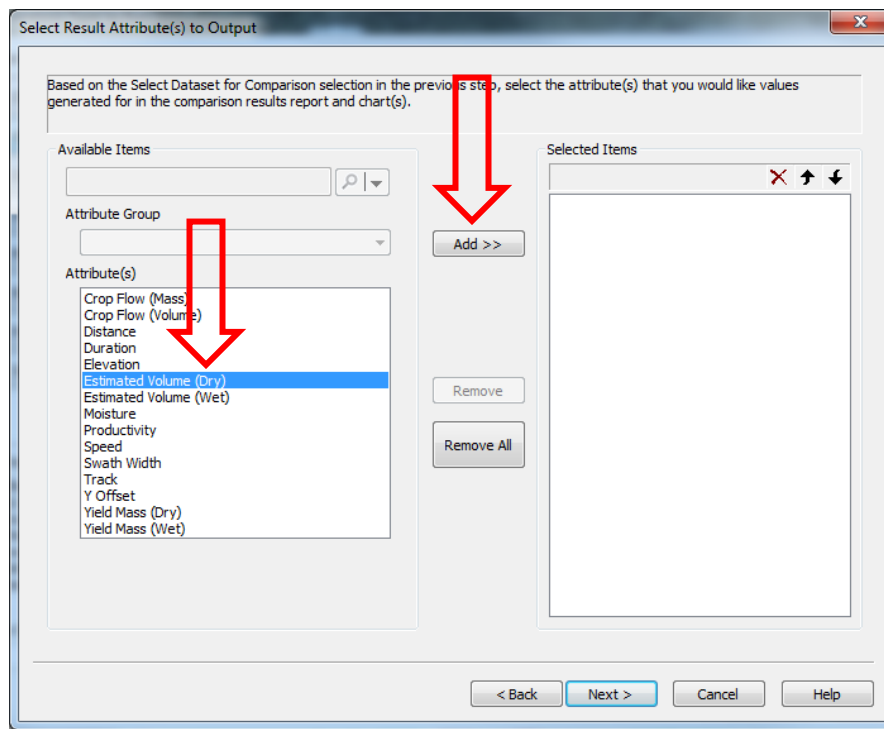
☐ Filter by Date Range

Start Date: 1/ 1/2013 [v]

End Date: 12/31/2013 [v]

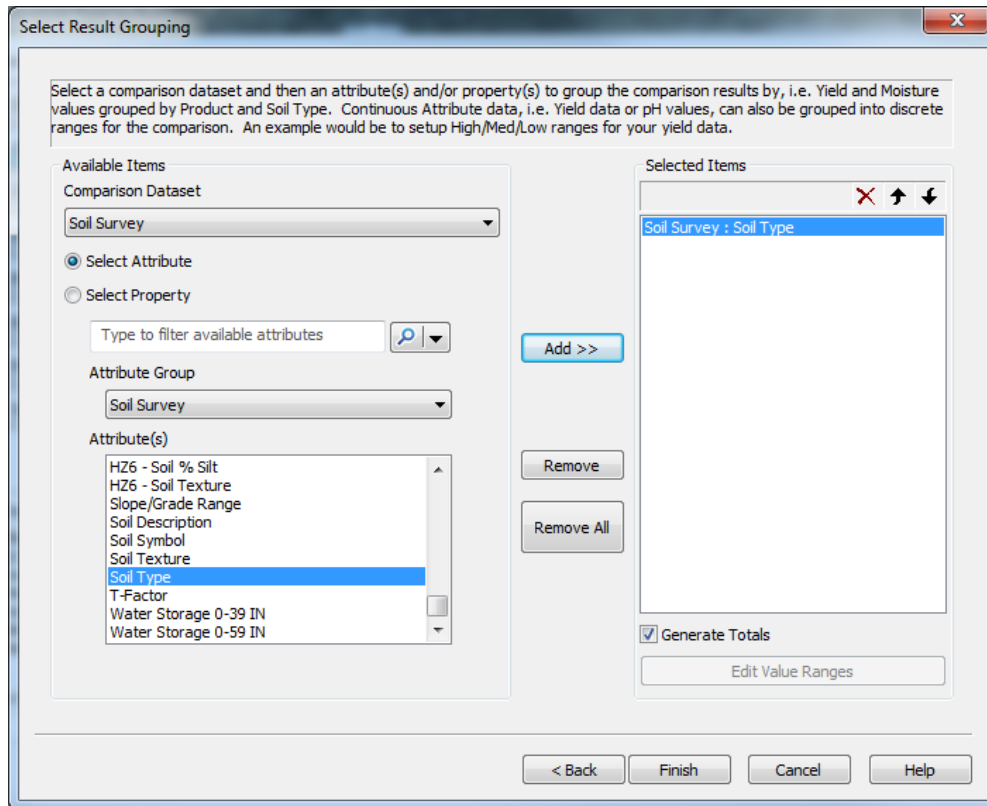
< Back Next > Cancel Help

- j. Click Next, then on the following screen, click Finish. The next screen will appear to Edit Input Dataset Settings. Here again, you'll need to verify that the Management Tree path is correct. Important Note: make sure that the grid sizes match for the two datasets that you are comparing. As before, set the Soil Survey Grid Size to 50 ft. Click OK.
- k. You should be back on the Select Datasets for Comparison window. Click Next.
- l. Now the Select Result Attribute(s) to Output window. We need to select the attributes or values that we want to show in our analysis. In this case, the yield data. Find the Yield Volume Dry value (may have different names depending on the yield monitor) in your list, and click on it. Then click Add. The value you selected should appear in the Selected Items list. Finally, click Next.



- m. The Select Result Grouping window should appear, now we need to select how we want to group the yield data numbers. Since we're using Soil data, we'll need to fill out this form as follows:

- n. Complete the form as shown below. The Comparison Dataset should show Soil Survey. Select Attribute should be active. Under Attribute Group, select Soil survey, then select Soil Type from the list that appears below. Select Add, then Soil Survey: Soil Type should appear in the Selected Items list. Click Finish.



Select Result Grouping

Select a comparison dataset and then an attribute(s) and/or property(s) to group the comparison results by, i.e. Yield and Moisture values grouped by Product and Soil Type. Continuous Attribute data, i.e. Yield data or pH values, can also be grouped into discrete ranges for the comparison. An example would be to setup High/Med/Low ranges for your yield data.

Available Items

Comparison Dataset
Soil Survey

☒ Select Attribute
☐ Select Property

Type to filter available attributes

Attribute Group
Soil Survey

Attribute(s)

- H26 - Soil % Silt
- H26 - Soil Texture
- Slope/Grade Range
- Soil Description
- Soil Symbol
- Soil Texture
- Soil Type
- T-Factor
- Water Storage 0-39 IN
- Water Storage 0-59 IN

Selected Items

- Soil Survey : Soil Type

Add >>

Remove

Remove All

☒ Generate Totals

Edit Value Ranges

< Back Finish Cancel Help

- o. The Select Reference Dataset window will appear, select Input Dataset and click Next. On the Select Related Data Filters (following window) continue with the default settings and click Finish. This should complete the process.
- p. You should be back on the Select Analysis Type to Run window. Click on Single Field at the bottom left of the screen. Notice that Yield versus Soil Type is shown in the Functions window. The Select Data Filters window will appear, verify that the Grain Harvest data you want to analyze is visible.

Select Data Filters

Select the desired data filters from the management items below.

Type to filter available items

Grower (1)	Joe Luck	...
Farm (2)	JENNY	...
Field (2)	-1002	...
Year (2)	2004	...
Operation (1)	Grain Harvest	...
Product - Crop Type (1)	(All)	...
Product (1)	(All)	...
Pest (1)	(All)	...
Operational Instance (1)	(All)	...
Dataset (4)	(All)	...

☐ Search for All Uses of Product(s), i.e. Product Mixes

☒ Remove Datasets Set to Exclude from Analysis

Optional Date Filter

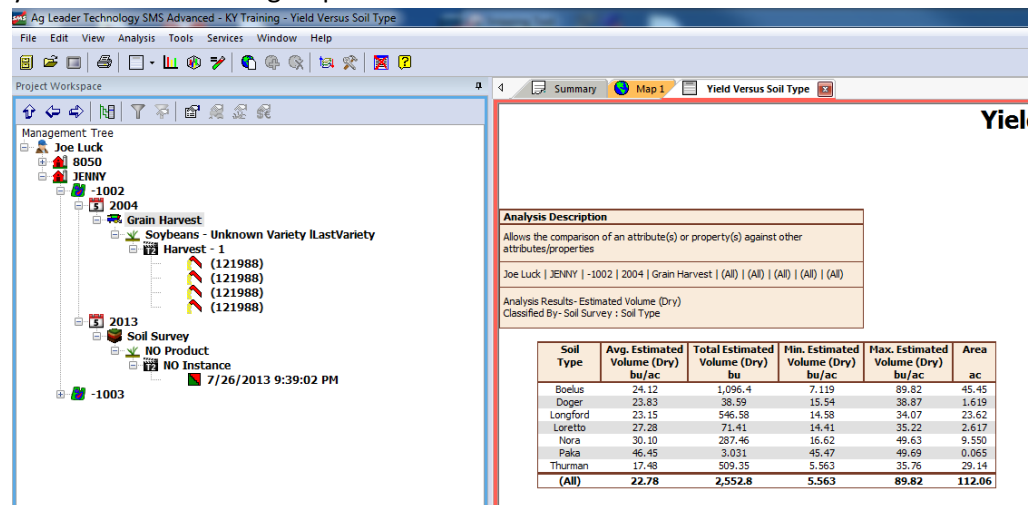
☐ Filter by Date Range

Start Date
1/ 1/2004

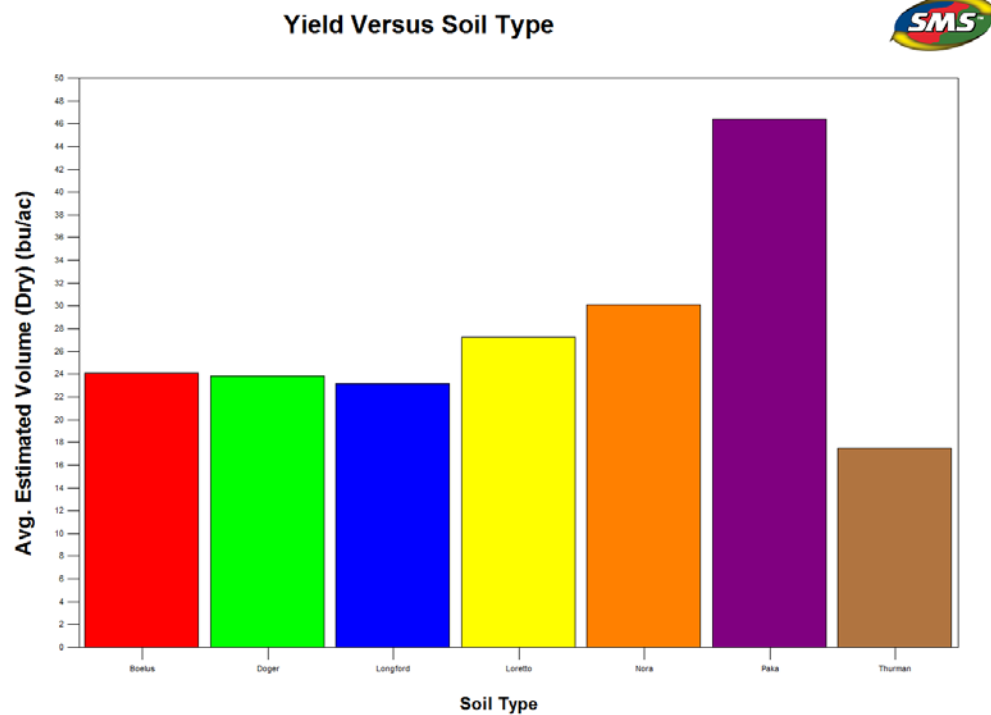
End Date
12/31/2004

< Back Next > Cancel Help

- q. Click Next, you will again be prompted to verify if you want to delete any datasets. If the data path looks okay, click Finish...this will start the analysis.
- r. Now, the Yield Versus Soil Type window will appear next to your map. A summary of yield within each soil group should be visible.



- s. At the bottom of the screen, you can click on Analysis Combination or Analysis Charts.



- t. We can use these data to track our crop yields by management zones, in this case, the soil boundary maps. We can use other data layers if we want to create these zones, but the idea is that we can now track the crop yield in these areas. Now we can quantify the yield based on changes in our practice.