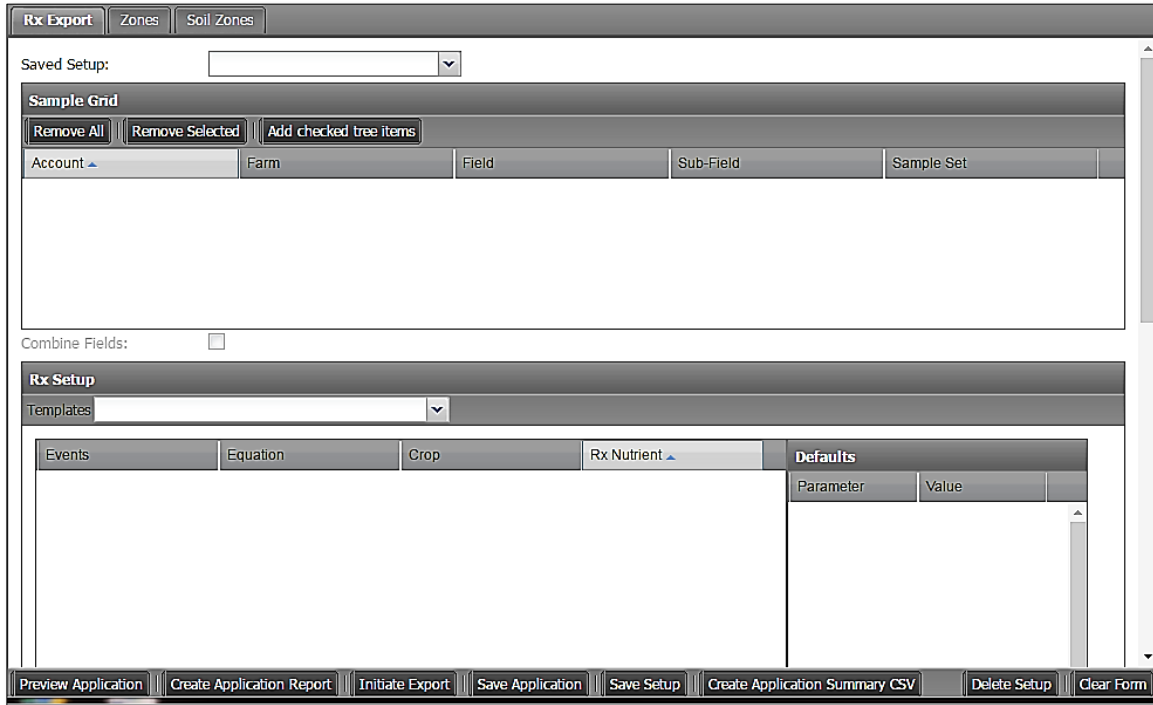


Spread Map Tab - Rx Export - Creating Soil Application Reports

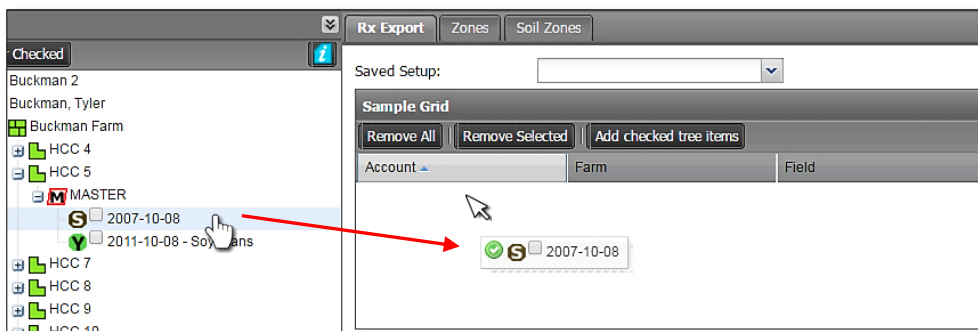
The **Spread Map** page provides functions for creating spread maps. To activate the options, select the **Spread Map** tab.



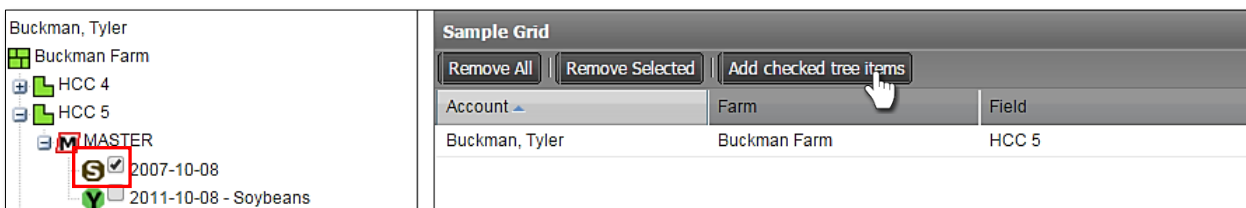
1. The **Rx Export** tab will display immediately. This option allows you create prescription spread maps and controller files for chosen sample analysis or yield files.



2. **Sample Grid.** From the I.F.A.R.M. customer listing window, click and hold a Sample File or Yield file, and drag up to the Account window.



- The entered dataset will display as shown.

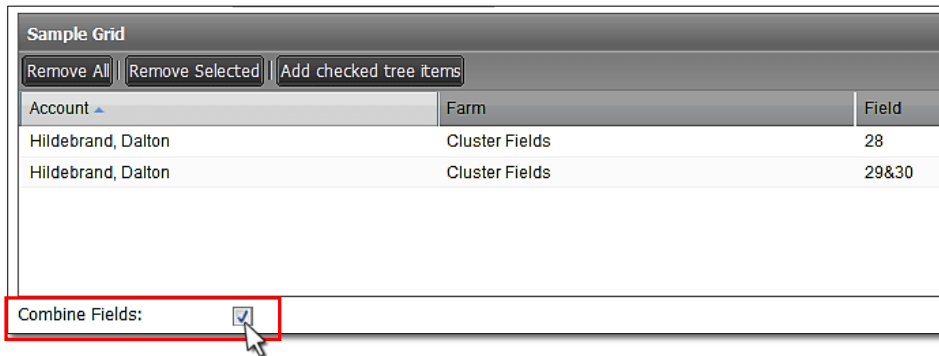


- The data file check boxes can be used as well. Click the box(es) then select **Add checked tree items**.

Rx Export Tab continued...

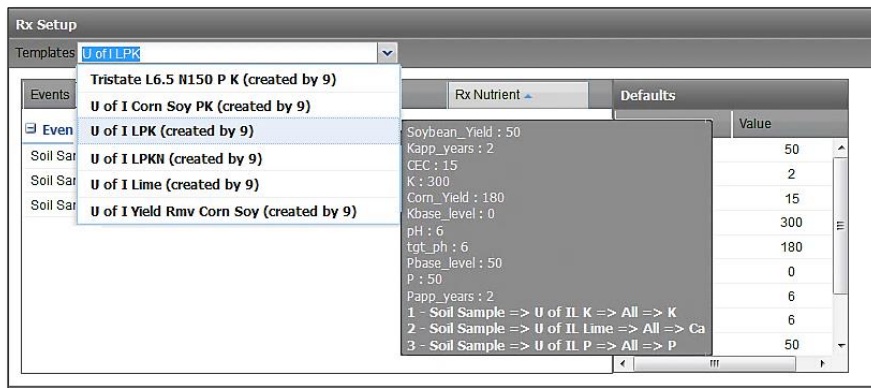
A. Combine Fields Option:

- Use this option if you want to display multiple fields on the map. This works best if two field boundaries are next to one another and you want to treat them as one combined field.
- Also, users can bring in multiple soil tests or yield files from different years (i.e. 2015 & 2019 data). Selecting the Combine Fields button will average the data between the two soil sets and generate the applicable prescription.



3. RX Setup. This area is where users choose the equation template to apply to the sample analysis files.

A. In the Rx Setup window, from the drop-down menu select a Template to apply.



Note:

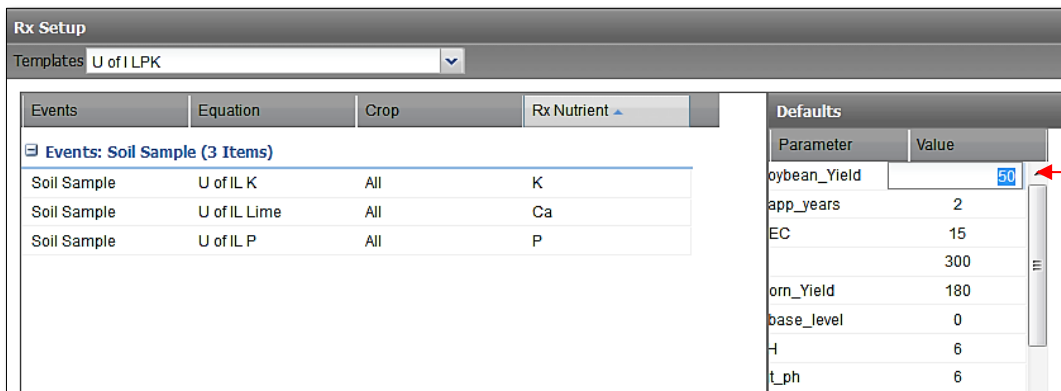
In indication of the template parameters will display.

Contact I.F.A.R.M. Inc. if you want to add - or - need adjustments to any equations / templates.

Different state / land grant equation templates can vary.

B. Once the template is selected, the Soil Sample equation attributes will populate the windows.

C. The values displayed in the **Defaults** windows are generated by the template equation. These are editable.



- By clicking in the default value box, you will get a cursor that allows you to change the value (above).

Rx Export Tab continued...

- Parameters that are subject to value changes include: **Target Yield; P or K base levels, application year durations, target pH**. Descriptions tinted in green below are editable values.

Defaults		Parameter	Value	
		Soybean_Yield	50	These yield entries are used to calculate the amount of P & K removed by the bushels harvested.
		Corn_Yield	180	
# of years of applications to build levels.		Pbase_level	50	P build-to level is calculated from the soil test values. Maintains 20 pounds higher than build level. (base - soil test x 9 lbs / application yrs)
		Papp_years	2	
These values replace any missing P - K data in the soil test.		P	10	This value replaces any missing CEC data in the soil test.
		K	80	
		CEC	15	K build-to level is calculated from the CEC values. CEC < 12 = 260. CEC > 12 = 300. Maintains 100 pounds higher than build level. (base - soil test x 4 lbs / application yrs)
# of years of applications to build levels.		Kapp_years	2	
		Kbase_level	0	pH build-to level.
		pH	5.5	
This value replaces any missing pH data in the soil test.		tgt_ph	6.2	

4. Product Setup. This area allows the user to choose specific products, assign product costs, and make spreader adjustments.

- In the Product Setup window, click under the **Product** column where it says --- **Click here to choose a product** --- and you will see a drop-down menu. Select a product for each element (*next page*).
- The Product Setup area also offers **selection boxes** for each element. If a user does not want all elements/products factored into a spread map, they can simply check off / on which products they want for the prescription report.

Product Setup					
<input type="checkbox"/>	Order	Nutrient	Product	Cost	Min Cutoff (L...
<input checked="" type="checkbox"/>	1	K	Potash	0	0
<input checked="" type="checkbox"/>	2	Ca			0
<input checked="" type="checkbox"/>	3	P	Lime	Ca 100%	
			Lime 85	Ca 85%	
			Lime 94	Ca 94%	

Note:
Contact I.F.A.R.M. if you require other / additional products to be added to your profile.

C. The Product Setup allows for manual entered values for product costs / spreader controls. To enter a value, click in the corresponding window. A cursor will appear to enter a value:

- **Cost:** A \$\$ value. Enter the product cost per ton / gallon / etc.
- **Appl Cost:** A \$\$ value. Enter the cost for applying / spreading the product in the field.
- **Min Cutoff (lbs.):** A lb. value that sets the lowest limit of how much product you want the controller to spread. Any readings below that value will shut the spreader applicator off, resulting in no product dispersed. *If a **Min Cutoff** value is entered, an equal or greater value must be entered in the **Min Rate** column.*

Product Setup						
<input type="checkbox"/>	Order	Nutrient	Product	Cost	Appl Cost	Min Cutoff (Lbs or Gal)
<input checked="" type="checkbox"/>	1	K	Potash	425		75
<input checked="" type="checkbox"/>	2	Ca	Lime 100	22		1000
<input checked="" type="checkbox"/>	3	P	DAP	425		75

Rx Export Tab continued...

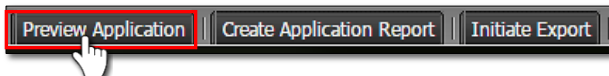
- **Min Rate (lbs.):** This lb. value will set the lowest amount of product to be spread at any point in a field; even if the file calls for no product. *This value cannot be less than the **Min Cutoff** value (if one is entered). In many cases, they will be the same value.*
- **Max Rate (lbs.):** This lb. value is the most product you want the controller to spread at any point in a field.
- **+/- (lbs.):** This lb. value instructs the spreader to push or reduce pounds of product applied. For reducing product, put a - before the value (negative sign). This is useful where starter fertilizer was used or manure (to account for credit).
- **Adjustment (%):** A simple calculation of percentage (high / low) that adjusts the amount of product spread (i.e. 1.1 or 1.25 or a negative value .9 or .75). 1 = 100%. .9 = 90%

Min Cutoff (Lbs or Gal)	Min Rate (Lbs or Gal)	Max Rate (Lbs or Gal)	+/- (Lbs or Gal)	Adjustment (%)
75	75	450	0	0.9
1000	1000	5000	0	1
75	75	500	0	1

Examples:

- If **Min Cutoff** is set to 1000 and **Min Rate** is at 1000... then any rate under 1000 will get 0 lbs. Rates above 1000 will get the prescribed rate.
- If **Min Cutoff** is set to 1000 and the **Min Rate** is 2000... the rates between 1000 and 2000 will be rounded up to 2000. Rates above 2000 will receive the prescribed rate. Rates under 1000 receive 0 lbs.
- If **Min Cutoff** is set to 200 and **Min Rate** is set to 1000... the rates between 200 and 1000 will be rounded up to 1000. Rates under 200 get 0 lbs.
- If **Min Cutoff** is 0 and **Min Rate** is 1000, then 100% of field will get product applied, even if areas of the application file calls for 0 lbs.

5. **Preview Application.** I.F.A.R.M. gives the option to view the application before you print out a map & summary. If you want to view the map and histogram, select the **Preview Application** button.



A. A status bar will appear stating the preview is being generated. A window will appear displaying the field spread maps and low-res colored histogram. If there are multiple product maps, select the corresponding tabs to view the maps. When done reviewing the previews, click the **Close** button to exit the window.



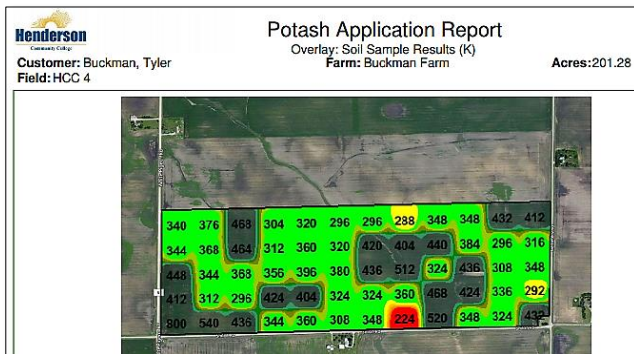
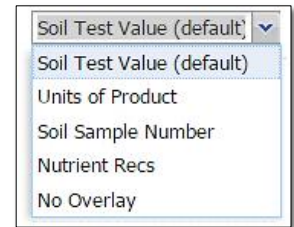
Rx Export Tab continued...

6. Other Options:

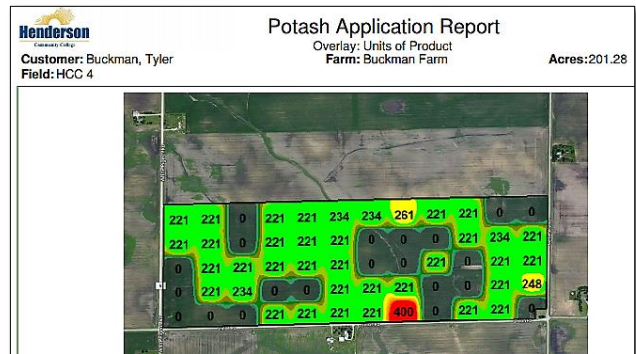
Controller Type:	<input type="text" value=""/>	Map Overlay Options:	<input type="text" value="Soil Test Value (default)"/>
Shape Export Options:	<input type="text" value="Gridded - One Product Per Shapefile"/>	Separate Reports Per Field:	<input type="checkbox"/>
PDF Background:	<input type="radio"/> None <input checked="" type="radio"/> Bing Hybrid <input type="radio"/> Bing Road	Include PDF:	<input checked="" type="checkbox"/>
Method:	<input type="text" value="1R4"/>	Include Rate Report:	<input type="checkbox"/>

- A. Controller Types:** Will be covered in the controller file creation section.
- B. Shape Export Options:** Will be covered in the controller file creation section.
- C. PDF Background:** Users have an option of backgrounds for the field / map report. Choices include **None** (blank background), **Bing Hybrid satellite** view or **Bing Roads** view. Click on the corresponding button.
- D. Map Overlay Options:** Gives the user the option to create reports with different value options which overlay the maps.

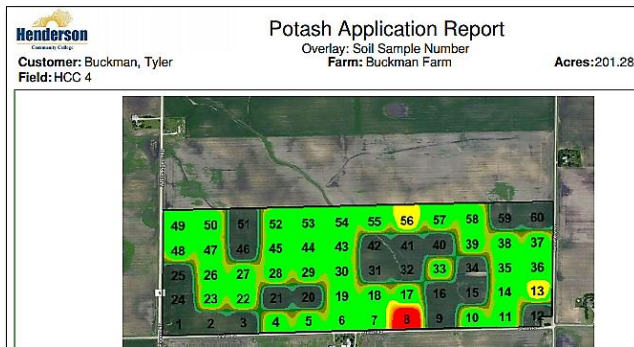
- **Soil Test Value** is the default value and displays the soil testing values.
- **Units of Products** displays the calculated units of product to be spread.
- **Soil Sample Number** displays the sample points and their number.
- **Nutrient Recs** displays the lbs. of product spread at each sample point location.
- **No Overlay** displays only the map with no values.



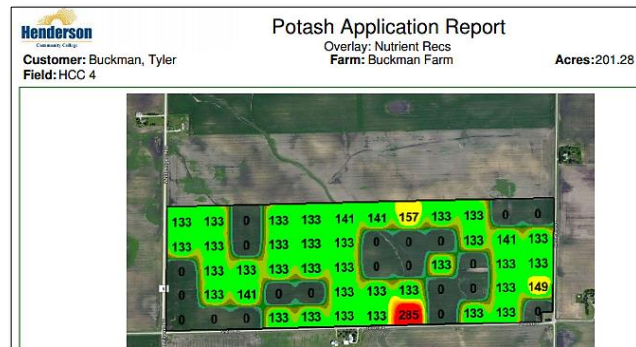
Soil Sample Results



Units of Products



Soil Sample Number



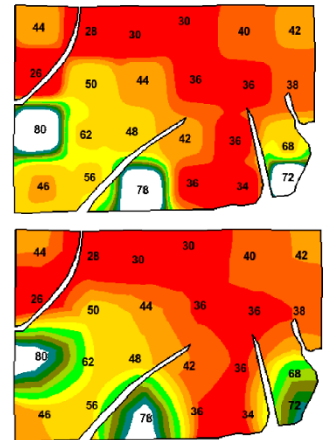
Nutrient Recs

Rx Export Tab continued...

Map Overlay Options:	Soil Test Value (default) <input type="button" value="v"/>	Sort Products:	<input type="checkbox"/>
Separate Reports Per Field:	<input checked="" type="checkbox"/>	Hide Maps:	<input type="checkbox"/>
Include PDF:	<input checked="" type="checkbox"/>	Hide Min / Max Rate Summary Parameters:	<input type="checkbox"/>
Include Rate Report:	<input checked="" type="checkbox"/>		

- E. Separate Reports Per Field:** This comes in effect when multiple fields' datasets are included in a rec.
 - If the box is left **unchecked**, the resulting application reports will be run with the product reports grouped (Lime / DAP / Potash reports together / etc.).
 - There will be just one last summary page for all fields included.
 - If the box is **checked**, then the fields will be separated and run as complete separate reports, with a summary page for each field.
- F. Include PDF:** This is checked by default. If checked, when controller files are created, a PDF of the application report will be part of the zipped folder with the Rx files.
- G. Include Rate Report:** Checking this produces a unit / product rate report as part of the application report.
- H. Sorting Products:** Will be reviewed in section 8.
- I. Method:** Will display the chosen grid option - IR4 or Nearest Neighbor. Make sure the desired grid effect is chosen prior to creating the application report.

- **1R4 Method:** This is I.F.A.R.M.'s default gridding method which can map out nearly any type of data set. 1R4 is a variation of (IDW - Inverse Distance Weighting), a process of assigning values to unknown points by using values from a usually scattered set of known points (right).
- **Normalized Nearest Neighbor** A different interpolation method which estimates values of points at positions between listed or given values. The nearest neighbor method simply selects the value of the nearest point, ignores the values of other neighboring points, and calculates a value for the unlisted point from that nearest point. It renders a different variation of application map (right)

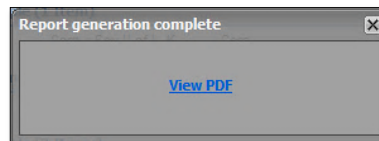
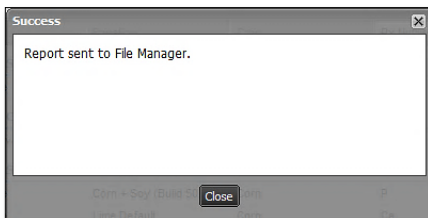


7. Creating Application Report.

A. To generate the application report, click on the **Create Application Report** button.



- The following indicator will briefly appear indicating the report has been sent to the **File Manager**. Shortly after, a **View PDF** prompt will display.



- Users have the option to open the file immediately by clicking **View PDF**, or close the indicator and access the report in the File Manager at a later time.

Rx Export Tab continued...

- The application report will be displayed as a PDF. It will create a page for each product application (with reference number), plus a summary page. The Rate Report will display also if the option is chosen.
- You can print this out or save to a local drive on your computer from your PDF reader program.
- Close the PDF file when done viewing.

Henderson
Customer: Buckman, Tyler
Field: HCC (imagery)

Potash Application Report
Overlay: Soil Sample Results (K)
Farm: Buckman Farm
Acres: 59.17

Ref #
1

U of IL K		Soybeans 60 / Corn 195			
Soil Data	Yield Data	Build Level	# Build Appl	Min Rate	Min Cutoff
2008-10-08			2	75	75

Application	Min App. Rate: 75.00 lb/ac	Est. Product Cost: \$4
	Max App. Rate: 230.00 lb/ac	Est. Product Total Cost: \$11
	Avg App. Rate: 125.09 lb/ac	Est. App. Cost/Acre: \$0
	Total App. Acres: 37.57	Est. Total App. Cost: \$0
	Total App.: 3.70 Ton(s)	Est. Combined Cost: \$11

Additional Information

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Henderson
Customer: Buckman, Tyler
Field: HCC (imagery)

Lime Application Report
Overlay: Soil Sample Results (pH)
Farm: Buckman Farm
Acres: 59.17

Ref #
2

U of IL Lime		Soybeans 60 / Corn 195			
Soil Data	Yield Data	Build Level	# Build Appl	Min Rate	Min Cutoff
2008-10-08			6.3	1000	1000

Application	Min App. Rate: 1000.00 lb/ac	Est. Product Cost: \$20
	Max App. Rate: 6000.00 lb/ac	Est. Product Total Cost: \$26
	Avg App. Rate: 4771.22 lb/ac	Est. App. Cost/Acre: \$0.0
	Total App. Acres: 55.24	Est. Total App. Cost: \$0.0
	Total App.: 141.15 Ton(s)	Est. Combined Cost: \$26

Additional Information

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Henderson
Customer: Buckman, Tyler
Field: HCC (imagery)

DAP Application Report
Overlay: Soil Sample Results (P)
Farm: Buckman Farm
Acres: 59.17

Ref #
3

U of IL P		Soybeans 60 / Corn 195			
Soil Data	Yield Data	Build Level	# Build Appl	Min Rate	Min Cutoff
2008-10-08			50	2	0

Application	Min App. Rate: 5.00 lb/ac	Est. Product Cost: \$475.00/lb
	Max App. Rate: 500.00 lb/ac	Est. Product Total Cost: \$2830.83
	Avg App. Rate: 201.45 lb/ac	Est. App. Cost/Acre: \$0.00
	Total App. Acres: 51.19	Est. Total App. Cost: \$0.00
	Total App.: 5.96 Ton(s)	Est. Combined Cost: \$2830.83

Additional Information

Page 3 of 4
November 18, 2016, 2:25 pm EST

Application Summary

Customer(s): Buckman, Tyler Field(s): HCC (imagery)

Farm(s): Buckman Farm Sub-Field(s): MASTER

Ref #	Product	Nutrient	Min Mch Rate	Act Min Rate	Act Max Rate	Prod Cost	App Cost/Acre
1	Potash	K	75.00(lb/ac)	75.00(lb/ac)	250.00(lb/ac)	\$450.00/T	\$0.00
2	Lime		1000.00(lb/ac)	1000.00(lb/ac)	6000.00(lb/ac)	\$50.00/T	\$0.00
3	DAP	P	0.00(lb/ac)	5.00(lb/ac)	500.00(lb/ac)	\$475.00/T	\$0.00

Ref #	Product	App Amt	App Amt	Tot Prod Cost	App Acres	Tot App Cost	Est Tot Cost
1	Potash	7401(lb)	3.70(tons)	\$1665.25	37.57	\$0.00	\$1665.25
2	Lime	282202(lb)	141.15(tons)	\$5823.02	56.24	\$0.00	\$2823.02
3	DAP	11919(lb)	5.96(tons)	\$2830.83	51.19	\$0.00	\$2830.83

Total: \$7,319.10
Avg. Cost Per Acre: \$123.70

Note:
The reference numbers in the summary report reflect the previous map reports (i.e. 1, 2, 3).

Page 4 of 4
Copyright 2016 I.F.A.R.M. November 18, 2016, 2:25 pm EST

Rate Report

Location: Henderson Community College Farm: Buckman Farm
Customer: Buckman, Tyler Field: HCC (imagery)
Dates: 2008-10-08 Acres: 59.17

ID	Nutrients			Products		
	K2O	CaCO3	P2O5	Potash	Lime	DAP
1	133	0	243	221	0	238
2	0	2000	135	0	2000	293
3	133	6000	168	221	6000	382
4	133	4000	180	221	4000	391
5	0	4947	0	0	4947	0
6	133	0	207	221	0	450
7	0	7884	135	0	7884	288
8	133	6000	135	221	6000	293
9	133	7000	135	221	7000	293
10	173	7250	135	288	7250	293
11	133	4000	135	221	4000	293
12	133	7884	0	221	7884	0
13	0	4947	0	0	4947	0
14	0	10842	0	0	10842	0
16	0	7000	0	0	7000	0
16	0	10842	0	0	10842	0
17	0	3000	0	0	3000	0
18	0	7000	0	0	7000	0
19	0	4947	0	0	4947	0
20	0	4947	0	0	4947	0
21	133	4000	135	221	4000	293
22	133	2000	135	221	2000	293
23	133	8000	135	221	8000	293
Average:	77	5434	87	128	5434	190
Total lbs:	1769	124984	2011	2949	124984	4368
Total Tons:	1	62	1	2	62	2

November 18, 2016, 2:25 pm EST

Rx Export Tab continued...

B. Review the application results and revise setup values if needed.

- Users can go back to the Spread Map Rx Export tab and make adjustments to the following to get an application closer to desired results; (default settings, product choice, min cutoff / min rate / max rate / rate adjustments), etc. Users can run the application report again to verify results.

Events	Equation	Crop	Rx Nutrient	Defaults	
Events: Soil Sample (3 Items)				Parameter	Value
Soil Sample	U of IL Lime	All	Ca	Soybean_Yield	70
Soil Sample	U of IL K	All	K	Kapp_years	2
Soil Sample	U of IL P	All	P	CEC	15
				K	300
				Corn_Yield	220
				Kbase_level	0
				pH	6.5
				tgt_ph	6
				Pbase_level	50
				P	50

Product Setup									
Order	Nutrient	Product	Cost	Appl Cost	Min Cutoff (Lbs or Gal)	Min Rate (Lbs or Gal)	Max Rate (Lbs or Gal)	+/- (Lbs or Gal)	Adjustment (%)
1	K	Potash	425		75	75	450	0	1
2	Ca	Lime 100	20		1000	1000	5000	0	1
3	P	DAP	425		75	75	400	0	1

- Continue this process until you achieve a desired application scenario.

8. Sorting Products. If making applications for multiple soil tests, there are options to sort the products and just show the products / totals / costs.

A. With an application ready, pull in several soil tests into the account window.

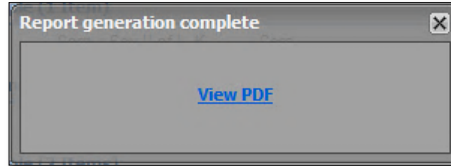
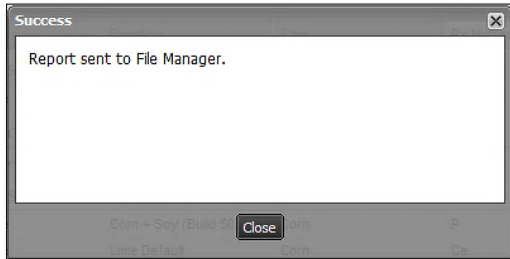
The screenshot shows the 'Rx Export' window with a tree view on the left and a 'Sample Grid' on the right. The tree view shows a hierarchy of farms and fields, with several items selected. The Sample Grid shows a table with columns for Account, Farm, Field, and Sub-Field. Red arrows point from the tree view to the Sample Grid, indicating the process of pulling in soil tests.

B. In the lower right of the screen, click on the three boxes as shown below and **Create Application Report.**


Map Overlay Options:	Soil Test Value (default)	Sort Products:	<input checked="" type="checkbox"/>
Separate Reports Per Field:	<input type="checkbox"/>	Hide Maps:	<input checked="" type="checkbox"/>
Include PDF:	<input checked="" type="checkbox"/>	Hide Min / Max Rate Summary Parameters:	<input checked="" type="checkbox"/>
Include Rate Report:	<input type="checkbox"/>		

Rx Export Tab continued...

- C. A Success notification will appear, followed shortly by a **Report Generation Complete** notice.
 - Click the **View PDF** to open the report.



- D. The PDF report will open. Note that the report removes any map pages and just sorts the products and their tons / pounds and costs.
 - This helps clients who help growers determine what they need for product / budget costs for given fields.
 - Save the PDF to your computer or print it out as needed.



Application Summary

Customer(s): Farmer, Joe	Field(s): E 1300N, E 1700 N, East, Els 70
Farm(s): Farm	Sub-Field(s): MASTER

Application Results								
Field Name	Ref #	Prod	App Lb	App Tons	Product Cost	App Ac	App Cost	Total Cost
East	1	DAP	19597	9.80	\$4164.45	40.17	\$0.00	\$4164.45
Els 70	3	DAP	27420	13.71	\$5826.69	65.42	\$0.00	\$5826.69
E 1300N	5	DAP	19057	9.53	\$4049.66	49.64	\$0.00	\$4049.66
E 1700 N	7	DAP	14288	7.14	\$3036.10	47.92	\$0.00	\$3036.10
Total			80362	40.18	\$17076.90	203.15	\$0.00	\$17076.90
East	2	Polash	18064	9.03	\$3838.59	40.17	\$0.00	\$3838.59
Els 70	4	Polash	23692	11.85	\$5034.58	65.73	\$0.00	\$5034.58
E 1300N	6	Polash	3939	1.97	\$837.06	18.91	\$0.00	\$837.06
E 1700 N	8	Polash	16812	8.41	\$3572.50	68.07	\$0.00	\$3572.50
Total			62507	31.26	\$13282.73	192.88	\$0.00	\$13282.73

Total: \$30,359.64

Avg. Cost Per Acre: \$122.74

- E. When finished, be sure to uncheck the sort boxes when finished.

Sort Products:

Hide Maps:

Hide Min / Max Rate Summary Parameters: