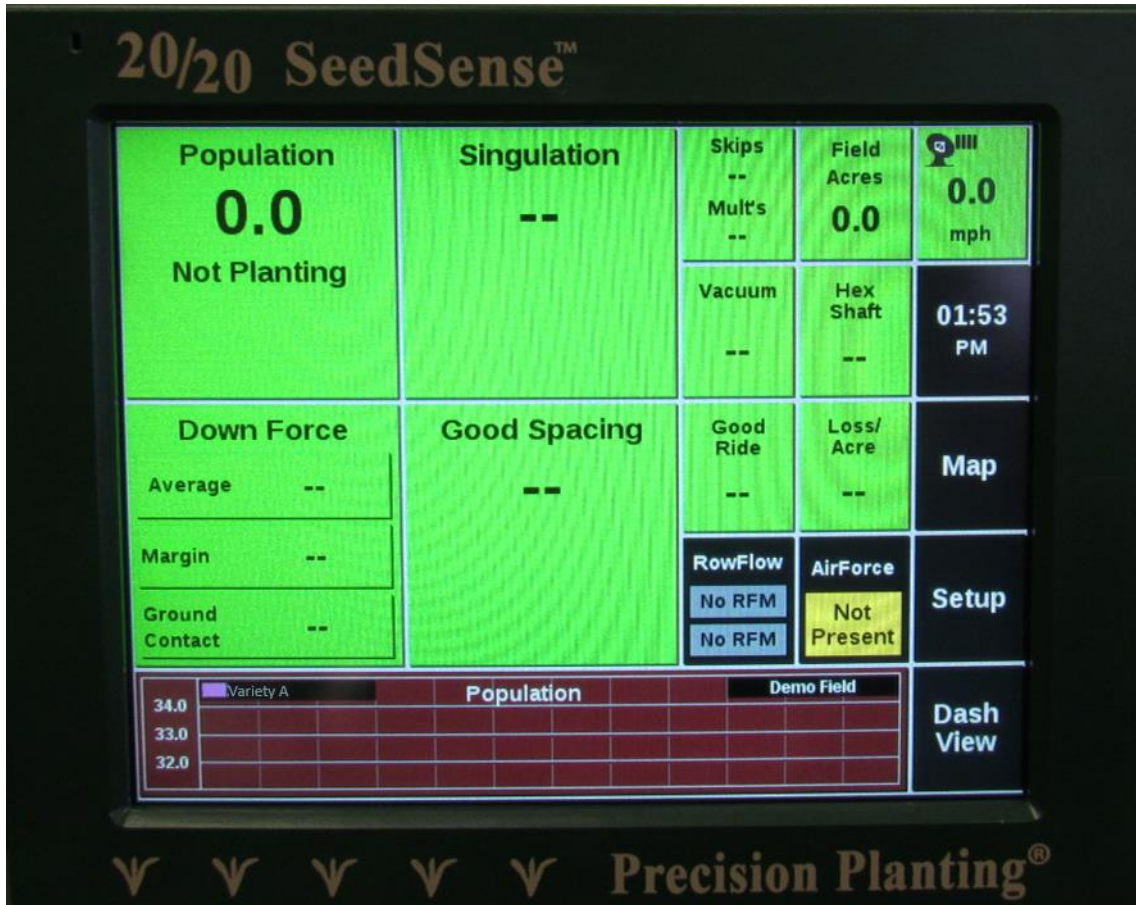


This document is designed to provide basic support for implementing variable rate seeding in common precision ag equipment. It is neither an operating manual nor a set-up guide for the monitor. Rather, it is a general set of principles designed to provide help with trouble shooting while preparing for a VRS operation.

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- Page 4: Importing VRS Prescription Files
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Prescription File Management



Prescription File Management

20/20 SeedSense

1

When using shapefiles for VRS Prescriptions, there will typically be 4 unique file types (*.shp, *.shx, *.dbf, and *.prj) for each prescription generated.

Prescription units must be in **seeds per acre**.

Tip: A max of 63 characters is possible in the name structure.

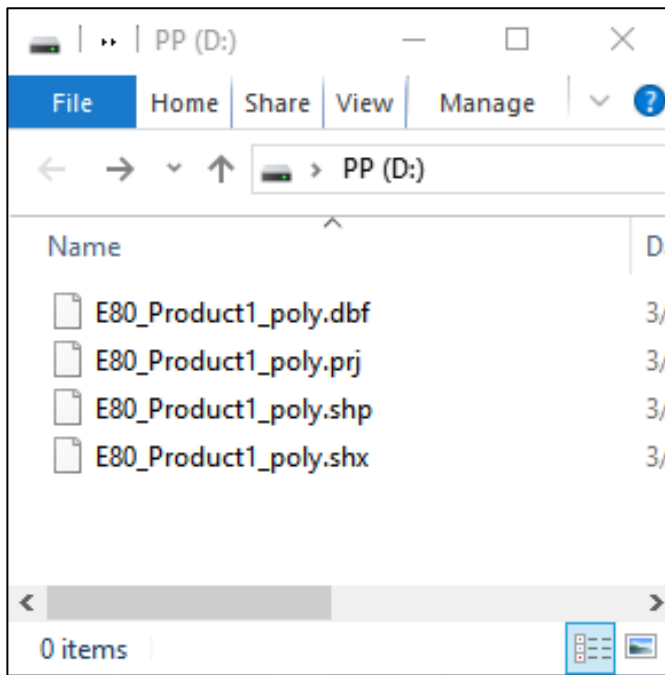
2

On a blank USB thumb drive, place the shapefiles at the highest level of the drive (i.e. D:E80_Product1_poly.shp).

3

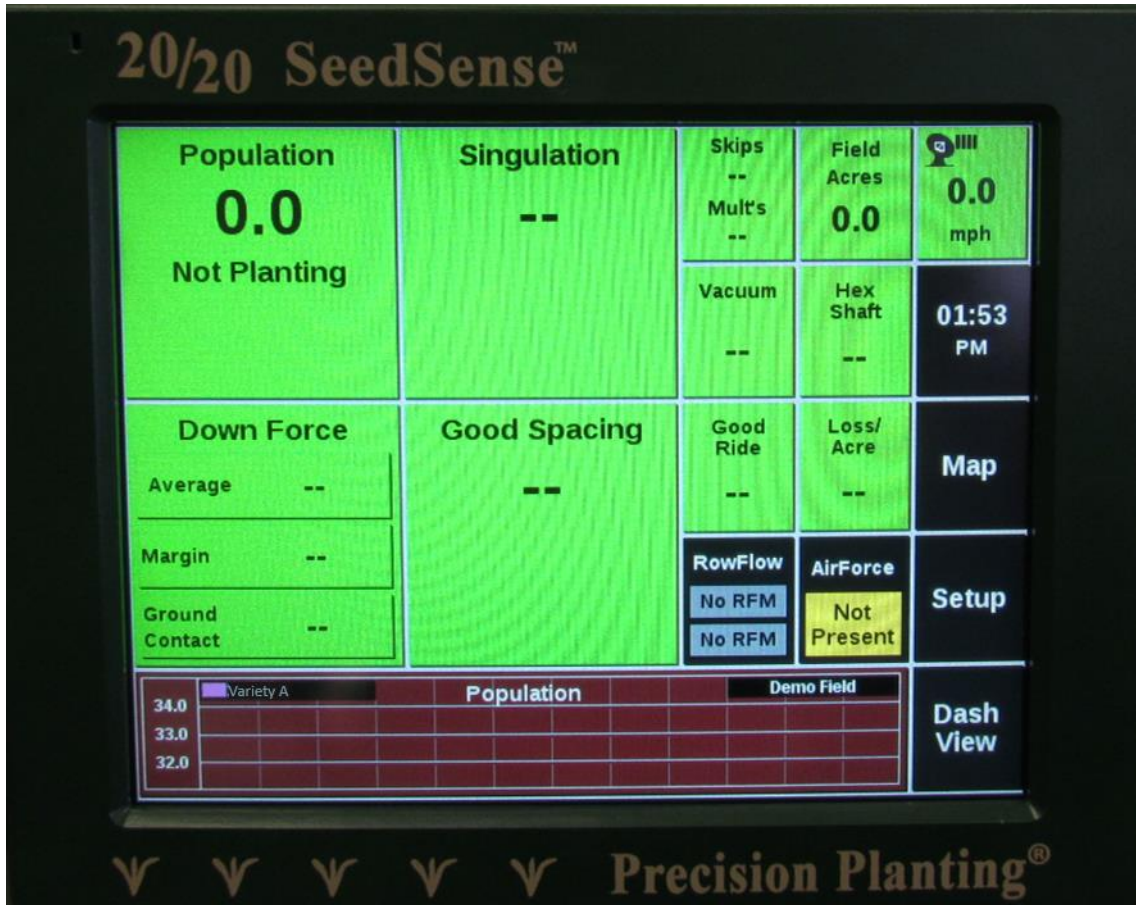
Using Windows Copy/Paste tools, copy all the individual shapefiles to the root drive of the flash drive. There are four files per field, so for a customer with more than one prescription per field, there will be several files on the flash drive.

Multiple VRS shapefiles can on the root of the drive. To help identify the correct shapefile to use in the field, use the field name and product name to name the shapefile.



Note: If VRS map isn't set to cover the whole field make sure to also export boundary files.

Importing VRS Prescription Files



Importing VRS Prescription Files 20/20 SeedSense

1

Insert the flash drive containing the files into a USB port either on the back or side of the display.



2

From the main planting screen press the **Setup**

Population 34.8	Singulation 99.5%	Skips 0.4% Mult's 0.2%	Field Acres 0.3	5.1 mph
Low 5: 34.6 High 11: 35.1	Low 10: 98.4% High 13: 99.9%	Vacuum L: 19.2 R: 20.3	Hex Shaft Good	Hold
Down Force Low 1: 120 lbs High 3: 163 lbs	Spacing 93.5%	Good Ride 97%	Loss/Acre \$6.55	Large Map
Margin 77 lbs		RowFlow Var Rate Swath	AirForce Disabled	Demo Mode Setup
Ground Contact 100%	Singulation Demo Field		Dash View	

3

Press the **Data** tab from the Setup & Configuration window.

Setup & Configuration				Home
Plant	Systems	Alerts	Diagnose	Data
Planter		Field Name		
Rows: 16	Active: All	Demo Field		
Spacing: 30 in		Acres Planted: 2.2 of 0.0		
Width: 40.0 ft		Version 8.00.08 Mar 19 2014		
Population		Corn Hybrids		
P1: 32,000	P2: 32,000	Variety A		
P3: 35,000	P4: 0			
P5: 0	P6: 0			
P7: 0	P8: 0			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16				Back

4

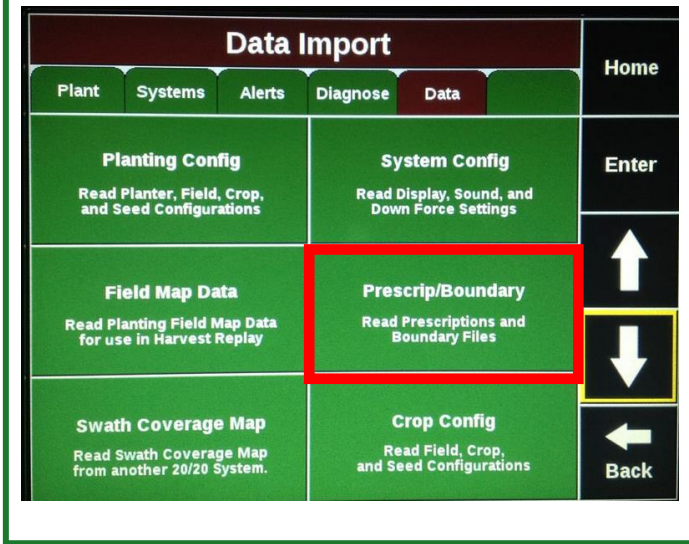
Press **Import** from the Data tab.

Setup & Configuration				Home
Plant	Systems	Alerts	Diagnose	Data
Export Save Data to a USB Drive or the Web		Import Read Data from a USB Drive or the Web		
Web Setup Requires a supported cellular modem and data plan		Software Update Update software from a USB Drive or the Web		
Delete Delete data from the system				
				Back

Importing VRS Prescription Files 20/20 SeedSense

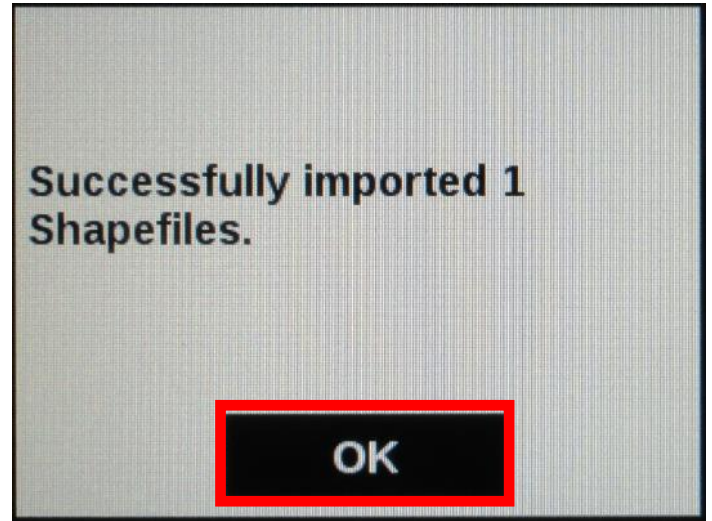
5

From the Data Import window press **Prescrip/Boundary** button.



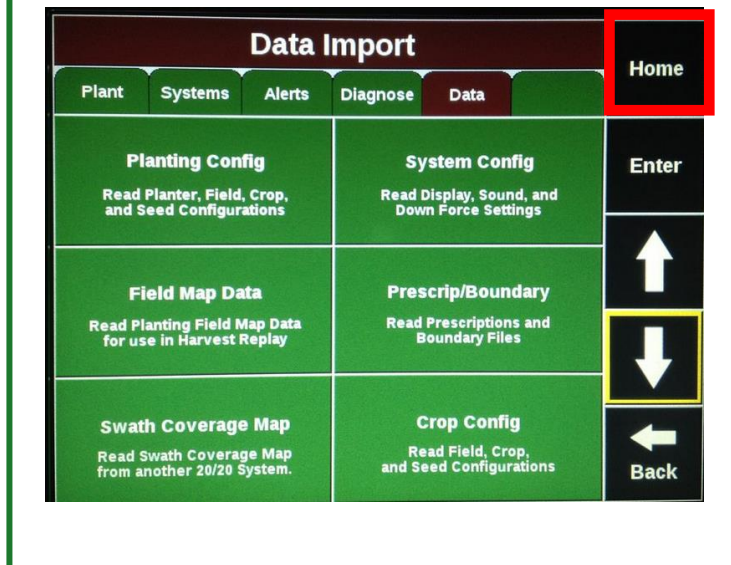
6

If the files were successfully imported you will see a message indicating how many Shapefiles were imported. Press **OK** to return the Data Import screen.

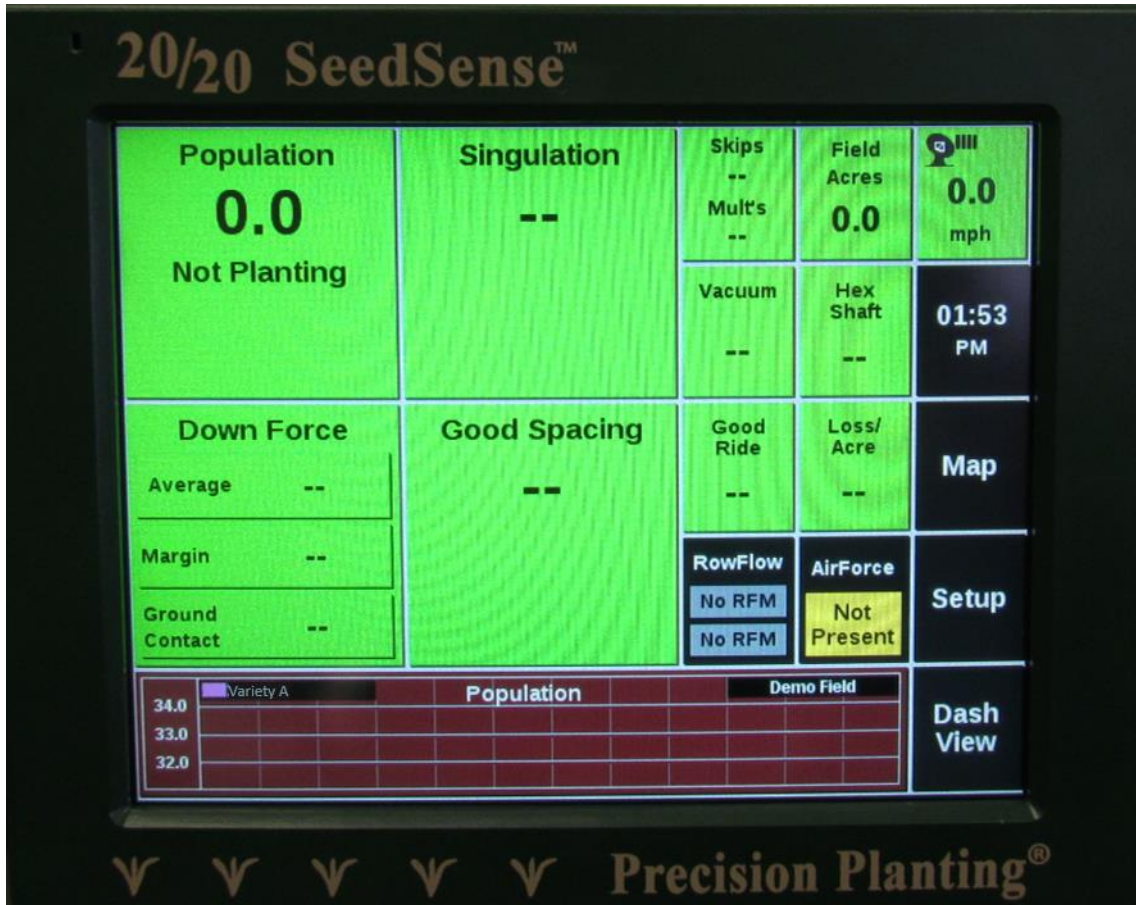


7

Press the **Home** button to return to the main planting screen.



Cleaning up Prescriptions



Cleaning up Prescriptions 20/20 SeedSense

1

From the main planting screen, press the **Setup** button.

The screenshot shows the main planting screen with various metrics and controls. The **Setup** button is highlighted with a red box. Other visible elements include:

- Population:** 31.9 (range 31.1 to 32.6)
- Singulation:** 99.4% (range 98.5% to 99.8%)
- Down Force:** 125 lbs (range 125 to 177 lbs)
- Good Spacing:** 94.5% (range 92.2% to 95.5%)
- Margin:** 85 lbs
- Ground Contact:** 100%
- Skips:** 0.4%
- Mult's:** 0.2%
- Field Acres:** 0.1
- 5.1 mph**
- Vacuum:** L: 17.1, R: 19.2
- Hex Shaft:** Good +1%
- Good Ride:** 97%
- Loss/Acre:** \$5.54
- RowFlow:** Var Rate, Swath
- AirForce:** Disabled
- Buttons:** Hold, Map, Demo Mode, Setup (highlighted), Clutch Active

2

Press the **Data** tab from the Setup & Configuration window.

The screenshot shows the **Setup & Configuration** window. The **Data** tab is highlighted with a red box. Other visible elements include:

- Home** button
- Version:** 2016.0, Feb 16 2016
- Planter:** Rows: 16, Active: All, Spacing: 30 in, Width: 40.0 ft
- Field Name:** Demo Field, Acres Planted: 1.2 of 0.0
- Population:** P1: 29,000, P2: 32,000, P3: 35,000, P4: 0, P5: 0, P6: 0, P7: 0, P8: 0
- Corn Hybrids:** (Color-coded selection area)
- Navigation:** Up, Down, Left, Back buttons
- Row Indicators:** 1 through 16

3

Press the **Delete** icon.

The screenshot shows the **Setup & Configuration** window with the **Delete** button highlighted in red. Other visible elements include:

- Home** button
- Version:** 2016.0, Feb 16 2016
- Export:** Save Data to a USB Drive or the Web
- Import:** Read Data from a USB Drive or the Web
- Web Setup:** Requires a supported cellular modem and data plan
- Software Update:** Update software from a USB Drive or the Web
- Delete:** Delete data from the system (highlighted)
- Navigation:** Up, Down, Left, Back buttons

4

Press on **Imported Prescriptions and Boundary Files**.

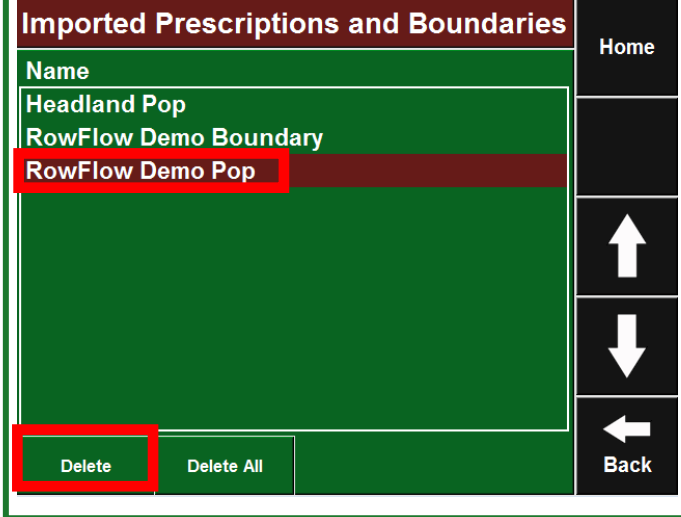
The screenshot shows the **Delete** window. The **Imported Prescriptions and Boundary Files** option is highlighted with a red box. Other visible elements include:

- Home** button
- Field Map Data:** Current planting season
- Old Field Map Data:** Previous planting seasons
- 20/20 Recorded Boundaries:** Boundary files that were recorded with the 20/20
- Imported Prescriptions and Boundary Files:** Prescriptions and boundaries that were imported into the 20/20 (highlighted)
- Old Coverage Map Data:** Previous planting seasons
- Navigation:** Up, Down, Left, Back buttons

Cleaning up Prescriptions 20/20 SeedSense

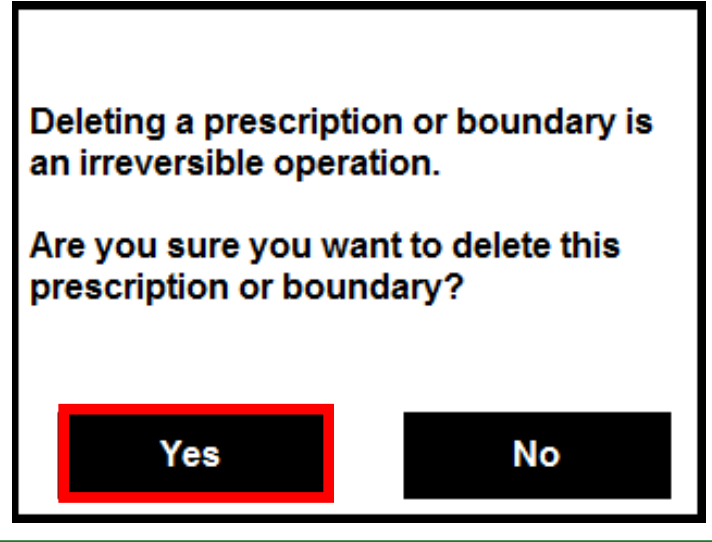
5

Press on the prescription name to highlight the file. Press **Delete** to delete the selection..

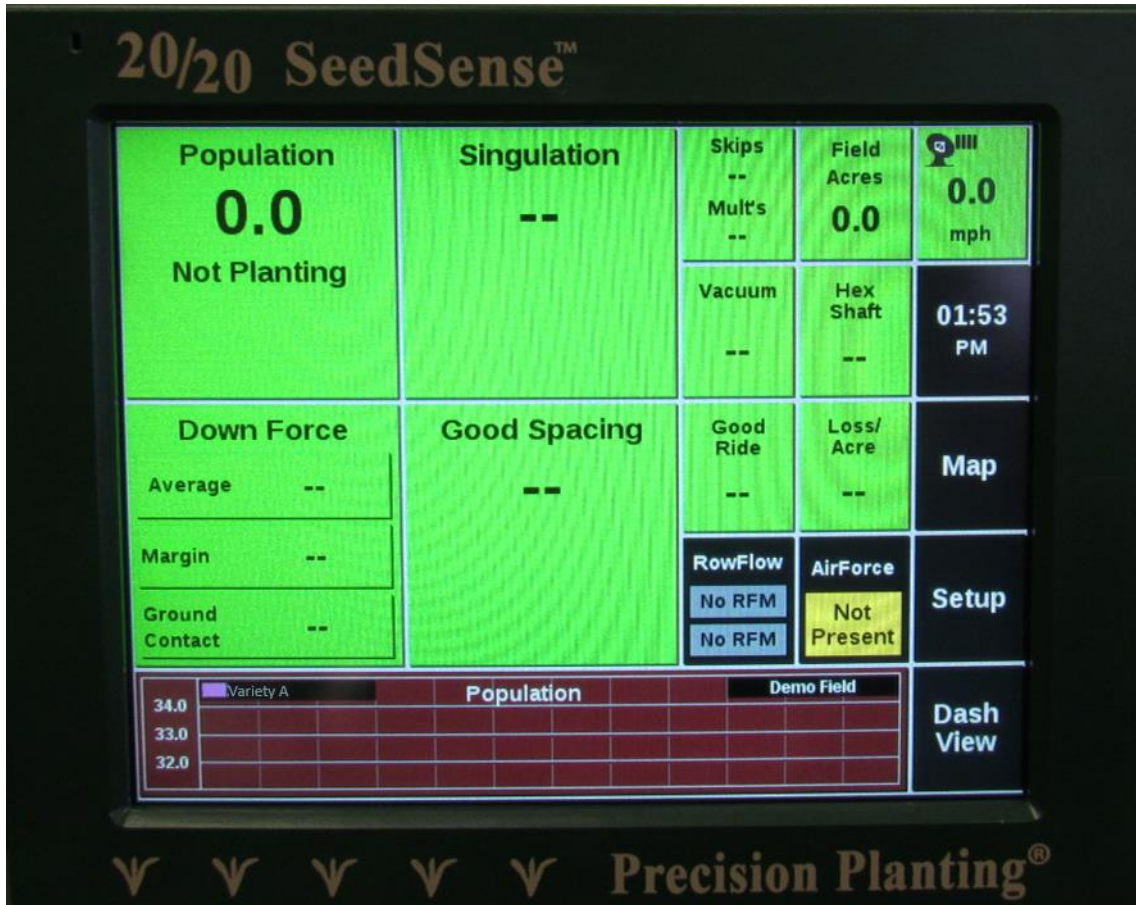


6

Press **Yes** to approve the removal of the file.



Selecting VRS Prescription Files



Selecting VRS Prescription Files

20/20 SeedSense

1

From the main planting screen, press the **Setup** button.

The main planting screen displays various metrics and controls. A red box highlights the **Setup** button located in the bottom right corner of the main data grid.

Population 0.0 Not Planting	Singulation --	Skips -- Mult's --	Field Acres 0.0	No GPS Readings
Down Force Average --	Good Spacing --	Good Ride --	Loss/Acre --	11:55 AM
Margin --		RowFlow No RFM	AirForce Not Present	Map
Ground Contact --				Setup

2

Press to select the **Field** area of the Setup & Configuration screen.

The Setup & Configuration screen has several tabs: Plant, Systems, Alerts, Diagnose, and Data. The **Field** area is highlighted with a red box.

Setup & Configuration				Home
Plant	Systems	Alerts	Diagnose	Data
Rows 24	Active All	Field Name Training		Version 7.72.10 Dec 23 2013
Spacing 30 in	Width 60.0 ft	Acres Planted 0.0 of 0.0		↑
Population		Corn Hybrids		
P1 41,000	P2 0	Variety A		
P3 0	P4 0	Variety B		
P5 0	P6 0	←		
P7 0	P8 0	Back		

3

Verify that the Client and Farm information is correct and press to select the desired field for the prescription map.

The Field Setup screen shows client and farm information. The **Training** field is highlighted in a red box.

Field Setup		Home
Client BCRF	Farm Farm	Create New
Select Field		↑
Training		↓
		←
		Back

4

From the Field Setup screen press to select the **Prescription** area.

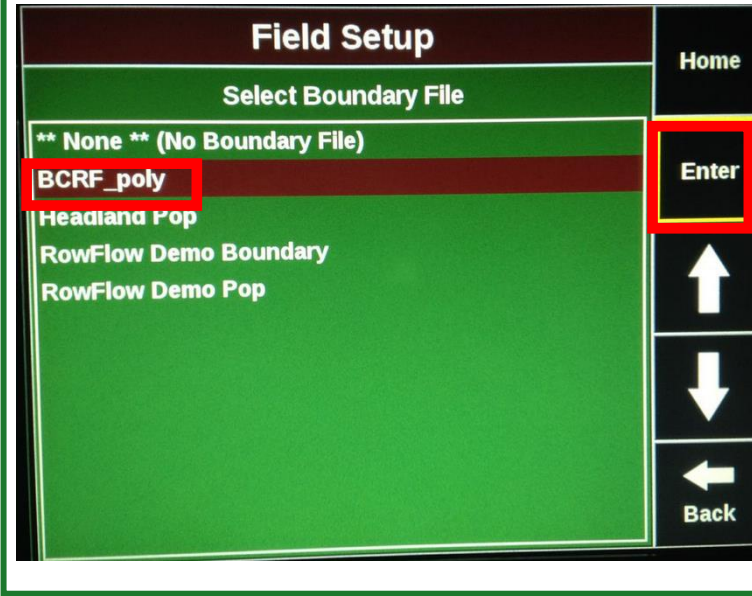
The Field Setup screen shows prescription details. The **Prescription** area is highlighted with a red box.

Field Setup			Home
Client / Farm BCRF Farm	Field Name Training	Entrance 0.00000 0.00000	Enter
Field Number	Tillage	Field Acres 0.0	
Prescription BCRF_poly		Delete Field	Delete Coverage Map
S1 Tgt_Rate_s	S2 Tgt_Rate_s		
Boundary File		←	
		Back	

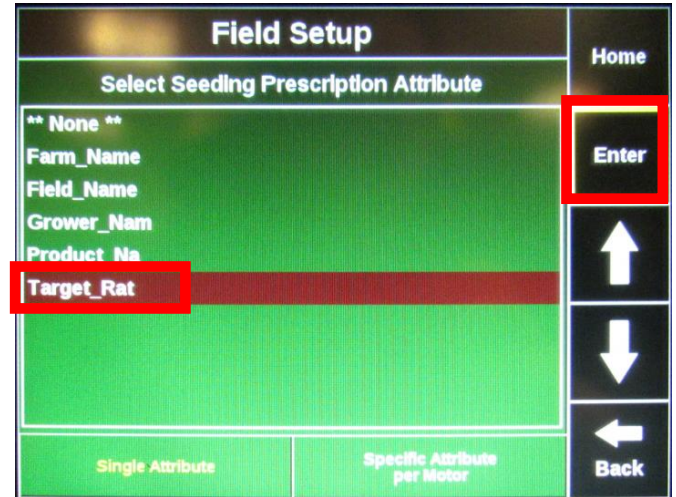
Selecting VRS Prescription Files

20/20 SeedSense

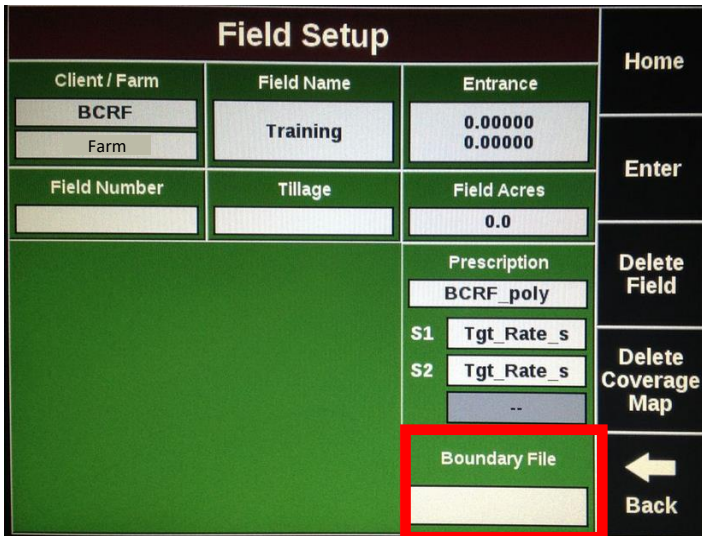
5 Press on the name of the prescription file that you wish to use. This will highlight it. Then press **Enter**.



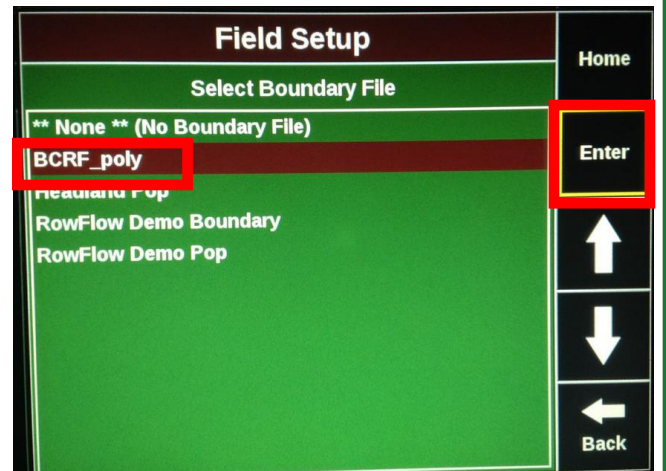
6 Press to highlight the seeding prescription attribute. Typical tags for this are: target rate, variety name, etc. Then press **Enter** to continue.



7 If you have a boundary file for the field, press the **Boundary File** area.



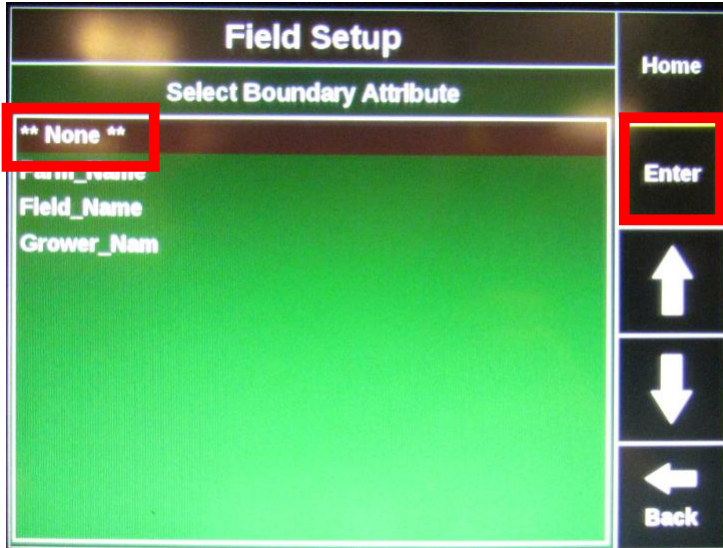
8 Press to highlight the boundary file you wish to use. Press **Enter** to continue



Selecting VRS Prescription Files 20/20 SeedSense

9

Leave the Boundary Attribute as None unless you wish to name the boundary with a Grower, Farm, or Field name. Press **Enter** to continue



10

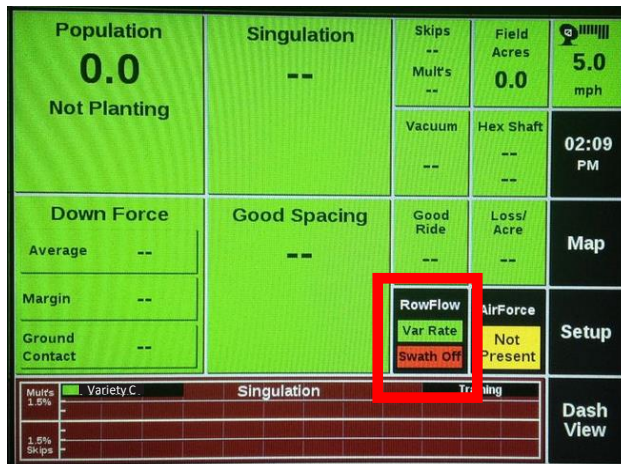
Press the **Home** button to return to the main planting screen.



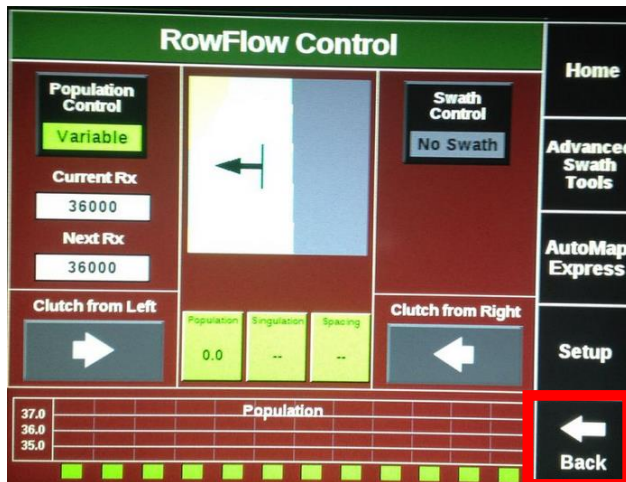
Note: If after doing this the map or data displayed under the Field area of the Setup window is not correct the field you are trying to assign the prescription to may not be active. Consult the grower on how to make the desired field active in the monitor.

Selecting VRS Prescription Files 20/20 SeedSense

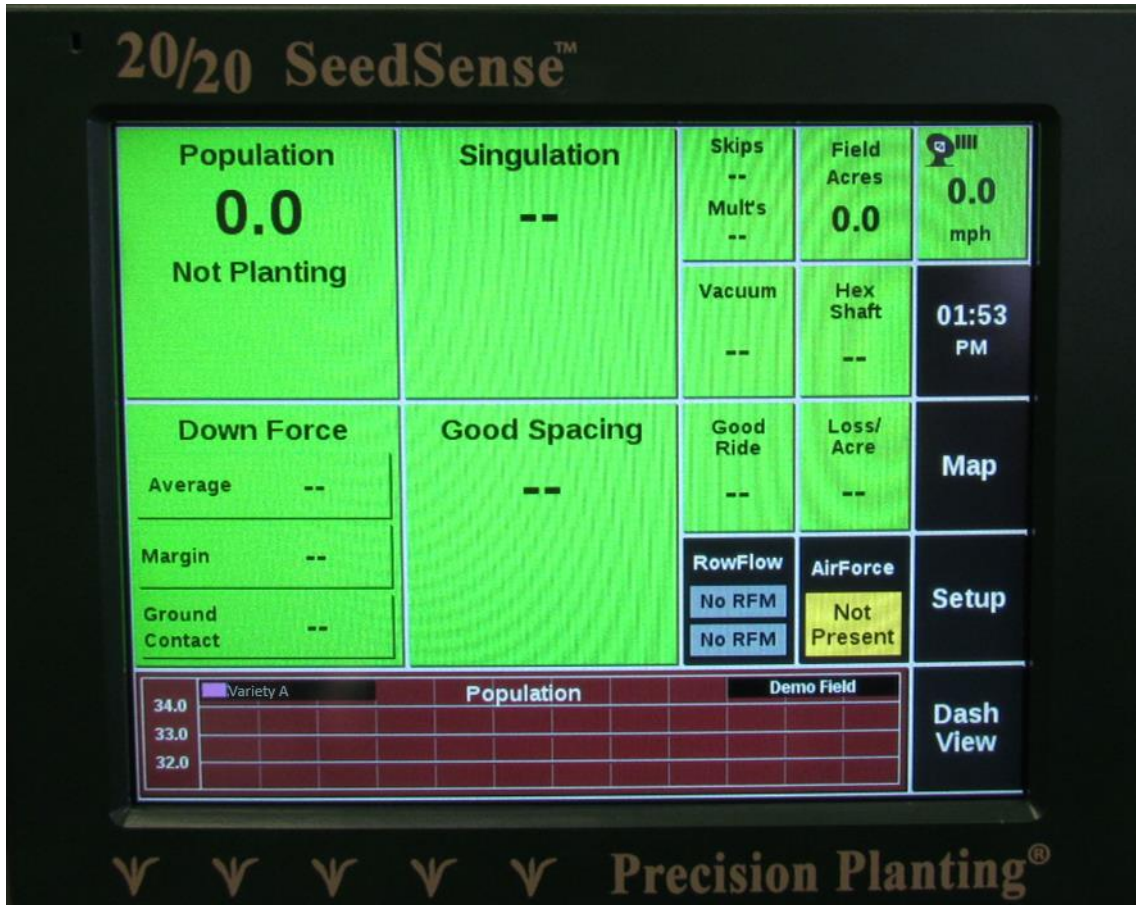
11 If the tractor is in the field corresponding to the prescription the RowFlow field should have a green box indicating it is planting the variable rate map. Press on the **RowFlow** field.



12 From the RowFlow Setup window you will be able to see the Current and Next Rate, if everything is working properly. Press **Back** to return to the main screen.



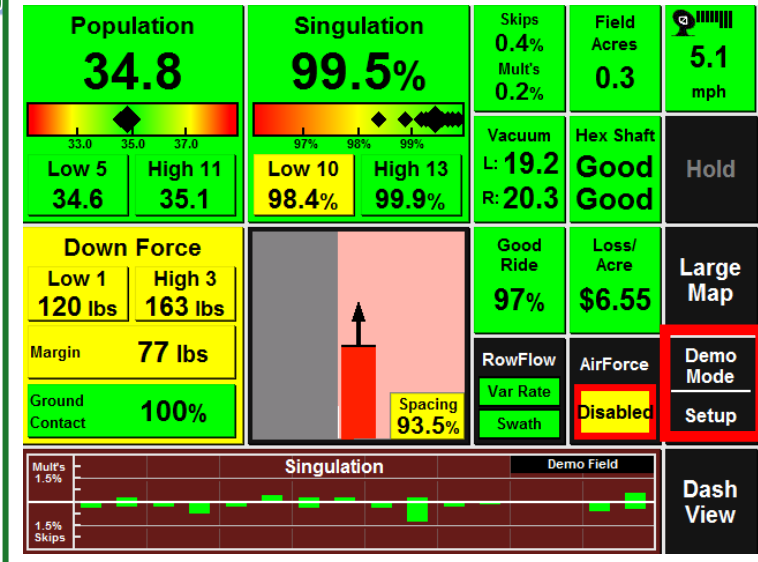
Creating Varieties For Planting



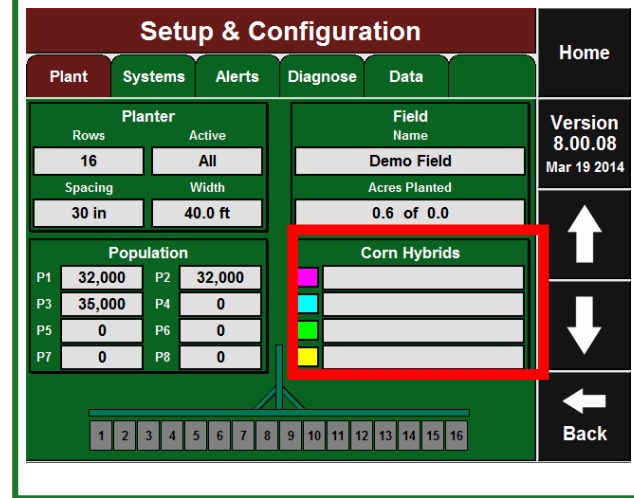
Creating Varieties For Planting

20/20 SeedSense

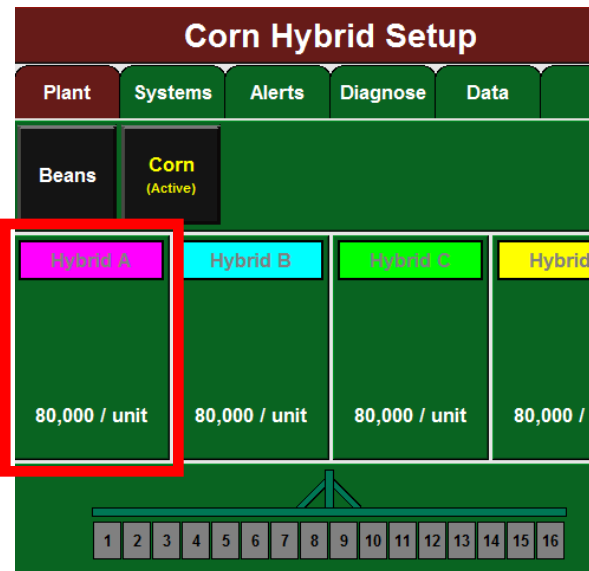
1 From the main planting screen press the **Setup** button.



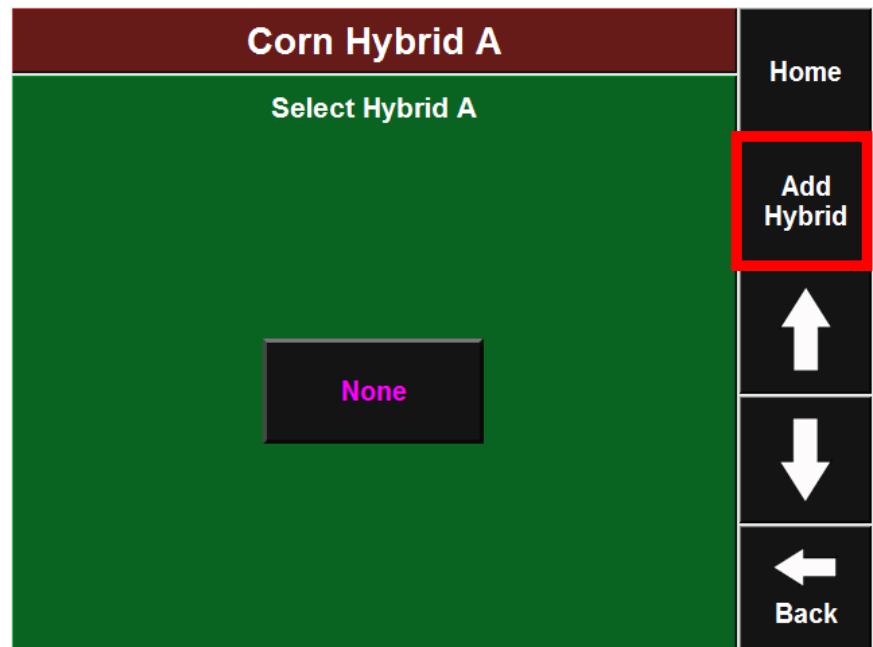
2 Press the **Corn Hybrids** box.



3 Be sure the correct crop is active. Press the **Hybrid** box you wish to assign a variety to.



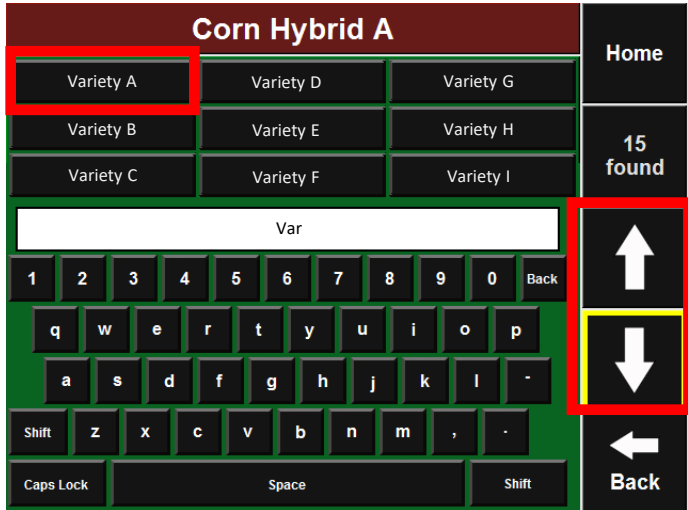
If the desired variety does not appear, press **Add Hybrid**.



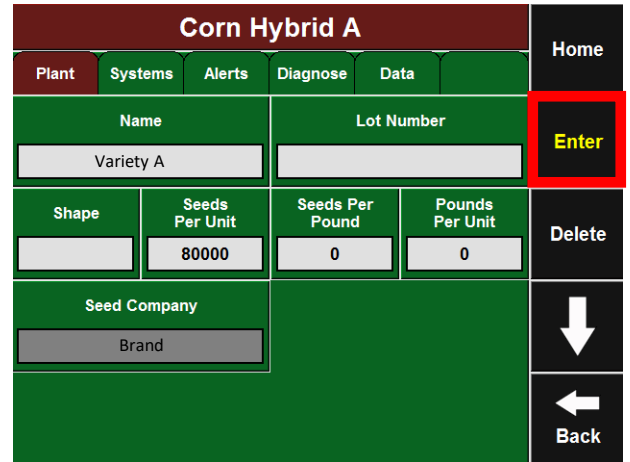
Creating Varieties For Planting

20/20 SeedSense

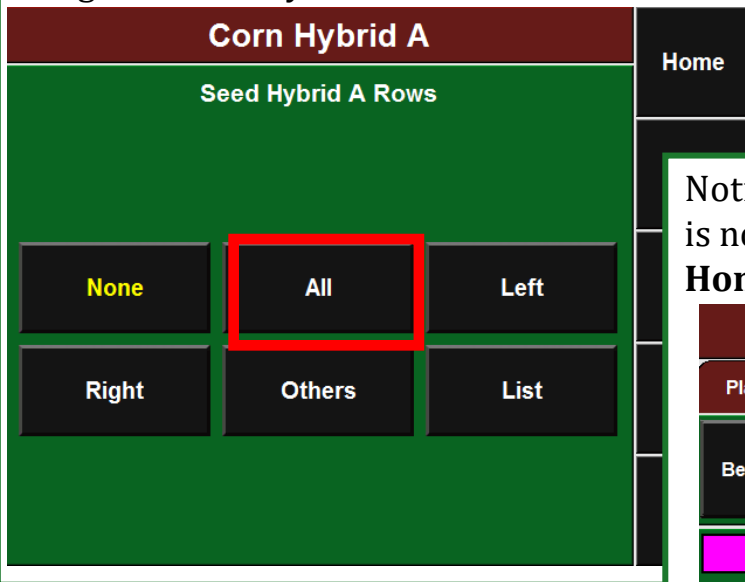
5 Using the keyboard, enter the name of the hybrid. Varieties matching the characters entered will appear. Press the arrow up/down keys to select the correct variety by pressing on it.



6 If you wish to record any other information pertaining to this hybrid enter it in this screen. When complete press **Enter**.



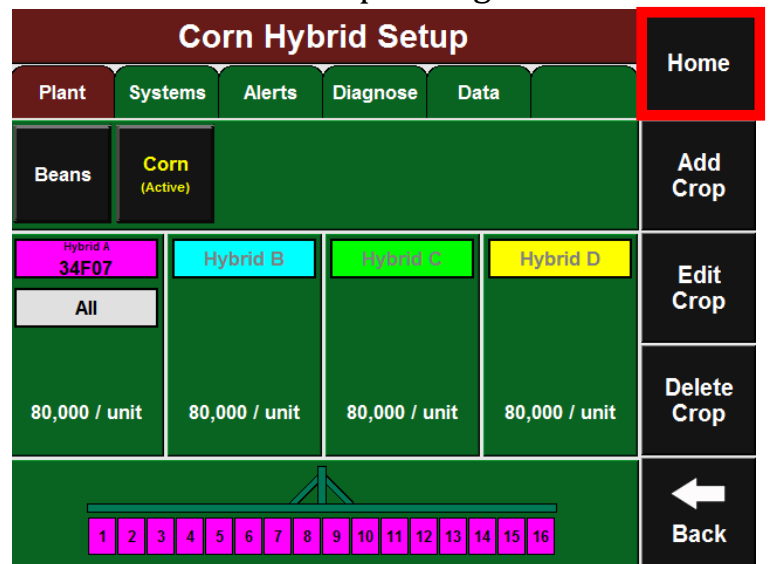
7 Press to select which rows you would like to assign this variety to.



Note: The 20/20 SeedSense will allow you to apply up to four varieties at the same time.

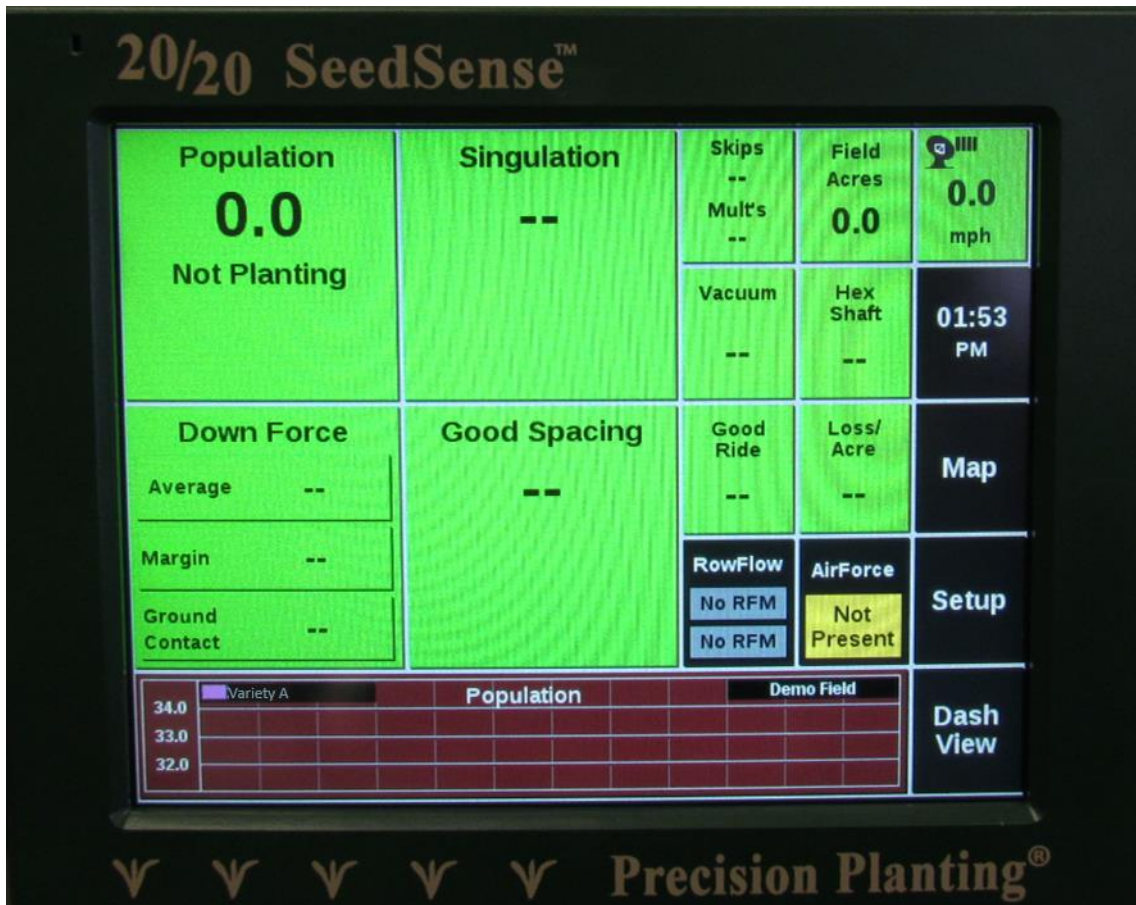
8

Notice how the color associated with that variety is now assigned to all rows on the planter. Press **Home** to return to the planting screen.



Note: If using an older software version, pre-V8.0, the entire variety will need to be manually entered.

Cleaning up Varieties



Cleaning up Varieties

20/20 SeedSense

1

From the main planting screen press the **Setup** button.

The screenshot shows the main planting screen with various metrics and controls. The **Setup** button is highlighted in a red box. Other visible elements include:

- Population:** 35.0 (Target 29.0), 34.7 (Target 35.0). Low 4: 34.1, High 2: 35.8. Down Force: Low 1: 139 lbs, High 3: 173 lbs. Margin: 91 lbs. Ground Contact: 100%.
- Singulation:** 99.5%. Low 10: 98.6%, High 5: 99.9%. Spacing: 93.8%.
- Skips:** 0.4% Mult's, 0.1%.
- Field Acres:** 8.4.
- Speed:** 5.1 mph.
- Vacuum:** L: 20.3, R: 20.3.
- Hex Shaft:** +19% (L), +2% (R).
- Good Ride:** 98%.
- Loss/Acre:** \$5.78.
- RowFlow:** Var Rate, Swath.
- AirForce:** Disabled.
- Large Map** and **Dash View** buttons.

2

Press the **Corn Hybrids** box.

The screenshot shows the **Setup & Configuration** screen. The **Corn Hybrids** box is highlighted in a red box. Other visible elements include:

- Plant** (selected), **Systems**, **Crops**, **Diagnose**, **Data** tabs.
- Home** button.
- Version:** 2016.0, Feb 16 2016.
- Planter:** Rows: 16, Active: All, Spacing: 30 in, Width: 40.0 ft.
- Field Name:** Demo Field, Acres Planted: 8.9 of 0.0.
- Population:** P1: 29,000, P2: 32,000, P3: 35,000, P4: 0, P5: 0, P6: 0, P7: 0, P8: 0.
- Corn Hybrids:** Variety A (highlighted), and other hybrid options.
- Navigation:** Up, Down, and Back buttons.
- Field Map:** A row of 16 numbered boxes (1-16) at the bottom.

3

Press on a **Hybrid** box to get to varieties.

The screenshot shows the **Corn Hybrid Setup** screen. The **Hybrid A** box is highlighted in a red box. Other visible elements include:

- Home** button.
- Corn (Active)** status.
- Change/Edit Crop** button.
- Hybrid A:** Variety A, All, 80,000 / unit.
- Hybrid B:** 80,000 / unit.
- Hybrid C:** 80,000 / unit.
- Hybrid D:** 80,000 / unit.
- Field Map:** A row of 16 numbered boxes (1-16) at the bottom.
- Back** button.

Cleaning up Varieties 20/20 SeedSense

4

Press on the **Hybrid number** that needs to be deleted.

Corn Hybrid A		Home
Select Hybrid A		Add Hybrid
Variety B	Variety A	↑
Variety C	None	↓
		← Back

5

Press on **Delete**.

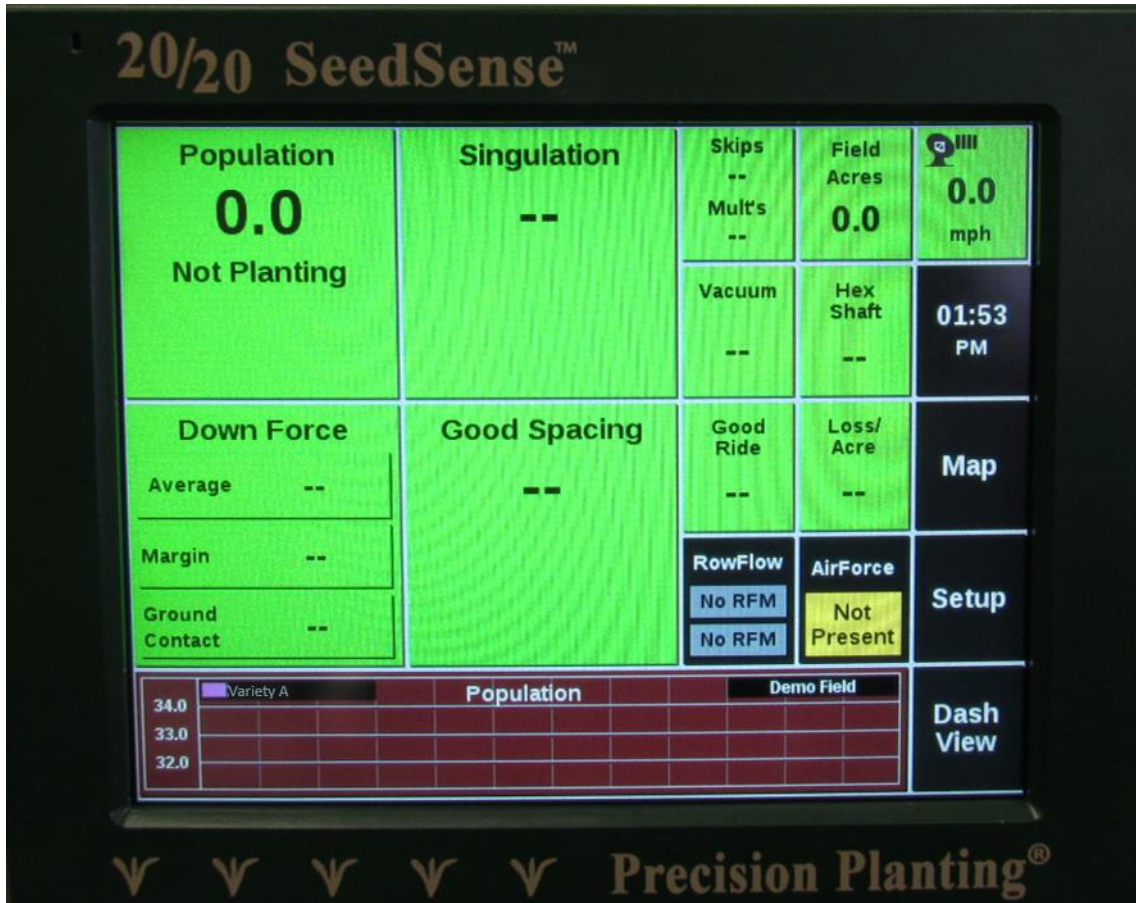
Corn Hybrid A				Home	
Plant	Systems	Crops	Diagnose	Data	
Name		Lot Number		Enter	
Variety C					
Shape	Seeds Per Unit	Seeds Per Pound	Pounds Per Unit	Delete	
	80000	0	0		
Seed Company				↓	
Brand				← Back	

6

Press **Yes** to approve the deleting process.

Are you sure that you want to delete the selected seed hybrid?	
Yes	No

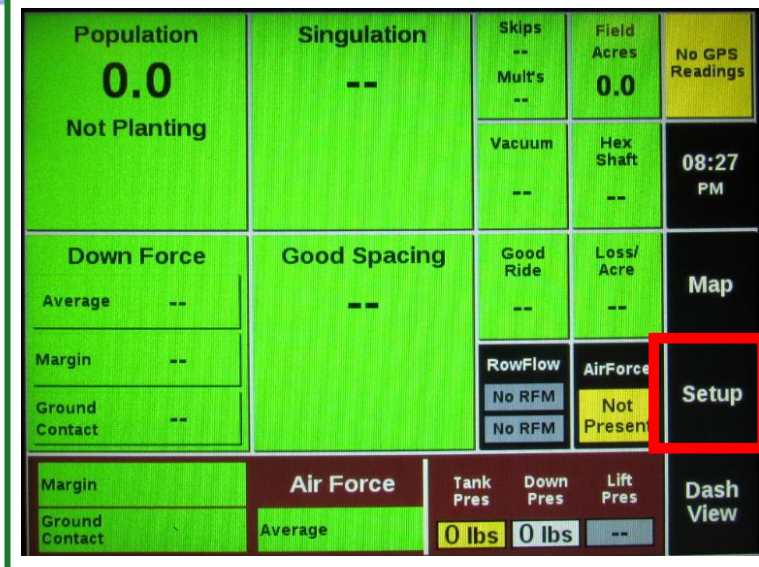
Setting Up Split Planter Treatment Data



Setting Up Split Planter Treatment Data

20/20 SeedSense

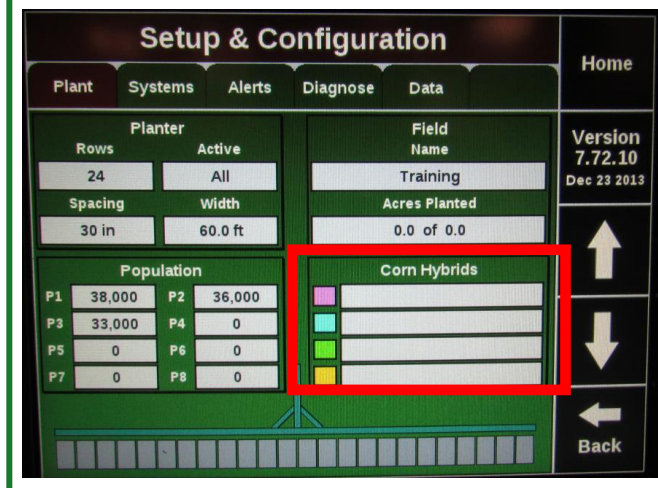
1 From the main planting screen, press the **Setup** button.



The main planting screen displays various metrics and controls. A red box highlights the **Setup** button in the bottom right corner.

Population 0.0 Not Planting	Singulation --	Skips -- Mult's --	Field Acres 0.0	No GPS Readings
Down Force Average --	Good Spacing --	Good Ride --	Loss/Acre --	08:27 PM
Margin --		RowFlow No RFM	AirForce Not Present	Setup
Ground Contact --		Tank Pres 0 lbs	Down Pres 0 lbs	Lift Pres --
Margin	Air Force Average			Dash View
Ground Contact				

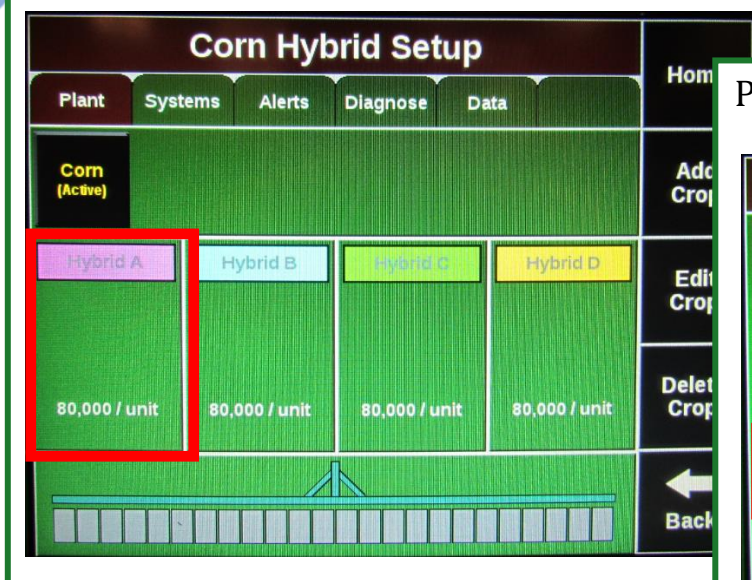
2 Press to select the Crop (Corn) Hybrids box.



The Setup & Configuration screen shows various settings. A red box highlights the **Corn Hybrids** section.

Setup & Configuration				Home
Plant	Systems	Alerts	Diagnose	Data
Rows 24	Active All	Field Name Training		Version 7.72.10 Dec 23 2013
Spacing 30 in	Width 60.0 ft	Acres Planted 0.0 of 0.0		↑
Population		Corn Hybrids		
P1 38,000	P2 36,000			↓
P3 33,000	P4 0			←
P5 0	P6 0			Back
P7 0	P8 0			

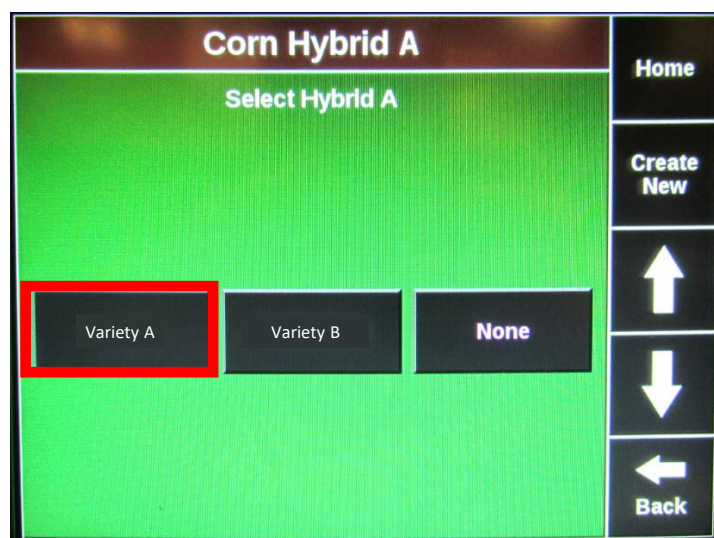
3 From the Hybrid Setup window, press to select the **Hybrid A** box.



The Corn Hybrid Setup screen displays a table of hybrid options. A red box highlights the **Hybrid A** box.

Corn Hybrid Setup				Home
Plant	Systems	Alerts	Diagnose	Data
Corn (Active)				Add Crop
Hybrid A	Hybrid B	Hybrid C	Hybrid D	Edit Crop
80,000 / unit	80,000 / unit	80,000 / unit	80,000 / unit	Delete Crop
				Back

4 Press to select one of the desired hybrids.



The Corn Hybrid A screen shows a selection menu. A red box highlights the **Variety A** button.

Corn Hybrid A		Home
Select Hybrid A		Create New
Variety A	Variety B	None
		↑
		↓
		←
		Back

Setting Up Split Planter Treatment Data

20/20 SeedSense

4 If you wish to record any other information pertaining to this hybrid enter it in this screen. When complete press **Enter**.

Corn Hybrid A				Home
Plant	Systems	Alerts	Diagnose	Data
Name		Lot Number		Enter
Variety A				
Shape	Seeds Per Unit	Seeds Per Pound	Pounds Per Unit	Delete
	80000	0	0	
				↓
				← Back

5 Press to select which rows of the planter you would like to apply the selected variety with. **For example, Left.**

Corn Hybrid A			Home
Seed Hybrid A Rows			Enter
None	All	Left	
Right	Others	List	↓
			← Back

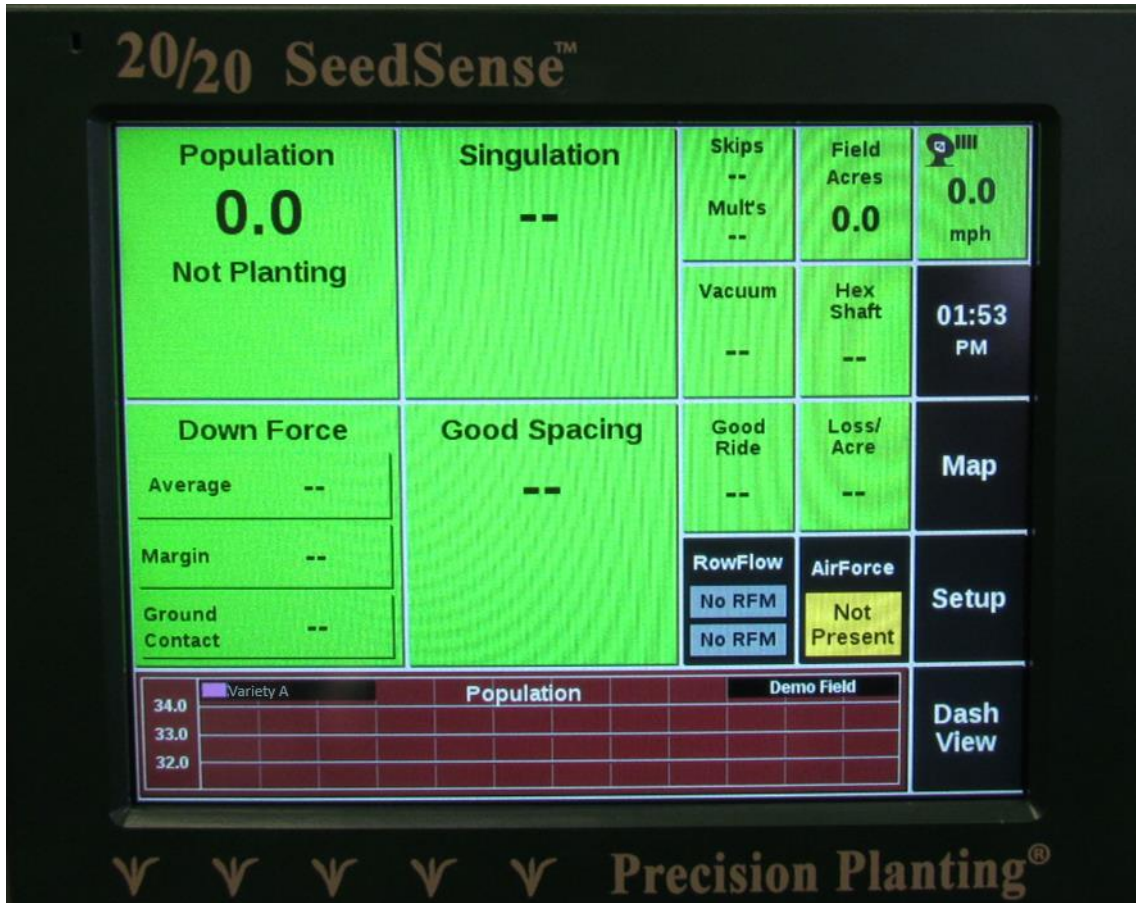
6 Press the **Hybrid B** field and repeat steps 4-6 for the second variety. Press the **Back** button when complete.

Corn Hybrid Setup				Home
Plant	Systems	Alerts	Diagnose	Data
Corn (Active)				Add Crop
Hybrid A Variety A	Hybrid B Variety B	Hybrid C	Hybrid D	Edit Crop
Left	Right			Delete Crop
80,000 / unit	80,000 / unit	80,000 / unit	80,000 / unit	
				← Back

7 You can review the Hybrids being used and what rows they are assigned from the Setup & Configuration screen. If everything appears correct press the **Home** button to return to the main planting screen.

Setup & Configuration				Home
Plant	Systems	Alerts	Diagnose	Data
Planter		Field Name		Version 7.72.10 Dec 23 2013
Rows	Active	Training		
24	All	Acres Planted		
Spacing		0.0 of 0.0		
30 in	60.0 ft			
Population		Corn Hybrids		
P1 38,000	P2 36,000	Variety A		
P3 33,000	P4 0	Variety B		
P5 0	P6 0			
P7 0	P8 0			
				↑
				↓
				← Back

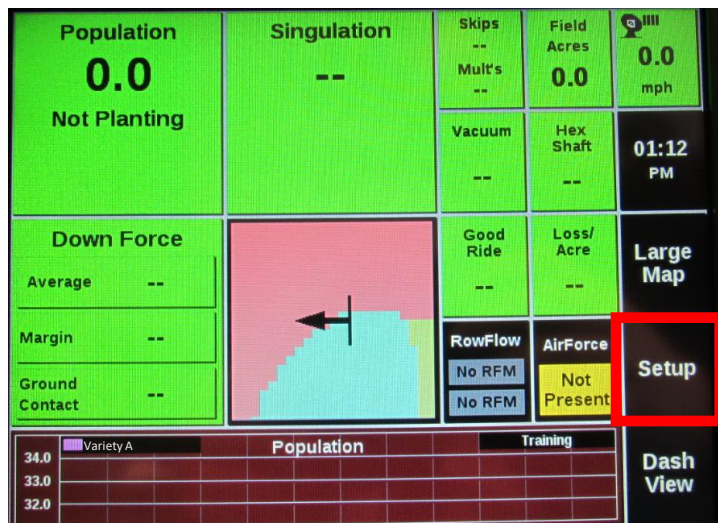
Exporting As-Applied Planter Files



Exporting As-Applied Planting Files

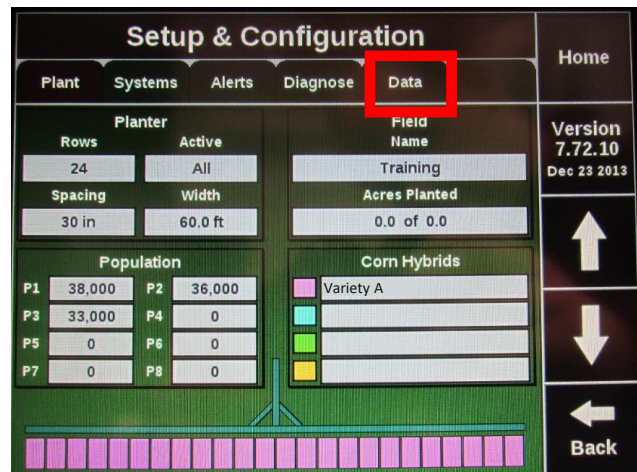
20/20 SeedSense

1 From the main planting screen press the **Setup** button.

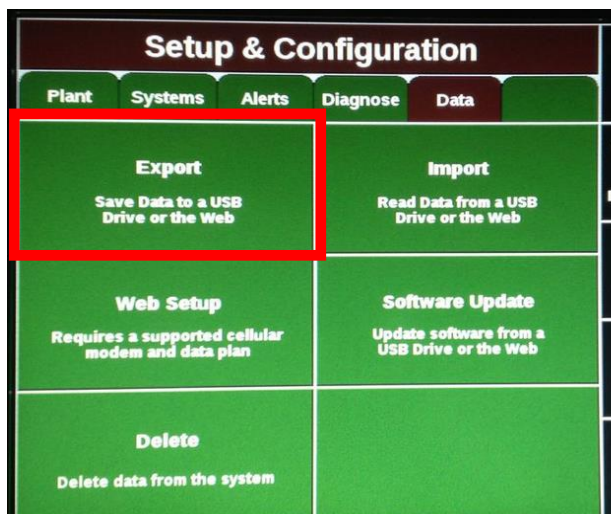


2

From the Setup & Configuration screen press to select the **Data** tab.

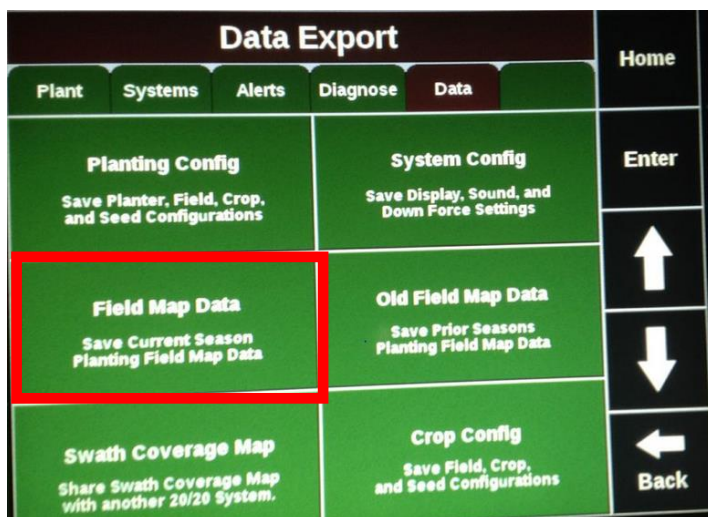


3 Press **Export** from the options within the Data tab.



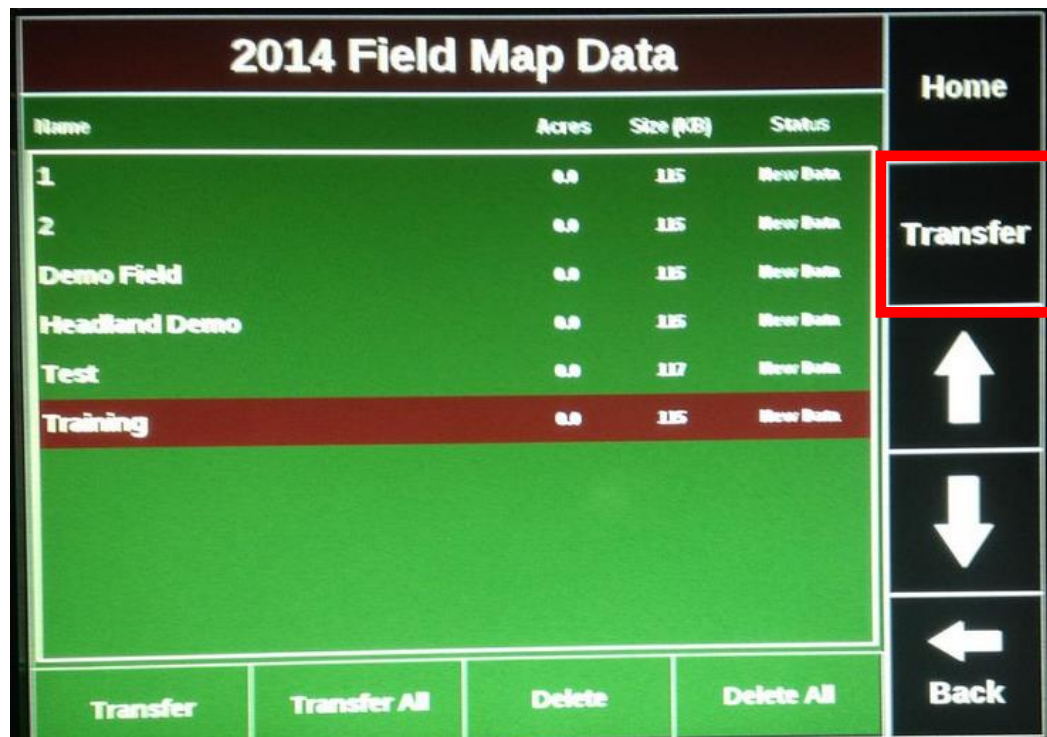
4

From the Data Export window press **Field Map Data**.



Exporting As-Applied Planting Files 20/20 SeedSense

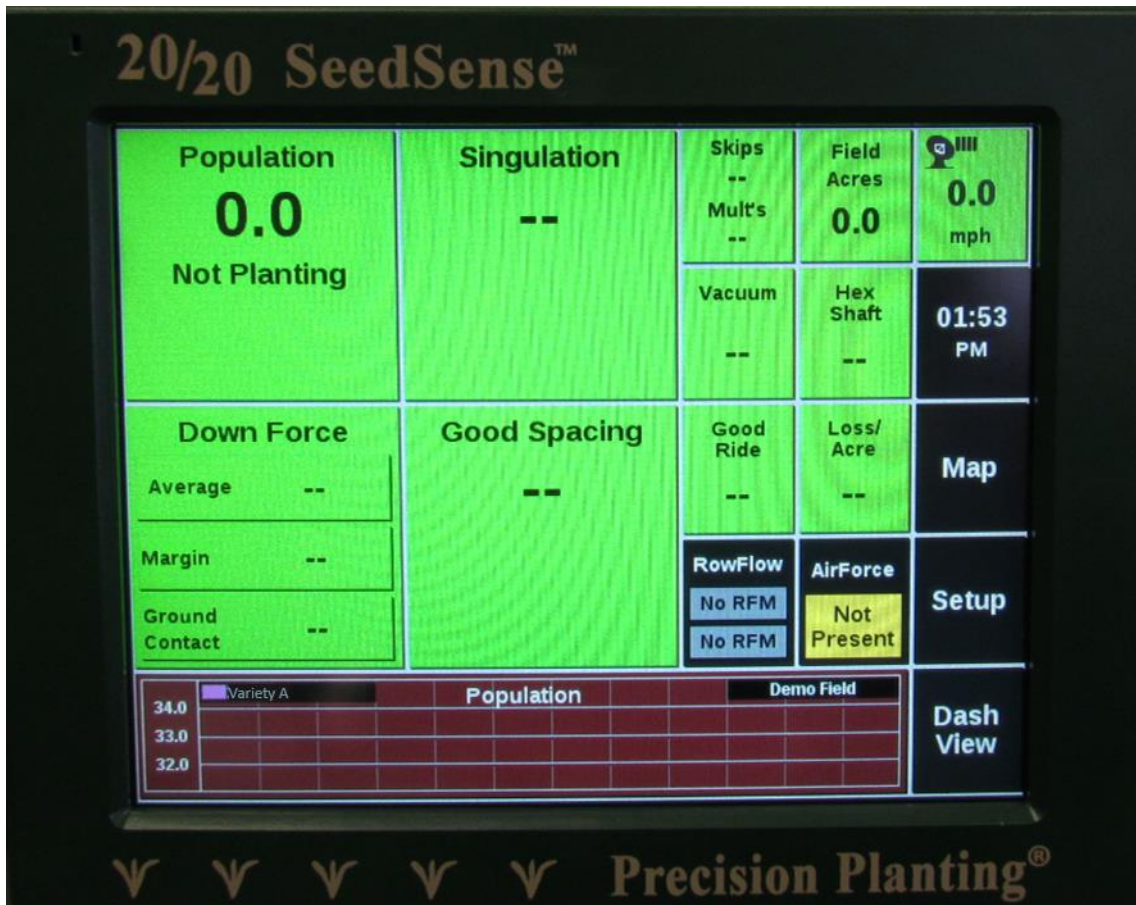
- 5** From the Field Map Data window you can choose what field(s) you would like to export data for. You can select an individual field by pressing on the name to highlight it or at the bottom notice you can transfer all. When you have made your selection press the **Transfer** button.



- 6** Once the transfer is complete, a message will appear letting you know this export was successful. Press the **OK** button to acknowledge this and then the **Home** icon to return to the main planting screen.

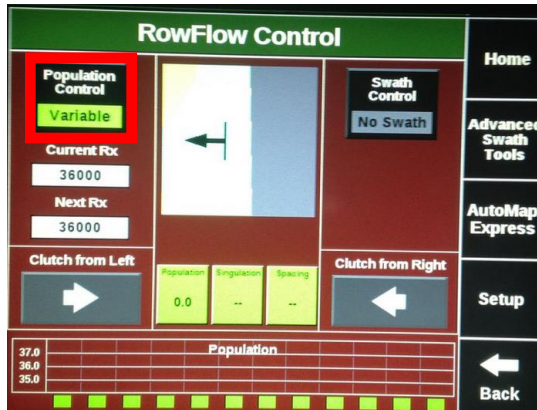


Trouble Shooting



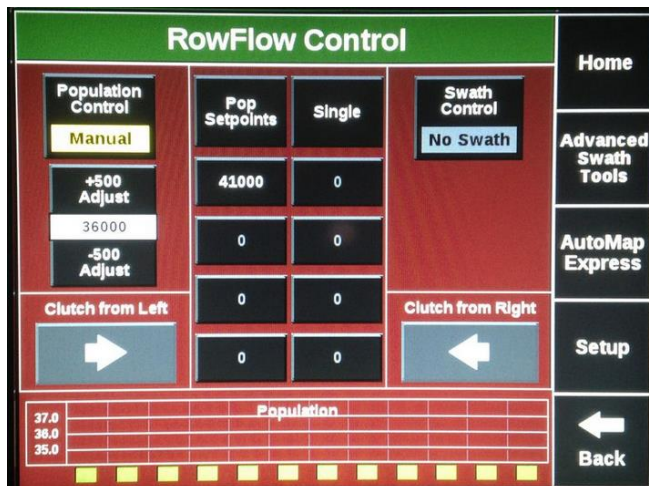
1

If the rate needs to be adapted or to change the seeding rate from the prescription to manual open the RowFlow control screen and press to select **Population Control**. Press **Manual**.



2

Once the Population Control has been switched to Manual and rate will need to be entered.



Content written by Christopher Murphy, Program Coordinator II, Iowa State University Department of Agricultural and Biosystems Engineering.

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