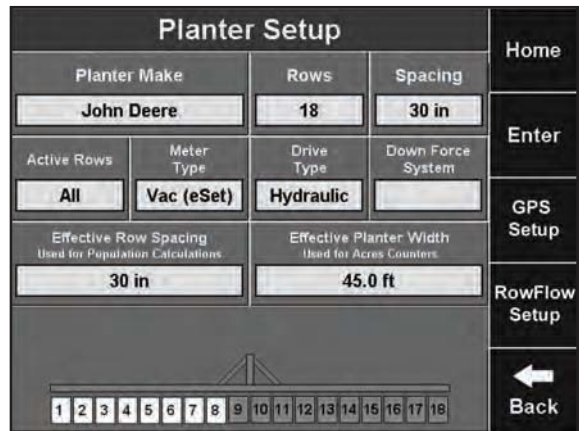


Setup and Configuration

Configuring your Planter

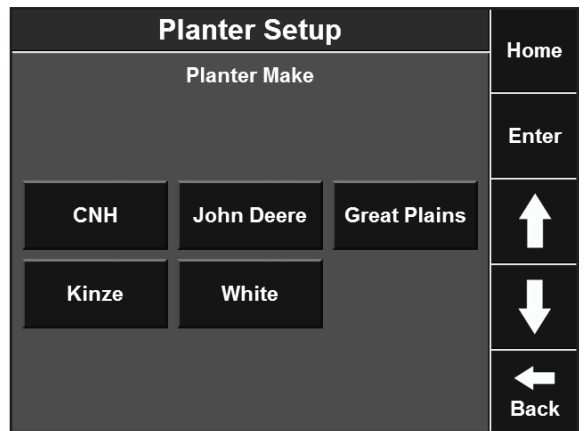
Step 1: Planter Setup

To configure your planter in the SeedSense screen, press the **SETUP** button on the dashboard screen and then select the **PLANTER** button in the top left of the Plant tab. This screen shows each configuration that can be set for your planter. The planter diagram at the bottom of the screen will change to reflect changes you make in planter setup.



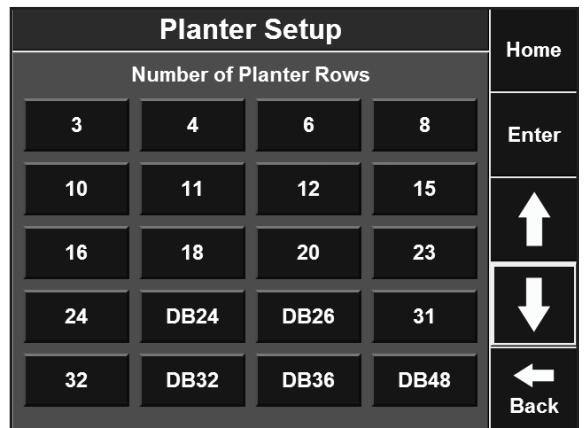
Step 2: Planter Make

Press the **PLANTER MAKE** button. Choose the appropriate make for your planter. Choosing the planter make will define some of the choices available in later selection screens.



Step 3: Number of Planter Rows

Press the **ROWS** button. Choose the number of rows on your planter. Use the arrow at the right side of the screen for more options. Under the selections for John Deere, the DB options refer to the number of rows (i.e. "DB48" refers to a 48 row Deere Bauer not a 48' Bauer bar). You will enter the total number of rows for your planter and use the active rows feature to define which ones are planting.



Setup and Configuration (Continued)

Step 4: Row Spacing

Press the SPACING button. Choose the spacing for the rows on your planter when all rows are planting. If the appropriate spacing is not available, press OTHER to manually enter the row spacing.

Planter Setup				Home
Row Spacing				Enter
15 in	20 in	22 in	30 in	↑
36 in	38 in	40 in	Other	↓
				← Back

Step 5: Active Rows

Press the ACTIVE ROWS button. Define which planter rows will be active. The system defaults to "All". You may also select from "Left", "Right", "Odd", or "Even" primarily for use on split row planters when only planting on half your rows. You may also select "List" to define specific rows that are planting or not planting, an application primarily used when planting seed corn.

Planter Setup			Home
Active Rows			Enter
All	Odd	Even	↑
Left	Right	List	↓
			← Back

Step 6: Meter Type

Press the METER TYPE button. Select the type of meters on your planter from the list. Pressing OTHER allows you to type in a meter type if yours is not in the list provided.

Planter Setup			Home
Meter Type			Enter
Finger (Kinze)	Finger (JD)	Finger (PP)	↑
Pos+ Air (White)	Vac (CNH)	Vac (eSet)	↓
Vac (JD cell)	Vac (JD flat)	Other	← Back

Step 7: Drive Type

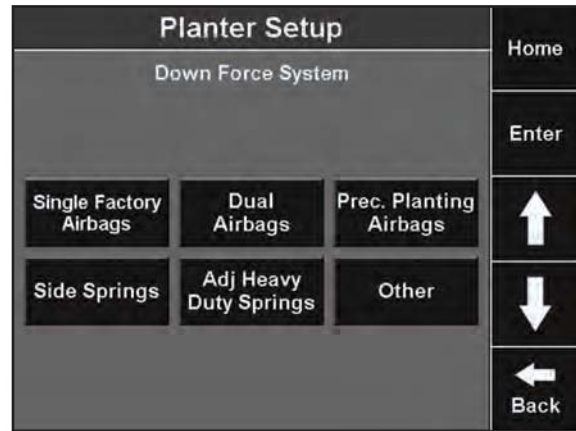
Press the DRIVE TYPE button. Select your planter drive type from the list. Again, pressing OTHER allows you to manually enter a drive type.

Planter Setup			Home
Drive Type			Enter
Ground	Hydraulic	Other	↑
			↓
			← Back

Setup and Configuration (Continued)

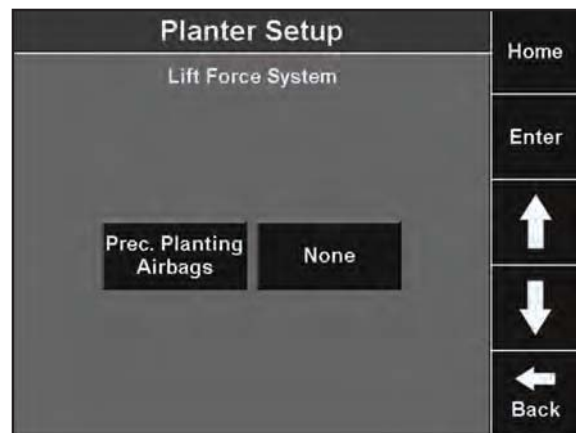
Step 8: Down Force System

Press the DOWN FORCE SYSTEM button. Select your down force system from the list or press OTHER to manually enter a different option. Note: The selection “Dual Factory Airbags” refers to the original John Deere pneumatic down force system which used two smaller bags side-by-side for down pressure.



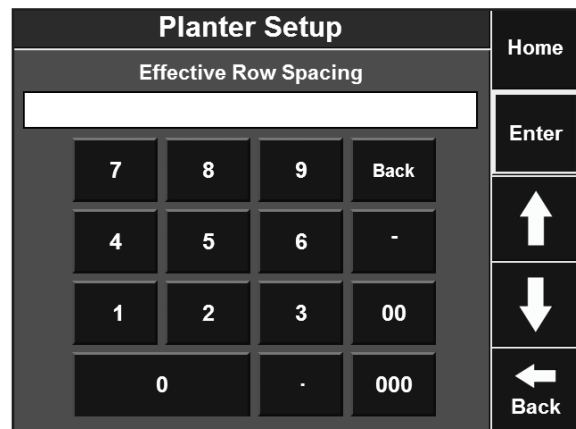
Step 9: Lift Force System

After you have selected your down force system, select your Lift Force System.



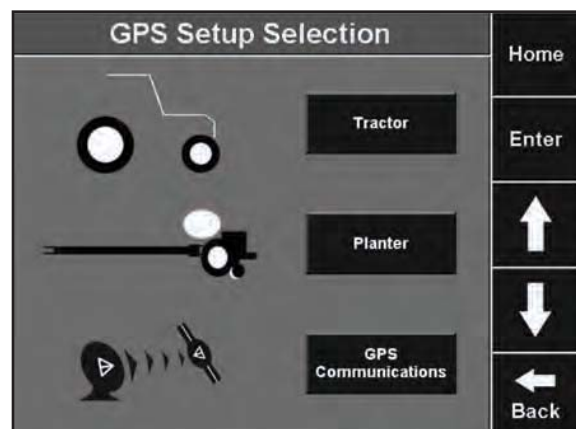
Step 10: Effective Row Spacing and Effective Planter Width

These values are automatically calculated based on row width, number of rows, and active rows. They can be manually changed by pressing the button and entering a new value.



Step 11: GPS Setup

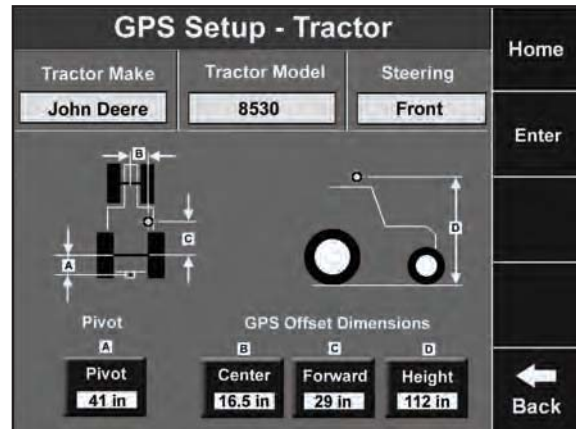
Press the GPS SETUP button on the right side of the screen.



Setup and Configuration (Continued)

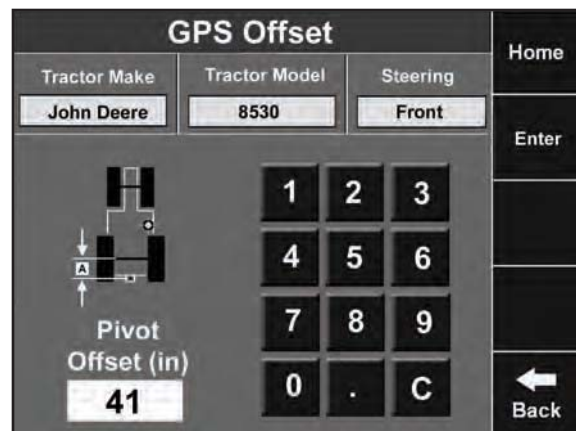
Step 12: GPS Setup – Tractor

Press the TRACTOR button. This screen allows you to enter measurements on your tractor so that the SeedSense can more accurately display your coverage map. Entering your TRACTOR MAKE and TRACTOR MODEL provide useful troubleshooting information. Press each button to enter the information. At this time, FRONT is the only steering option available.



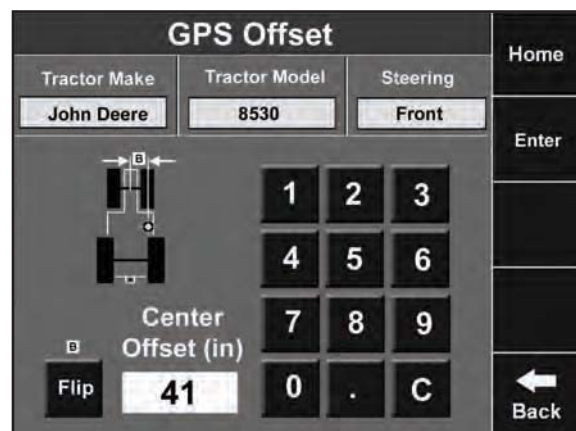
Step 13: Pivot Offset

Press the PIVOT button. Measure the distance from the rear axle of the tractor to the pivot point. Enter the distance in inches (or centimeters if the display is set to Metric units). Press ENTER.



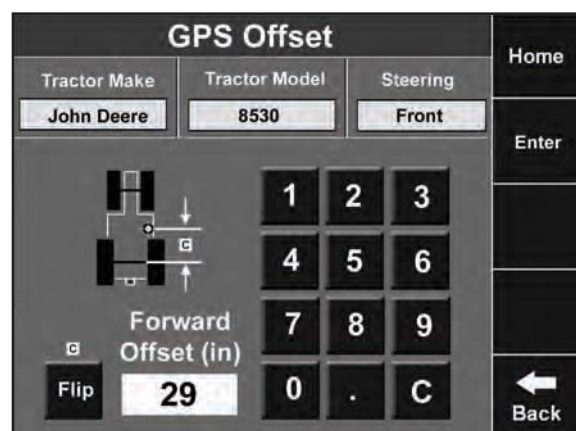
Step 14: Center Offset

Press the CENTER button. Measure the distance to the right or left of the center line of the tractor from your GPS antenna and enter it. Use the flip button to change the orientation of the measurement from right to left. If the antenna is exactly on the center, enter "0". Press ENTER.



Step 15: Forward Offset

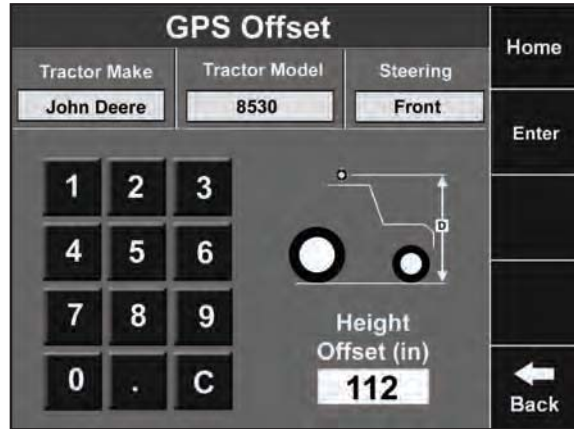
Press the FORWARD button. Measure the distance from the rear axle of the tractor to the location of the GPS antenna and enter it. Press ENTER.



Setup and Configuration (Continued)

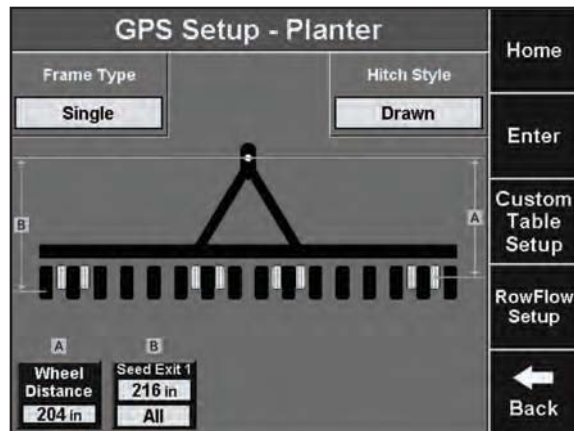
Step 16: Height Offset

Press the **HEIGHT** button. Measure the distance from the ground to the GPS antenna and enter it. Press **ENTER** to return to the Tractor setup screen, verify your entries, and then press **ENTER** to return to the GPS Setup Selection screen.



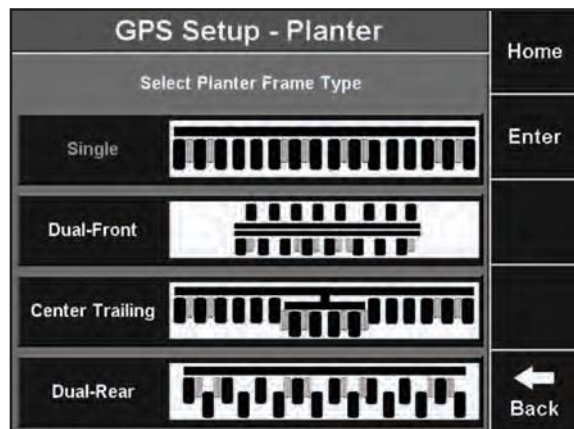
Step 17: GPS Setup - Planter - with "Single" frame type

Press the **PLANTER** button. This screen allows you to enter measurements on your planter so that the SeedSense can more accurately display your coverage map.



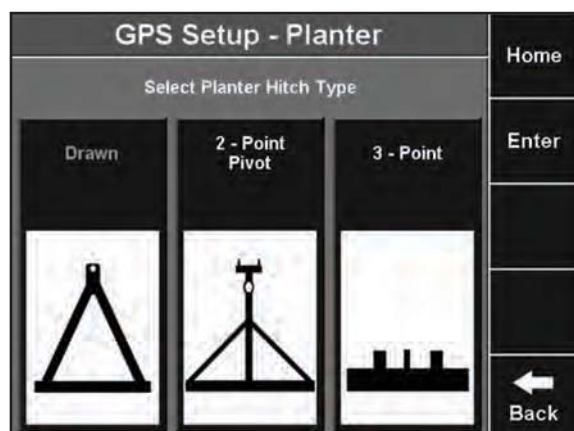
Step 18: Frame Type

Press the **FRAME TYPE** button in the top left corner. Select the frame type that best fits your planter.



Step 19: Hitch Style

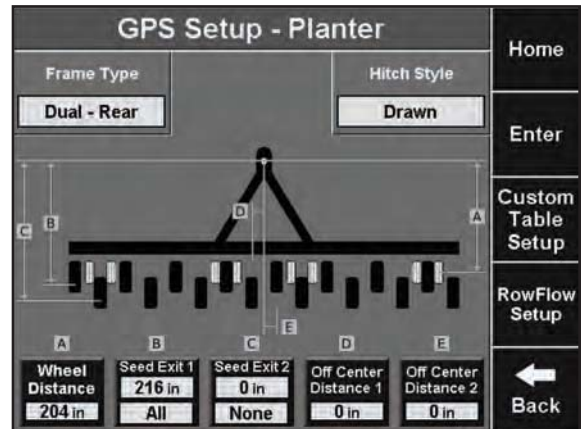
Press the **HITCH STYLE** button in the top right corner. Select the hitch style that best fits your planter.



Setup and Configuration (Continued)

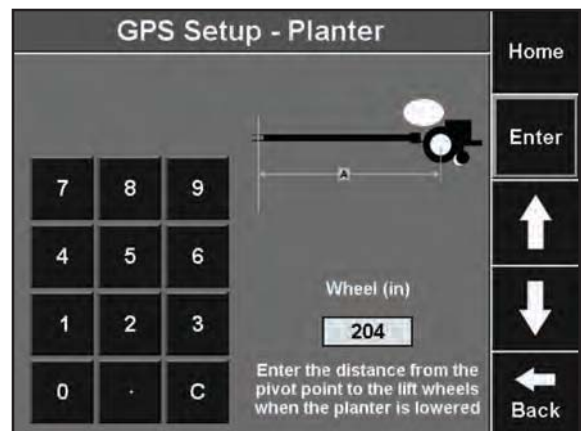
Step 20: Planter – with “Dual Rear” frame type

Now you will measure and enter measurement values for your planter. Depending on the frame type selected, there may be as few as two measurements to enter or as many as five.



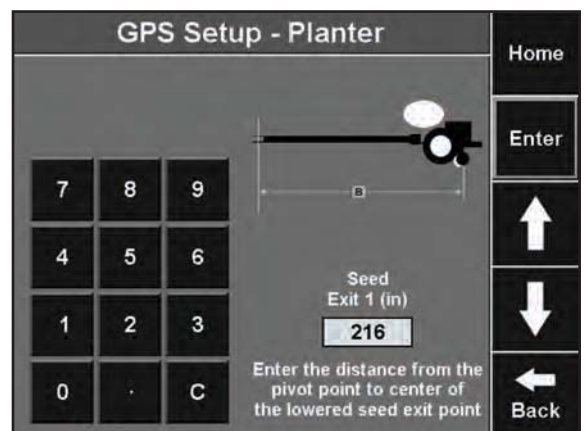
Step 21: Wheel Distance

Press the WHEEL DISTANCE button. With the planter lowered, measure the distance from the pivot point to the lift wheels. Enter the value. Press ENTER.



Step 22: Seed Exit 1

Press the SEED EXIT 1 button. Measure the distance from the pivot point to the seed tube exit for all rows (if frame type is “Single”) or for the forward most set of rows (for all other frame types). Enter the value and press ENTER.



Step 23: Seed Exit 1 Rows

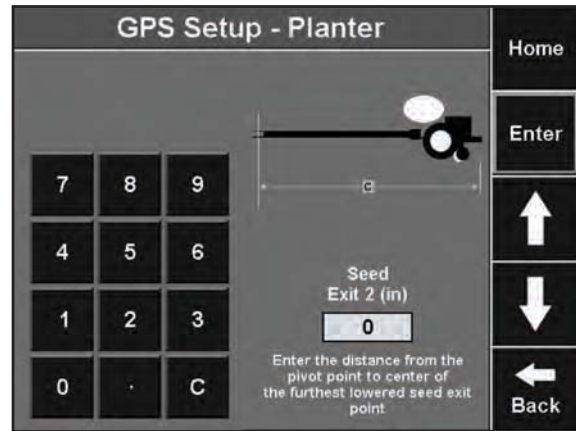
For all planter frames other than “Single” you will need to define which planter rows correspond to this measurement. Select from the options available or press LIST to choose specific rows manually.



Setup and Configuration (Continued)

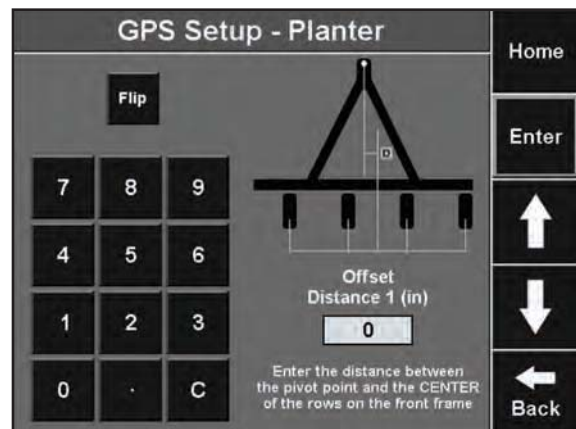
Step 24: Seed Exit 2 & Seed Exit 2 Rows

For all planter frames other than “Single” you will be prompted to enter measurements for the other rows on your planter in the same way.



Step 25: Off Center Distance 1

For “Dual Front” and “Dual Rear” frame types, you will now enter the off center distance of each bar. For Off Center Distance 1, measure the distance from the pivot point to the center of the rows on the front set of rows. Repeat the measurement for the rear set of rows under Off Center Distance 2.



NOTE:

If your planter does not conform to the available frame types, you may use the CUSTOM TABLE SETUP button on the right side of the screen to enter the location of each row on your planter.



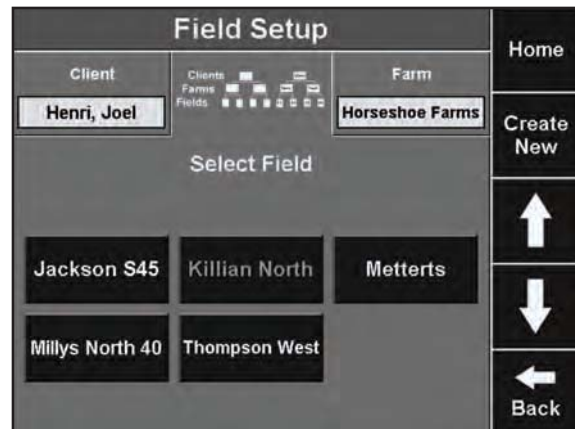
Setup and Configuration (Continued)

Setting up Clients, Farms, and Fields

There are two methods for entering Clients, Farms, and Fields into your SeedSense display. A PC Setup Tool is available for download from our website (www.precisionplanting.com – click the tech support button at the top right of the screen and scroll down to the PC Setup Tool). Instructions for using the setup tool are on the website for download. You may also directly input the information in the display unit.

Step 1: Field Setup - Select Field

From the dashboard screen, press SETUP, then press the FIELD NAME box under the Plant tab. This screen shows the active client (top left), the active farm (top right), and the fields associated with that farm in a list. The active field has its name in yellow.



Step 2: Client Setup - Select Client

Press the CLIENT button in the top left corner to enter the Client Setup screens. To create a client, click the CREATE NEW button. Use the key pad to enter the name of the client and press ENTER. Repeat this process for all clients.



Step 3: Farm Setup - Select Farm

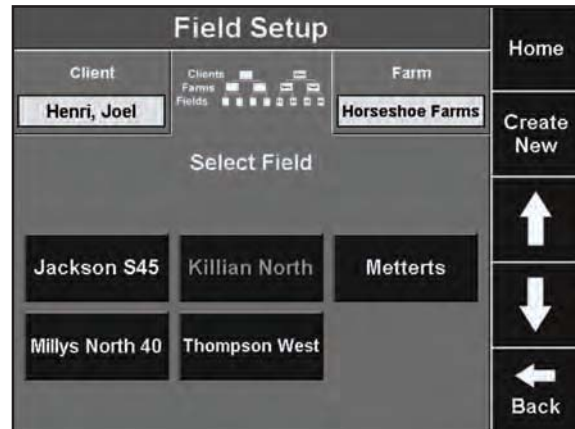
Press the FARM button in the top right corner of the Field Setup screen to enter the Farm Setup screens. To create a new farm for the active client, click the CREATE NEW button. Use the keypad to enter the name of the farm and press ENTER. Repeat this process for all farms under the active client and then all farms for other clients.



Setup and Configuration (Continued)

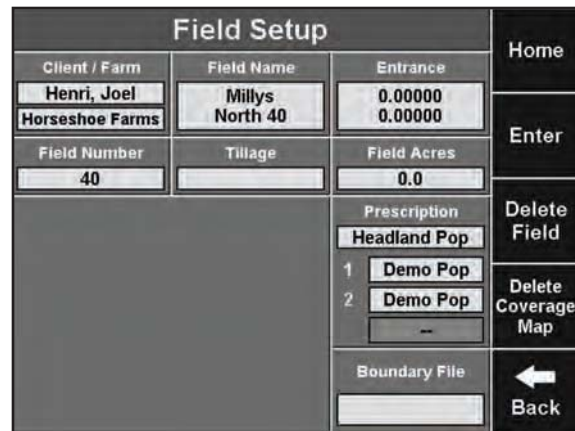
Step 4: Create New Field

Once all clients and farms are configured, click the CREATE NEW button on the right side of the Select Field screen. Use the keypad to enter the name of the field and press ENTER.



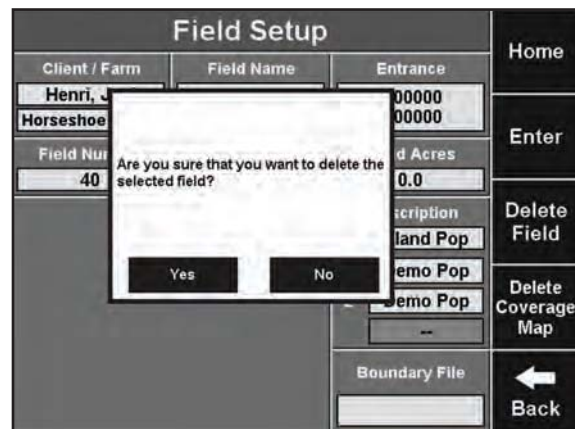
Step 5: Field Setup

Once you have named the new field, you will be taken to the field setup screen. The Client and Farm that the field is set up under is displayed at top left. To change the client or farm to which this field is assigned, press this button and select a new client or farm. To edit the name of the field, press the FIELD NAME button. Other information on this screen is optional. Pressing the ENTRANCE, FIELD NUMBER, TILLAGE, and FIELD ACRES buttons allows you to enter the latitude and longitude of the field entrance, the field number (if you use a number in addition to a name), the type of tillage used in the field, and the total field acres. This information is not required for the operation of the system, but is useful in record keeping and troubleshooting.



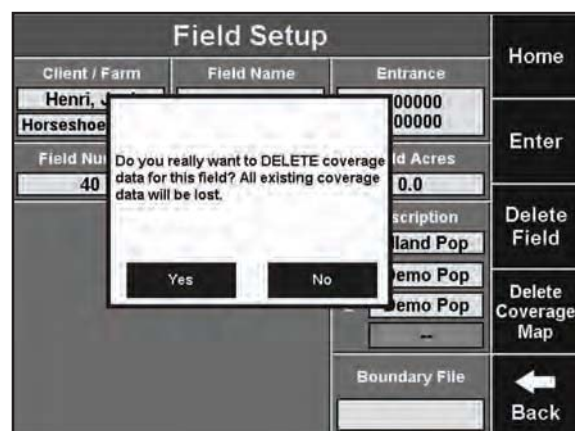
Step 6: Delete Field

If you need to delete a field, press the DELETE FIELD button on the right side of the screen and select YES on the popup screen. This should be used to delete a field that you will no longer be planting in our operation. Data recorded while planting the field is not deleted with this operation.



Step 7: Delete Coverage Map

If you need to delete the coverage map for the field, particularly in a replant situation, press the DELETE COVERAGE MAP button and select YES from the pop up.

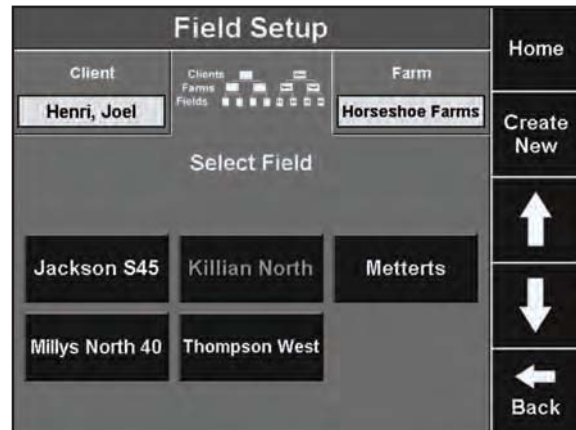


Setup and Configuration (Continued)

Changing Fields

Step 1

From the dashboard screen, press the SETUP button and then the FIELD NAME button.



Step 2

If the field is under a different client, press the CLIENT button on the Field Setup screen and select the appropriate client.



Step 3

Next, select the appropriate Farm from the list of farms under the Client.



Setup and Configuration (Continued)

Step 4

Now, select the appropriate Field from the list of fields under the Farm.

Field Setup			Home
Client	Clients Farms Fields	Farm	Create New
Henri, Joel		Horseshoe Farms	↑
Select Field			↓
Jackson S45	Killian North	Metterts	←
Millys North 40	Thompson West		Back

Step 5

Press the MAKE ACTIVE button on the left side of the screen.

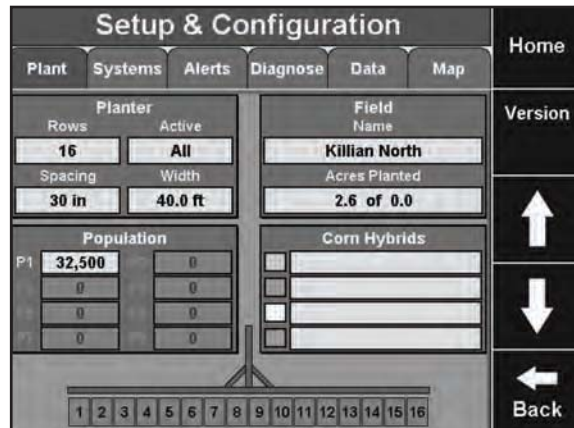
Field Setup			Home
Client / Farm	Field Name	Entrance	Make Active
Henri, Joel Horseshoe Farms	Millys North 40	0.00000 0.00000	
Field Number	Tillage	Field Acres	Delete Field
40		0.0	
		Prescription	Delete Coverage Map
		Headland Pop	
		1 Demo Pop	←
		2 Demo Pop	
		--	Back
		Boundary File	

Setup and Configuration (Continued)

Configuring Population Targets

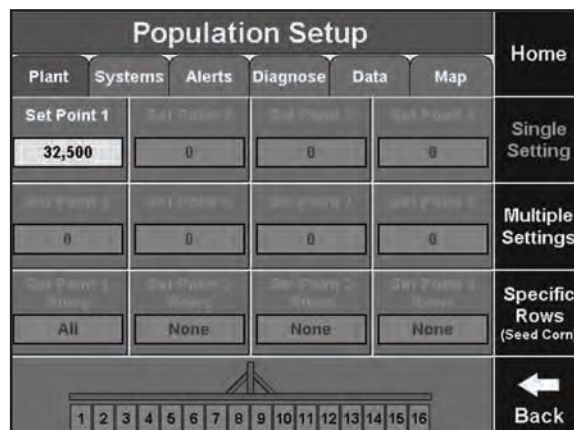
Step 1: Plant Tab

As you enter each field, you will need to configure your population targets for the field. This information is not tied to field setup so it cannot be configured for each field in advance. From the dashboard screen, press the **SETUP** button and then the **POPULATION** button on the bottom left of the Plant tab.



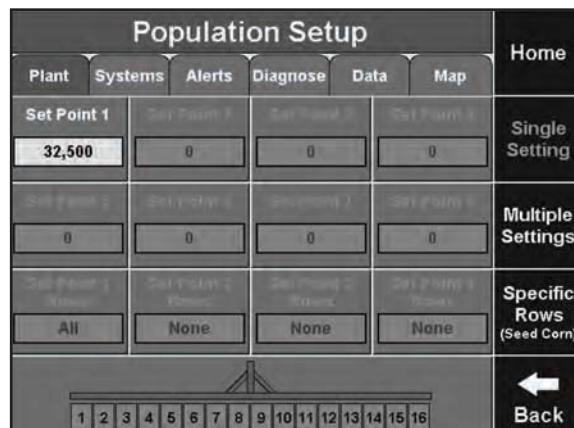
Step 2: Population Setup

Select your population type from the three black buttons on the right side of the screen. Select **SINGLE SETTING** if you will be planting only one population for the entire field. Select **MULTIPLE SETTINGS** if you will be planting multiple populations in the field using hydraulic motors. Select **SPECIFIC ROWS** if you will be planting different populations on different rows.



Step 3: Population Setup

Once you have selected your population type, enter the population(s) you will be planting. For Single Setting, only **SET POINT 1** will be active. Press the button and use the keypad to enter the population target. For Variable Rate, there will be up to eight set points that you can enter. For Specific Rows, there will be four set points. In this setting, you will then press the **SET POINT 1 ROWS** button to select the rows that will be using set point 1 and so on for each set point with a population assigned.

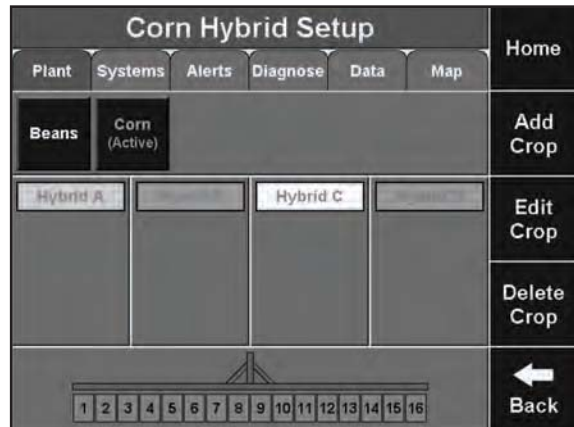


Setup and Configuration (Continued)

Configuring Crops and Hybrids

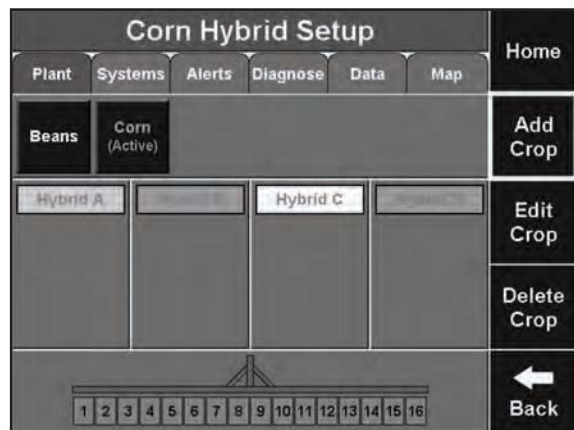
Step 1

From the dashboard screen, press SETUP and then press the HYBRIDS/VARIETIES button on the bottom right of the Plant tab.



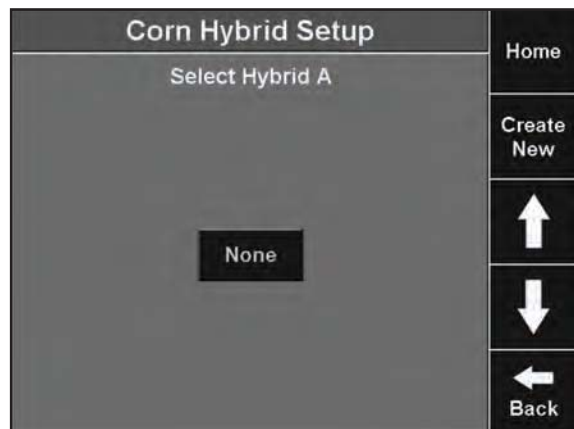
Step 2

To create a crop, press the ADD CROP button and use the keypad to enter the name of the crop. Return to the Hybrids/Varieties setup screen.



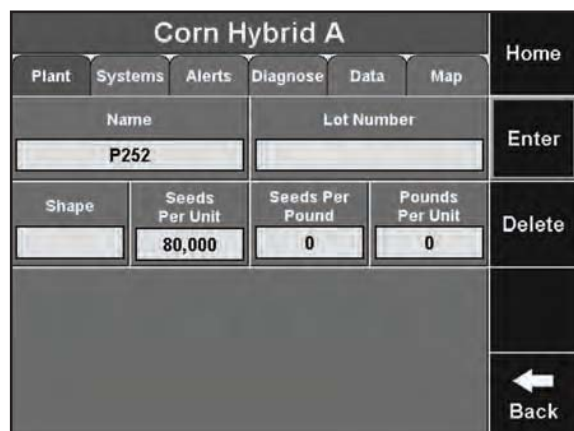
Step 3

To enter a hybrid, press the HYBRID A button and then press the CREATE NEW button on the right side. Use the keypad to enter the name of the hybrid.



Step 4

Now enter any other information relevant to the hybrid that you would like to record. Lot Number, Shape, Seeds per Unit, Seeds per Pound, and Pounds per Unit do not have to be entered but provide useful information for record keeping. Once this information is recorded, press ENTER.



Setup and Configuration (Continued)

Step 5

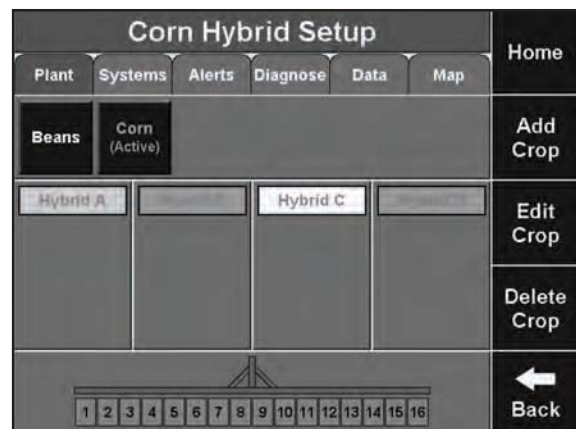
If you will be planting this hybrid now, select which rows in which it will be used. If you are only entering the hybrid into the list for later use, press NONE.



Changing Crops and Hybrids

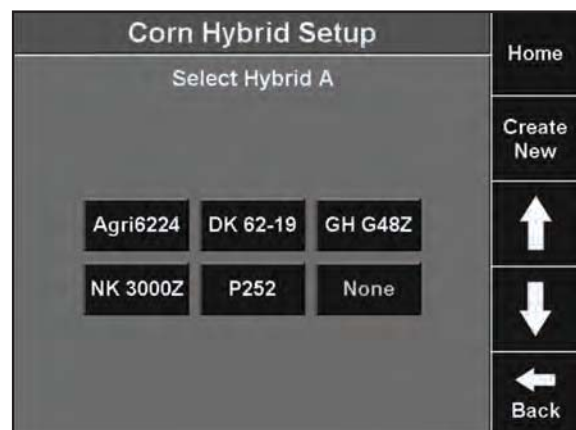
Step 1

To change crops, select the crop that you want to activate from the list at the top of the screen and press YES from the pop up box.



Step 2

To assign or change a hybrid, press HYBRID A. Select the desired hybrid from the list.



Setup and Configuration (Continued)

Step 3

Verify the information for the hybrid being selected and press ENTER.

Corn Hybrid A					Home
Plant	Systems	Alerts	Diagnose	Data	Map
Name		Lot Number			Enter
P252					
Shape	Seeds Per Unit	Seeds Per Pound	Pounds Per Unit	Delete	
	80,000	0	0		
					← Back

Step 4

Select the rows that will be planting this hybrid and press ENTER.

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

Step 5

Repeat this process for Hybrids B – D if needed. Up to four hybrids can be planted and tracked at one time.

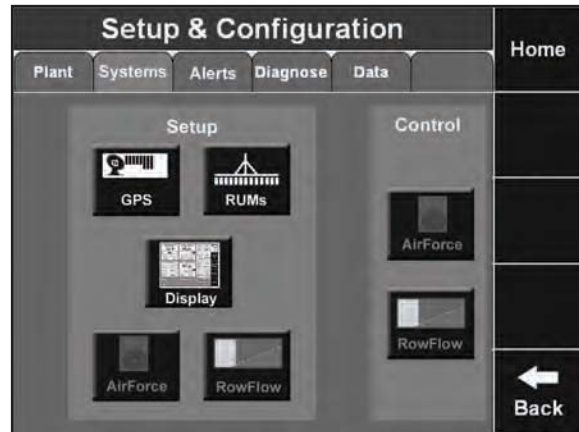
Corn Hybrid Setup					Home
Plant	Systems	Alerts	Diagnose	Data	Map
Beans	Corn (Active)				Add Crop
Hybrid A		Hybrid C			Edit Crop
					Delete Crop
					← Back

Setup and Configuration (Continued)

System Setup and Configuration

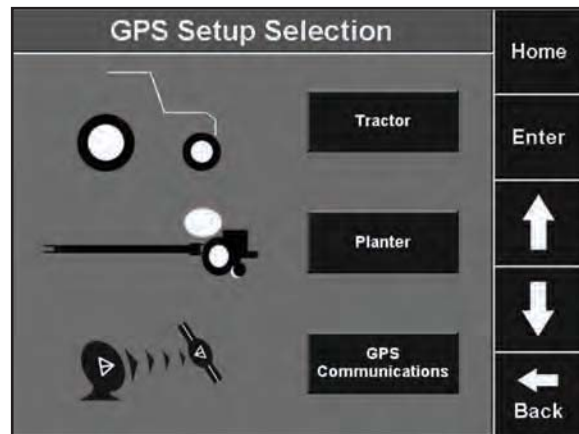
Step 1: System Tab

To setup and configure the SeedSense system for operations, press the **SETUP** button on the dashboard and then select the **SYSTEMS** tab.



Step 2: GPS Setup Selection

The tractor and planter measurements for GPS coverage can be entered or modified from this screen as well as from the Planter Setup screens as described above.



Step 3: Down Force Calibration

To setup and configure the SeedSense system for operations, press the **SETUP** button on the dashboard and then select the **SYSTEMS** tab.

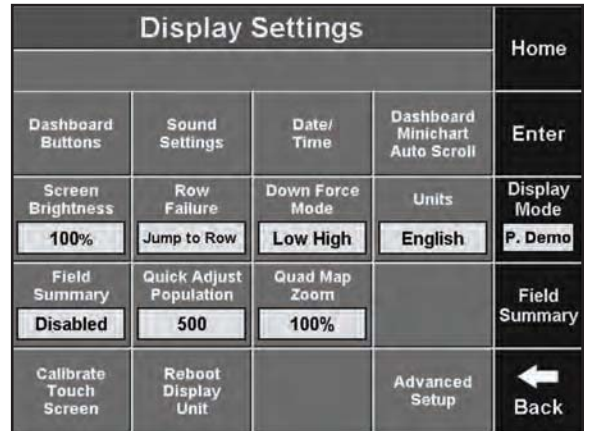
Down Force Calibration					Home
Row	Pin Reading	Cal Factor	Reference Value	Load Sensor	
Row 1	-42	85.0	32.69	Active	Zero All
Row 7	-38	85.0	32.53	Active	↑
Row 15	-25	85.0	32.73	Active	↓
					← Back

Type of Pin	Cal Factor
Kinze 2008 Version	125
Kinze 2009 Version	65
5/8 Pin	85
1/2 Pin	85
White Link	65
CNH Link	65

Setup and Configuration (Continued)

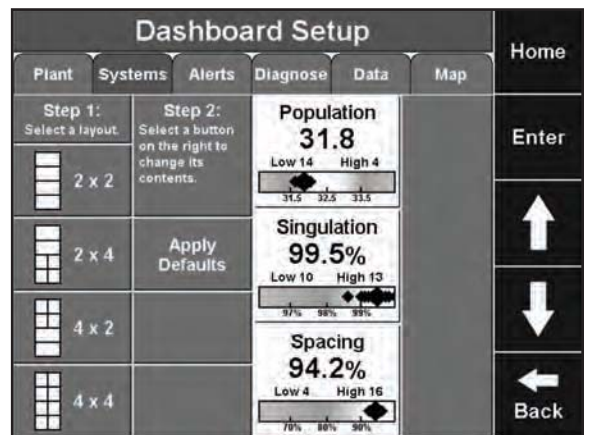
Step 4: Display Settings

To configure your display unit, press the DISPLAY button on the Systems tab.



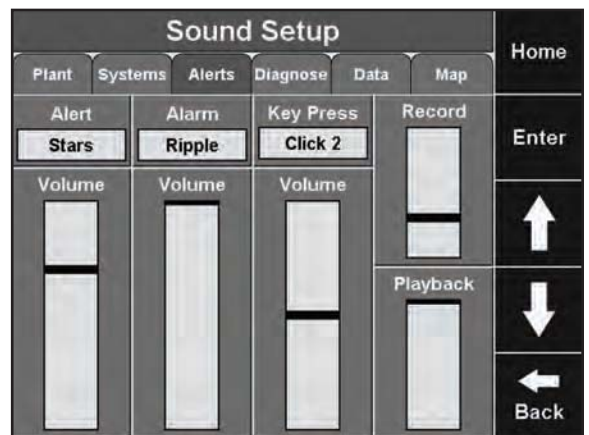
Step 5: Dashboard Buttons

This is a second location to configure your dashboard buttons. This can also be done under the DASH VIEW button on the dashboard screen.



Step 6: Sound Settings

Press the SOUND SETTINGS button to set the sound and volume for alerts, alarms, key presses, and recording/playing back memos. To set the sound, press the box at the top and select the sound. To set the volume, use your finger to raise or lower the bar on the volume column for each sound. Press ENTER when done.



Step 7: Date/Time

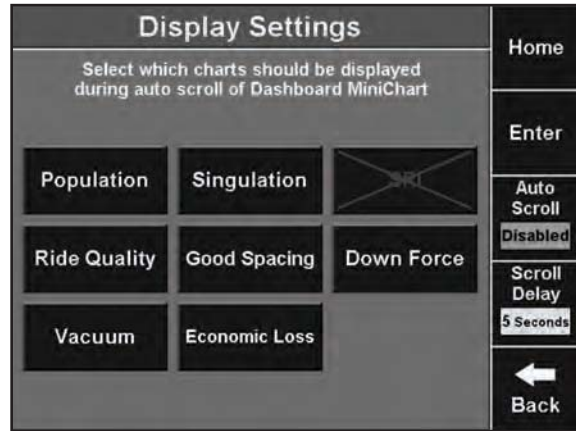
Press the DATE/TIME button to enter your time zone, date, and time. This information is generally automatically provided by the GPS receiver. If no GPS receiver is attached, enter the information here. SEASON START allows you to designate the start of your 12 month growing calendar. Most northern hemisphere operations should be set to January and most southern hemisphere operations should be set to July.



Setup and Configuration (Continued)

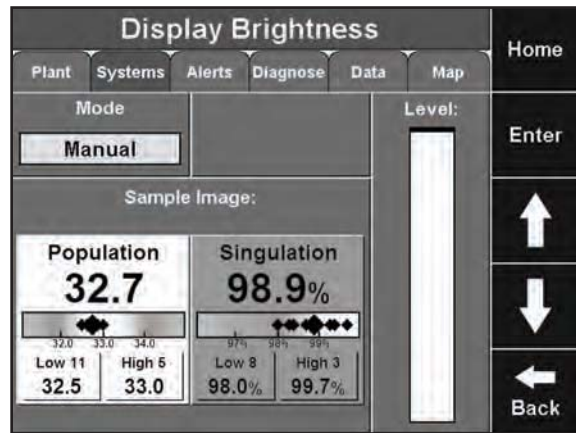
Step 8: Dashboard Mini Chart Auto Scroll

Press the DASHBOARD MINI CHART AUTOSCROLL button. Here you can select which screens are shown when you dashboard mini chart (DMC) is in autoscroll mode. Place an X in the box next to each chart you would like to have displayed in succession by touching the box. You can also set your scroll delay (how long each chart is displayed before moving on to the next) and whether you want the DMC to autoscroll or remain fixed on a single chart until you manually change it under the DASH VIEW button.



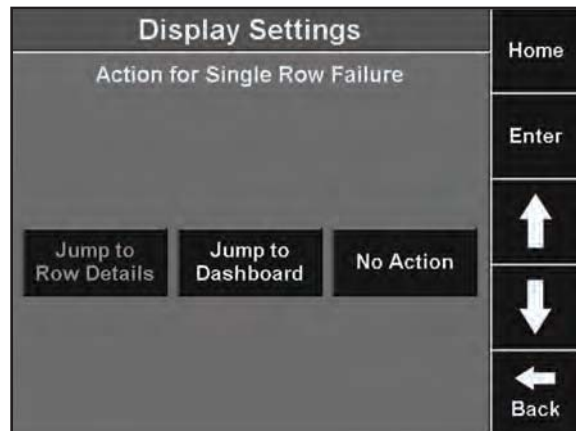
Step 9: Screen Brightness

Press the SCREEN BRIGHTNESS button to change the screen brightness setting. You may choose from AUTOMATIC where the display uses a light sensor to automatically adjust the screen brightness or MANUAL where you set the brightness using the bar on the right side of the screen. Use your finger to drag the level bar up or down the column.



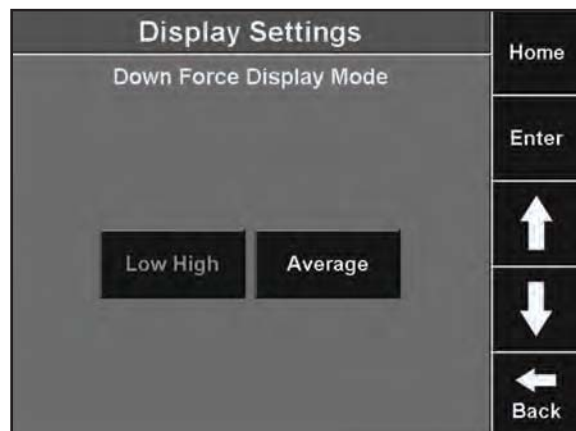
Step 10: Row Failure

Press ROW FAILURE to set how the display reacts when a single row stops planting. The three options are JUMP TO ROW DETAILS (display goes directly to the Row Details screen for the failing row), JUMP TO DASHBOARD (display goes directly to the dashboard screen where the Dashboard Mini Chart is displaying information on the failed row), or NO ACTION (screen displayed does not change). In all cases, whatever alarm is configured under Sound Settings will still sound.



Step 11: Down Force Mode

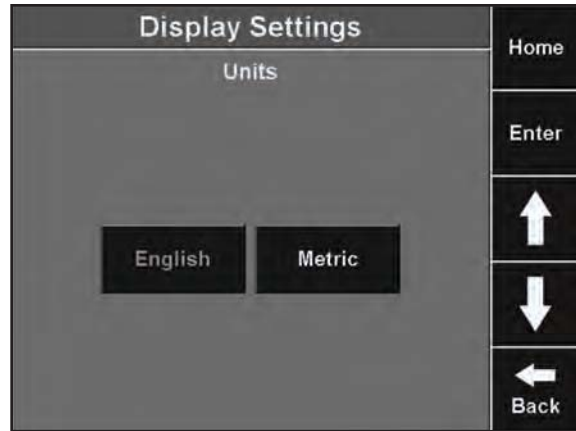
Press DOWNFORCE MODE to change the display of down force data on the dashboard screen. The Low/High option is the default and displays the actual pin reading for the low and high rows. The Average option displays the average of the pin readings from all active down force sensors on the planter. The Low/High option is recommended.



Setup and Configuration (Continued)

Step 12: Units

Press the UNITS button to select ENGLISH or METRIC units of measure for display.



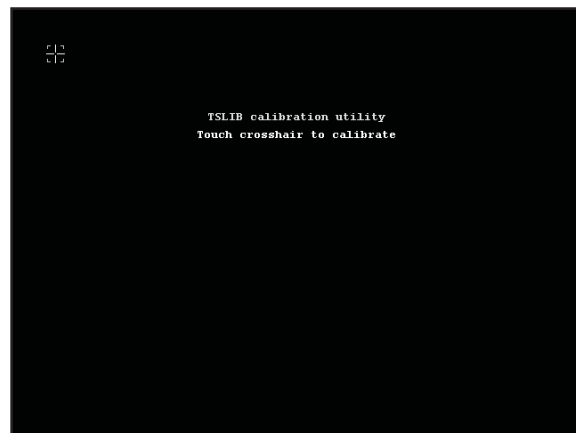
Step 13: Field Summary

At the end of each pass that is at least 500 feet in length, the display unit can display a summary of planting information. Press the FIELD SUMMARY button to choose among DISABLED (does not show a summary, values go to dashed lines when planter is raised), LAST PASS (average values for each measurement on the dashboard are displayed for the last pass), or ENTIRE FIELD (average values for each measurement on the dashboard are displayed for the field up to that point)



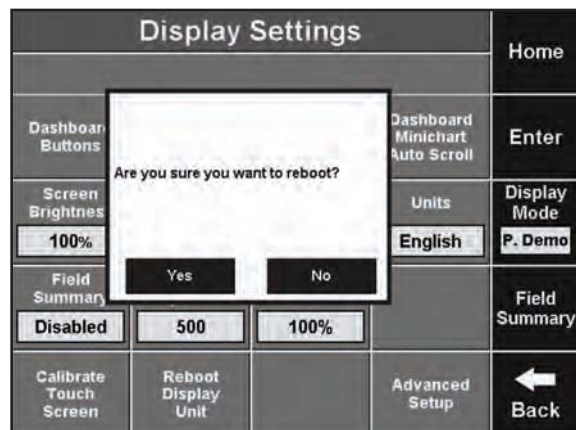
Step 14: Calibrate Touch Screen

Press CALIBRATE TOUCH SCREEN button and follow the prompts on the screen to calibrate the screen to your touch.



Step 15: Reboot Display

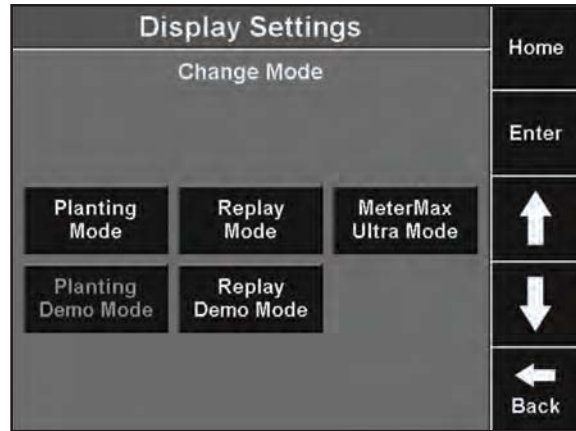
Pressing REBOOT DISPLAY will do a hard reboot of your display unit.



Setup and Configuration (Continued)

Step 16: Change Mode

Press the black **MODE** button on the right side of the screen to switch between planting and demo modes.



Step 17: Field Summary

A summary of the field may be accessed by pressing the **FIELD SUMMARY** button. This information is the same as what is displayed at the end of a pass but can be accessed at any time.

Population 31.7	Singulation 99.4%	Skips 0.4%	Field Acres 3.3	5.1 mph
 Low 11 31.2 High 1 31.9	 Low 16 98.6% High 13 99.9%	Mult's 0.2%	Vacuum L: 20.3 R: 18.2	Hex Shaft -2%
Down Force Low 1 121 lbs High 3 169 lbs	Good Spacing 94.4%	Good Ride 97%	Loss/ Acre \$5.61	Hold
Margin 90 lbs	 Low 4 92.3% High 16 96.3%	11:33 AM Nov 05 2010	SRI 19.1	Map
Ground Contact 100%	Field Data Summary			Demo Mode Setup
Population	Singulation	Spacing	DF Margin	Ground Contact
31.0	99.4%	94.2%	88 lbs	0%
				Exit Last Pass Summary

Setup and Configuration (Continued)

Configuring Alerts

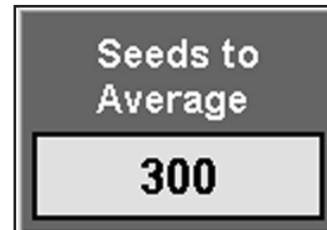
Step 1: Alerts Tab

To configure alerts for each crop, press the SETUP button and then the ALERTS tab.

Setup & Configuration					Home
Plant	Systems	Alerts	Diagnose	Data	Map
Corn (Active)					Change Crop
Seeds to Average	Population Limit	Population Alarm	Singulation Limit		Edit Crop Name
300	1000	80.0%	98.5%		Restore Defaults
Smooth Ride Limit	Spacing Limit	Ground Contact Limit	Misp. Seed Limits		← Back
90.0%	90.0%	95.0%	2.5, 4.0"		
Economics / Loss Limits	SRI Limit	Population Auto-Target	Crop Specific Planter Setup		
	20	ON			

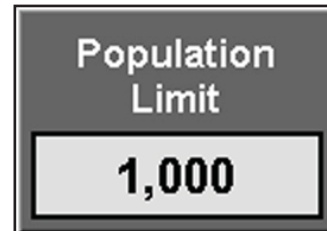
Step 2: Seeds to Average

Seeds to Average determines on how many seeds population, singulation, and spacing data is based. Set this to about 1% of the population for the crop (i.e. for corn, 300 seeds – 1% of 30,000 – is a good setting; for beans, 1500 seeds – 1% of 150,000 – is a good setting).



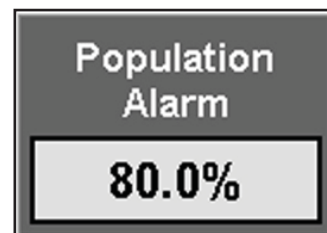
Step 3: Population Limit

Population limit defines how far actual population can stray from your population target before the population button turns yellow. The default for corn is 1000 seeds. This means that so long as the actual population is within 1000 seeds of the target, the population button will stay green. For higher population crops, it may be necessary to raise this target to 3000 or 5000.



Step 4: Population Alarm

Population alarm defines when a row is considered to be in Row Fail status and the alarm is sounded. The default setting is 80% meaning that when actual population drops below 80% of the target a row fail is declared. This can be raised or lowered as needed.



Step 5

The next several buttons (Singulation Limit, Smooth Ride Limit, Spacing Limit, Ground Contact Limit, and SRI limit) define when those buttons turn yellow on the dashboard screen. Enter the percent at which you would like the button to turn yellow. This will depend on accuracy of meters, tillage and ground conditions, etc.

Setup & Configuration					Home
Plant	Systems	Alerts	Diagnose	Data	Map
Corn (Active)					Change Crop
Seeds to Average	Population Limit	Population Alarm	Singulation Limit		Edit Crop Name
300	1000	80.0%	98.5%		Restore Defaults
Smooth Ride Limit	Spacing Limit	Ground Contact Limit	Misp. Seed Limits		← Back
90.0%	90.0%	95.0%	2.5, 4.0"		
Economics / Loss Limits	SRI Limit	Population Auto-Target	Crop Specific Planter Setup		
	20	ON			

Setup and Configuration (Continued)

Step 6: Misplaced Seed Limits

The Misplaced Seed Limits button defines seed spacing measurements. The highest of the two numbers defines the distance from its neighbor that defines a seed as misplaced (i.e. if set at 4", seeds within 4" of their neighbor are considered misplaced) and are assessed their first yield loss. The lower number defines a severely misplaced seed which is assessed further yield loss. Use the chart on page 38 to determine where your limits should be set.

Setup & Configuration			Home
Misplaced Seed Limits			Enter
1.5, 2.5"	2.0, 3.0"	2.2, 3.5"	↑
2.5, 4.0"	2.8, 4.5"	3.2, 5.0"	↓
3.5, 5.5"	3.8, 6.0"	4.0, 6.5"	←
4.5, 7.0"			Back

Step 7: Economics/Loss Limits

Press the ECONOMICS/LOSS LIMITS button. This screen defines how economic loss is calculated. Economic loss is only accurate for field corn. The values for Ears per Bushel and Ear Loss are based on research and should only be changed to reflect known local variations from these values. Press the PRICE PER BUSHEL to enter the current price per bushel for use in calculating economic loss. The three limits at the bottom of the screen define how the Loss/Acre button on the dashboard screen displays information. If the loss/acre is less than the Loss Good Limit, the button will be green and display the word GOOD. Once the loss passes the Loss Good Limit, the button remains green but displays the dollar value. Once the loss passes the Loss Alert Limit, the button turns yellow. When the loss passes the Loss Alarm Limit, the Loss/Acre button on the dashboard turns red.

Crop Economics Setup				Home		
Plant	Systems	Alerts	Diagnose	Data	Map	Enter
Corn (Active)						↑
Ears per Bushel	Price per Bushel	Ear Loss for Skip	Ear Loss for Multiple			↓
140.0	2.50	0.8	0.4			←
Ear Loss for Misp. 4.0"	Ear Loss for Misp. 2.5"					Back
0.1	0.2					
Loss Good Limit	Loss Alert Limit	Loss Alarm Limit				
4.00	7.50	20.00				