vDrive®

vDrive Operator's Guide
Gen 3 20|20 — 2024.1.x Software

Precision Planting®

9551051_3

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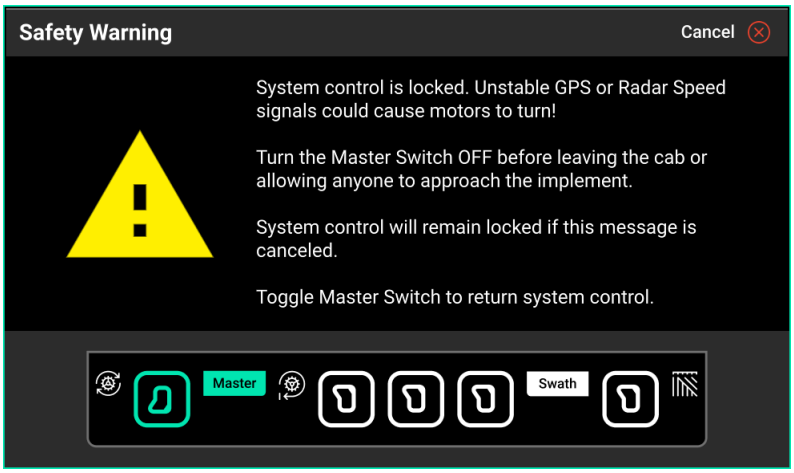
vDrive Requirements

vDrive operation requirements:

1. vDrive system configured on the 20|20 monitor.
2. SRM Seed Sensor/Speed Tube modules installed and configured.
3. Default Population set.
4. Speed source active.
5. CCM master plant switch in the up position.
6. Implement must be lowered.
7. vDrive system enabled.

Safety Warning

If any control product is configured on the 20|20 display, the system will require a Cab Control Module (CCM) and will prompt the user to toggle the Master Plant switch on the CCM before any control products may be used. This warning is triggered any time the system is booted up, and when the system has traveled for more than half a mile.



If a CCM is not installed, press cancel to bypass this warning. No control systems will operate until the Master Plant switch is toggled. The Master Icon:

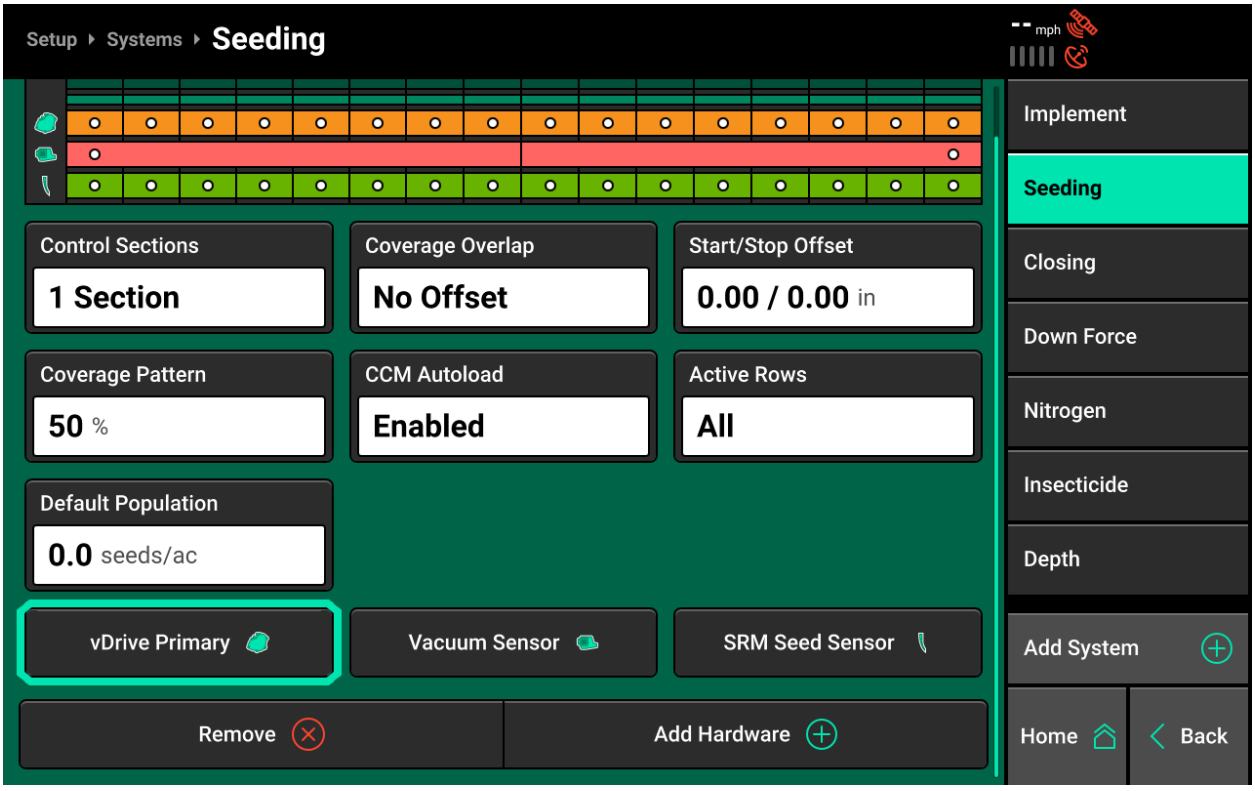
will be present in the top right if the Safety Warning was bypassed pressing cancel.

Major Changes

2024.1.x software introduces many changes to system organization. Major changes related to vDrive system setup are detailed here.

Seeds per Disk

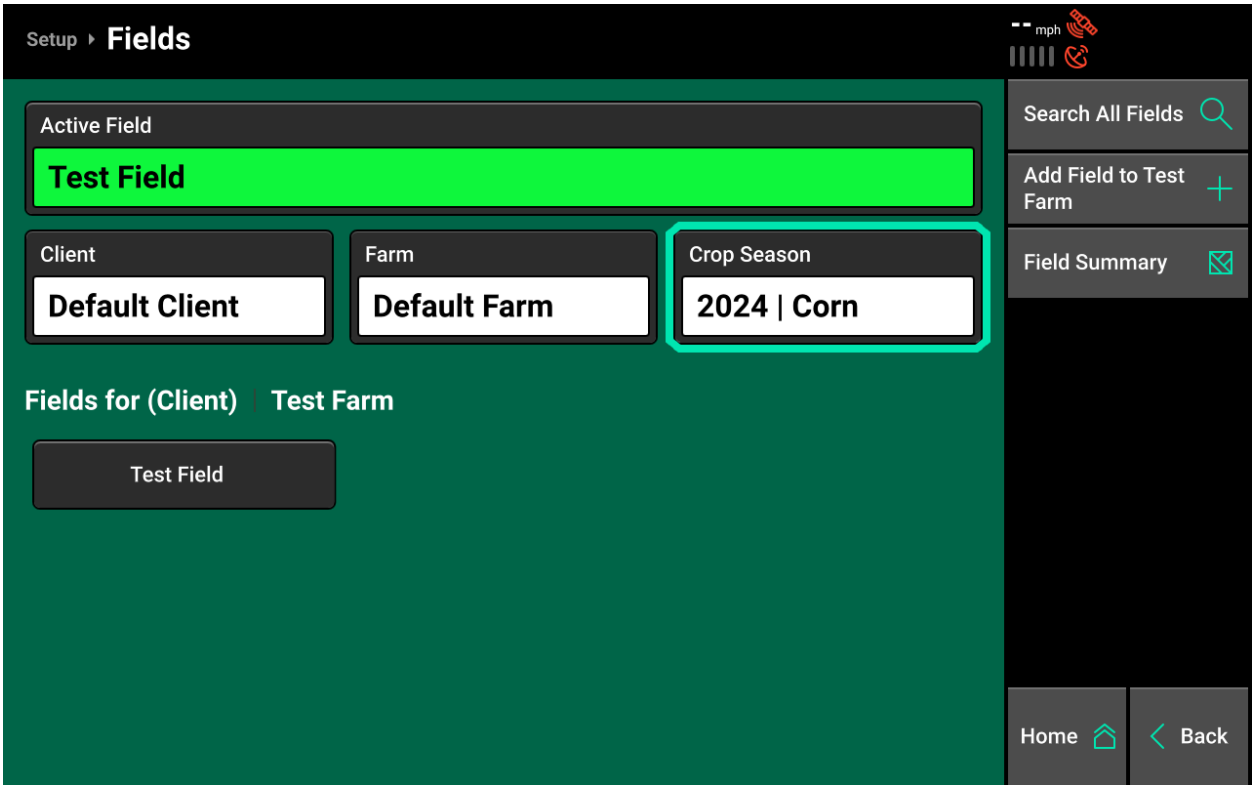
Due to changes in software programming, Seeds/Disk is now configured in the Module Settings for vDrive. If all hardware has been added, Module Settings may be accessed by pressing vDrive Primary on the [Seeding system name] system screen and pressing Continue until the Module Settings screen is displayed. See *Hardware Setup* in this guide for more details.

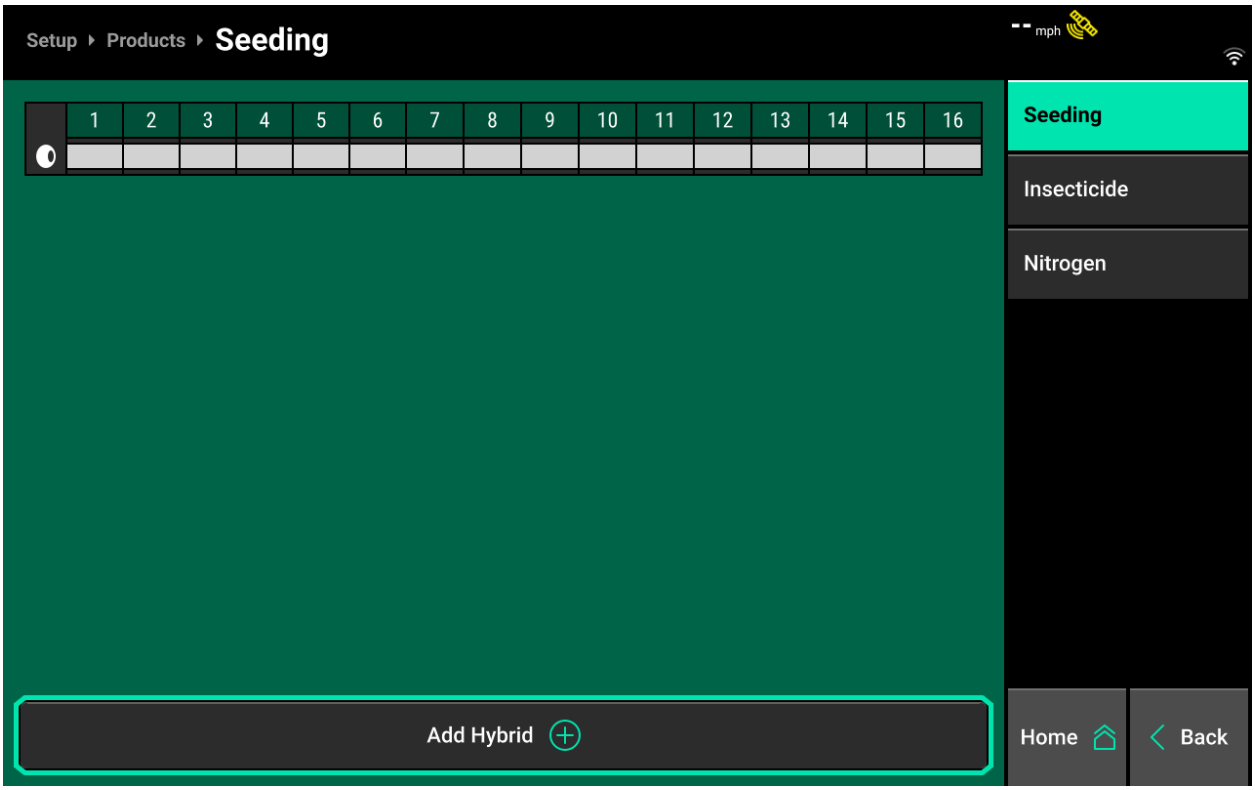


Note: *Multiple implement profiles may be created for each crop. This may be preferable to changing module settings when switching crops. Complete system setup for the first crop, then navigate to Setup > Equipment and save the current configuration. Return to the System screen, make all applicable changes for the second crop, then return to Setup > Equipment and save the new configuration as a second implement profile. See the* Save/Load *section in the* Gen 3 20|20 Operator's Guide - 2024.1.x Software *for more details on saving/loading implement profiles.*

Active Crop / Hybrid

Active crop is now selected in field setup, while hybrids are set up in Products. See the *Field and Crop Setup* and *Hybrid Setup* sections of this guide for more details.





Home and Control Screens

Home Screen

The home screen displays information for controlling and mapping the vDrive system.

vDrive Mapping

Different maps are available for the vDrive system. To view the map layer options, press the current layer name that is displayed in the top left corner of the map. A list of all available maps will be displayed.

- Population — Displays planted population.
- Population State — Displays alert/alarm readings.
- Singluation — Displays seed singulation results.
- SRI — Displays Seed Release Index readings.
- Spacing — Displays average seed spacing.

If a seeding prescription or field boundary is assigned to the active field, the prescription/boundary file will be available as a map layer.

Control Widget

The vDrive (or Seeding) control widget may be placed on the home screen. The control button displays the status of the vDrive system. If the vDrive control button is not on the home page, it must be added. See the *Gen 3 20|20 Operator's Guide — 2024.1.x Software* for more information on editing the home screen layout.

Indicators for the system status of the vDrive control widget:

Enabled – system is ready and has been enabled.

Disabled – system will not function due to being disabled. To enable the system, press on the control button and select Enable.

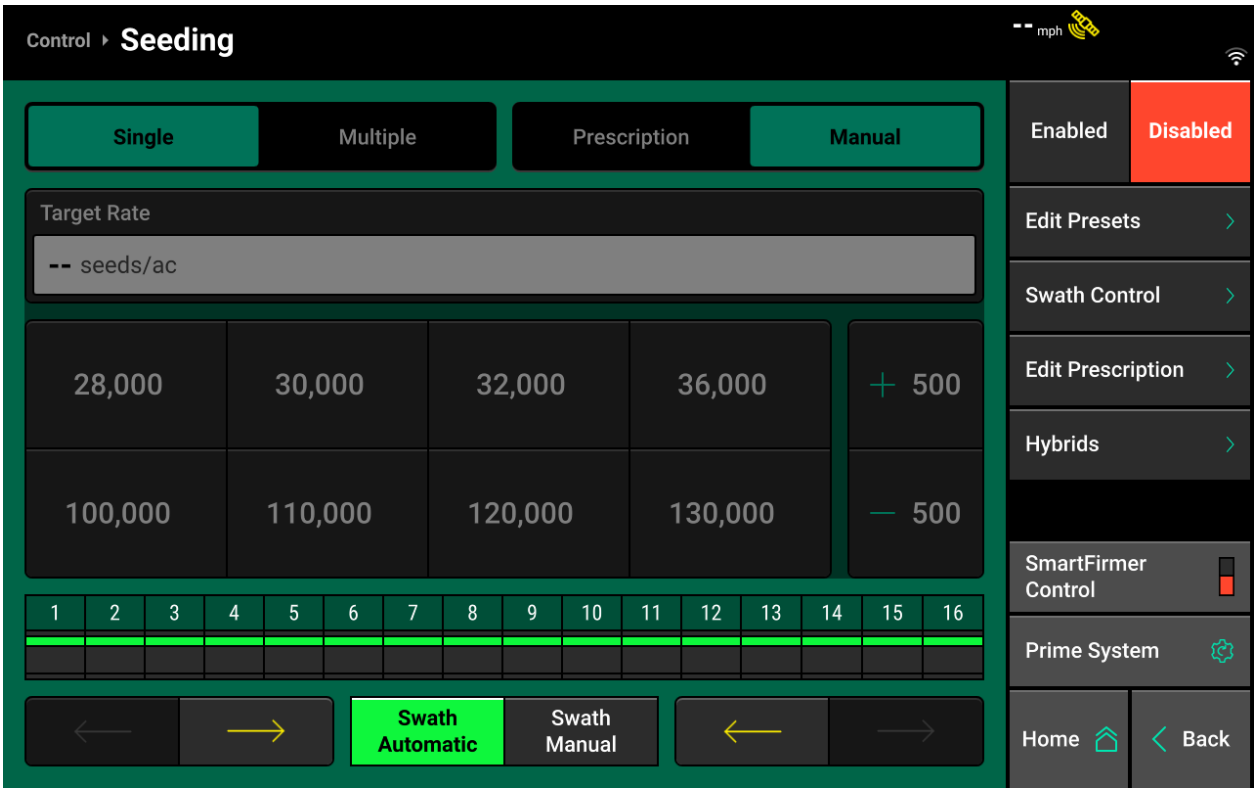
Lifted — planter is lifted and system will not function. To enable the system, lower the planter

Master off — master plant switch is off and system will not function. To enable the system, toggle the master plant switch.

Green — system is functional and has a commanded rate.

vDrive Control Screen

Press the control button on the Home Screen to open the vDrive Control Screen.



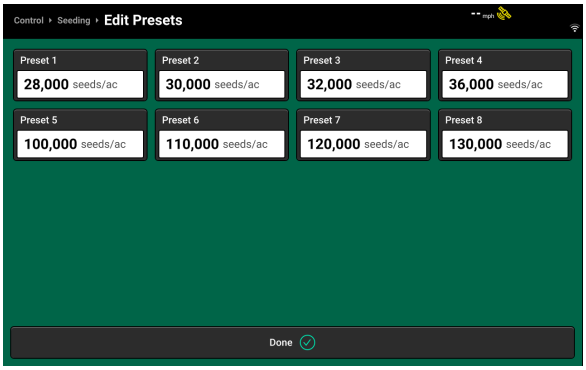
To enable or disable the vDrive system, select either Enabled or Disabled in the top right corner of the screen.

Rate Control

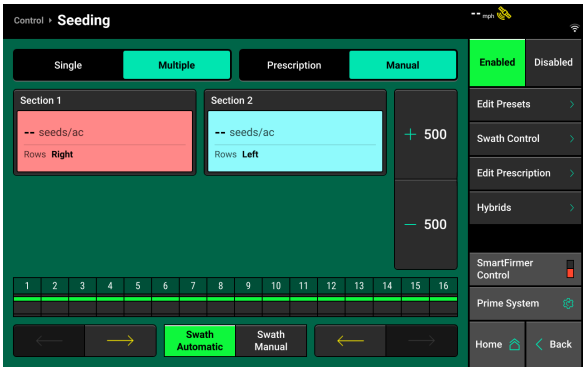
Manual – Set an application rate for the vDrive system to apply. This ignores any assigned seeding prescriptions and continues to plant at the assigned manual rate.

If multiple control sections were configured in the vDrive system setup, select Single or Multiple. If only one control section was configured, only Single may be used.

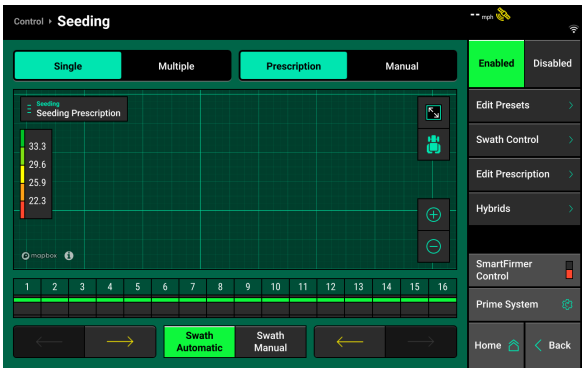
Single – Assigns the same population to all rows. Select a preset population from the list of set points displayed on the screen. Use the +/- buttons to increase/decrease population by the number displayed next to the +/-, or press the white box displaying the current population to manually enter a value. Press Edit Presets in the navigation menu to open the Edit Presets screen, which allows the user to configure preset population points. Press Done to return to the Control screen.



Multiple – Assign a different population to each section that was configured during vDrive system setup. Use the +/– buttons to adjust the populations up or down the same amount for each section, or press either section to manually enter a new rate that section.

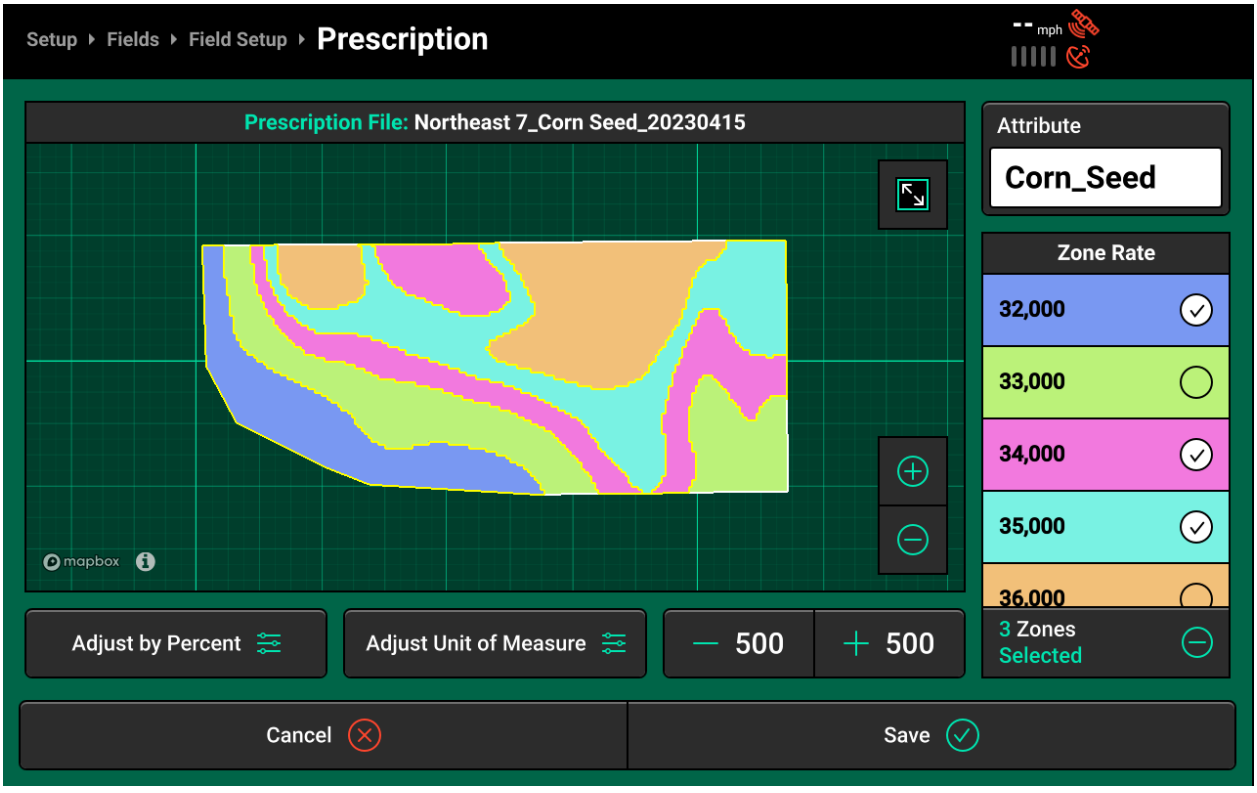


Prescription– If a seeding prescription is assigned to the active field, Prescription mode will be selected as the default setting. When in Prescription mode, the system will control to the prescription assigned to the active field. Press Edit Prescription in the navigation menu to open the prescription edit screen.

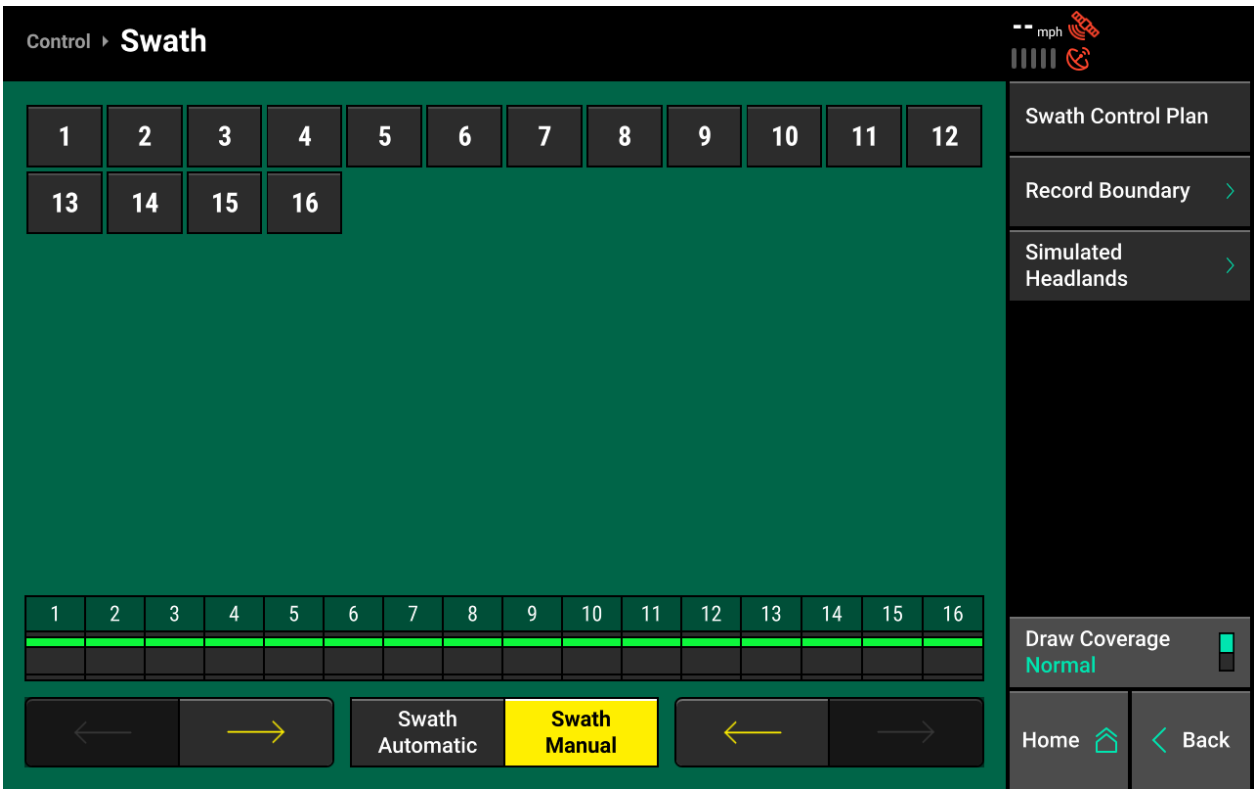


Prescription Edit Screen

The Prescription Edit screen allows the user to edit certain prescription parameters. A graphic representation of the prescription is displayed on-screen. See the *Field Setup* section of this guide for more information on using the Prescription Edit screen.



Press Swath Control to open the Swath screen. The Swath screen allows the user to manually swath rows on and off, configure a swath control plan, record a boundary file, simulate headlands, or set the implement to always draw coverage.

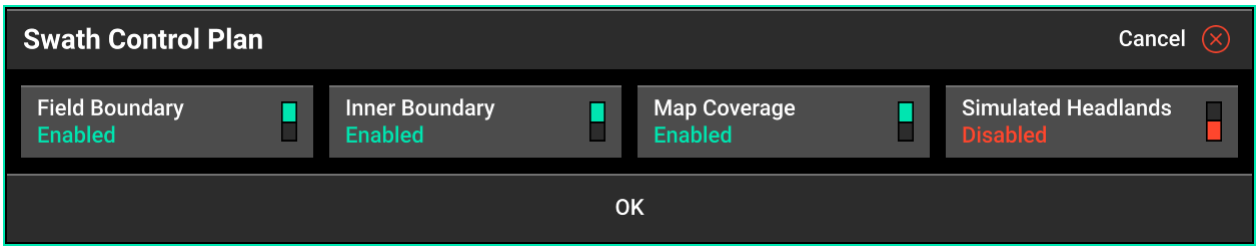


Manual Swath Control

The row table and Swath Control Bar on this screen may be used to manually swath rows on and off. See *Manual Swath Control* in the *Gen 3 20|20 Operator's Guide - 2024.1.x* Software for more details on controlling swath manually.

Swath Control Plan

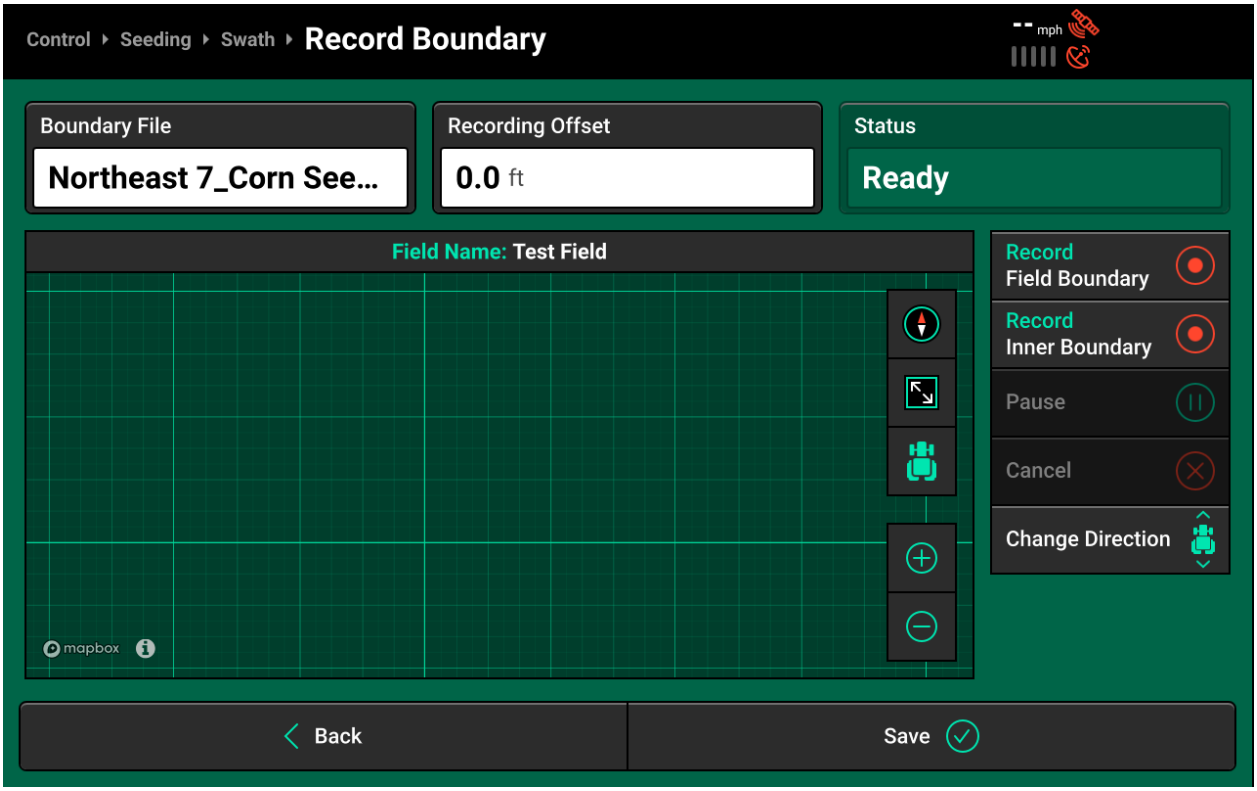
Press Swath Control Plan to open a pop-up that allows the user to select which swath events the 20|20 will use to turn swath on/off.



Press each option to set it on or off.

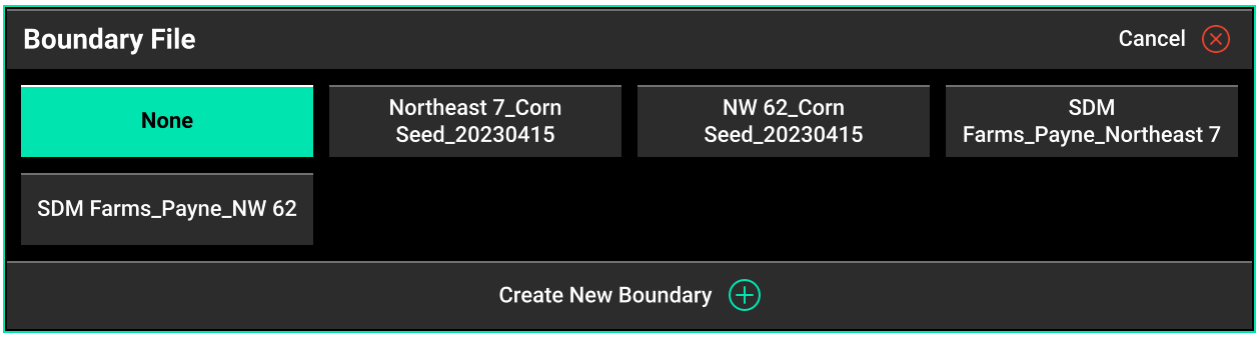
Recording Boundaries

Press Record Boundaries on the Swath screen to open the Record Boundary screen. This screen allows the user to draw a boundary. Press Back to return to the Swath screen.

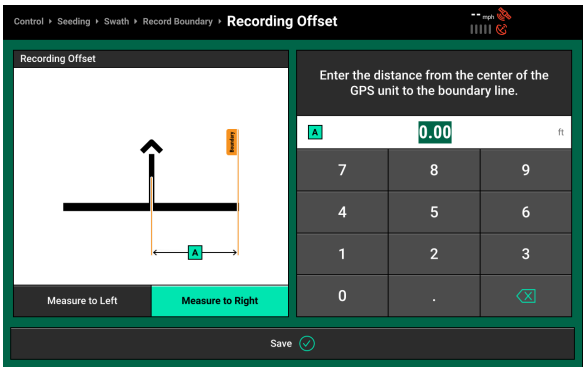


Press Boundary File to select the file name for the new boundary, or press Create New Boundary on the pop-up to enter the desired boundary name.

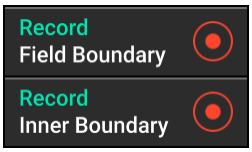
Note: *Selecting an existing file name will overwrite the current boundary dimensions of that file.*



Press Recording Offset to enter the distance from the GPS receiver to the boundary line. Press Save to return Record Boundary screen.



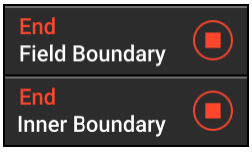
Recording Process



Press Record Field Boundary or Record Inner Boundary to begin recording. Commence driving along the outer or inner boundary of the field.

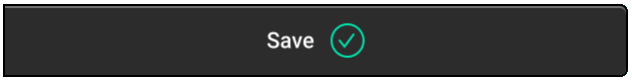
Press Pause to pause recording while repositioning equipment.
To achieve maximum accuracy around outer field corners, it may be necessary to pause recording after reaching an outer corner. Complete the turn and then back the tractor fully into the corner. Press Resume to resume recording once the tractor is properly repositioned.

Press Cancel to discard the current recording.



Press End Field Boundary or End Inner Boundary to stop recording.

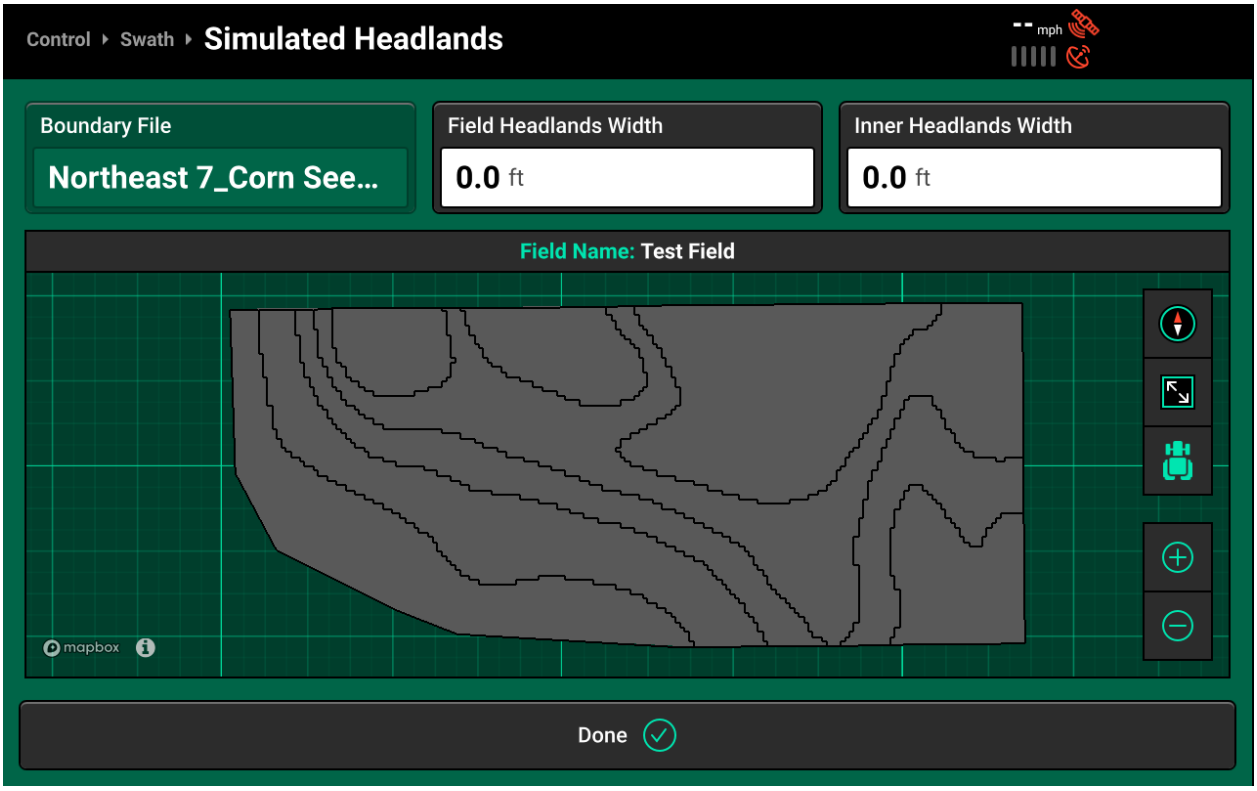
Press Change Direction in the event that the tractor appears to be facing the wrong way.



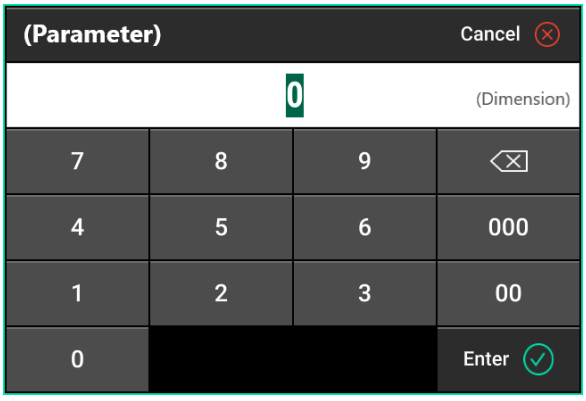
Press Save to keep the current recording.

Simulated Headlands

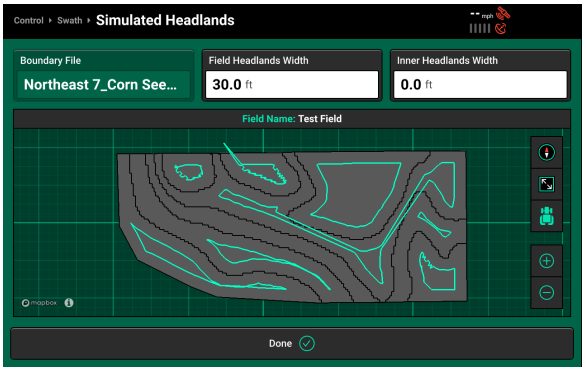
Press Simulated Headlands on the Swath screen to open the Simulated Headlands screen. A graphical representation of the boundary file that is assigned to the active field will be displayed.



Press Field or Inner Headlands Width and enter the desired value for the selected headland type using the pop-up.

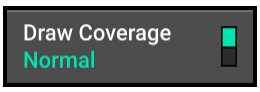


Press Done to draw simulated headland coverage on the boundary file using the specified dimensions and return to the Swath screen.



Draw Coverage

Press Draw Coverage on the Swath screen to change coverage drawing mode. There are two coverage drawing modes.

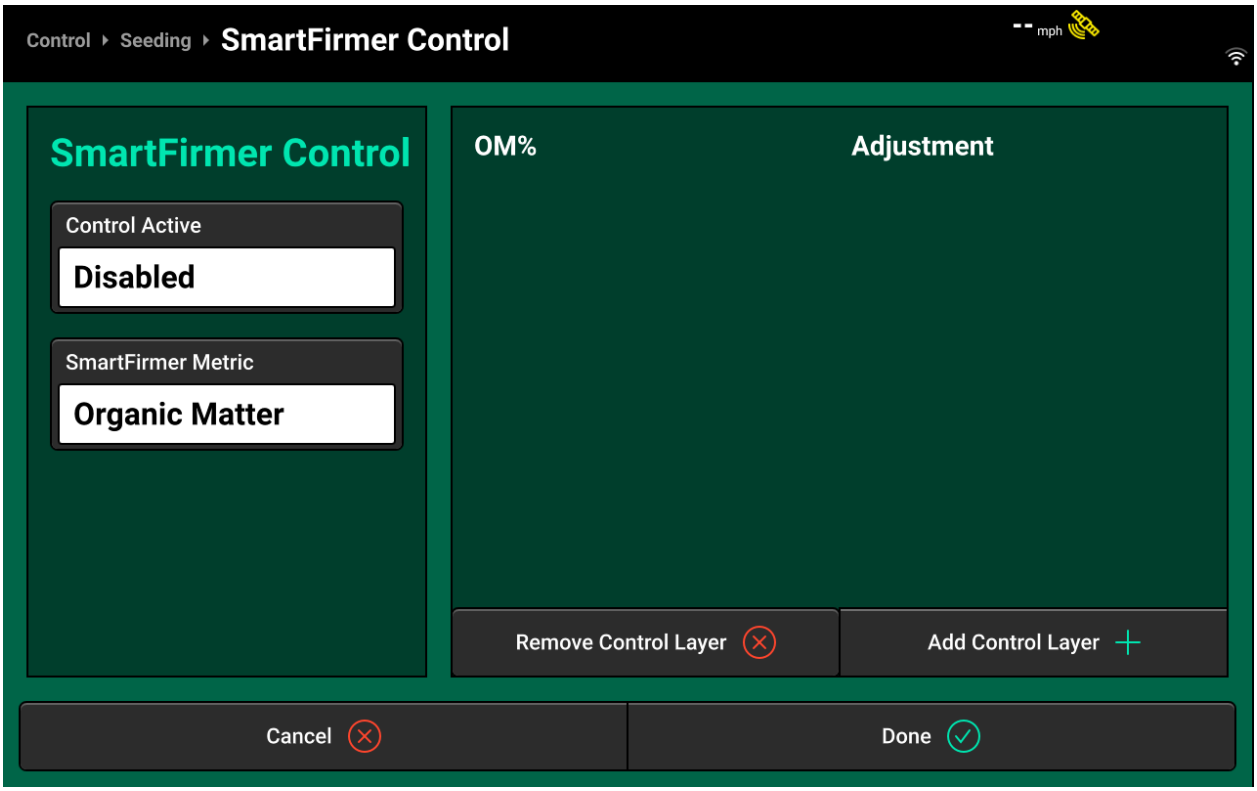


Normal — The 20|20 will map coverage whenever it sees seed drop. This is the default setting.

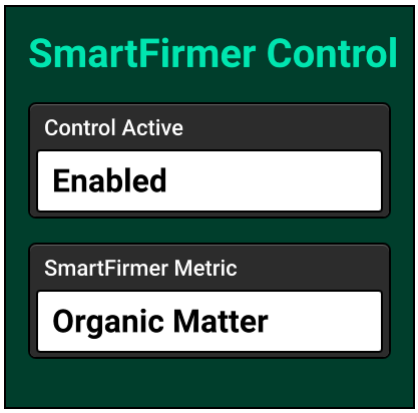
Always — The 20|20 will map coverage regardless of seed data.

Press Back on the Swath screen to return to the vDrive Control screen.

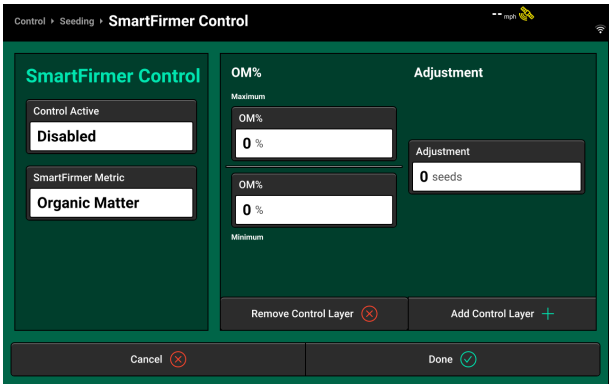
SmartFirmer Control (Optional) — If SmartFirmers are configured/installed on the implement, SmartFirmer control may be enabled if desired. SmartFirmer control changes planting population based on soil conditions. Press SmartFirmer Control to access the SmartFirmer Control screen.

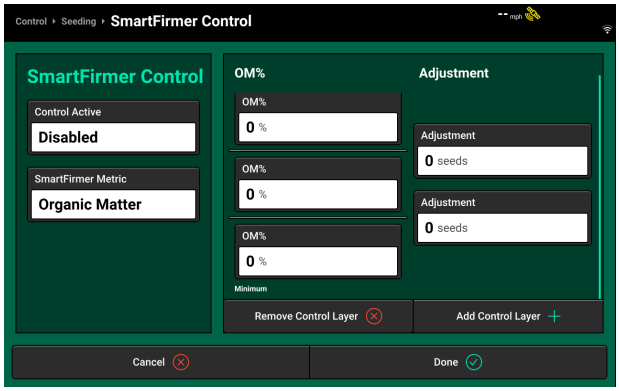


Press Control Active and select Enabled to enable SmartFirmer control. Press SmartFirmer Metric to toggle between organic matter (OM) and cation exchange capacity (CEC) control modes.

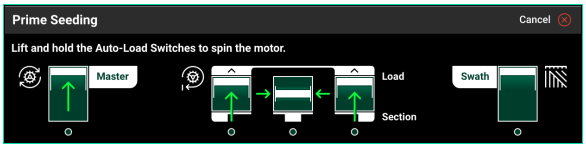


Press Add Control Layer to configure the OM/CEC levels at which the SmartFirmer control feature will adjust population. Press Add Control Layer again to add additional layers of control. Press Remove Control Layer to remove the current minimum layer. Press Done to return to the Control screen.

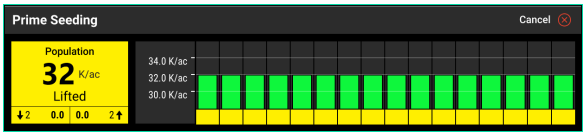




Prime System — Press Prime System to open a pop-up that will instruct the user to switch the Master Plant switch on, and to hold up the left and right Swath switches.



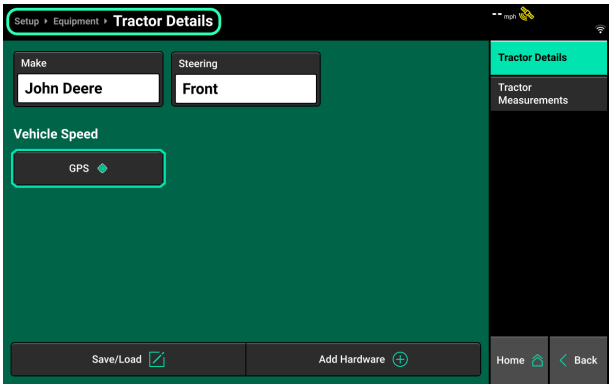
Hold the Swath switches up to prime the system. A pop-up will open displaying commanded rate for each row. Meters will spin and dispense product. The pop-up will automatically close when priming is complete.

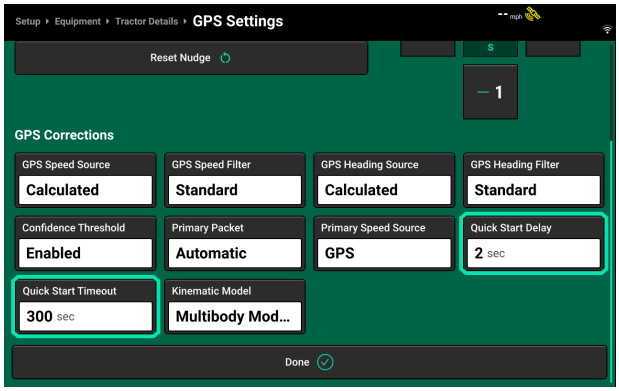


Quick Start

Add the Quick Start widget to the home screen to use the quick start feature. The quick start feature allows the user to start running the meters while stopped. Use this feature to avoid planting gaps if swath timing is found to be inaccurate due to GPS signal or other factors.

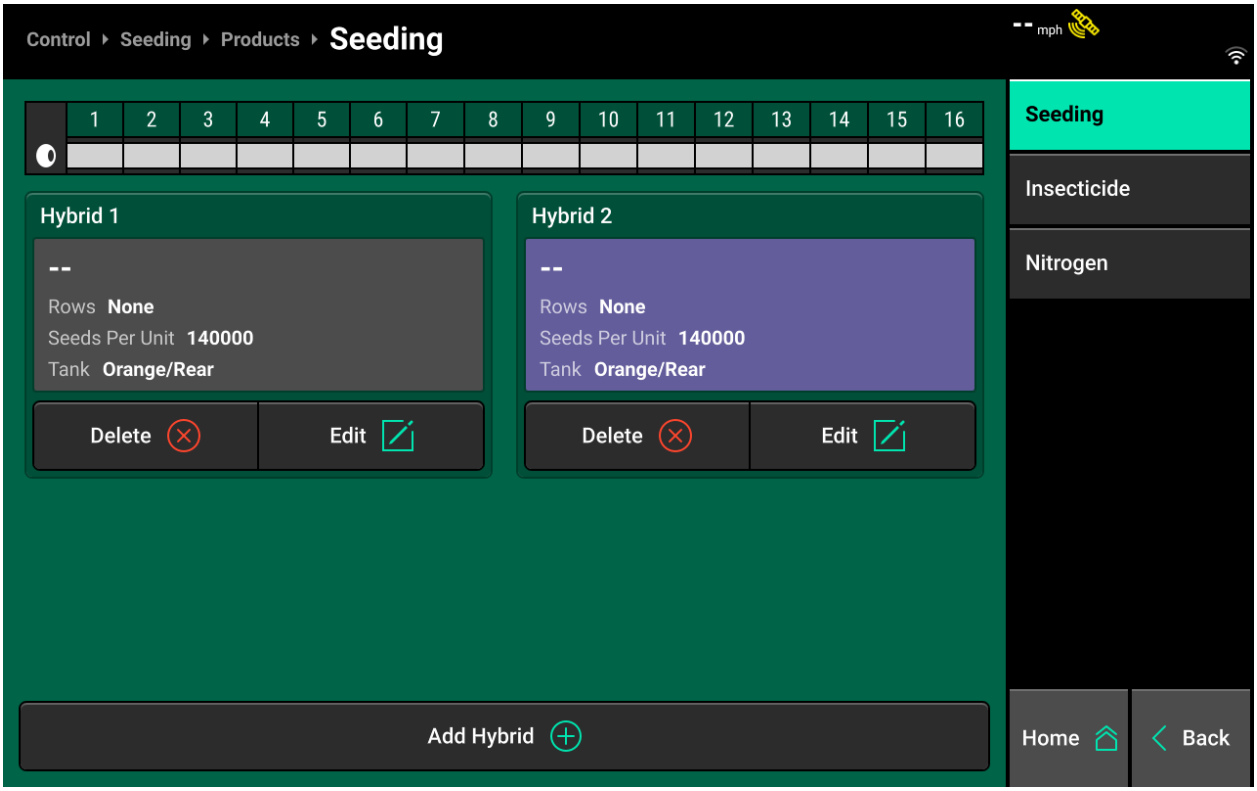
Once the Quick Start widget has been added to the home screen, press it once to initiate a 2 second countdown. When the countdown reaches 0, the meters will begin to spin at a simulated speed of 3 mph. Meters will continue to spin for 300 seconds, or until speed is greater than 3 mph. Countdown and timeout may be adjusted by navigating to Setup > Equipment, selecting the implement that the GPS system is configured on, and pressing GPS to edit GPS Settings.



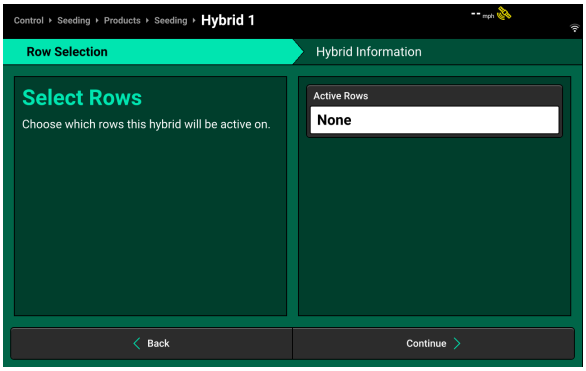


Hybrid Setup

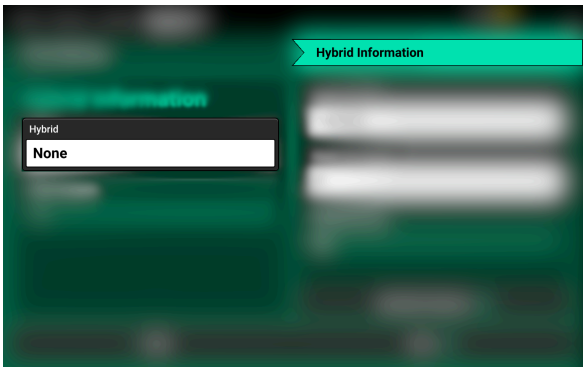
Hybrid Setup — Press Hybrids on the vDrive Control screen to open the Products screen for the selected system. Press Add Hybrid to set up a new hybrid, or select Edit under an existing hybrid. Press Delete under any hybrid to erase it.



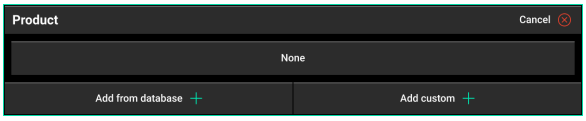
Press Active Rows to configure which rows are planting the hybrid. Select from a list of preset configurations or press Custom to manually configure active rows, then press Continue.



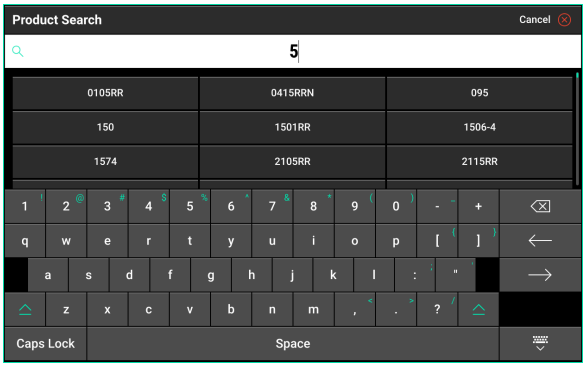
On the Hybrid Information screen, press Hybrid to open a popup that allows for hybrid selection.



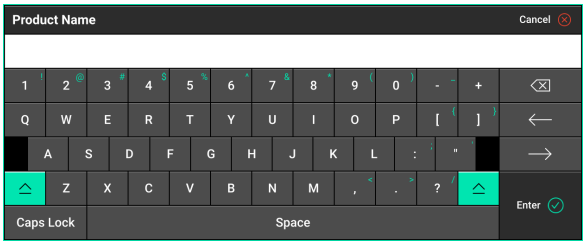
Press Add from database + or Add custom + to select a hybrid from a database or to enter a custom hybrid name.



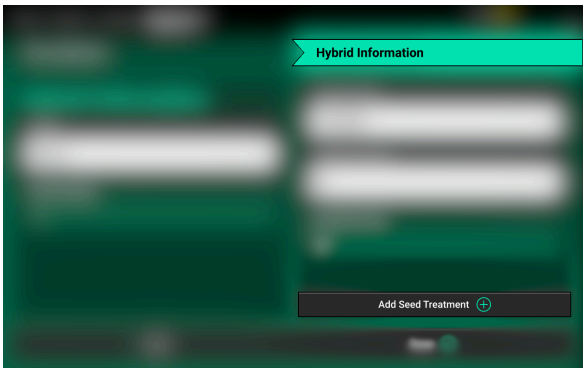
Add from database — Press the search bar, then use the on-screen keyboard to enter the hybrid name. Once any text is entered, a list of hybrids that match the entered name will be displayed below the search bar. Press the desired hybrid once it is displayed to select it.



Add custom — Use the on-screen keyboard to type the desired hybrid name. Press Enter when the name is complete to save the custom hybrid and select it.



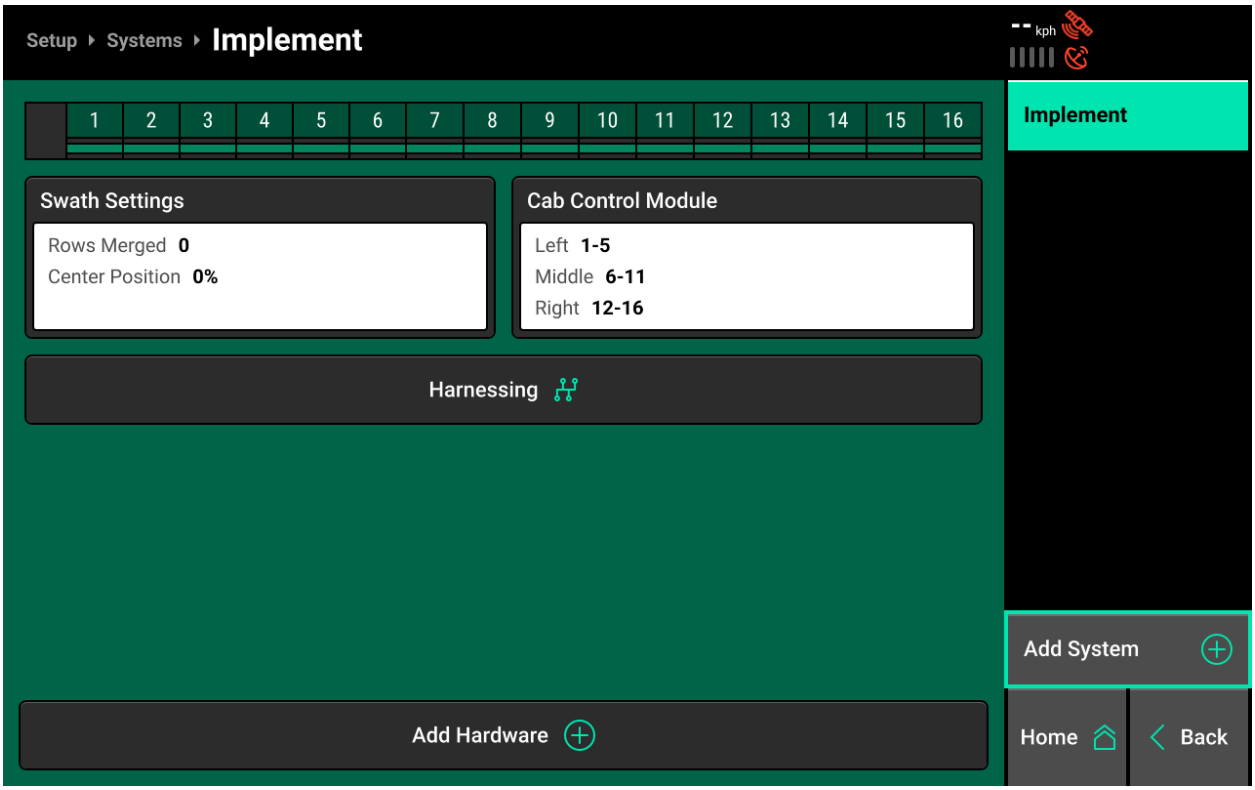
On the Hybrid Information screen, press Add Seed Treatment to select a preset seed treatment or configure a custom treatment using the same process described for hybrids above.



Press Done to return to the Products screen, then press Back to return to the Control screen.

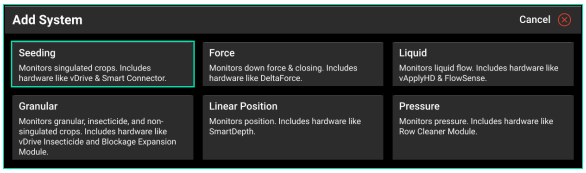
System Setup

vDrive must be configured in a Seeding system. To add a Seeding system to an implement, navigate to Setup > Systems. This guide assumes that all Equipment, implement-wide modules and harnessing have already been configured and calibrated. See the *Gen 3 20|20 Operator's Guide — 2024.1.x Software* for more details on setting up/calibrating harnessing and implement modules.



Step 1:

Press Add System and select Seeding.

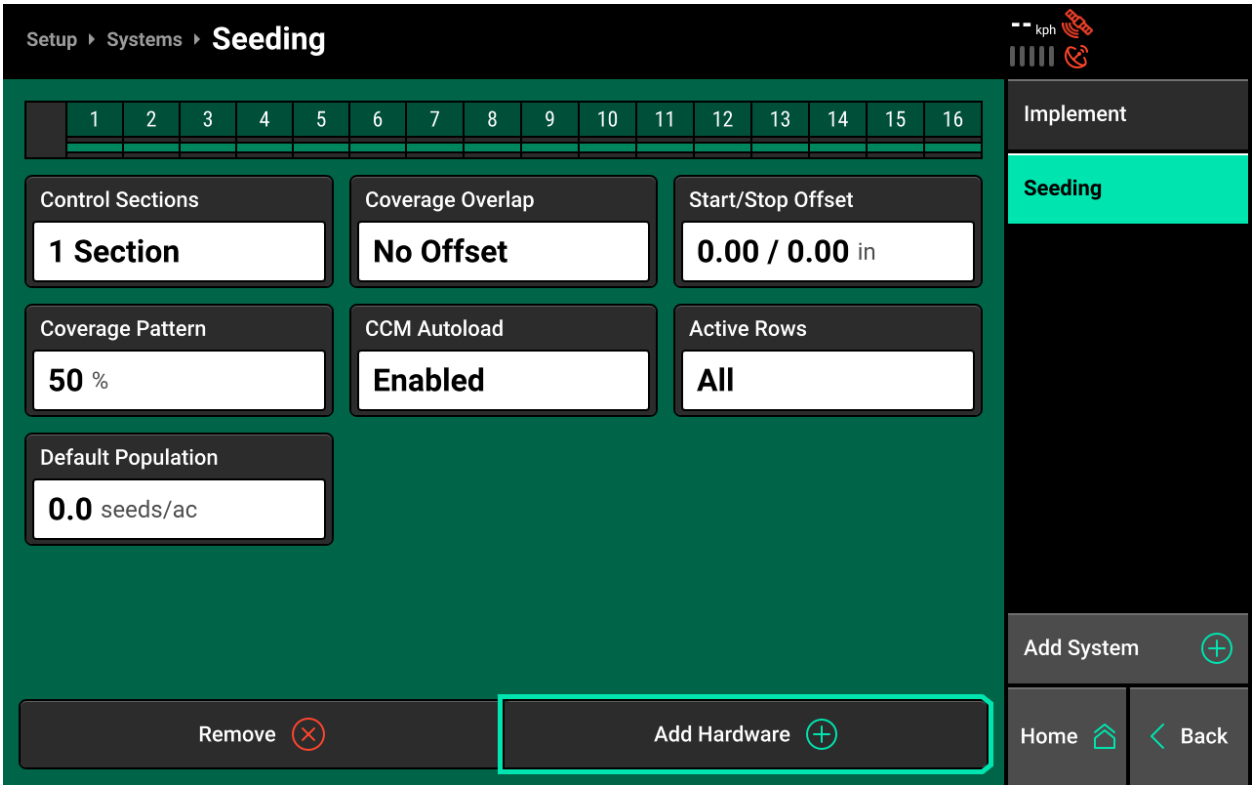


Step 2:

Select a preset system name, or press Custom and use the pop-up keyboard to enter a custom name.

Hardware Setup

To configure vDrive system hardware, select the [Seeding system name] system in the navigation menu, then press Add Hardware in the bottom of the screen.

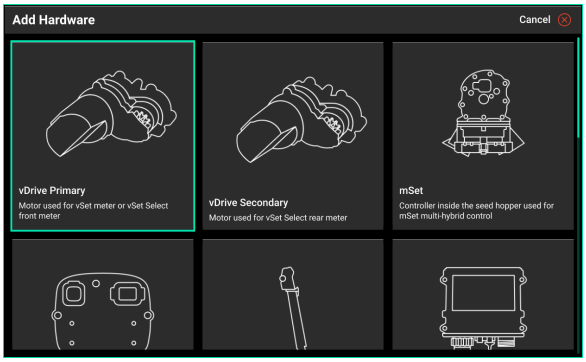


vDrive Modules

Step 1:

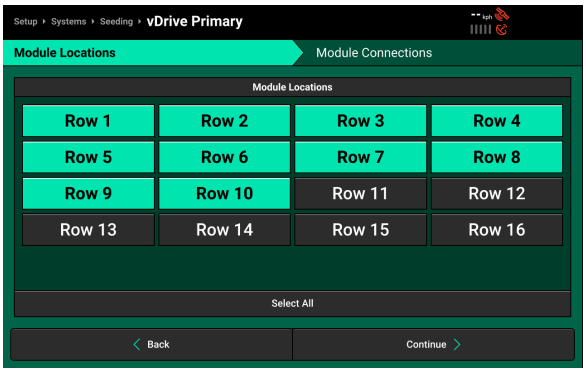
Scroll up/down on the list of available modules and press vDrive Primary.

Note: *vDrive Secondary is used when configuring vSet Select and will not be detailed in this guide.*



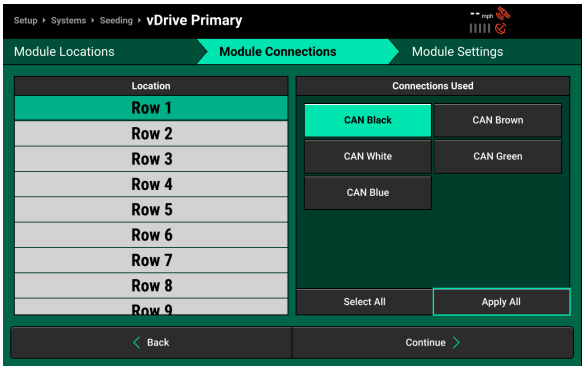
Step 2:

Press on each row vDrive is installed on, or press Select All to highlight all rows, then press Continue to advance to Module Connections.



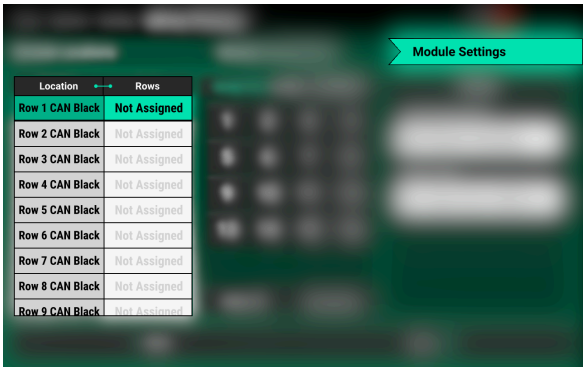
Step 3:

Select the color of CAN jumper that connects the vDrive module to the SRM/CAN Expansion Hub. Press Apply All to apply the selection to all rows if all vDrive modules are plugged in with the same color of CAN jumper, then press Continue to advance to Module Settings.



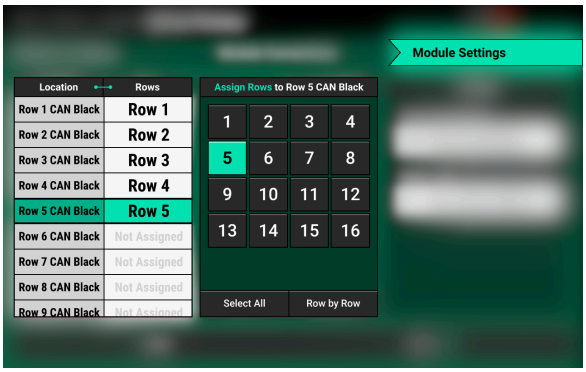
Step 4:

Scroll down on the list under Location to verify correct number of modules/CAN jumper color.



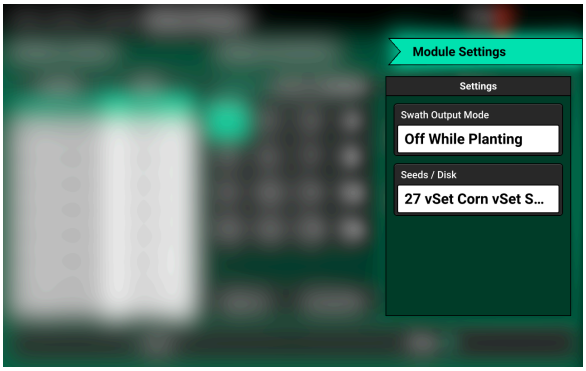
Step 5:

Press the correct number in the Assign Rows table in the center of the screen to assign that planter row to the highlighted module under Location. Select the next module, then press the next row number. If all rows are equipped with vDrive modules, press Row by Row in the lower right corner of the Assign Rows table to assign all rows/modules sequentially.



Step 6:

Press the appropriate Settings option to configure vDrive swath output parameters if using the vDrive swath output harness (729097/729117) or to change Seeds/Disk.

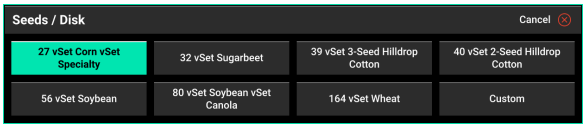


Swath Output Mode

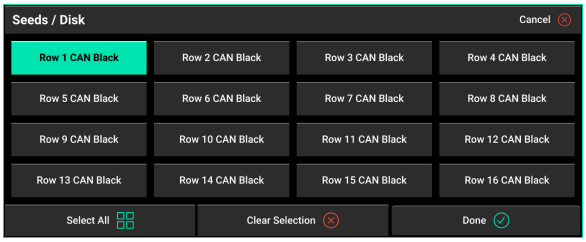
Off While Planting — 12 volts will output when vDrive is swathed off.
On While Planting — 12 volts will output when vDrive is swathed on.
Always Off — Voltage will never output.
Always On — 12 volts will always output.

Seeds/Disk

Select a preset seeds/disk, or press custom and use the pop-up keyboard to enter a custom number.

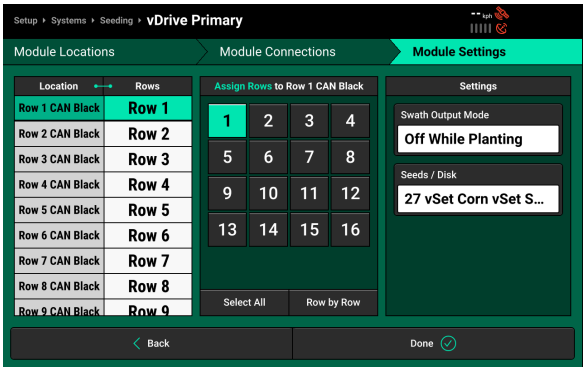


Press each row to apply the selection to the highlighted rows, or press Select All to apply the selection to all rows. If intercropping, select only the rows which have the current selection of seeds/disk installed. Press Clear Selection to deselect all rows. Press Done to return to Module Settings.



Step 7:

Review all module settings. Press Done when complete.

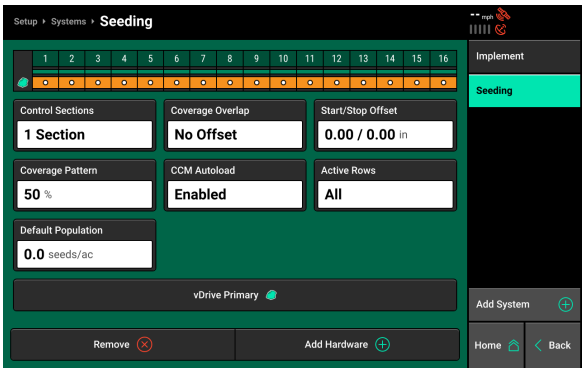


Seed Sensors

vDrive requires either SRM Seed Sensors or SpeedTube modules to function. This guide will detail SRM Seed Sensor setup. See the SpeedTube Operator's Guide for more details on setting up SpeedTube.

Step 1:

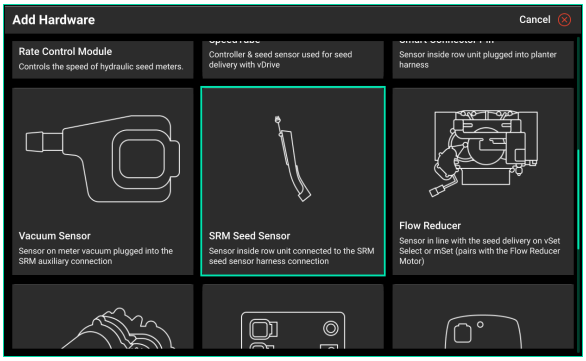
Press Add Hardware on the [Seeding system name] system screen.



Step 2:

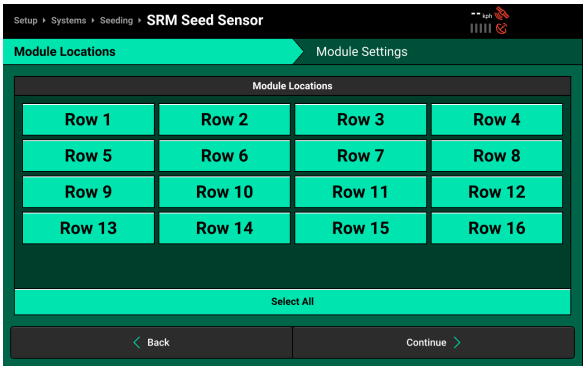
Scroll up/down on the list of available modules and press SRM Seed Sensor.

Note: *All models of seed sensor (e.g. Bullseye, Wavevision, etc.) will use the same hardware selection.*



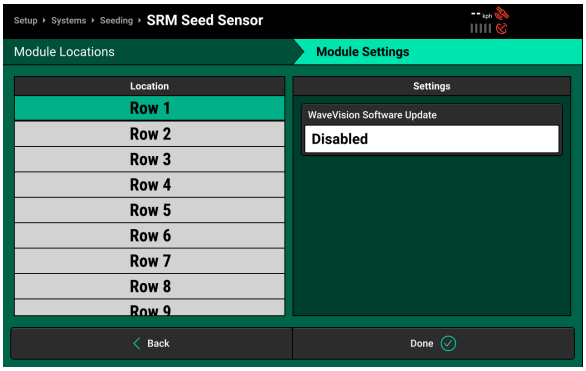
Step 3:

Press on each row an SRM Seed Sensor is installed on, then press continue to view Module Settings.



Step 4:

Scroll down on the list under Location to verify correct number of modules. Under Settings, leave WaveVision Software Update disabled unless advised by Product Support. Press Done to return to the system screen.

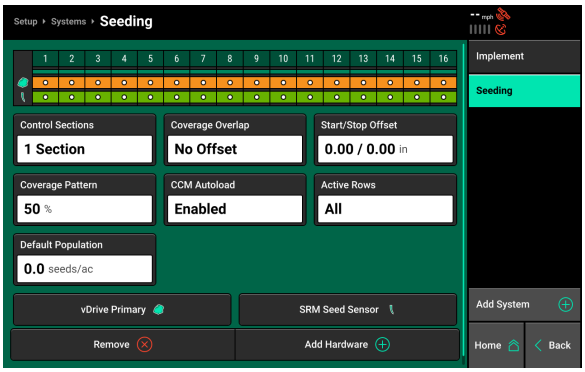


Additional Hardware

Vacuum sensors may also be added to a seeding system. vDrive does not require vacuum sensors to function. Use the following process to set up vacuum sensors.

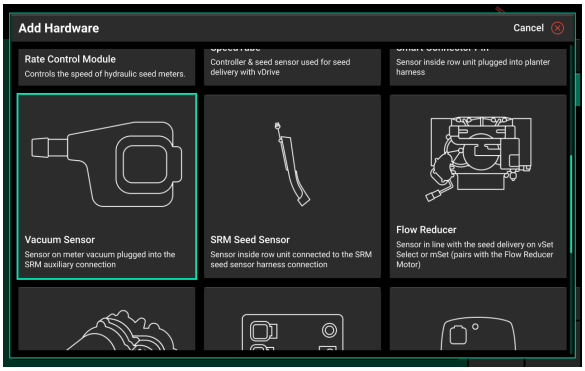
Step 1:

Press Add Hardware on the [Seeding system name] system screen.



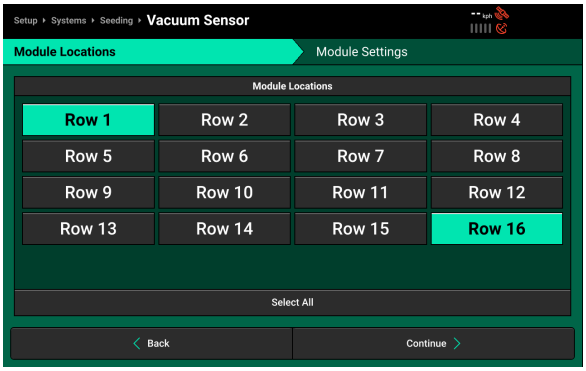
Step 2:

Scroll up/down on the list of available modules and press Vacuum Sensor.



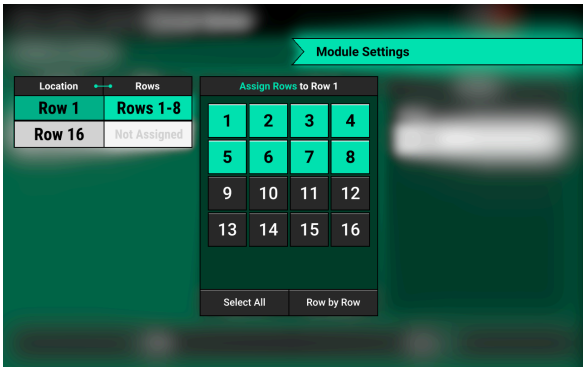
Step 3:

Press on each row a Vacuum Sensor is installed on, then press continue to view Module Settings.



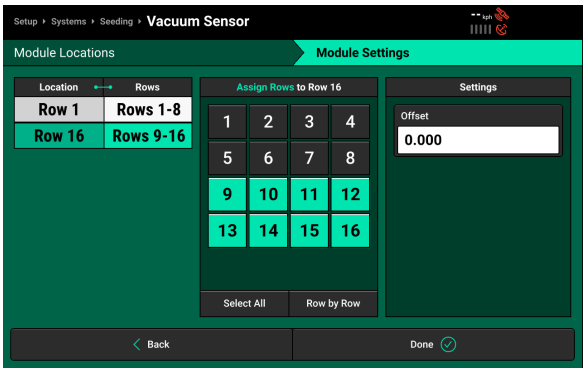
Step 4:

Observe which module is highlighted under the Location List. In the Assign Rows table in the center of the screen, press all rows that the highlighted sensor will be monitoring. Typically, this will be half of the planter for each sensor.



Step 5:

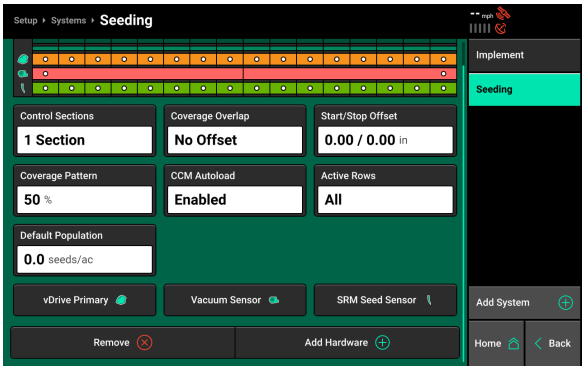
Select the next sensor and repeat row monitoring selection for that sensor. Any row which is not assigned to a sensor will not map on the vacuum map layer in Panorama.

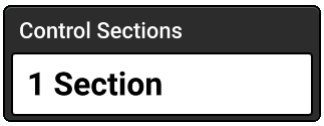


Note: *As of 2024.1.4, the offset feature in module settings is non-functional. This feature will be added in a future update.*

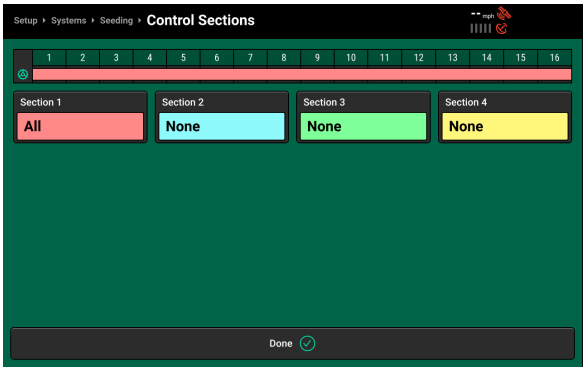
System Settings

To configure vDrive system settings, select the [Seeding system name] system in the navigation menu. Press the desired setting to modify it.

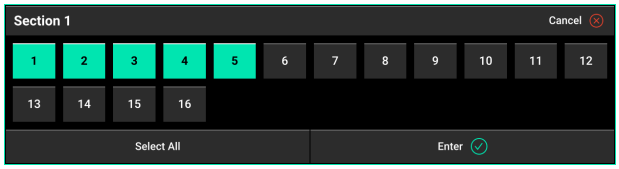


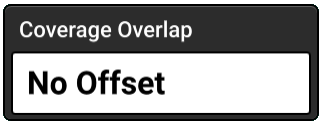


Press Control Sections to open the control sections screen. Use this screen to set up multiple control sections, and to assign different rows to those sections. The default number of control sections is 1. A default population may be set for each control section using the control widget on the home screen. See the *Home and Control Screens* section of this guide for more details.



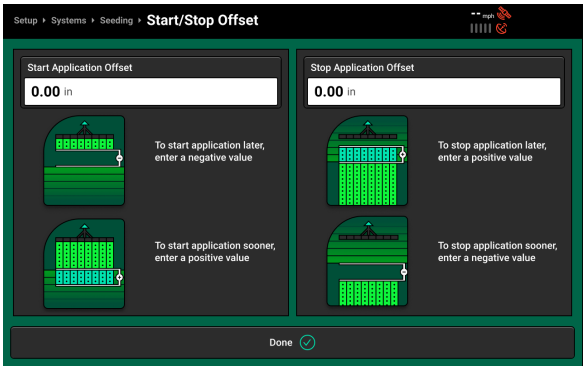
Press any section to open a pop-up which allows the user to assign a preset group of rows to that section, or to assign a custom selection to that section. Press List to assign custom rows.

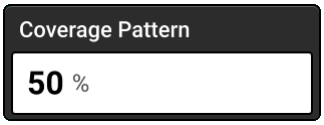




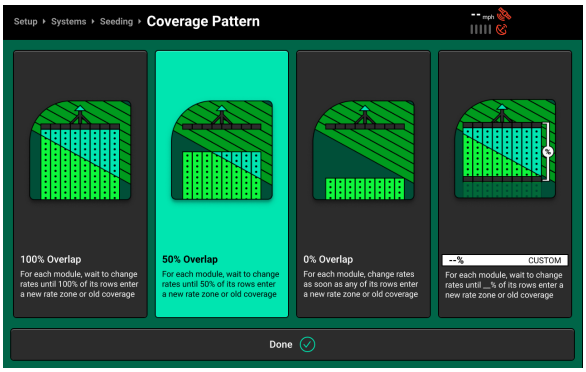
Press Coverage Overlap to open the Coverage Overlap screen. Use this screen to configure how the 20|20 will swath modules on/off when entering/leaving existing coverage. Select one of the presets, or press Custom to enter a custom overlap setting. No Offset is the default setting.

Press Start/Stop Offset to open the Start/Stop Offset screen. Use this screen to fine-tune the coverage overlap setting when GPS signal is inaccurate, or when other swathing issues occur. Press Start or Stop Application Offset and enter a negative or positive value to adjust the selected value.



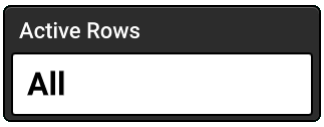


Press Coverage Pattern to open the Coverage Pattern screen. Use this screen to change how any merged row sections or section control modules swath on/off to existing coverage. Select one of the presets, or press Custom to enter a custom coverage pattern setting. 50% Overlap is the default setting.

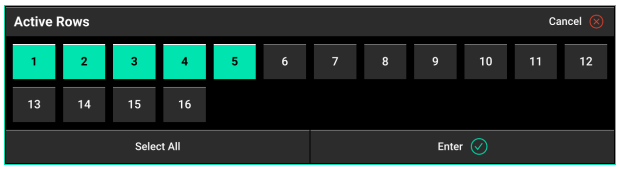


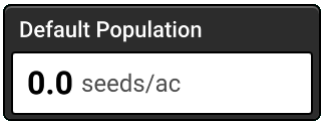
Press CCM Autoload to open a pop-up which allows the user to select whether the vDrive system will run when the swath switches on the CCM are held up. The default setting is Enabled.

Note: *CCM Autoload may be enabled/disabled for each application system individually.*

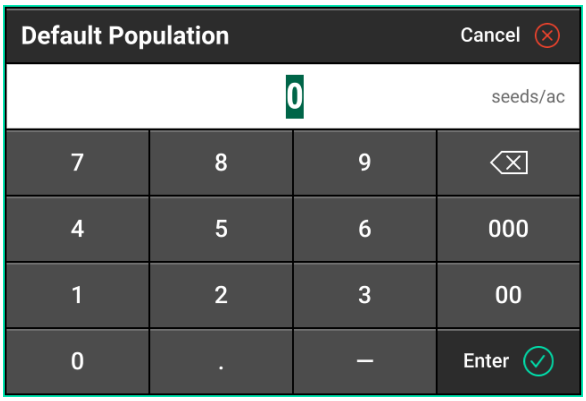


Press Active Rows to open a pop-up which allows the user to select the active rows for the system. Press a preset selection, or press List to select a custom section. Use this setting to disable any rows if desired.



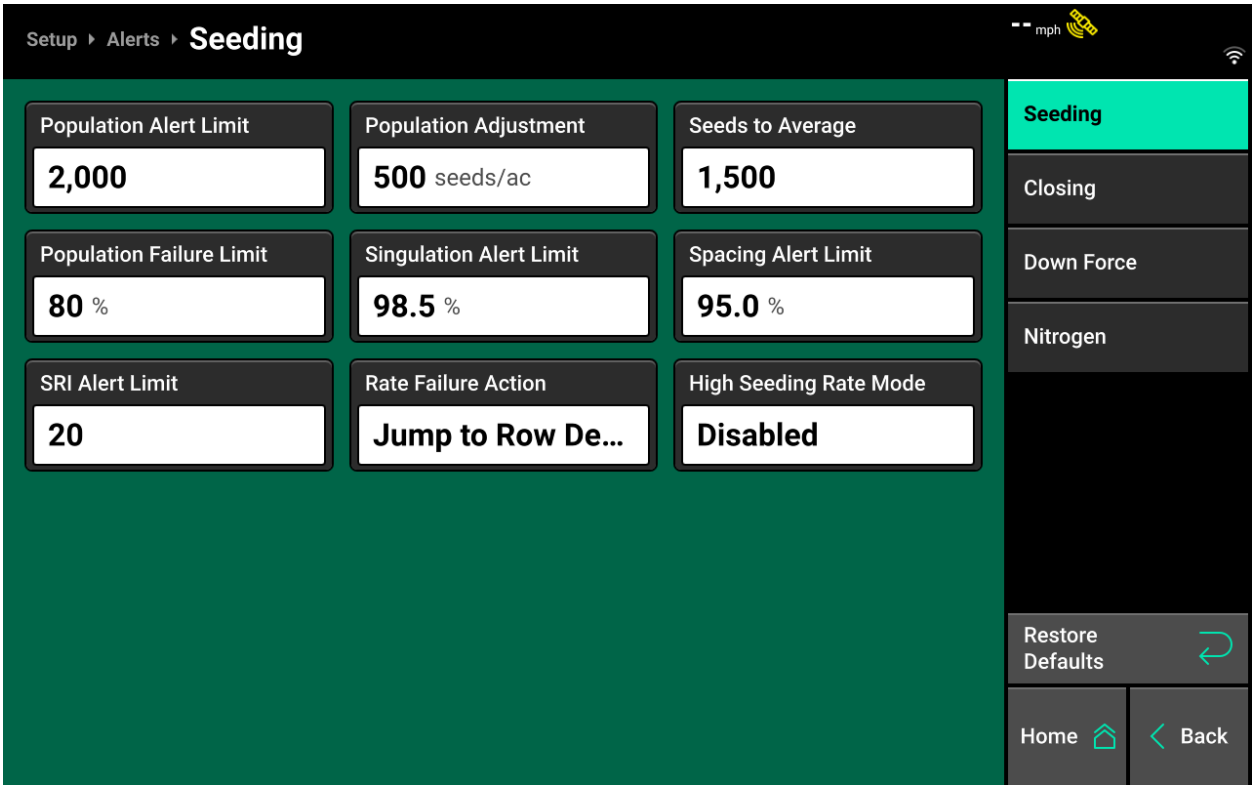


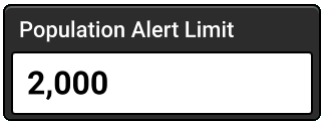
Press Default Population to open a pop-up which allows the user to input a system-wide default population.



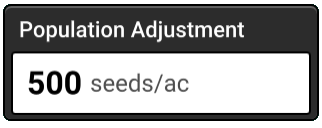
Alerts

The Alerts menu is used to configure product and system specific alerts and alarms. Navigate to Setup > Alerts and select the [Seeding system name] system, then press any box to open a pop-up which allows the user to adjust the selected parameter. A Seeding system must be configured to access the Seeding alerts screen.

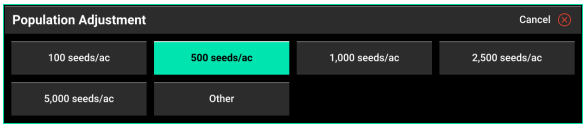


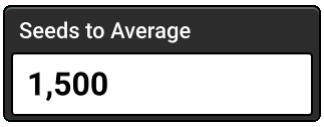


Selects the threshold at which the 20|20 will display an alert. This value corresponds with the value each seed sensor is reading compared to commanded population.

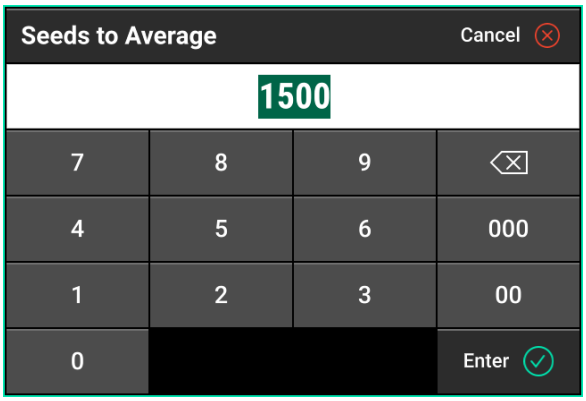


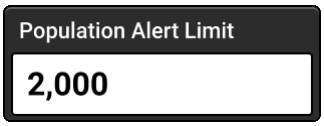
Selects the value by which the quick adjust buttons on the seeding system control screen will adjust population.



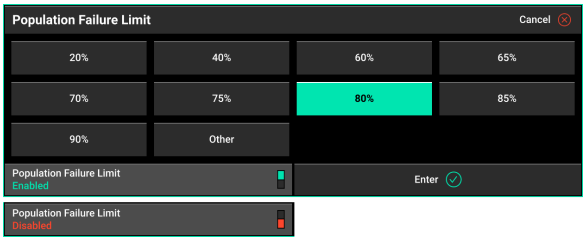


Allows the user to enter the value which the 20|20 will use when calculating the rolling average for population, singulation, spacing, and SRI. It is recommended to use a value that corresponds to 1% of population.
E.g. If planting with a population of 30,000, use a seeds to average value of 300.

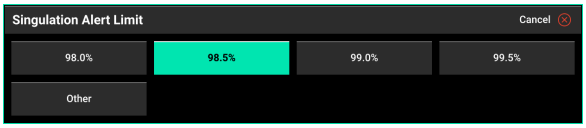


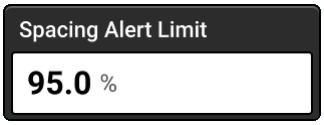


Allows the user to select the percent difference from commanded population at which the 20|20 will deliver a failure alarm. Press Enabled to disable population failure alarms.

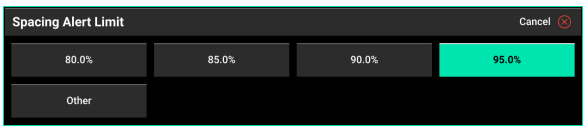


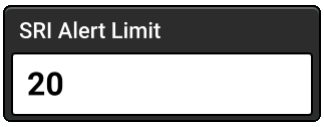
Allows the user to select the singulation percent at which the 20|20 will deliver an alert.



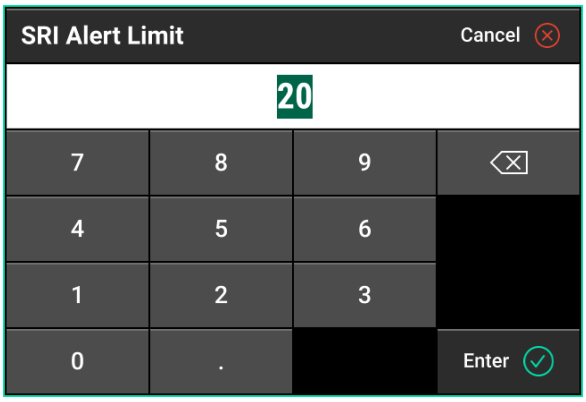


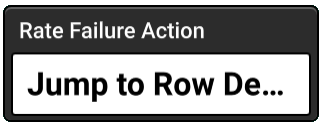
Allows the user to select the seed spacing percent at which the 20|20 will deliver an alert.



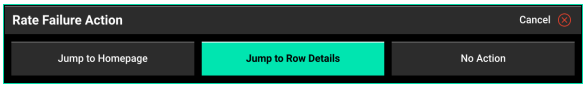


Allows the user to enter the SRI value at which the 20|20 will deliver an alert.





Allows the user to select the action that the 20|20 will take when the failure threshold is reached.



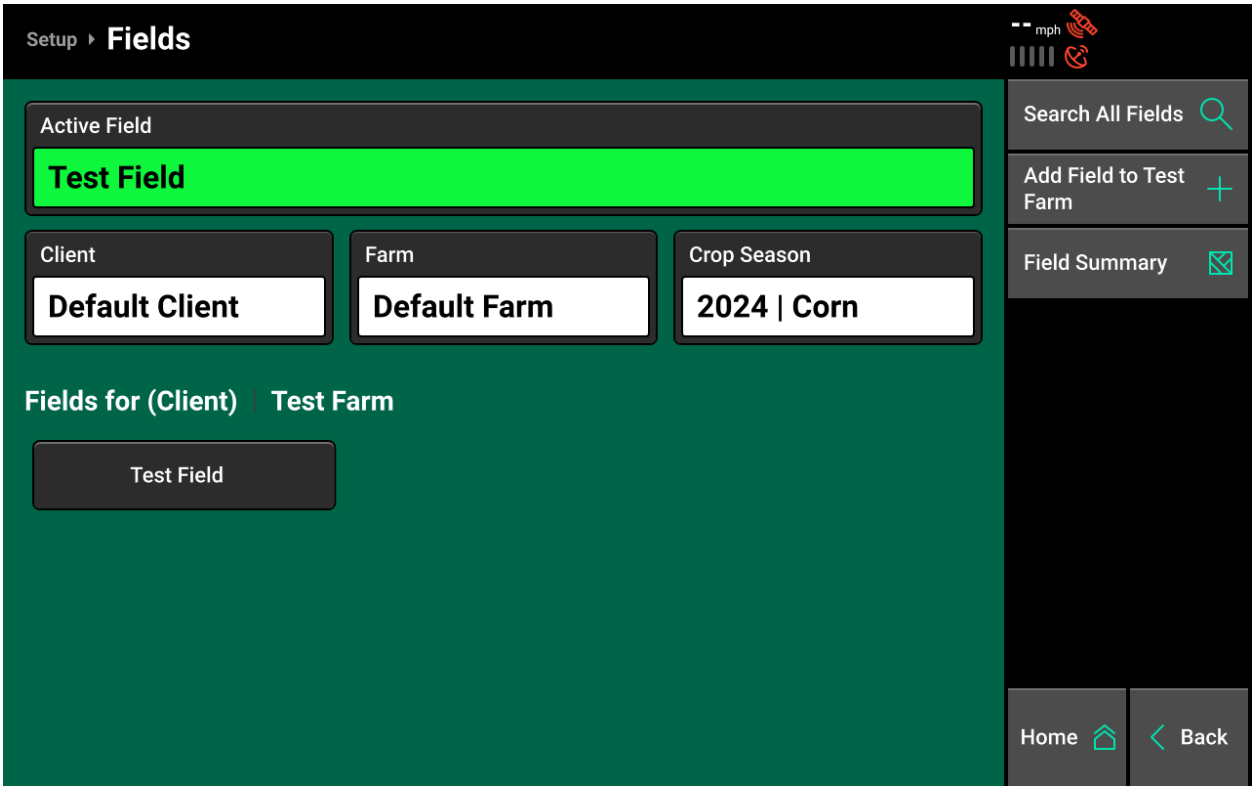
- Jump to Homepage — The 20|20 will go to the Home screen when the failure threshold is reached.
- Jump to Row Details — The 20|20 will go to the Row Details screen when the failure threshold is reached.
- No Action — The 20|20 will not take any immediate action when the failure threshold is reached.

SmartConnector (sensing-only systems) only. Allows the user to enable a different sensing algorithm if experiencing inaccurate population readings when planting at a very high rate. This setting should not be enabled on a vDrive-equipped planter.

Field and Crop Setup

Navigate to Setup > Fields to select the active crop/season start year and the active field.

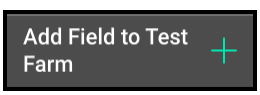
The Fields screen also allows the user to create and edit Clients, Farms, and Fields, or assign prescription and boundary files to fields.



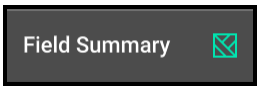
The Fields screen will display the active field name in green, with the client and farm names in addition to the active crop and season start year displayed below.

All fields under the current client/farm will be displayed in the table under Fields for (Client). To access the Field Setup screen for the active field, press the field name displayed in green. To access the Field Setup screen for a different field or to make a different field active, press the desired field name from the table under Fields for (Client). Press and drag on the screen to scroll down on the table, or press Search All Fields.

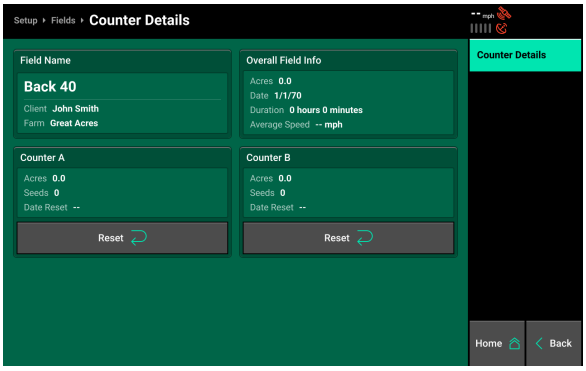
Use the pop-up keyboard to enter the desired field name, which filters results by that name.



Fields may be added under the same Client and Farm name by pressing Add Field to (current farm name). Use the pop-up keyboard to enter a new Field name. Press Enter to save the new field.



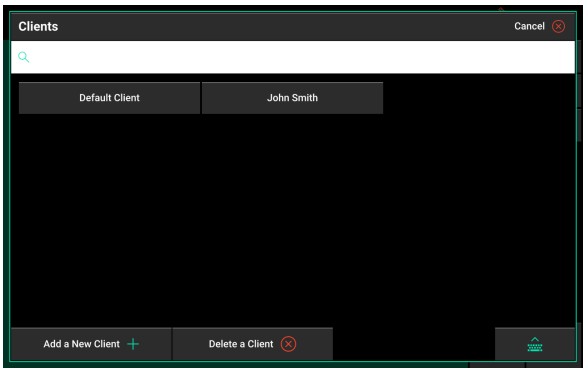
Press Field Summary to access the Counter Details screen. This contains field specific information and reset buttons for the acre counter widget. Press reset to set the acres for each counter to 0. The last reset date will be displayed under each counter.



Changing Client/Farm

To view fields for another client/farm, press either client or farm to open a list of all entries for the selected option.

After pressing Client, a list of all client names is displayed. To add a client, press Add a New Client at the bottom of the screen. To delete a client, press Delete a Client. To search all client names, press the keyboard icon and enter the desired name to filter results.

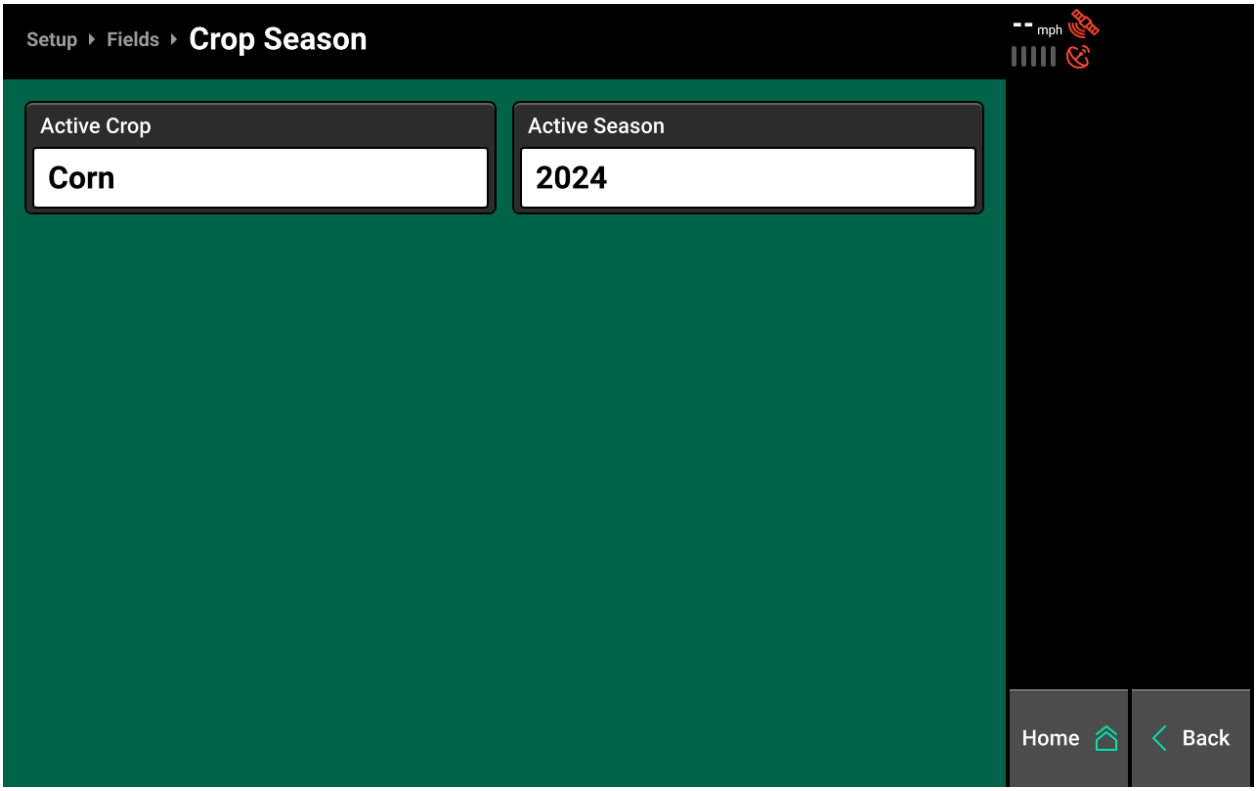


Once a client is selected, the farm selection screen will be displayed. All farms under the selected client will be displayed. Farm names may be created, deleted, or searched using the same process described for clients. Press Back to Clients to select a different client.

Once a farm is selected, the field selection screen will be displayed. All fields under the selected farm will be displayed. Field names may be created, deleted, or searched using the same process described for clients and farms. Press Back to Farms to select a different farm.

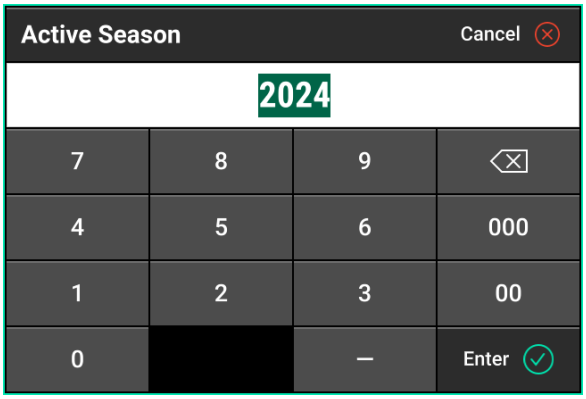
Changing Crop and Season

Press Crop Season to open the Crop Season screen. This screen allows the user to change the active crop and crop season. All data for the field will be recorded under the selected crop/year.



Press the name under Crop to open a pop-up which allows the user to select a crop from a premade database, or to enter the name of a custom crop.

Press the year under Season to open a pop-up keyboard that allows the user to enter the current year.

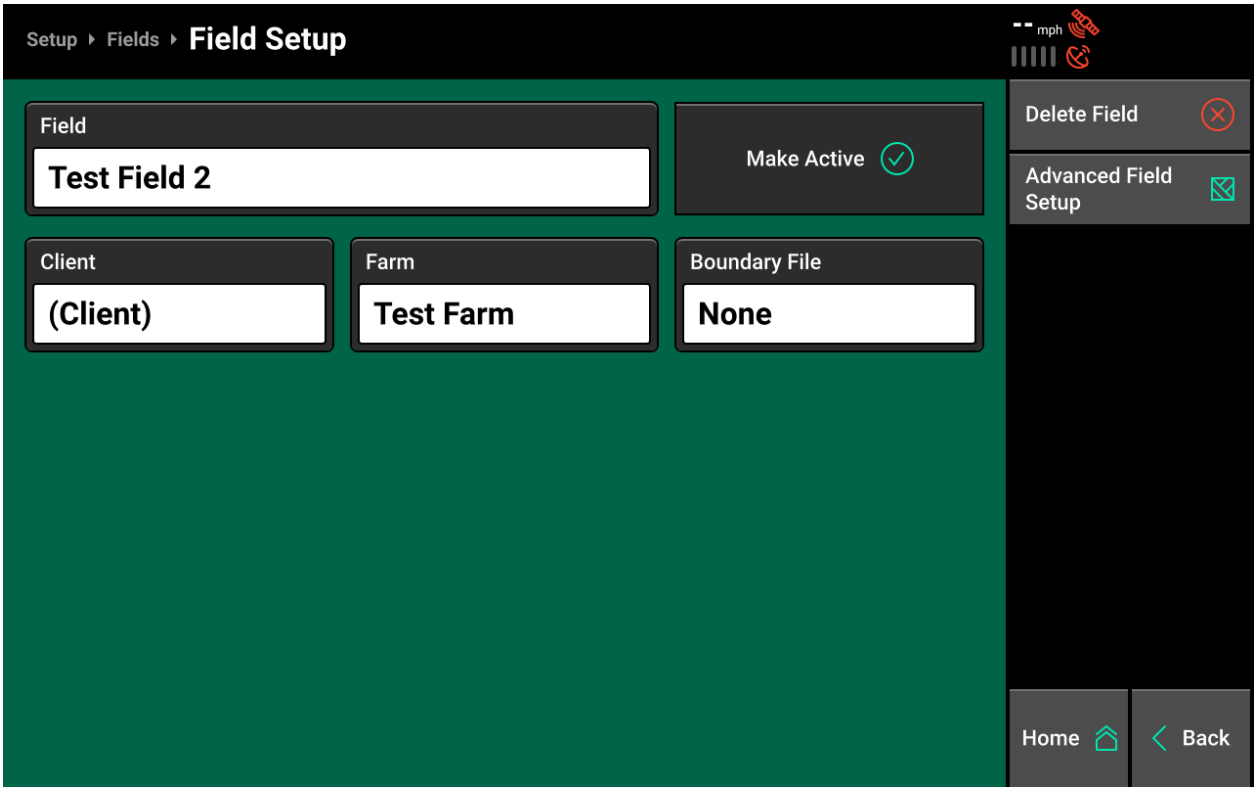


Note: *The selection for active crop/season will not reset when changing fields. When changing fields, the user must ensure that crop/season for that field is correct.*

Field Setup

Navigate to the Field Setup screen either by pressing on the active field name, pressing any field name displayed below Fields for (Client), or searching for a field name and pressing the resulting name. Press Make Active to set the selected field active. Data and maps will now be stored under the selected field name.

Note: *If Make Active reads Done instead, the selected field is already the active field.*



Press Delete Field to erase the selected field name. Map coverage data will not be erased.

If coverage already exists for a field, products such as vDrive will remain swathed off. Press Delete Coverage to clear all coverage from the selected field and allow products to swath on.

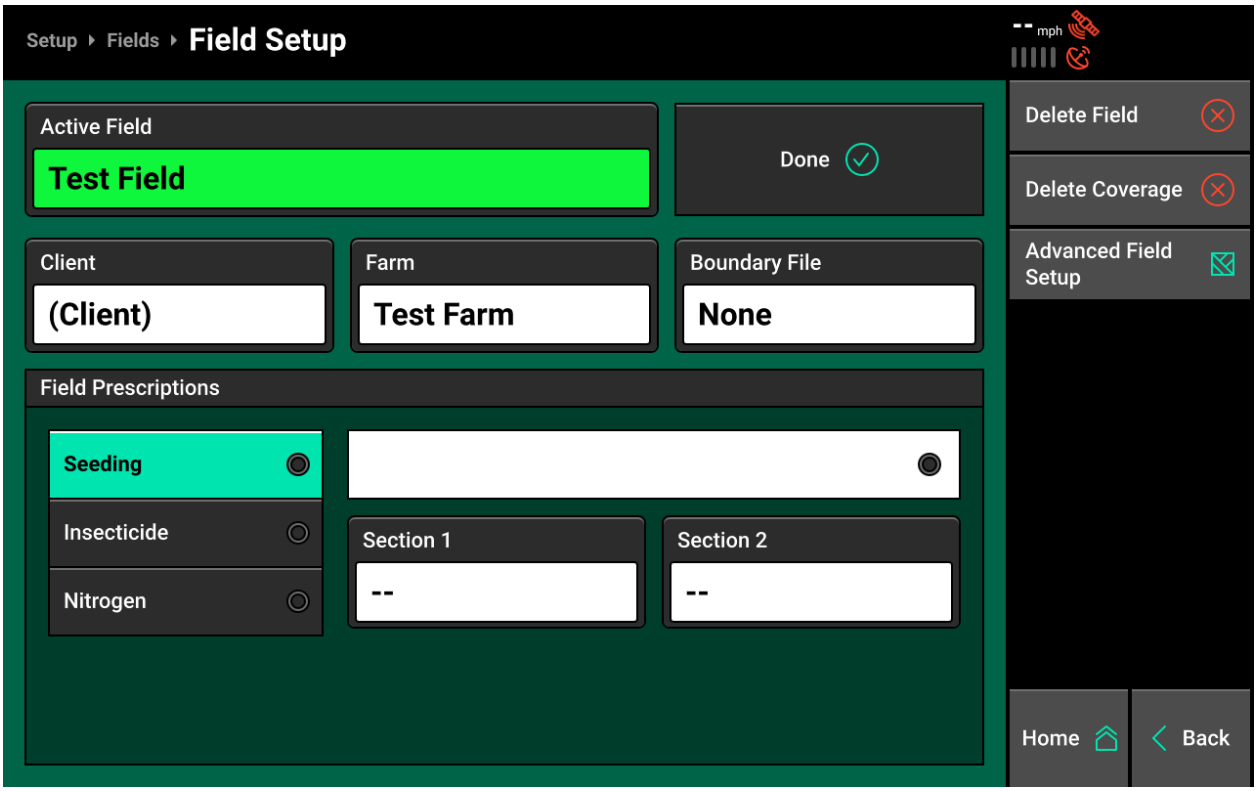
Note: *This option will not be available unless the selected field is set to active.*

Press Advanced Field Setup to manually enter expected field acres.

Assigning Prescriptions and Boundaries

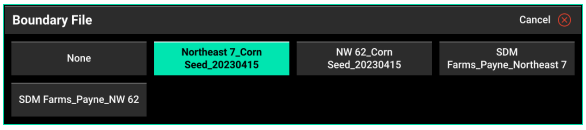
If Prescriptions and Boundaries have been imported into the 20|20, they may be assigned to the desired field(s) on the Field Setup screen.

Note: *The Field Prescriptions box and selection menu will only be displayed after an appropriate control system has been configured in System setup. E.g. Seeding prescriptions will not be available until a seeding system has been set up. Configure the appropriate system, then return to Field Setup.*



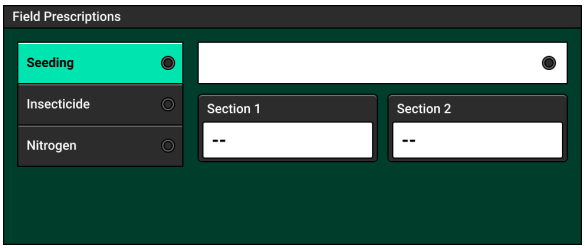
Assigning Boundaries

Press Boundary File to open a pop-up which displays all saved boundary files. Select the appropriate boundary file for the active field.

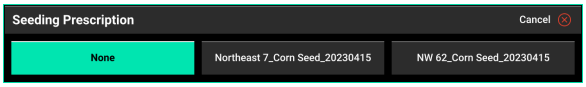


Assigning Prescriptions

The 20|20 may use prescription files for Seeding, Liquid application, Insecticide, and more. Import all prescription files into the 20|20 before continuing.



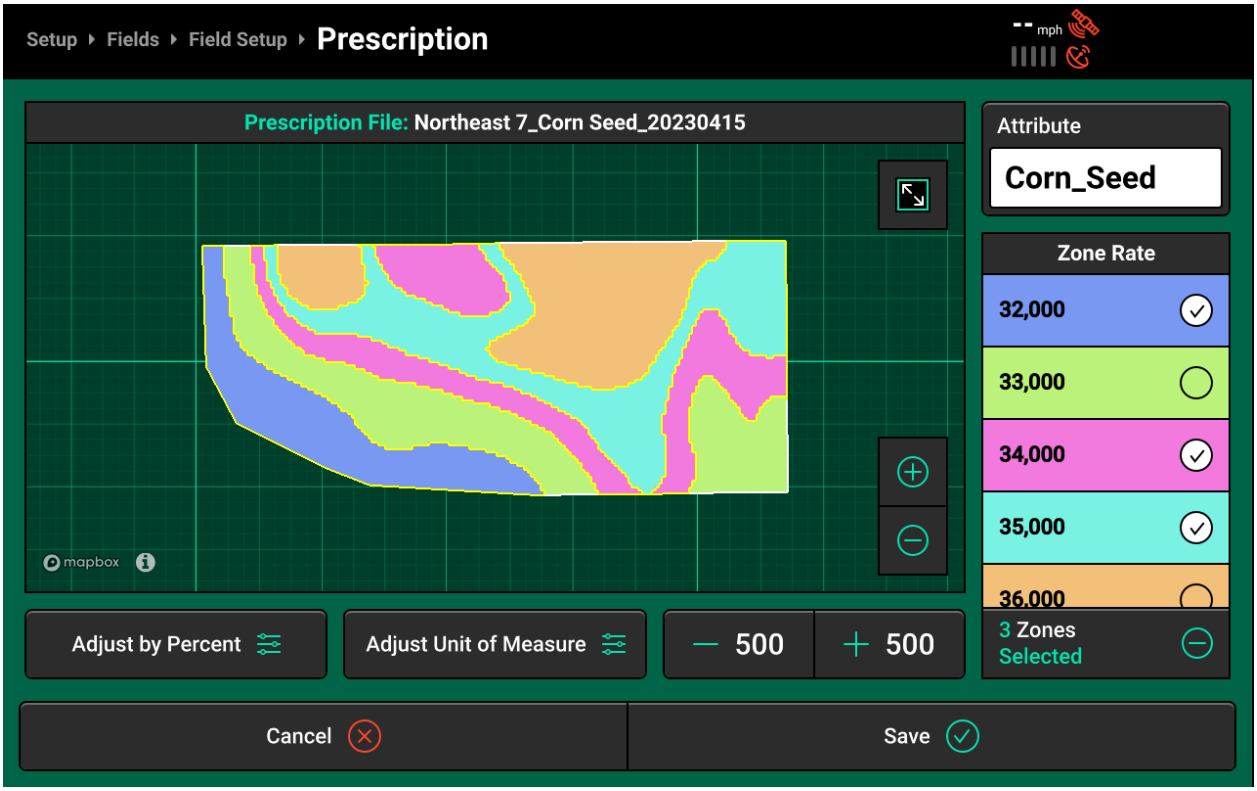
Press the desired prescription type displayed below Field Prescriptions, then press the white box to the right to open a pop-up which displays all prescription files. Select the desired prescription to assign it to the field. Assigning a prescription will open the Prescription Edit screen.



Note: *All prescriptions must be assigned manually to the desired field.*

Prescription Edit

The Prescription Edit screen allows the user to edit certain prescription parameters. A graphic representation of the prescription is displayed on-screen.



If the prescription file contains multiple attributes, press Attribute in the top right to open a pop-up which allows the user to select the desired attribute.

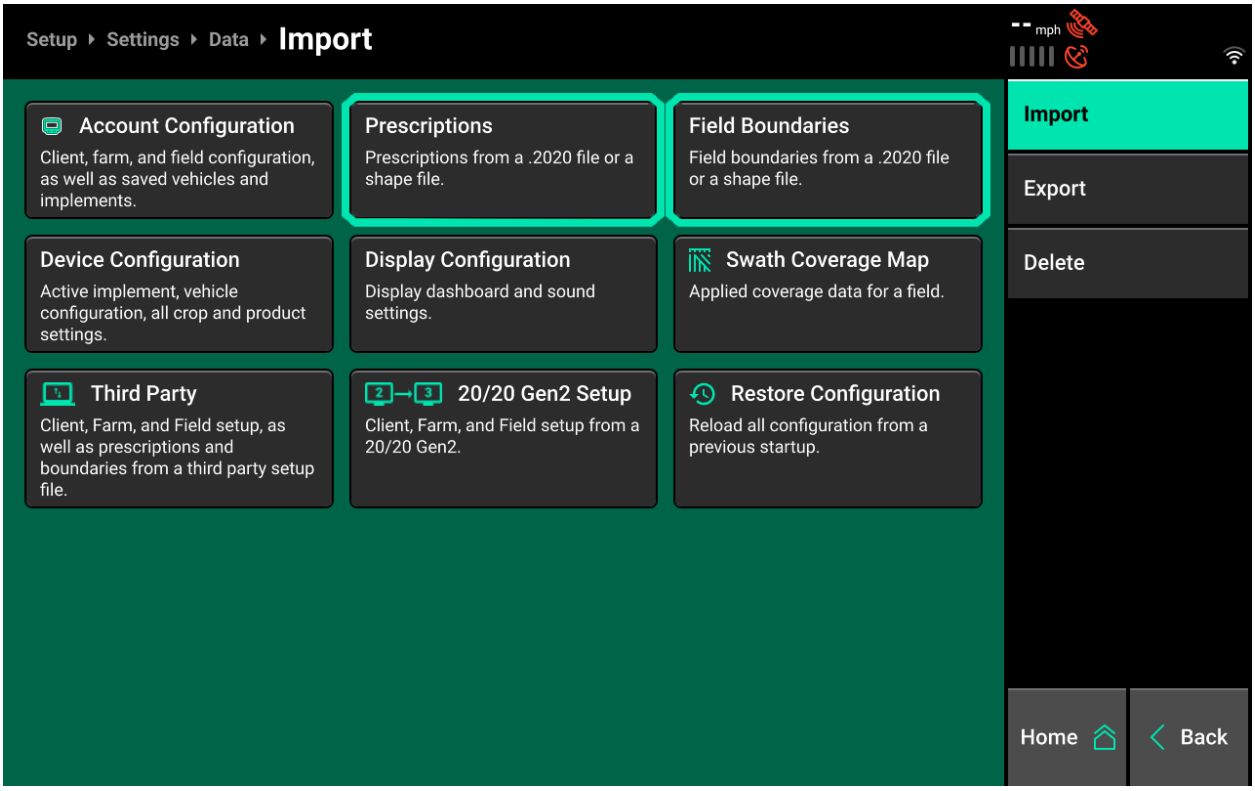
Select a rate in the Zone Rate table, or press Select All to select all rates. Use the quick adjust buttons to change the selected rate(s) by a preset amount. Use Adjust by Percent to adjust rate(s) by a custom amount. Press Adjust Unit of Measure to toggle between seeds/acre and seeds/hectare. Press Save when all adjustments are completed.

After pressing Save on the Prescription Edit screen, a pop-up will open which requires the user to select an attribute to apply to the rate section(s) of the implement. Press the desired attribute to assign it the indicated rate section.

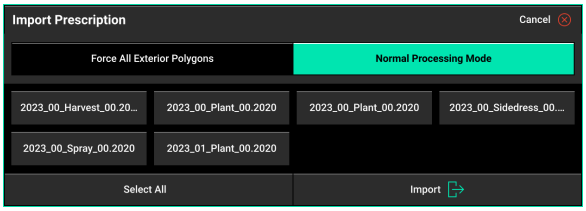
Note: *The Prescription Edit screen may also be accessed from the control widget of system that is utilizing the prescription. See the* Home and Control Screens *section of this guide for more details on accessing the Prescription Edit screen from a system control widget.*

Importing Prescriptions and Boundaries

Navigate to Setup > Data and press Import to load prescription and/or boundary files into the 20|20 for use with vDrive.



Connect a USB drive with the desired data in the root folder of the drive to the USB port on the display, then press Prescriptions or Field Boundaries.

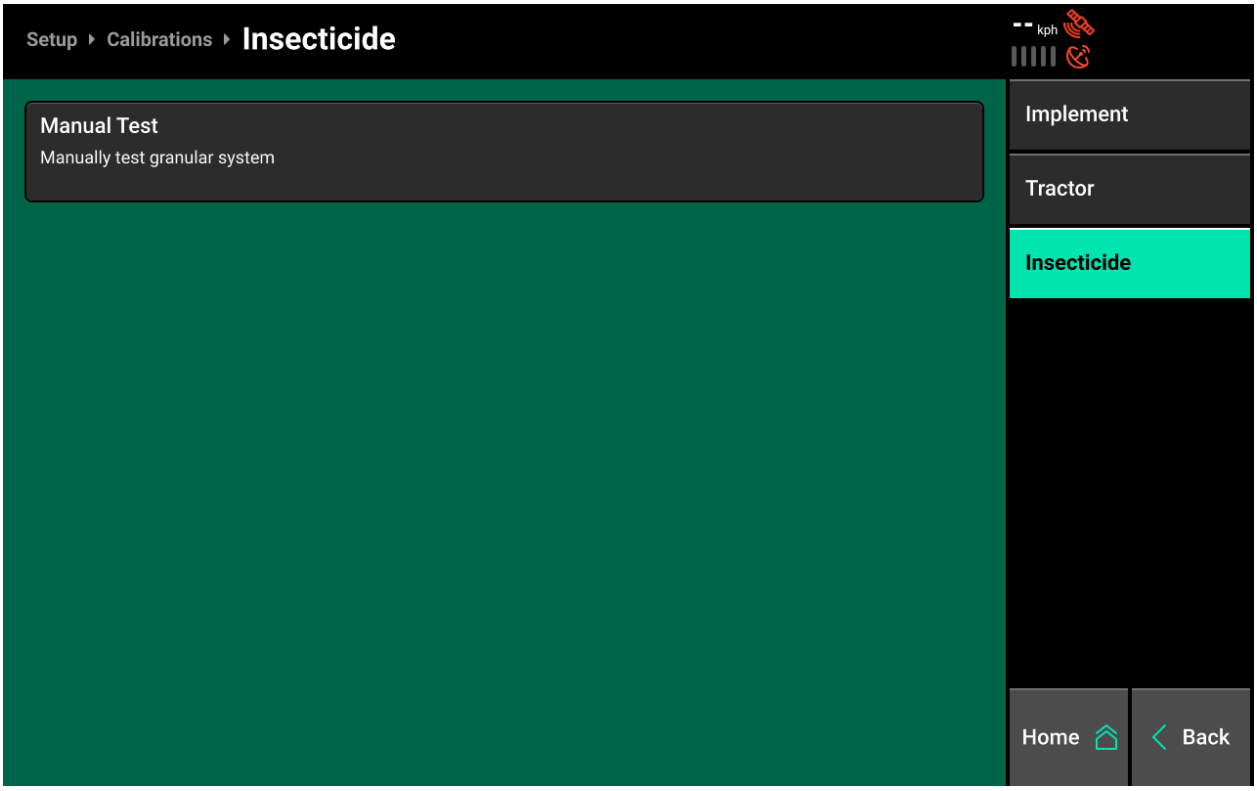


Select each file for import, or press Select All to designate all appropriate files for import, then press Import. Use Normal Processing Mode for all prescriptions/boundaries. The Force All Exterior Polygons option is a troubleshooting measure intended for use when experiencing improper prescription/boundary control. Delete the originally imported file before using Force All Exterior Polygons.

Import all desired files into the 20|20, then proceed to field setup to assign prescriptions and boundaries to the appropriate field(s). All prescriptions and boundaries must be manually assigned. See the *Field Setup* section of this guide for more details.

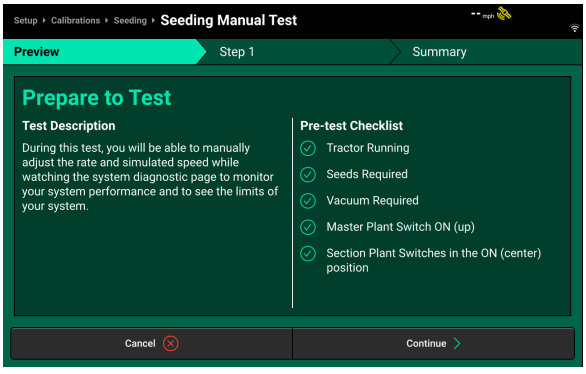
Manual Test

Navigate to Setup > Calibrations > [Seeding system name] and select Manual Test to access the vDrive manual test. This calibration will test the vDrive system for correct operation, and should be performed on all new installations and at the start of each season. This calibration will spin the meters, dispensing any seed in the hoppers.

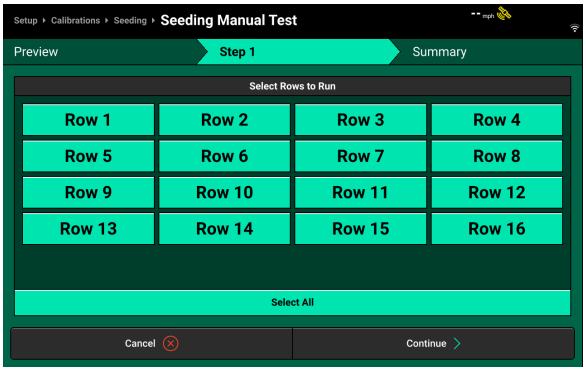


Press Continue once all calibration conditions are met.

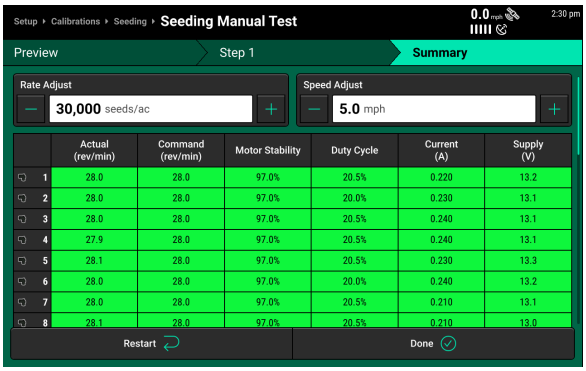
Note: *Seed is not required in the hoppers for this test*



Press Select All to run calibration on every row, then press Continue.



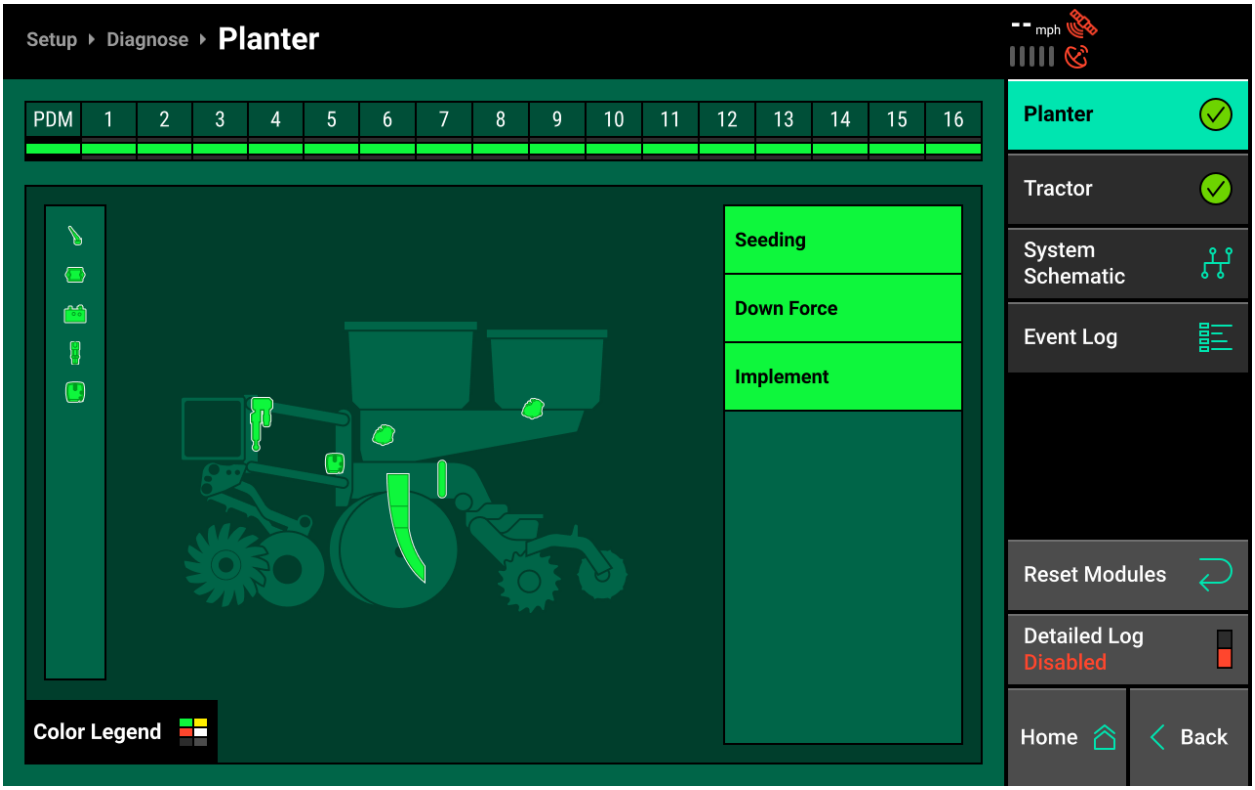
Use the +/- buttons to adjust population and speed. Monitor all columns for any irregularities, such as actual/commanded RPM not matching, abnormal duty cycle or motor stability differences across rows, excessive amp draw (>.05A), or low supply voltage (<12 V).



Diagnostics

Diagnose Screen

Navigate to Setup > Diagnose to view the Diagnose screen. The Diagnose screen is the primary location for troubleshooting issues related to the operation of the 20|20 system and all products configured on the monitor. An icon for each configured system is superimposed over a graphic of the appropriate implement. An implement bar at the top of the screen displays the health of each row.



Color Legend

The modules and system names displayed on the implement graphic and bar will appear in different colors depending on module health. Press Color Legend in the lower left corner of the screen to view a description of what each color indicates.

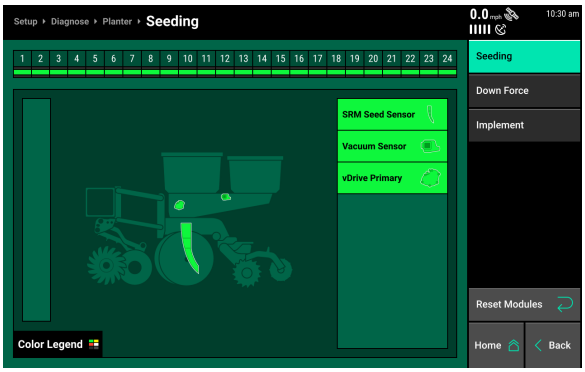
Reset Modules

Press the Reset Modules button to break and reestablish all CAN communication and daisy chain identification. This function is often used as a troubleshooting tool for communication issues. It may be necessary to press reset modules after setting up a new system(s) to cause the 20|20 to recognize system modules.

Note: *Due to software changes for sprayer and seeder compatibility, after performing a Reset Modules or power cycle in limited release software versions 2023.1 and onward, if a daisy chain break is present in the physical harnessing, all components after the daisy chain break will display red on the diagnose screen. The break must be addressed before functionality is restored.*

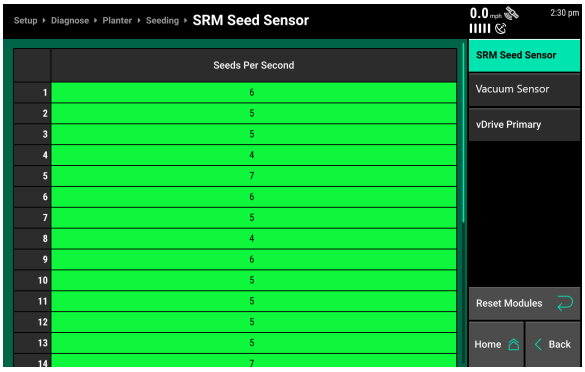
vDrive Diagnostics

Press [Seeding system name] to view all configured modules for that system. Press vDrive Primary or SRM Seed Sensor to view detailed diagnostics for those modules.

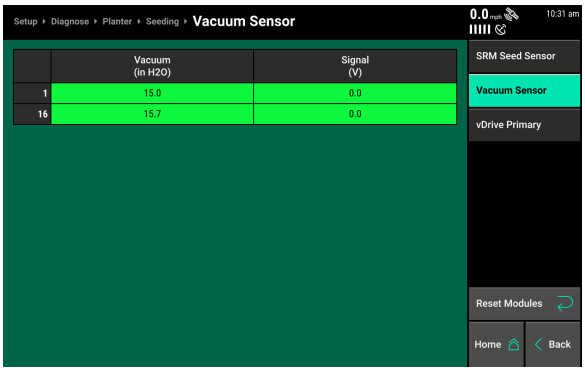


SRM Seed Sensor

Seeds Per Second —Displays seed pulses measured for each seed sensor per second.



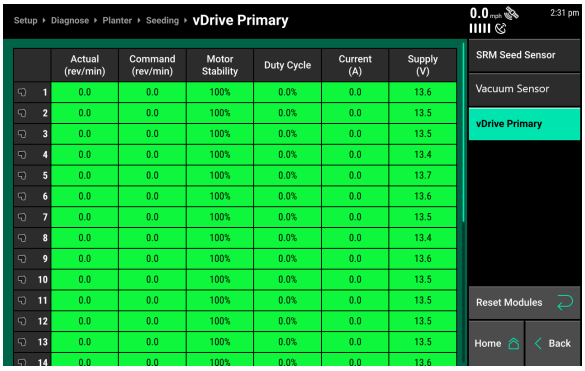
Vacuum Sensor



Vacuum (in H20) —Pressure/Vacuum reading of the sensor. This value will always be displayed as positive.

Signal (V) —Displays the voltage that the sensor is sending to the SRM *(non-functional as of 2024.1.4)*.

vDrive Primary



Actual (rev/min) – RPM of the meter.

Command (rev/min) – The RPM the vDrive is being commanded to turn at to meet application rates.

Motor Stability — Indicates how smoothly the vDrive motors are operating. Typically this value will remain in the 90–99% range. When planting with a prescription, drops to this value will be noticeable when moving between rate zones.

Duty Cycle – Displays the vDrive motor output over the operating range, 0 – 100%.

Current (A) – vDrive motor current draw in amps. Typically this value will be in the 0.4–0.9 range at 5 miles per hour, depending on crop.

Supply (V) – Voltage at vDrive Module.

Common Troubleshooting Issues

The Diagnose screen may be used to quickly identify system health and determine troubleshooting steps. Verify bus device/module health using the color legend provided earlier in this section. Common issues include:

- Red bus devices or modules, which may indicate damaged/disconnected modules and harnessing.
- White bus devices or modules, which may indicate incomplete system configuration.
- An incorrect number of bus devices with some devices displayed in white or red, which may indicate incorrect CAN harnessing setup

For more troubleshooting information see the Dealer Service Manual.

Physical Diagnostics

When troubleshooting vDrive, inspect the physical modules to quickly identify possible issues using the LED light present on each module.

Light Pattern	Indicated Status
No Light	Device unpowered
Solid Light	Device updating
5hz Blink	Device powered, lost CAN communication
1hz Blink	Device Healthy
Erratic Blink	Device powered, CAN communication never established