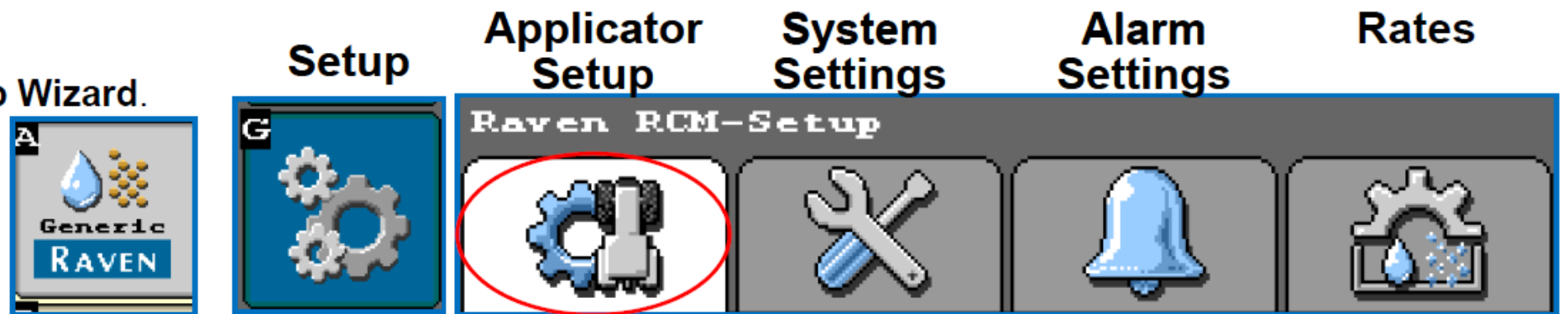




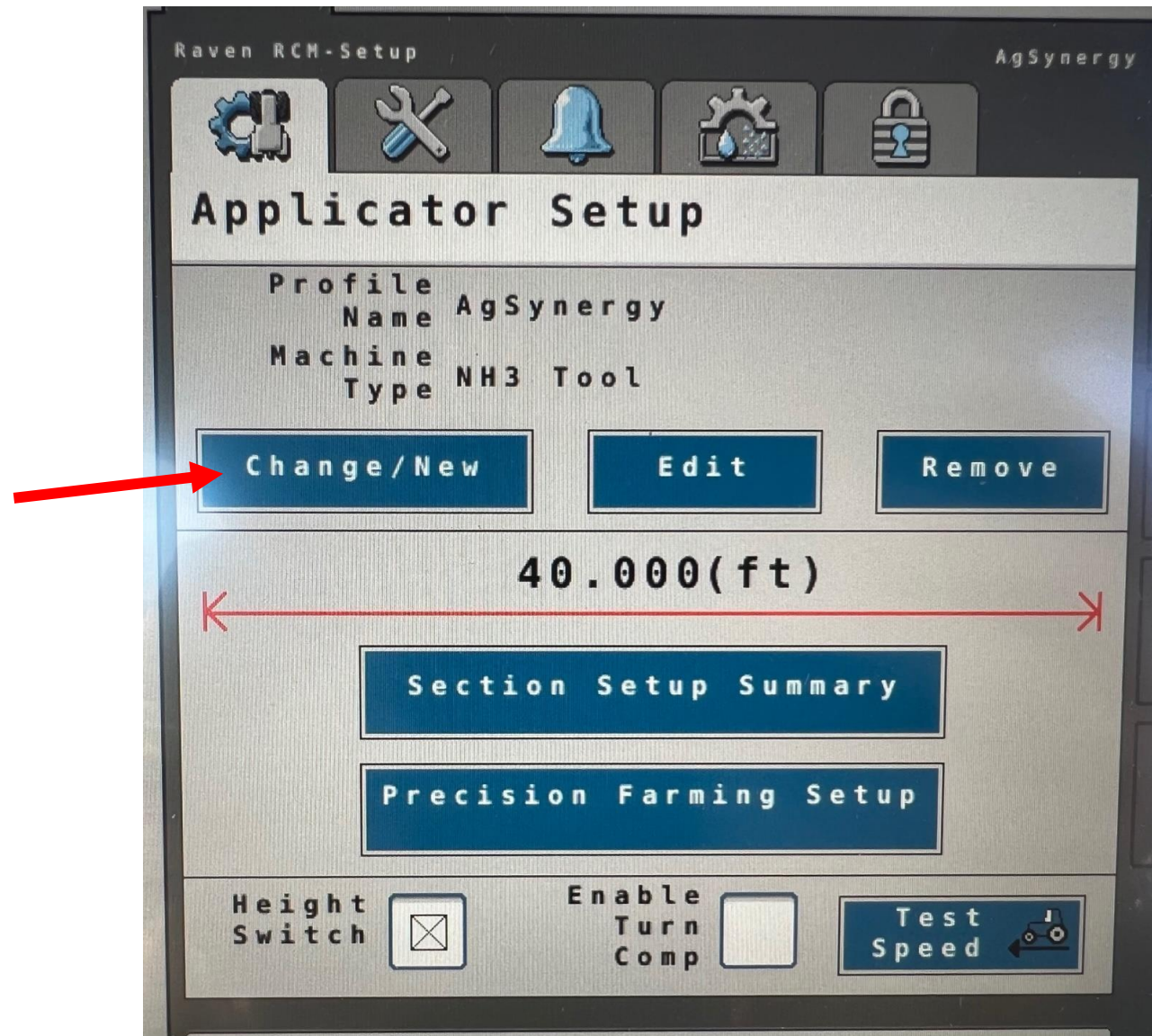
***TR 430/440
Dual Product Setup
Raven RCM
Montag Gen 1 Dry Box***



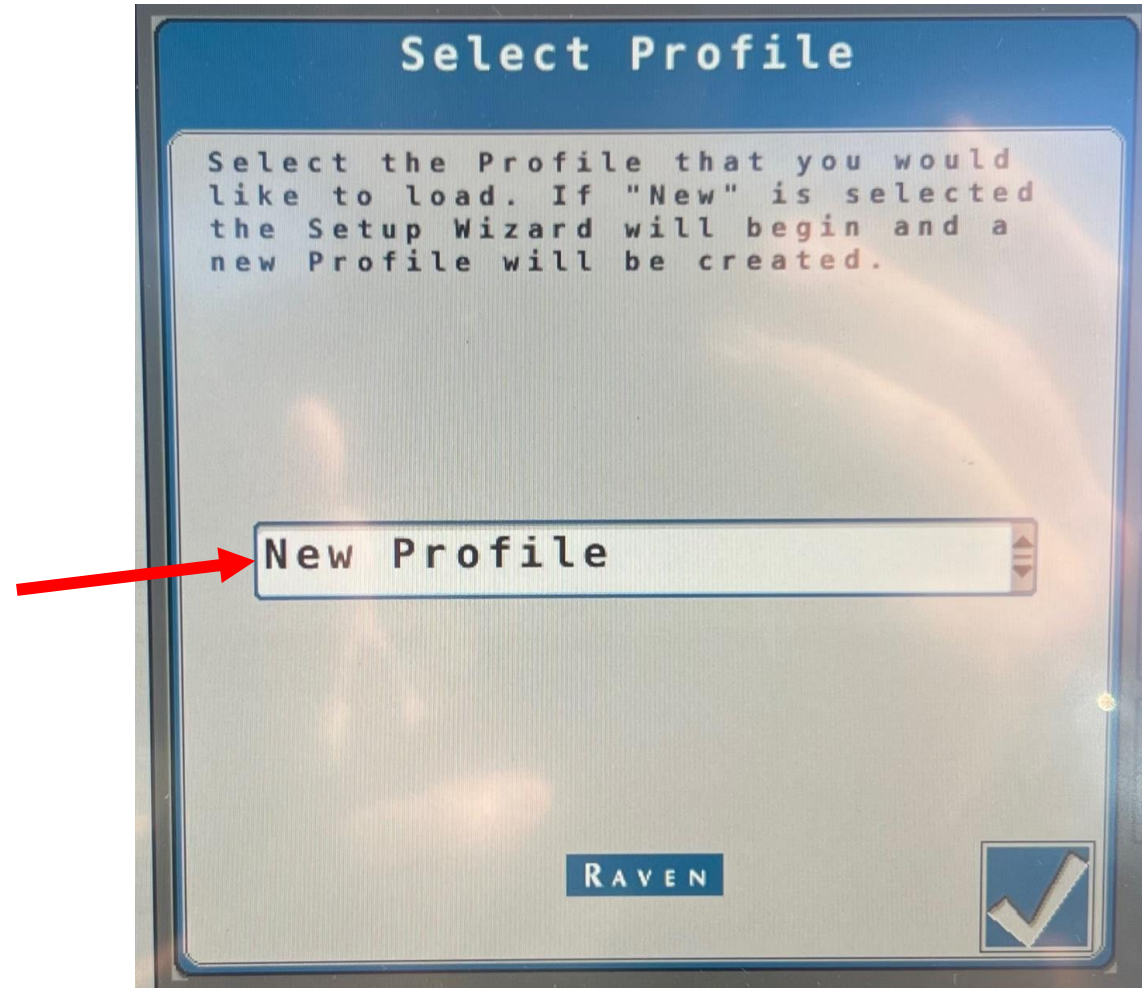
1. Navigate to the **Setup Wizard**.



- *Under Applicator Setup, select Change/New (B)*



- *Select New Profile from the drop down menu, Then Press Accept*



- *Create a Profile Name , Select NH3 Machine as Machine Type, enter Application Width , and press the next Icon.*

Name Profile

Profile Name
* AgSynergy TR 440 Mon

Machine Type
* NH3 Tool

Application Width * 40.000 (ft)

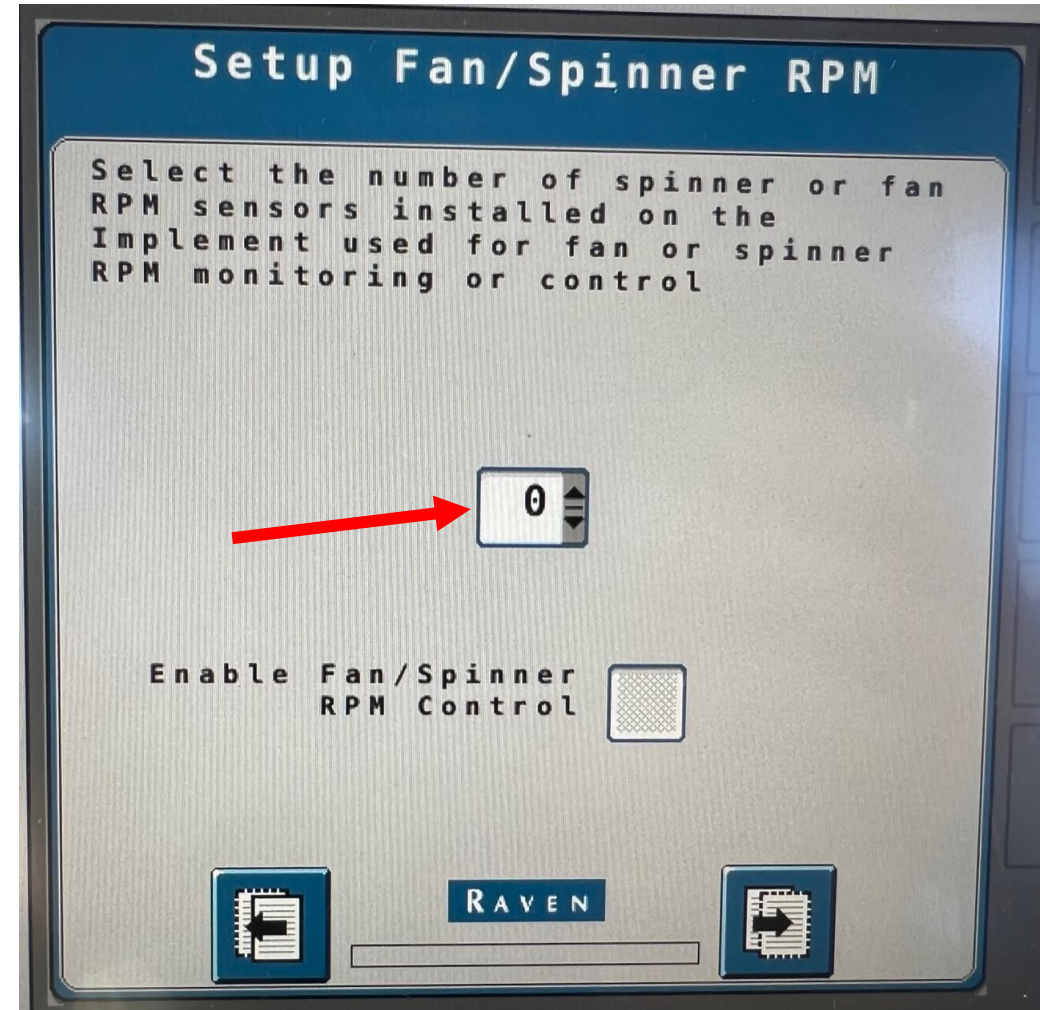
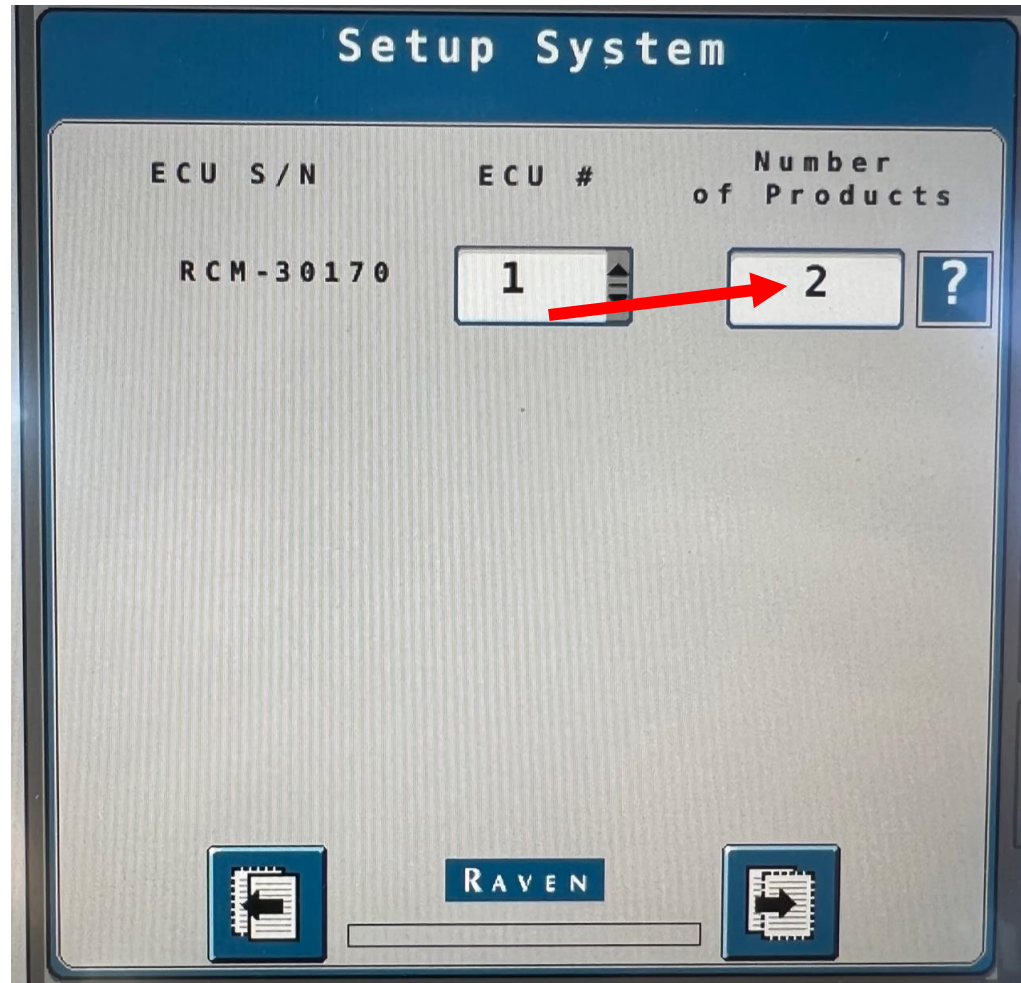
Software Version Number 1.5.2.6

Hardware Serial Number 30170

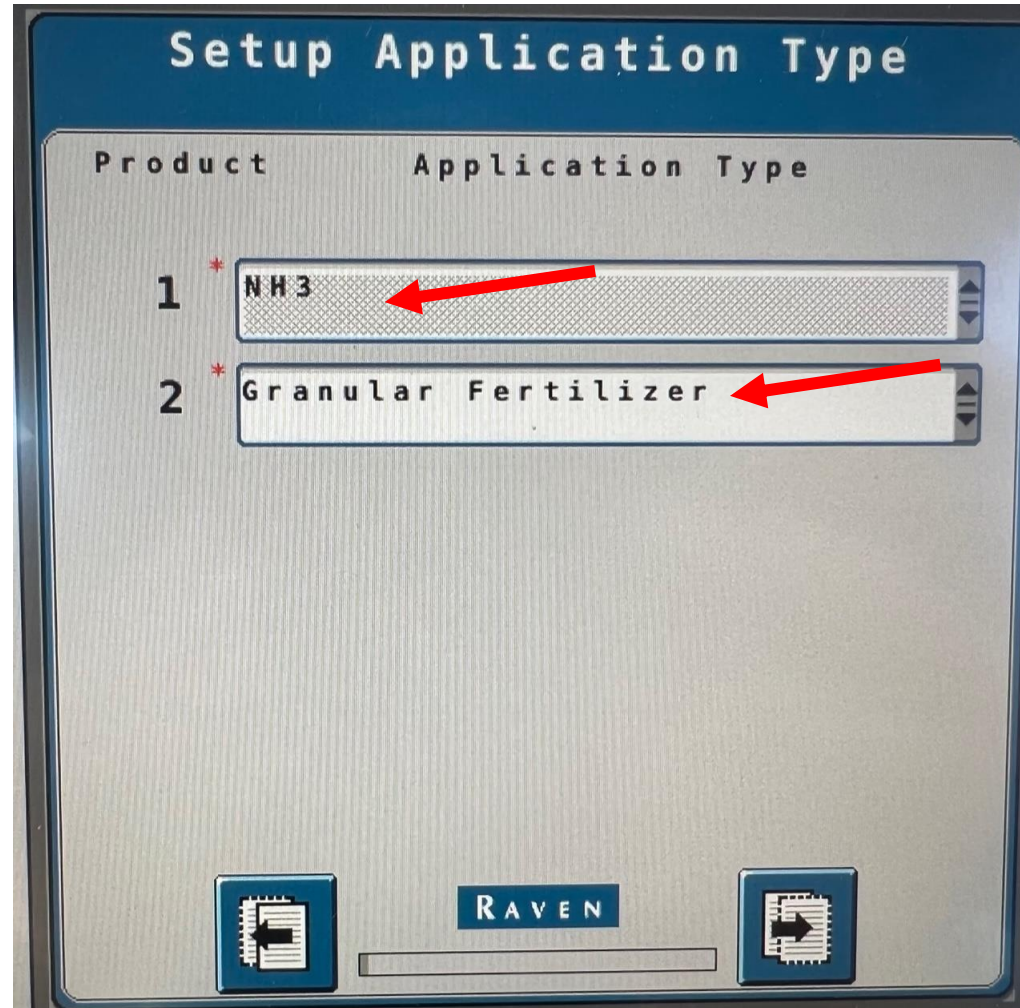
RAVEN

Next Icon

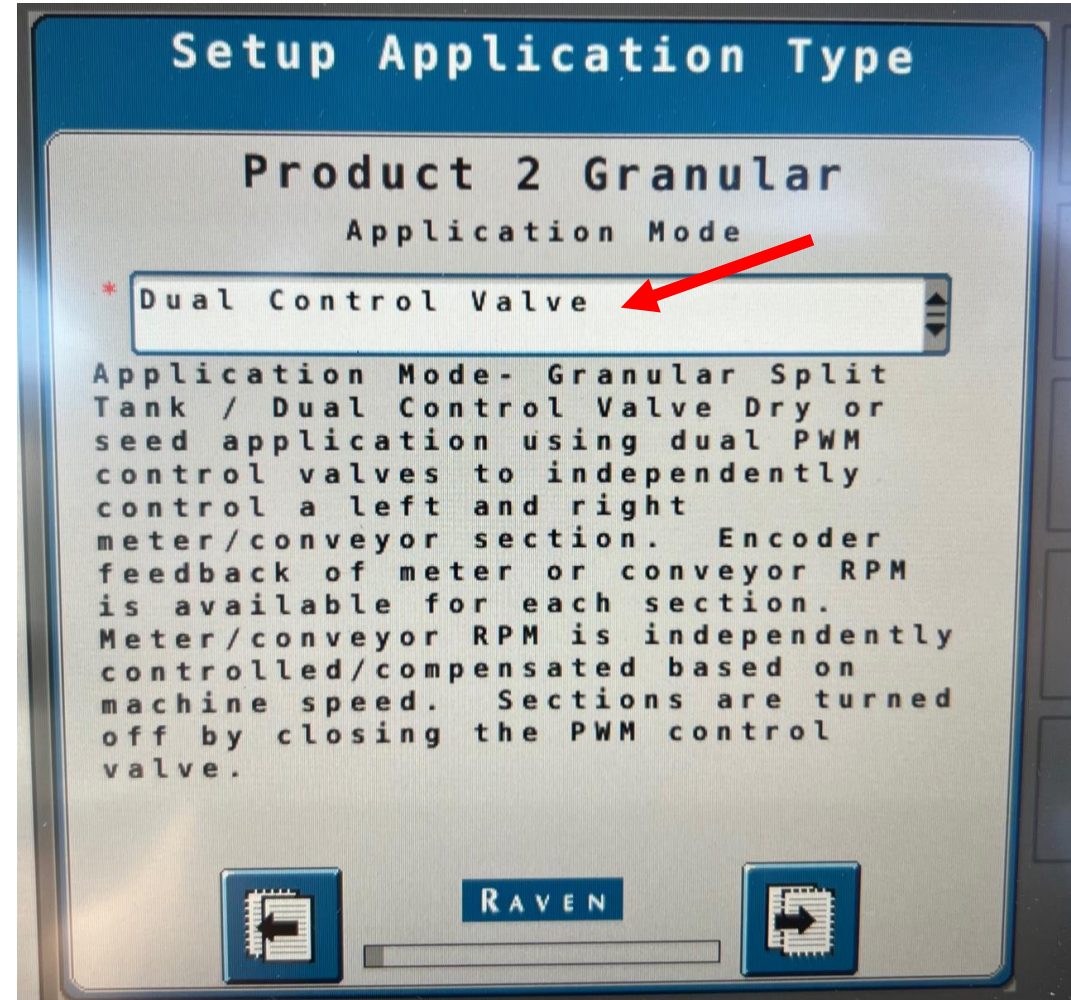
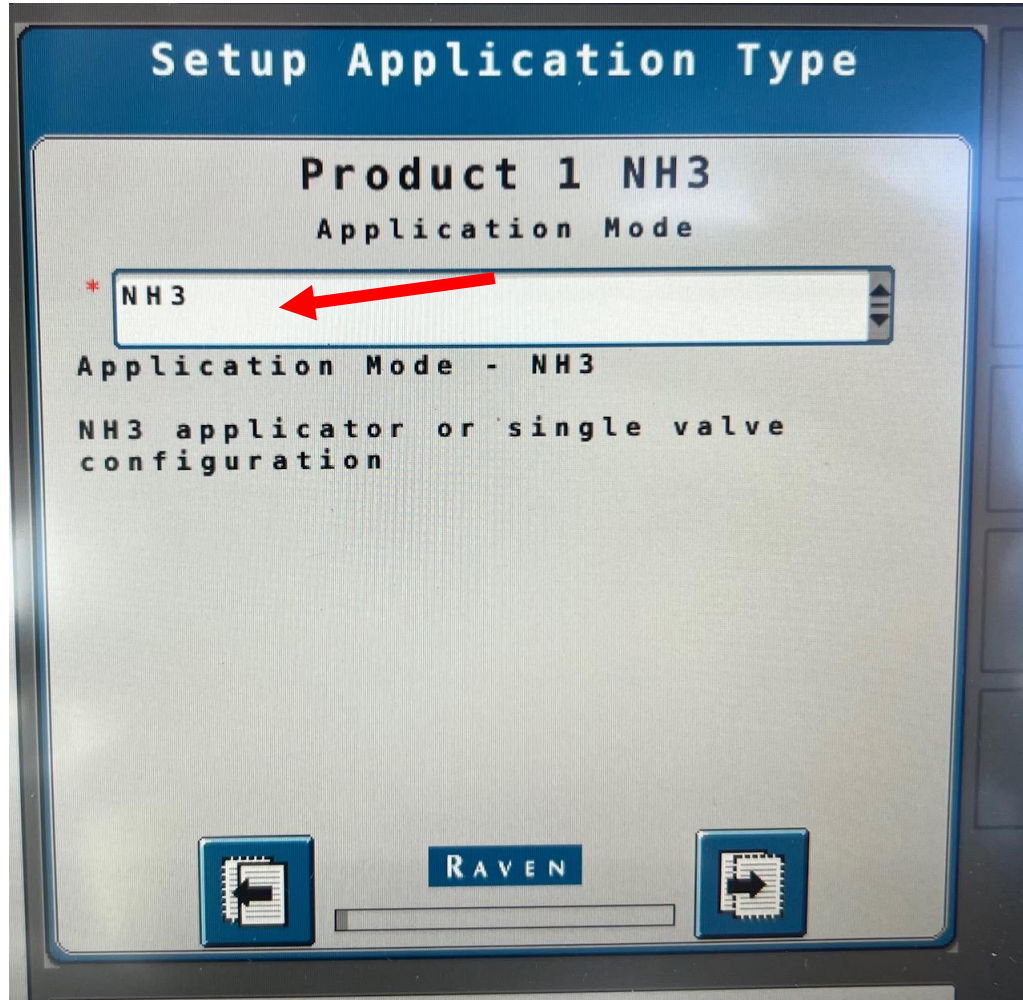
- Under Setup System enter 2 for the number of products
- Under Setup Fan Select "0" from the RPM Sensors dropdown



- *Under Setup Application Type select “NH3” for Product 1*
- *Select “Granular Fertilizer” for Product 2*



- Under Setup Application Type select “NH3” for Product 1 Application Mode
- Select “Dual Control Valve” for Product 2 Application Mode



- *Under Setup Section Groups select Next*

Setup Section Groups

An NH3 product requires a dedicated section group and cannot share sections with other products. Section group(s) for other products must start at section 7 or higher.

60.00ft

Product 1 Sections

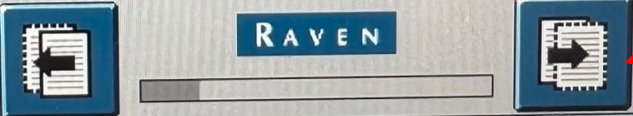
15.00	15.00	15.00	15.00
1	2	3	4

Product 2 Sections

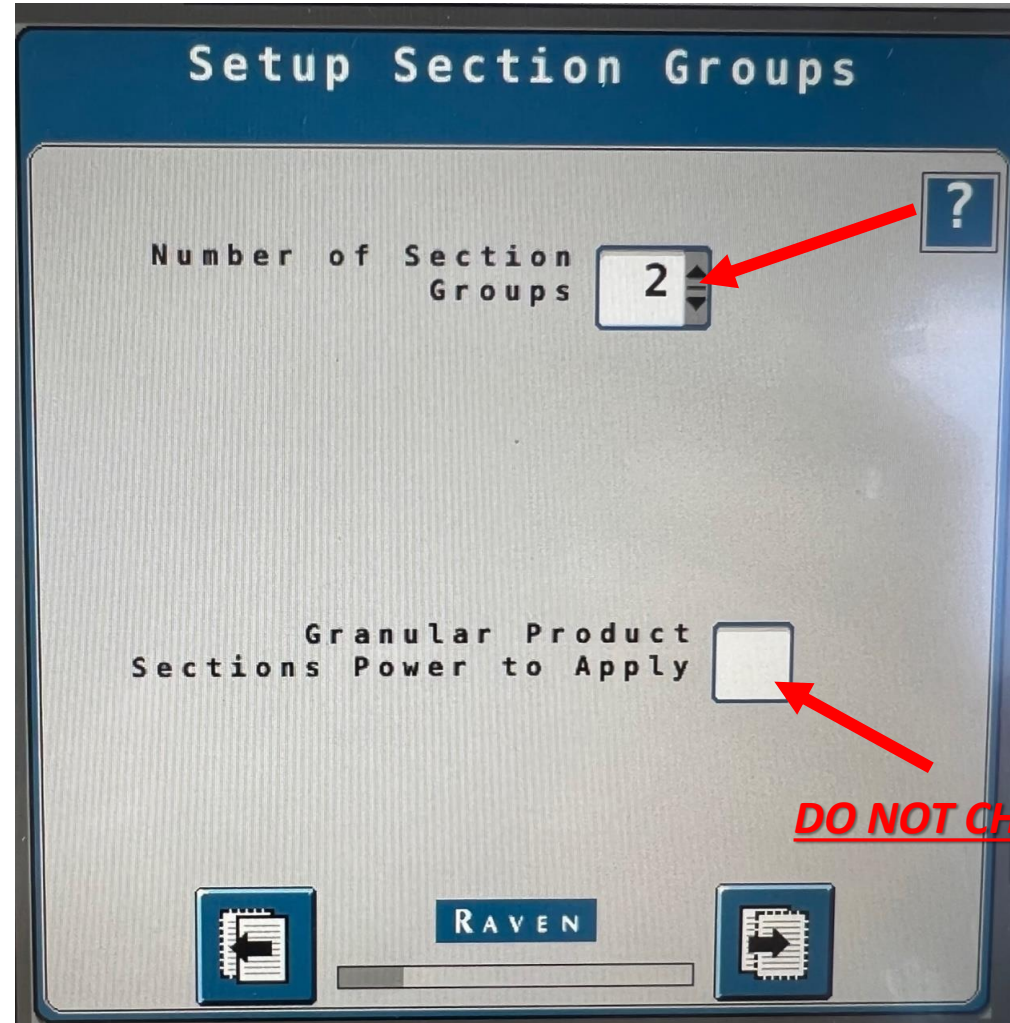
30.00	30.00
7	8

Example

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- *Under Setup Section Groups select "2"*
- ***DO NOT CHECK Granular Product Sections Power to Apply***



- Under Setup Section Harnessing Enter “1” for Starting Section Driver and the correct number of sections for Section Group 1.
- Enter “7” for Starting Section Driver 2 and 2 Sections.

Setup Section Harnessing

You will now be guided through section harnessing setup. Please reference your product harness to identify appropriate section drivers. Ensure unused section drivers are skipped as shown below.

60.00ft


15.00	15.00	15.00	15.00
1	2	3	4

30.00	30.00
7	8


Liquid Section Width	Dry Section Width	Wired Signal Driver
----------------------	-------------------	---------------------

Section Group	Starting Section Number	Number Of Sections
1	1	4
2	7	2

Example



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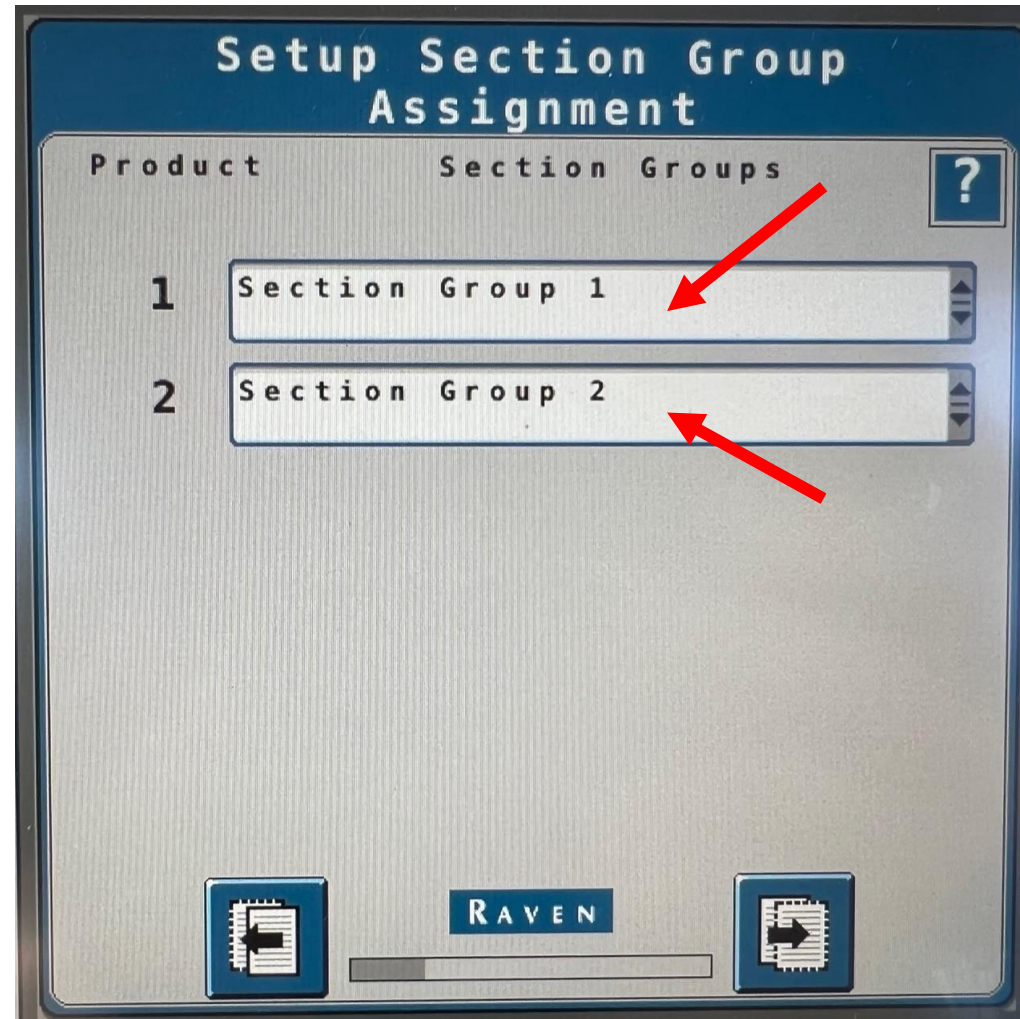
- Under Setup Section Groups Enter “1” for Starting Section Driver and the correct number of sections for Section Group 1 and select “Equal Section Widths”.
- For Section Group 2 Enter “7” as the Starting Section Driver and the correct number of Sections and select “Equal Section Widths”
- The first 6 section groups are reserved for NH3 so Section Group 2 needs to start at 7 or higher

Setup Section Harnessing

Section Group *	Starting Section Number *	Number Of Sections	Equal Section Widths
1	1	4	<input checked="" type="checkbox"/> ?
2	7	2	<input checked="" type="checkbox"/>

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- *Under Setup Section Groups select “Section Group 1” for Product 1*
- *Select “Section Group 2” for Product 2*



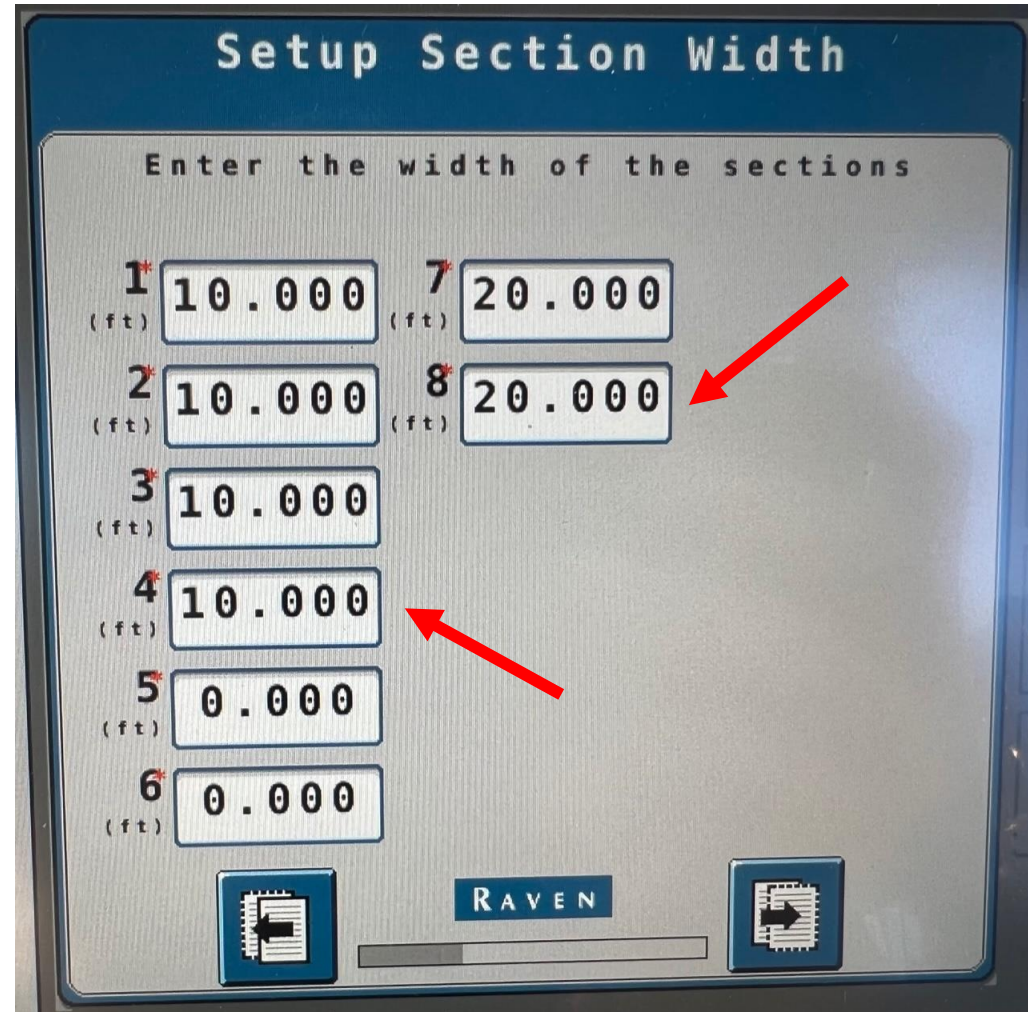
- *Under Setup Section Width enter the correct width for each section.*

Setup Section Width

Enter the width of the sections

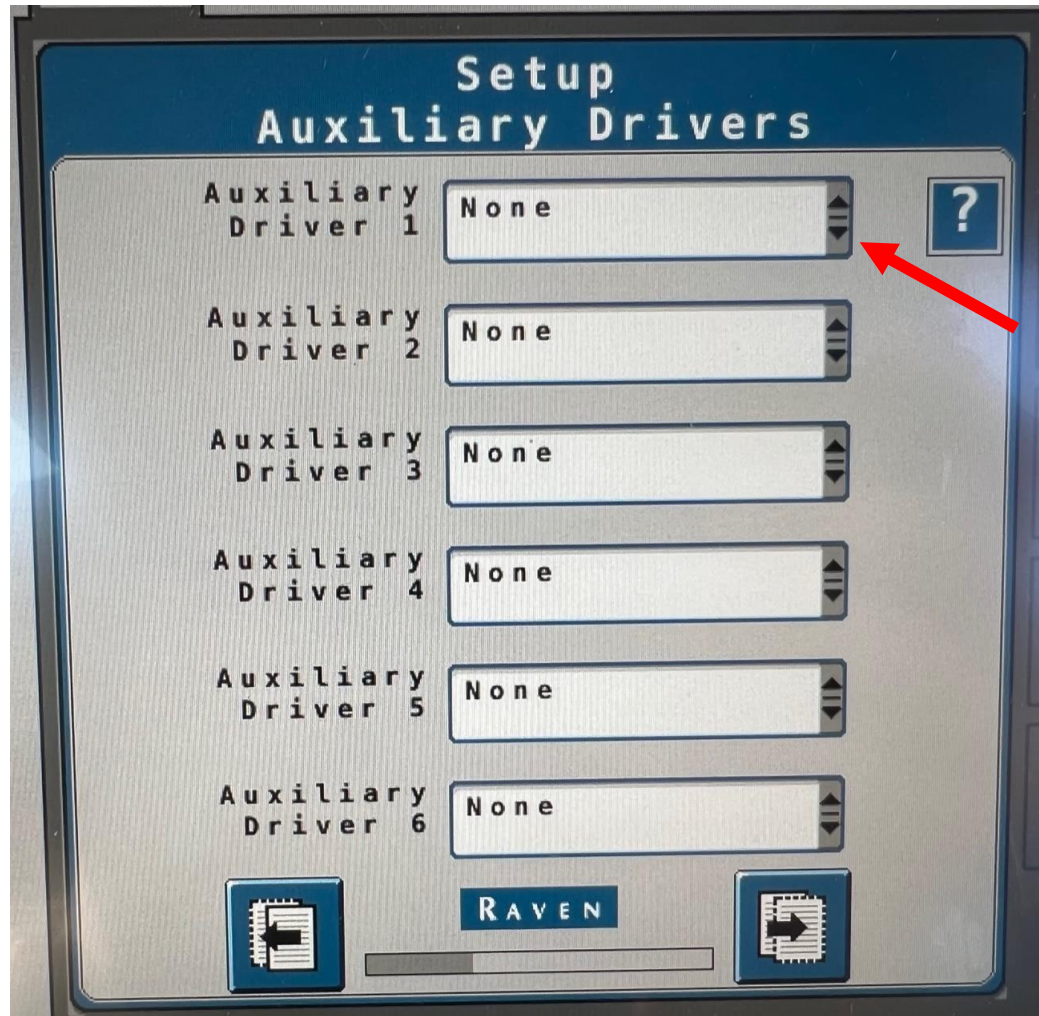
1* (ft)	10.000	7* (ft)	20.000
2* (ft)	10.000	8* (ft)	20.000
3* (ft)	10.000		
4* (ft)	10.000		
5* (ft)	0.000		
6* (ft)	0.000		

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The image shows a control panel with a screen displaying the 'Setup Section Width' menu. The screen has a dark blue header with the title in white. Below the title, the instruction 'Enter the width of the sections' is shown. There are eight rows of input fields, each labeled with a number and '(ft)'. The first four rows have a width of 10.000, the fifth and sixth rows have a width of 0.000, and the seventh and eighth rows have a width of 20.000. Two red arrows point to the 8th and 4th section width fields. At the bottom of the screen, there is a 'RAVEN' logo in a blue box, flanked by two square buttons with circular icons. A horizontal bar is visible below the logo.

- *Under Setup Auxiliary Drivers select "None"*



- *Verify sections are correct and select next.*

Section Summary

40.000(ft)

Product 1

10	10	10	10
1	2	3	4
1	2	3	4

Product 2


20	20
7	8
7	8

Liquid
Section
Width


Granular
Section
Width


Wired
Signal
Driver

Switch
Number

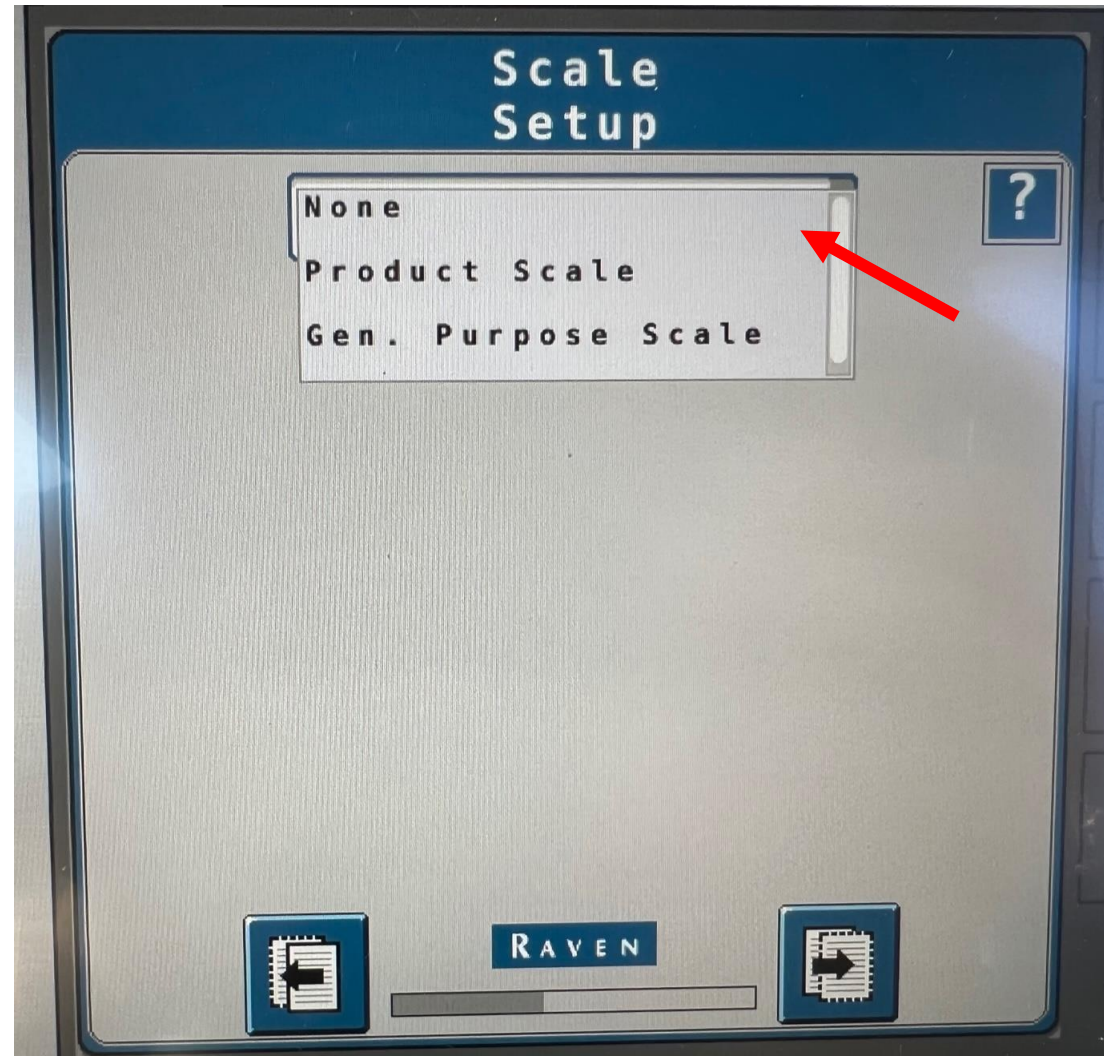


RAVEN

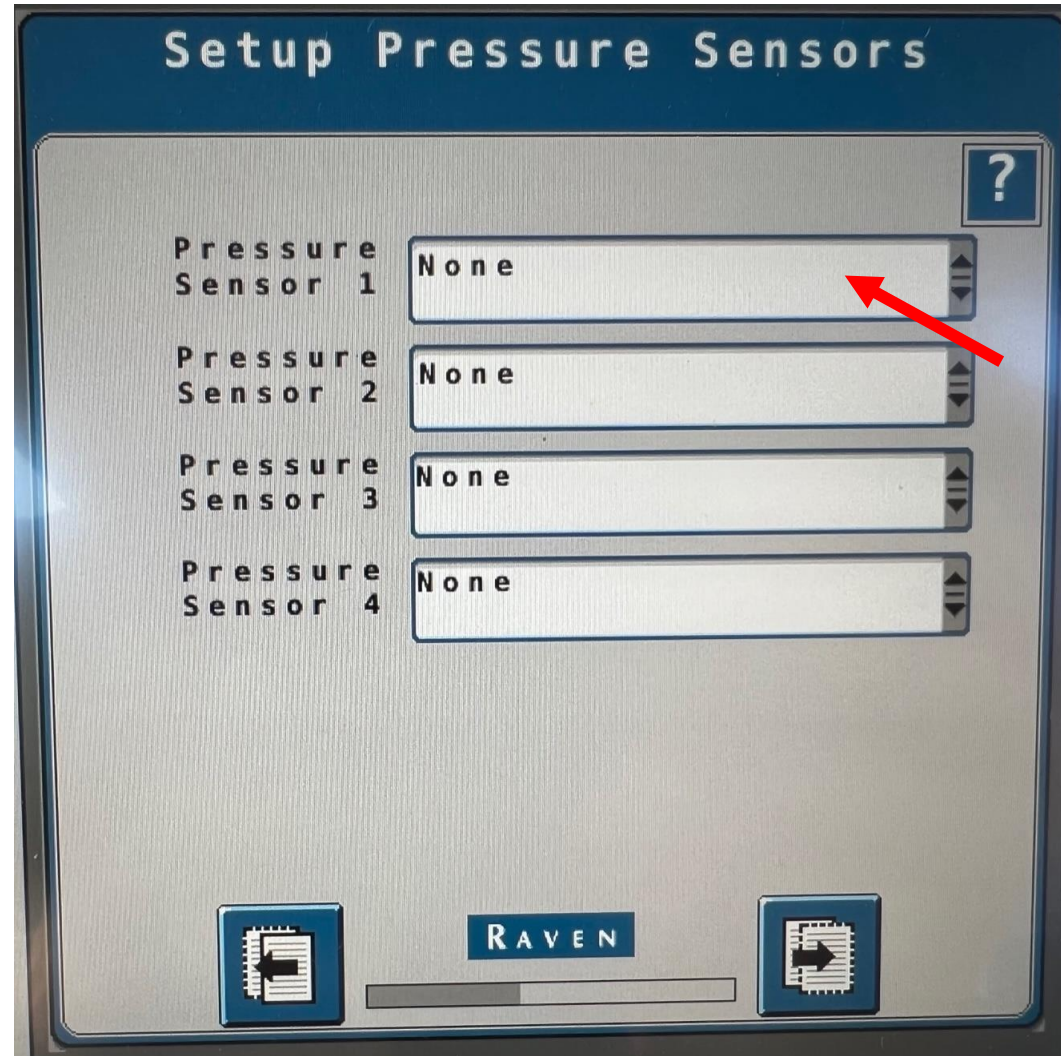




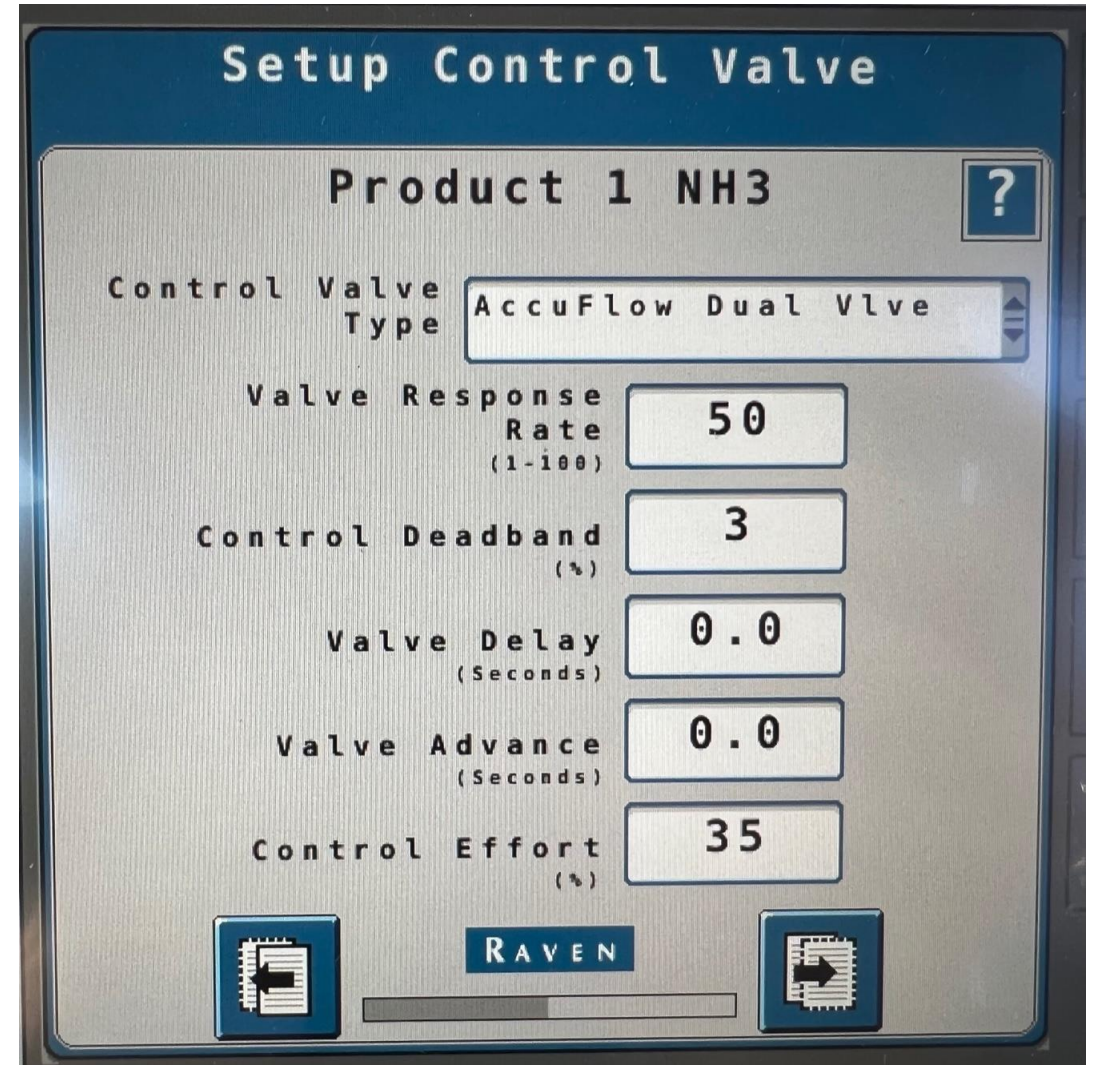
- *If no scales are present, select “None”*



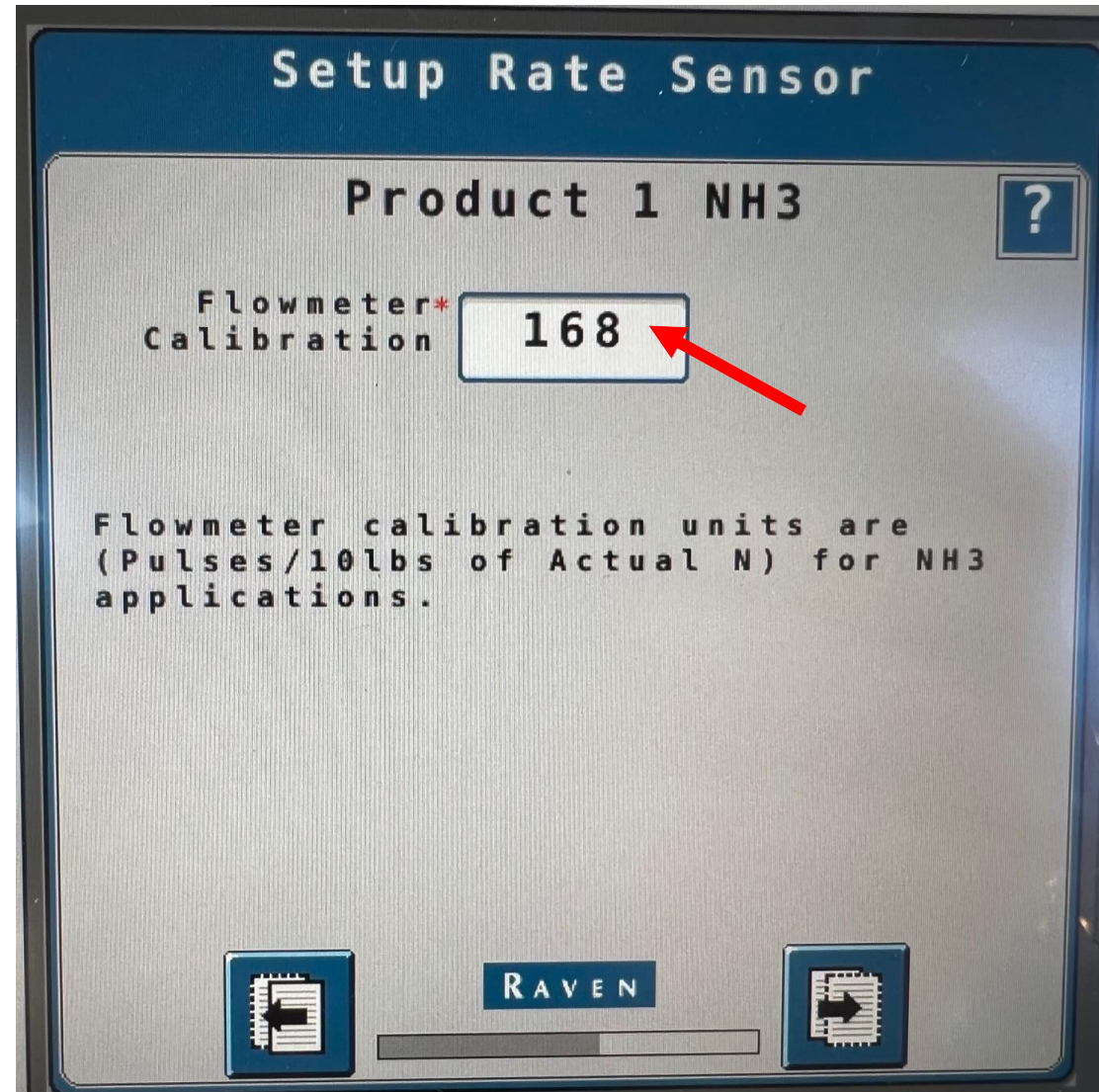
- *Under Setup Pressure Sensors select “None”*



- Under Setup Control Valve-Product 1 NH3 select “AccuFlow Dual Valve” under Control Valve Type
- Enter “50” for Valve Response Rate
- Enter “3” for Control Deadband
- Enter “0” for Valve Delay
- Enter “0” for Valve Advance
- Enter “35” for Control Effort



- *Under Setup Rate Sensors-Product 1 NH3 enter the Flowmeter Calibration number from the tag on the flow meter*



- *Under Setup Tank-Product 1 NH3 enter the desired Tank Capacity and*
- *Enter “10” for Low Tank Level and check “Alarm?” box*

Setup Tank/Bin

Product 1 NH3

Tank Capacity (lb N) 8600

Current Tank Level (%) 0

Low Tank Level (%) 10

Alarm?

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- *Under Setup Rates-Product 1 NH3 enter the desired Preset Rate Values*
- *Enter “5” for Rate Bump*
- *Select desired Rate Selection and check Display Smoothing Box*

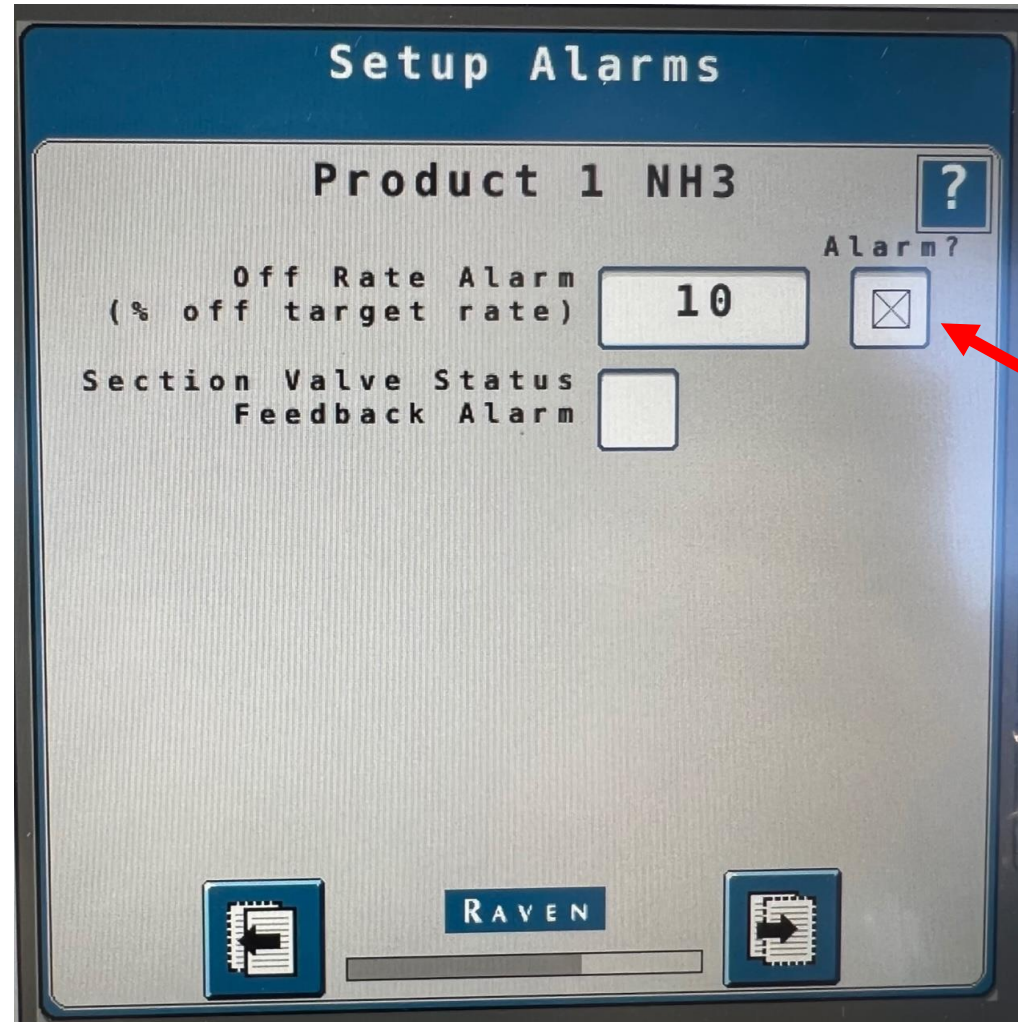
Setup Rates

Product 1 NH3 ?

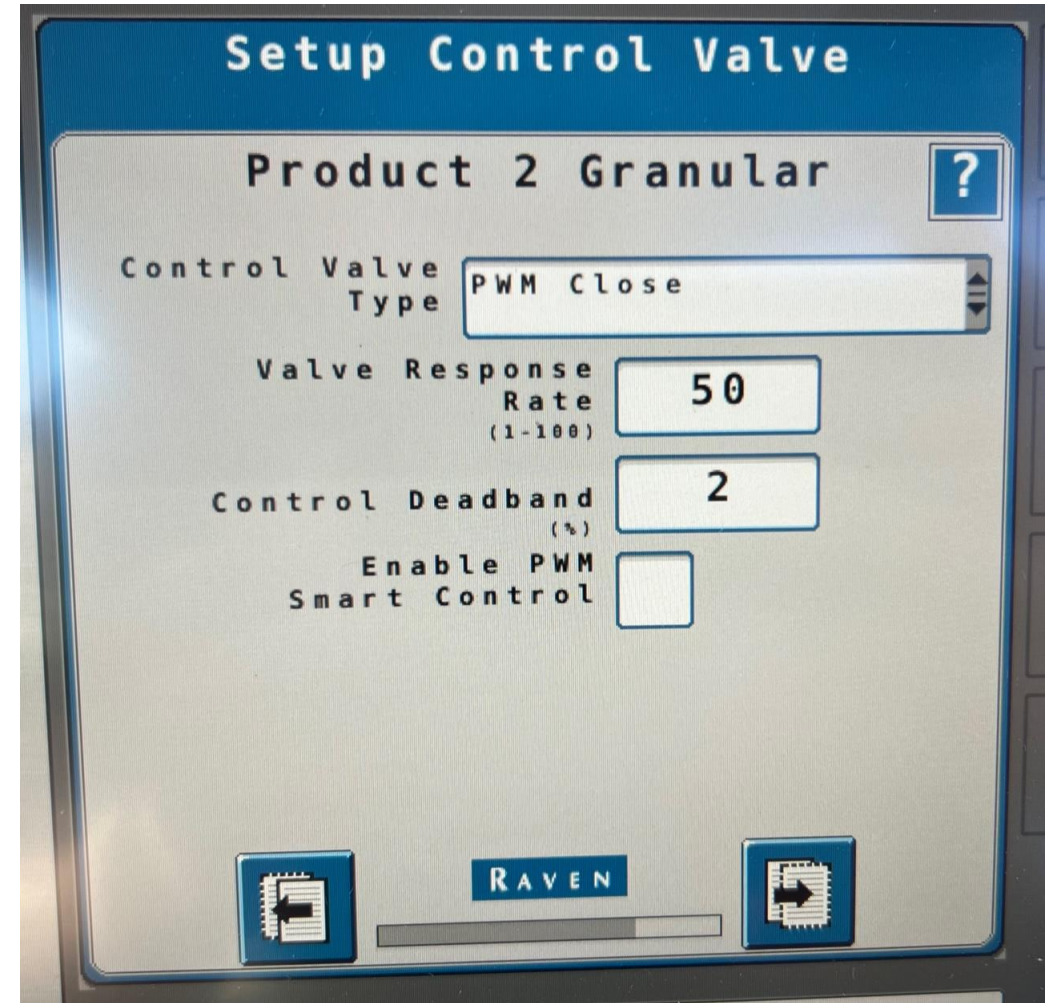
	Rate 1	Rate 2	Rate 3
Preset* Rate Values (Lbs N/Ac)	150	175	200
Rate Bump (Lbs N/Ac)	10		
Rate Selection	Predefined or Rx		
Display Smoothing	<input checked="" type="checkbox"/>		

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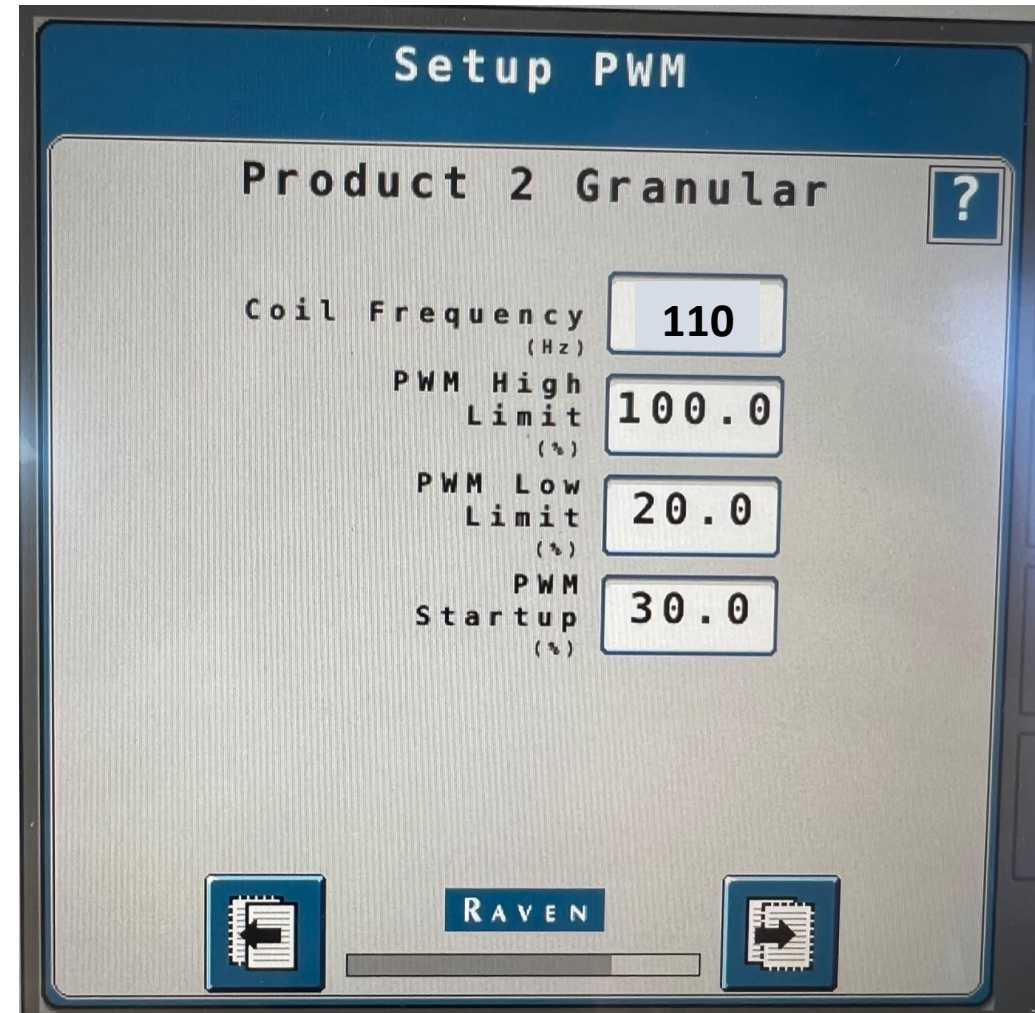
- *Under Setup Alarms-Product 1 NH3 enter the desired Off Rate Alarm and select the “Alarm?” Checkbox*



- *Under Setup Control Valve-Product 2 Granular select “PWM Close” under Control Valve Type*
- *Enter “50” for Valve Response Rate*
- *Enter “2” for Control Deadband*



- *Under Setup Control Valve-Product 2 Granular enter “110” for Coil Frequency*
- *Enter “100” for High Limit*
- *Enter “20” for Low Limit*
- *Enter “30” for PWM Startup*



- **Under Setup Rate Sensor-Product 2 Granular**
- **Enter Correct for Product Density**
- **Calculate Calibration Weight**
 - *Cal. Weight = .0032 x # of rows x Product Density*
- **For Parker Hydraulic Motors Enter “47” for Pulses/Revolution**
- **For Eaton Motors Enter “94”**

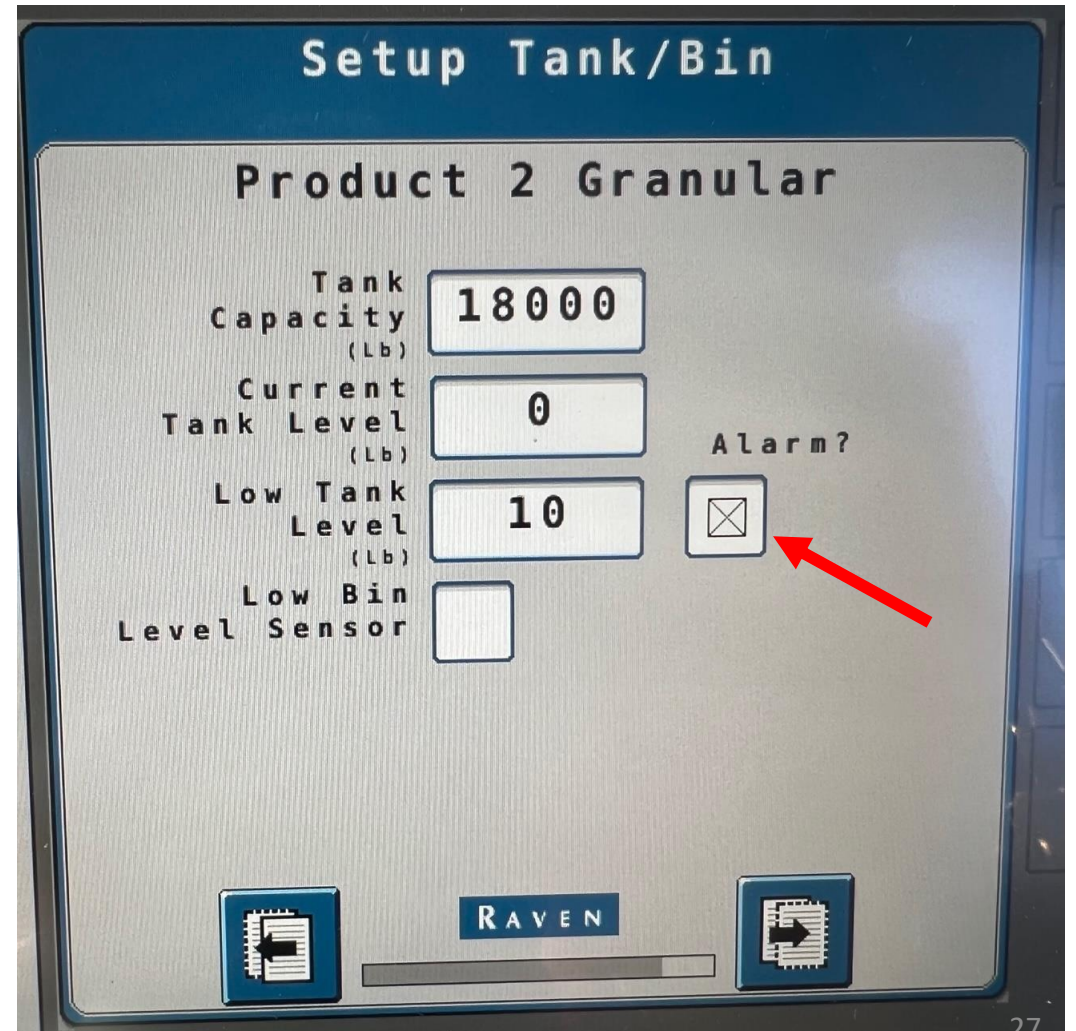
Setup Rate Sensor

Product 2 Granular ?

Product Density (lb/cubic feet)	65.0
Calibration Weight (lb/revolution)	3.328
Pulses/ Revolution*	47.00

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- *Under Setup Tank-Product 2 Granular*
- *Enter “18000” for Tank Capacity*
- *Enter “1500” for Low Tank Level*
- *Select “Alarm?” Checkbox*



- *Under Setup Rates-Product 2 Granular*
- *Enter Desired Preset Rate Values*
- *Enter “10” for Rate Bump*
- *Select Correct Rate Selection*
- *Select “Display Smoothing”
Checkbox*

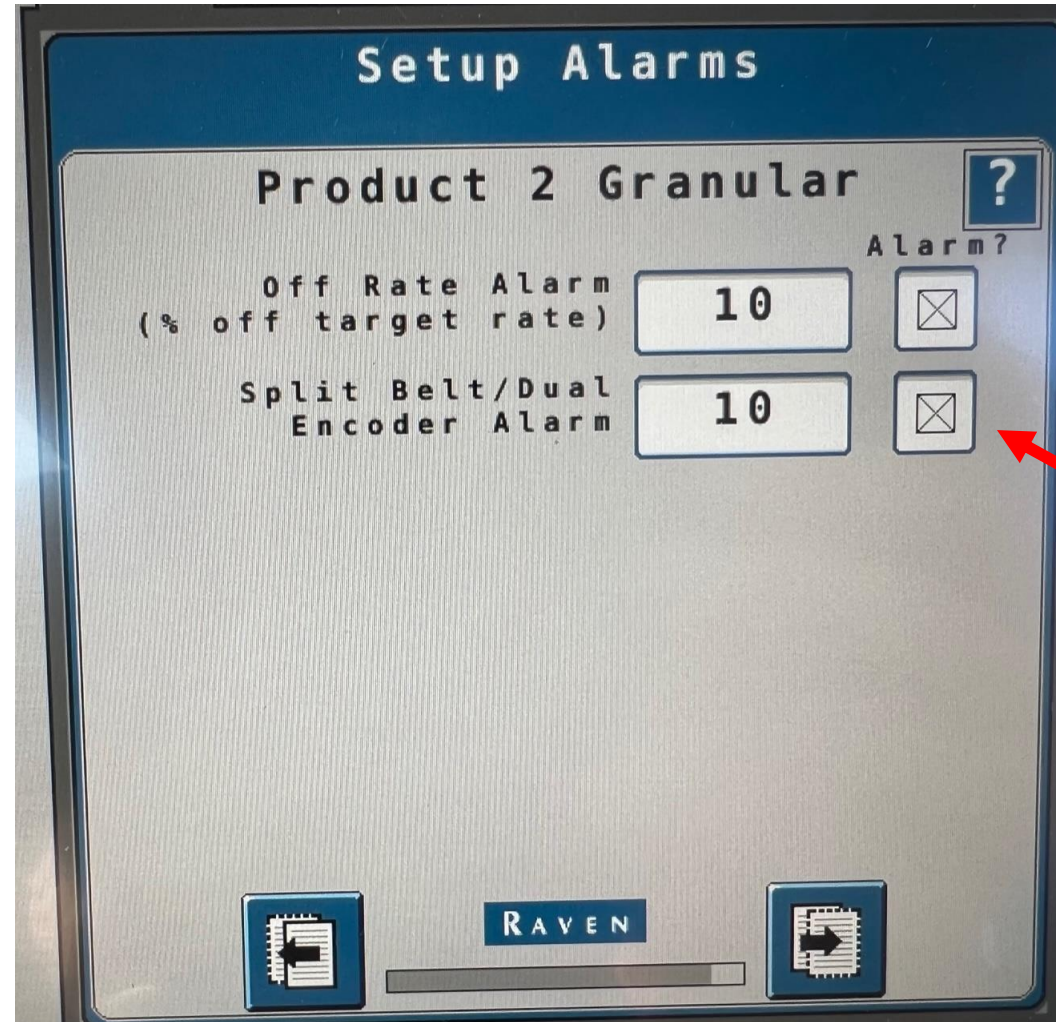
Setup Rates

Product 2 Granular ?

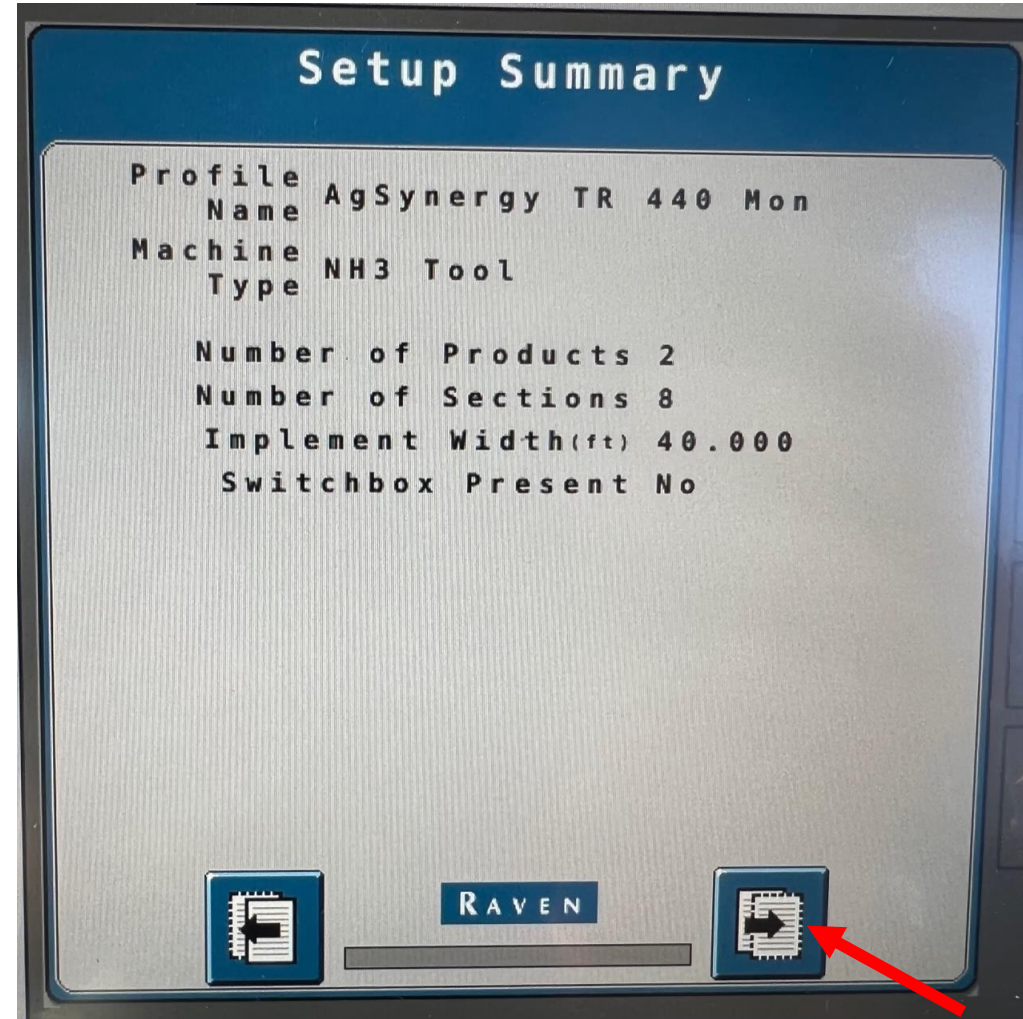
	Rate 1	Rate 2	Rate 3
Preset* Rate Values (lb/ac)	200	300	400
Rate Bump (lb/ac)	10		
Rate Selection	Predefined or Rx		
Display Smoothing	<input checked="" type="checkbox"/>		
Decimal Shift	0		

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- *Under Setup Alarms-Product 2 Granular enter the desired Off Rate Alarm and Dual Encoder Alarm*
- *Select the “Alarm?” Checkboxes*



- *Setup is now complete*
- *Select “Accept” to close the Setup Wizard*



Montag Gen 1 Calibration Notes

GEN 1 - CONTROLLER CALIBRATION

Row Spacing	Standard Rate	High Output Rate
20 Inch Row Spacing	375 lb/acre	375 lb/acre
22 Inch Row Spacing	341 lb/acre	341 lb/acre
30 Inch Row Spacing	250 lb/acre	250 lb/acre
34 Inch Row Spacing	220 lb/acre	220 lb/acre
36 Inch Row Spacing	208 lb/acre	208 lb/acre
38 Inch Row Spacing	197 lb/acre	197 lb/acre
40 Inch Row Spacing	187 lb/acre	187 lb/acre

	Standard Meter 2 Inch Hose	High Output Meter 2½ Inch Hose
Auger Shaft Speed (RPM)	60	31
Product Density (lb/cu-ft)	62	62
Test Speed (MPH)	5	5
Displacement Per Row (cu-ft/rev)	0.0016	0.0032

CALIBRATION INFORMATION - GEN 1

- Flow Control Valve = PWM Closed
12 Volt
110 Hertz
- Meter Control Valve Cal # = 1023 (See Controller manual for fine tuning)
- Meter speed Sensor = Option 1- Raven 5 Volt 36 Pulse (External Mount)
Option 2 - Eaton 12 Volt 60 Pulse (In Hydraulic Motor)
Option 3 - Parker 12 Volt 30 Pulse (In Hydraulic Motor) *
- Auger Drive = 14 tooth #40 drive sprocket (encoder)
22 tooth #40 driven sprocket (auger)
1.57 to 1 Ratio
- Meter Speed Sensor Cal # = Option 1 Raven 36 x 1.57 = 56 (pulses per auger revolution)
Option 2 Eaton 60 x 1.57 = 94 (pulses per auger revolution)
Option 3 Parker 30 x 1.57 = 47 (pulses per auger revolution) *
- Low limit/High limit = (Use default setting see controller manual for instructions)
Auger RPM Standard meter 10 – 130 MAX
Auger RPM High Output meter 10 -165 MAX
- Tank Capacity = 6 Ton 187 cubic ft. or 150 bushels
9 Ton 281 cubic ft. or 225 bushels
- Displacement per Row = Standard Meter (2" hoses) 0.0016 Cubic Ft.
High Output Meter (2 ½" hoses) 0.0032 Cubic Ft.
- CFR (cubic ft / Revolution) = Displacement per Row X Number of Rows = CFR
- Adjust CFR = $\frac{\text{Actual Rate or Scale weight}}{\text{Desired Rate or Weight displayed on controller}} \times \text{Current CFR} = \text{New CFR Cal\#}$
- Spreader Constant = $\frac{\text{Meter Speed Sensor Cal\#}}{\text{CFR}} = \text{Spreader Constant}$
- Adjust Spreader Constant = $\frac{\text{Spreader Constant}}{\text{Actual Rate}} \times \text{Desired Rate} = \text{New Spreader Constant}$