Precision Liquid Fertilizer Solutions

AgXcel 877.218.1981 www.agxcel.com

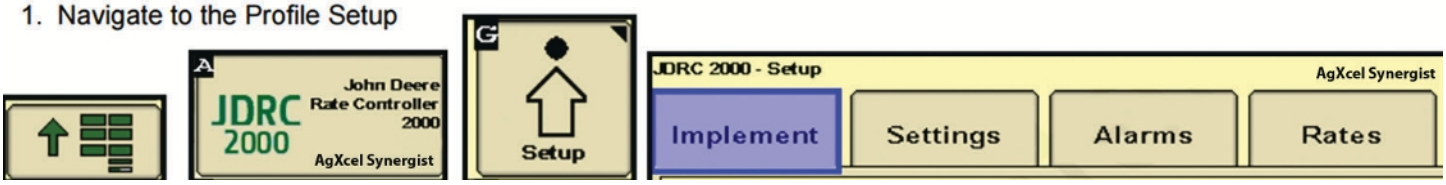
where precision meets the soil...

QuickStart Setup Instructions for JDRC 2000 & AgXcel Harness for 1 Liquid Product

PLEASE NOTE: Your setup may vary. Not all screens are shown. See JD JDRC 2000 Operator's Manual for safety information and additional setup/operating information.

PROFILE SETUP

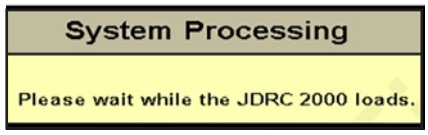
1. Navigate to the Profile Setup



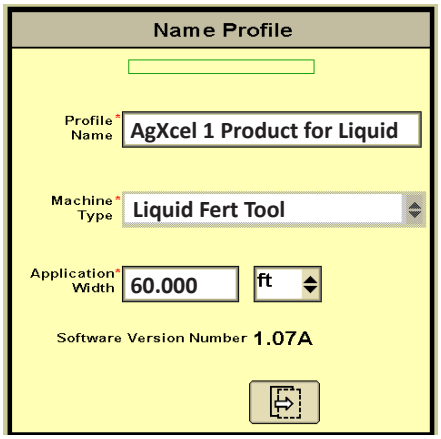
For the initial setup, start a new profile. The JDRC 2000 allows you to store 8 profiles. Be prepared to wait during this phase of the setup process....***A LONG TIME!***

2. Enter Profile Name

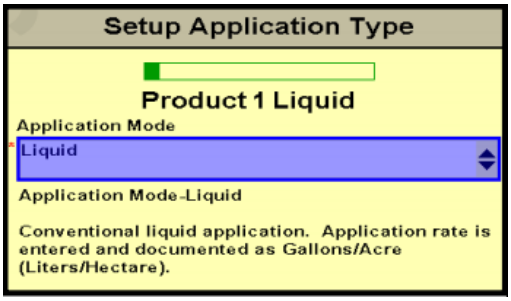




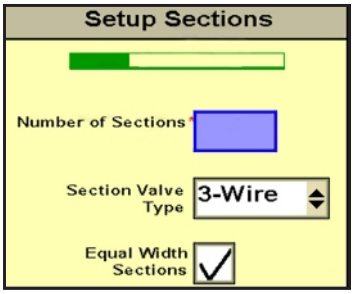
3. Machine Type -> AgXcel 1 Product for Liquid



4. Select Application Mode -> Liquid

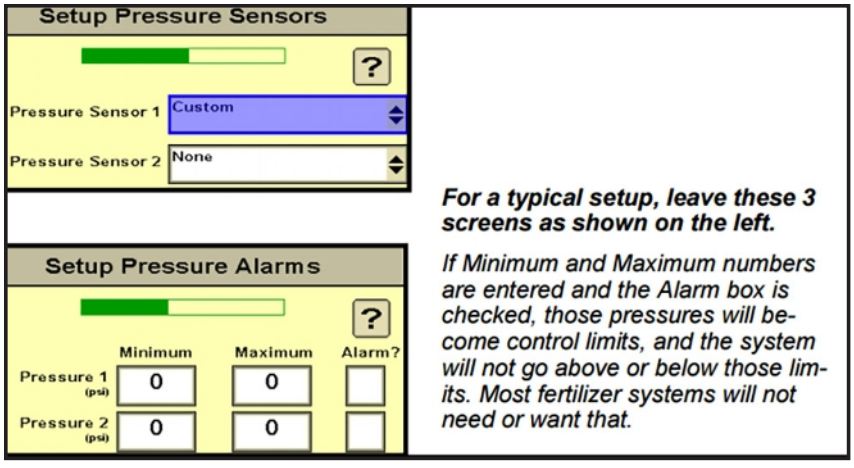


5. Setup Sections as appropriate. Verify widths.



Note: Ensure that "Master Clutch" is not checked

6. The AgXcel pressure sensor will be set up as a Custom sensor. Calibration will be done later in the setup routine.



PO Box 1611
Kearney, NE 68848
877.218.1981
www.agxcel.com

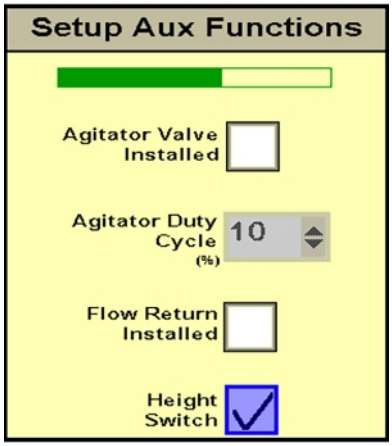
Precision Liquid Fertilizer Solutions

AgXcel 877.218.1981 www.agxcel.com

where precision meets the soil...

QuickStart Setup Instructions for JDRC 2000 & AgXcel Harness for 1 Liquid Product

7. Complete Aux Functions



8. Control Valve Setup (use the numbers indicated for your system)

Valve Response Rate: *(Adjust as needed)*

- **GX5 (hydraulic diaphragm) 80**
- **GX5 (hydraulic centrifugal) 15**
- **GX2 (electric) 100**

Coil Frequency

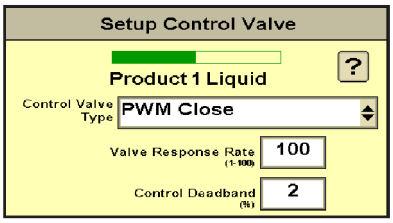
- **GX5 (hydraulic diaphragm) 100**
- **GX5 (hydraulic centrifugal) 122**
- **GX2 (electric) 100**

Low Limit *(Adjust in field as needed)*

- **GX5 (hydraulic diaphragm) 25**
- **GX5 (hydraulic centrifugal) 25**
- **GX2 (electric) 10**

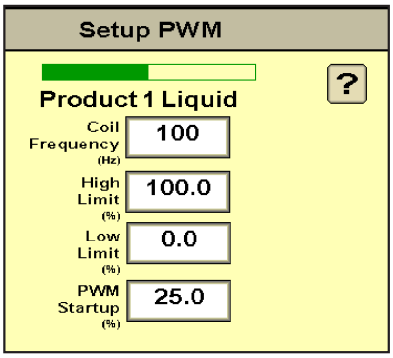
Pump Startup *(Adjust in field as needed)*

- **GX5 (hydraulic diaphragm) 15**
- **GX5 (hydraulic centrifugal) 15**
- **GX2 (electric) 20**

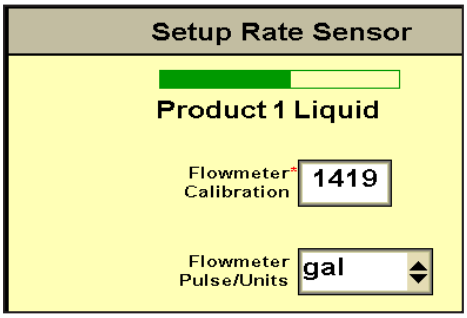


If pump is slow responding to rate or speed changes, increase **Valve Response Rate** 10hz at a time. If product oscillates around rate going across the field, reduce **Valve Response Rate**.

Control Deadband: Start at 2



9. Enter appropriate Flowmeter Cal.



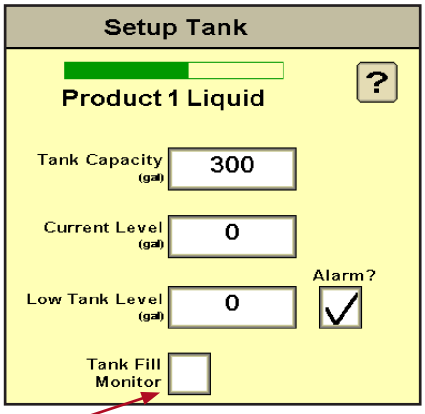
AGXCEL FLOW METER CALIBRATION NUMBERS	
MODEL / RATE	Pulses Per Gallon
0.08 - 1.6	22710
0.13 - 2.6	22710
0.3 - 5	11355
0.6 - 13	4542
1.3 - 26	2271
2.6 - 53	1135

Turbine Flowmeters

FM750 Reg
Micro-Trak Cal Number - 145 (SprayMate, Auto-X)
Pulses Per Gallon - 72.50 (JD, AGL, Trimble)
Pulses Per 10 Gallon - 725 (Raven)

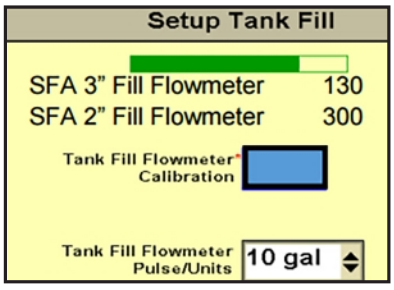
FM750 LF
Micro-Trak Cal Number - 466 (Spraymate, Auto-X)
Pulses Per Gallon - 233 (JD, AGL, Trimble)
Pulses Per 10 Gallon - 2330 (Raven)

10 (a). Tank & Fill Flowmeter Setup



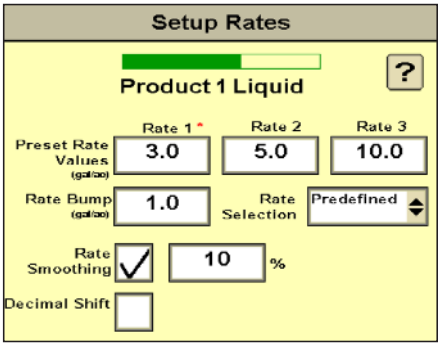
Check **Tank Fill Monitor** box if using a fill flowmeter. Then enter **Tank Fill Flowmeter Calibration (Units are 10 gal.)**

10 (b). Fill Flowmeter Cal Setup



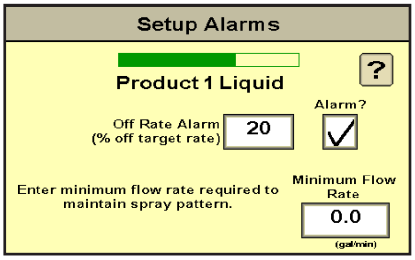
11. Set Rates & Rate Smoothing as desired.

Check the **Decimal Shift** box to enter rates with one more decimal point (such as 0.25 gpa).



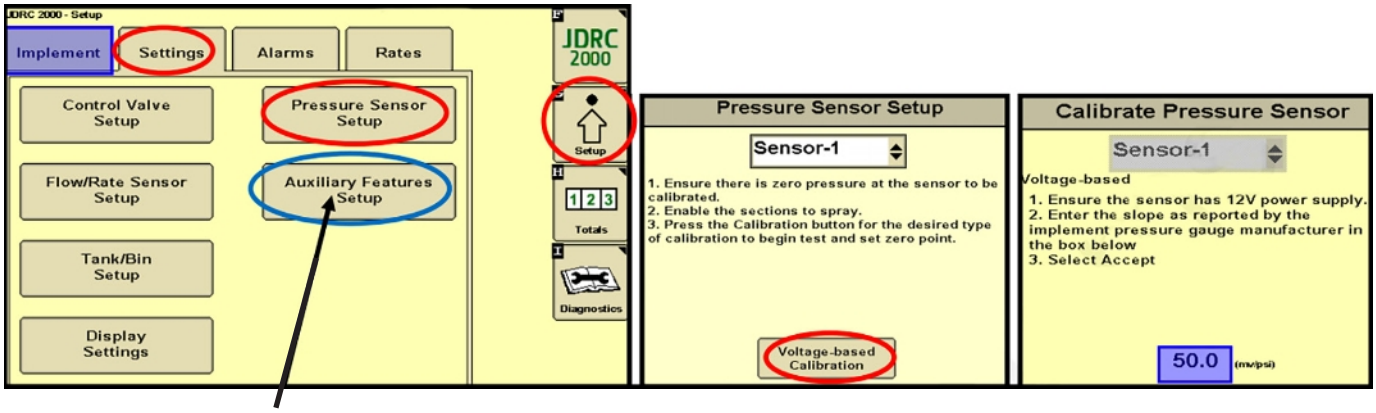
12. Set Off Rate Alarm as desired.

The **Min. Flow Rate** box will not be present if a pressure sensor has been assigned to this product. Typically, **Min. Flow Rate** will be left at 0.

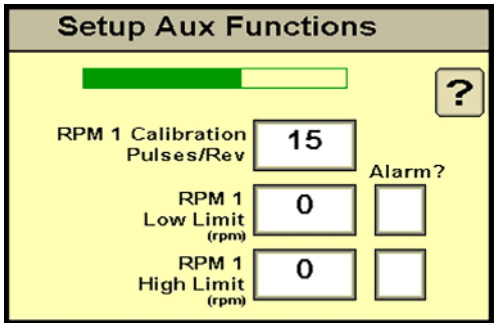


QuickStart Setup Instructions for JDRC 2000 & AgXcel Harness for 1 Liquid Product

13. Pressure Sensor - When using an AgXcel pressure sensor the steps must be performed below. AgXcel uses a 0 - 100 PSI pressure transducer and a calibration number of **50.0 mv/PSI** is to be used. To ensure that the sensor is properly calibrated, please make sure that the M12 connector with a **GREEN lit LED is DISCONNECTED** from the sensor. this will ensure that the sensor does not detect any pressure in the system. 0 Pressure = 0.00 V



14. When using a Pump RPM Sensor



AgXcel recommends putting the Pressure Sensor reading in your Display Settings on the Run Screen (next page). For complete information on how the sensor is operating, go to **Diagnostics -> Readings -> Pressure Sensors.** 0 Pressure Voltage should be 0.00V.

15. Advance Tuning - Many times the Control Valve Settings are not enough to appropriately control the AgXcel EMD PWM Intelligent Module. Therefore, additional fine tuning using the JDRC2000 under the Advance Tuning section is required. On the AgXcel GX2 or Synergist system the PID values must be modified. For more in-depth details of this feature press the ? button.

Default Settings are:

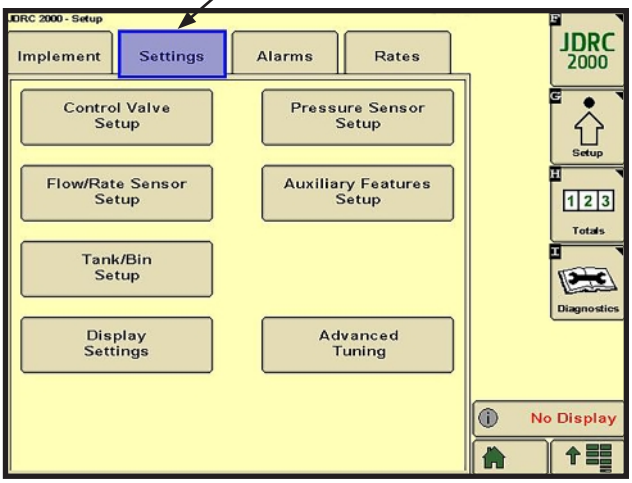
P = 50 D = 50
I = 20 S = 50

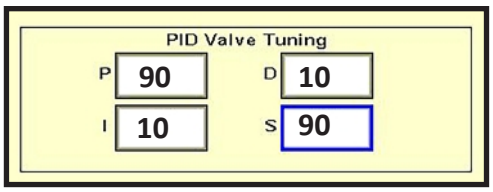
PID Valve Tunning for AgXcel GX2 Electric System:

Set P = 90 D = 10
Set i = 10 S = 90

Setting P = 100 and S = 100 will ensure the quickest response from the AgXcel GX2 Electric System

Press and HOLD the SETTINGS tab for about 10 seconds until the Advanced Tuning button displays





Precision Liquid Fertilizer Solutions

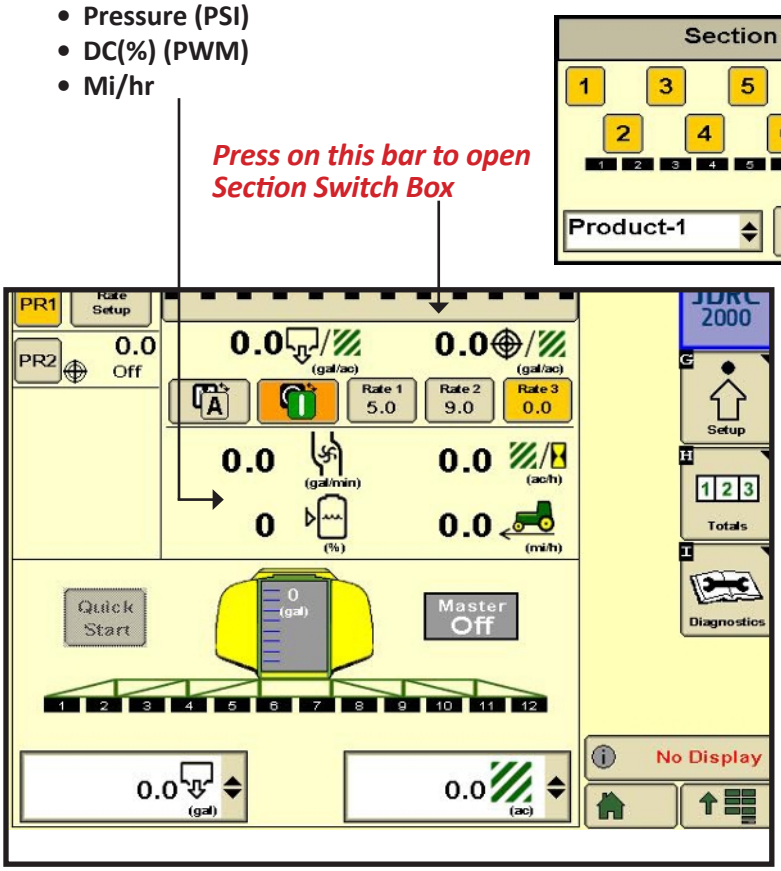
AgXcel 877.218.1981 www.agxcel.com

where precision meets the soil...

QuickStart Setup Instructions for JDRC 2000 & AgXcel Harness for 1 Liquid Product

Set these 4 items in **Setup -> Settings -> Display Settings**

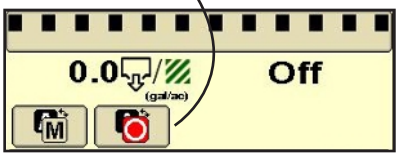
- **Gal/min**
- **Pressure (PSI)**
- **DC(%) (PWM)**
- **Mi/hr**



Auto Mode

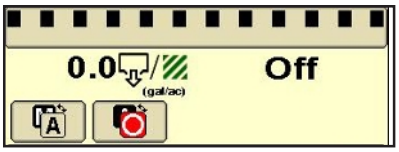


System ENABLE / DISABLE



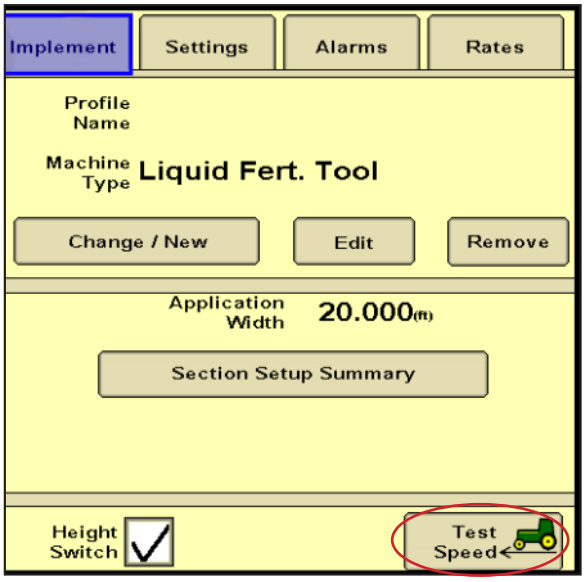
MANUAL

AUTO



Wet Testing the System in Manual Mode

1. Ensure that the system has water. DO NOT test with fertilizer!
2. Under Implement Tab enter a **TEST SPEED**
3. On the Home screen of the JD2000 Press the Manual Button
4. If the height switch is activated ensure that the planter is down or uncheck the switch box while testing
5. Kick on the Master Switch and press the + button to increase the speed of the pump which increases flow
6. You can now monitor vital signs of the systems performance such as Current Flow in Gal/Min, System Pressure, DC Voltage Pump RPM
7. This would be a good time to also test sections if sections are being used. Sections tab is located on the top of the Home page
8. Once test is completed you can then turn off the Master Switch.



Precision Liquid Fertilizer Solutions

AgXcel 877.218.1981 www.agxcel.com

where precision meets the soil...

QuickStart Setup Instructions for JDRC 2000 & AgXcel Harness for 1 Liquid Product

TIP - Many times the system may have difficulty priming, or if a flow meter has not detected flow and you want the system to continue running so as to prime. Go to Diagnostics > Tests > Calibrate PWM Limits

1. Time for Auto Mode Testing -
2. Once again, enter a Test Speed
3. Press the AUTO button
4. Ensure that the height switch is down or unchecked
5. Turn the Master ON
6. You can now monitor system flow vitals and ensure that all outlets of liquid are flowing
7. Once again, check sections if sections are being used
8. System testing is complete - Turn OFF the Master Switch

AgXcel System Performance Settings - To ensure the best performance of your AgXcel system especially at Start Up, setting the PWM Start Up % can be fine tuned. PWM Start Up % sends voltage to the pumps at the % that has been set. This can assist in the priming cycle to get the pumps running quicker. Once the pumps jump up to the % set, then it will begin its cycle to lock into the required target rate setting.

Precision Liquid Fertilizer Solutions

AgXcel 877.218.1981 www.agxcel.com

where precision meets the soil...

QuickStart Setup Instructions for JDRC 2000 & AgXcel Harness for 1 Liquid Product

AgXcel Liquid System Frequency Asked Questions (FAQ)

I am trying to achieve 5 GPA but my system will not go lower than 9 GPA.

- Make sure your PWM Low Limit is set to a number that is lower than your required lowest rate. This can be found in your Valve Control PWM settings on your console. If the PWM Low Limit is set too high you will not be able to achieve the lowest rate possible if set other than 10. Many times setting the Low Limit to 0 will work just fine especially when running lower rates.
- With an AgXcel System always make sure your Minimum Flow rate is set to 0.0 GPM or your system will not drop below this rate. For example if the Minimum flow rate is set to 3 GPM your system will not drop below this setting so if your required GPA requires 2.1 GPM then your system will not achieve this rate given that you have set the Minimum Flow rate to 3 GPM.
- When using an AgXcel GX5 Hydraulic system, make sure the AgXcel silver hyd valve is NOT in manual override. Check to ensure that the RED knob on top of the valve is pressed down by turning the knob clockwise while pressing the RED knob down. This will lock the PWM valve down so that the electronic solenoid can control the hyd flow.

I am trying to achieve 12 GPA but my system will only go up to 8 GPA on my GX5 Hyd system or I am trying to achieve 8GPA and can only achieve 5 GPA on my GX2 electric system

AgXcel GX2 Electric System

- What is your system pressure? If system pressure is too high (50PSI or above) this will prevent you from achieving your highest rate possible. High system pressure with an electric system can put the electric pump head into bypass mode and will not allow for full flow.
- **Check the following areas to lower your pressure**
  1. Select a larger orifice or Micro Tube with a larger hole, this will allow for easier flow of liquid through the system and can increase over all flow and GPA
  2. Check your system filters and make sure they are clean. This should be a practice each morning before using the system
- AgXcel GX2 Electric Systems can achieve up to about 5.9 GPM with dual electric pumps. Check your total GPM requirements and ensure that you are within range
- When using a Dual Pump System – unplug 1 pump and ensure that the other pump is working. Perform this test with both pumps and if one pump sounds weak replace it immediately
- Ensure that your PWM High Limit is set to 100. Many times an Auto Tune will set this to a lower number so make sure this is set to 100
- If you controller has this option, make sure the PWM Duty Cycle is within range
- Check all your boom widths and make sure that all are set correctly

AgXcel GX5 Hyd System

- What is your system pressure? If system pressure is too high (90PSI or above) this will prevent you from achieving your highest rate possible. High system pressure with a hydraulic system set 100 PSI bypass spike valve to open and you could begin to lose volume
- **Check the following areas to lower your pressure**
  1. Select a larger orifice or Micro Tube with a larger hole, this will allow for easier flow of liquid through the system and can increase over all flow and GPA
  2. Check your system filters and make sure they are clean. This should be a practice each morning before using the system
- Check your total GPM requirements and ensure that you are within range of the GX5 hyd pumps recommended GPM
- Ensure that your PWM High Limit is set to 100. Many times an Auto Tune will set this to a lower number so make sure this is set to 100
- If you controller has this option, make sure the PWM Duty Cycle is within range
- Check all your boom widths and make sure that all are set correctly

My rate is fluctuating and is almost locking in but just around

QuickStart Setup Instructions for JDRC 2000 & AgXcel Harness for 1 Liquid Product

AgXcel Liquid System Frequency Asked Questions (FAQ) cont....

- Make sure that your Rate Smoothing is checked and set to 10. You can typically find this setting under your System Controller settings. Rate Smoothing allows the system to lock into the rate if the rate is within 10% of the required rate. Many times liquid temperature can affect the performance of the system '
- Make sure your pressure is enough to fully OPEN every check valve on the implement. A good rule of thumb is to ensure that pressure is higher than 15 PSI when using 4lb, 5lb and especially 10lb check valves

How do I know where my pressure should be?

- AgXcel systems are not pressure based especially when they are controlled with a Liquid Rate Control Module. HOWEVER, pressure can affect the performance of the system if the pressure is too low or too high. Many users feel that the higher the pressure then the less chance they have to plug an orifice. Although this statement holds value it can also have a major effect on system performance
- **Low pressure – RECOMMENDED 15PSI is the lowest**
    1. Can affect the performance of the pump and may cause it to surge which affect the accuracy of your flow
    2. Can affect the performance of your system check valves, not enough pressure and all your check valves may not OPEN and this may affect the accuracy of your system
- **High Pressure – RECOMMENDED – GX2 Electric = 25PSI GX5 Hyd = 70PSI**
    1. Too high of pressure can also affect the performance of your system as this can cause too much restriction in the manifold tubes and too much resistance will slow the rate down
- **RULE OF THUMB FOR PRESSURE**
    - AgXcel GX2 systems = 15PSI – 25 PSI
    - AgXcel GX5 Hyd systems
        - Low Range = 15PSI – 40 PSI
        - Medium Range = 20PSI – 50PSI
        - High Range = 40PSI – 80PSI
    - All these ranges are OK for the AgXcel GX5 system
    - For High Speed Planters check out the AgXcel GX30i VRT Solution

How to I raise and lower my pressure when required

- If your pressure is too HIGH then increase the size of your orifice and or Micro Tube to a larger hole size
- If your pressure is too LOW then change the size of your orifice or Micro Tube to a smaller hole