Fluid Fertilizer Application Improving Up-Time Improving Accuracy

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Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Application Equipment

- High Volume Applicators / Pre-plant Applicators
- Post Applicators
- Pull Type Applicators with Liquid Fertilizer
- Planters with Liquid Fertilizer

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Application Equipment

High Volume Applicators / Pre-plant Applicators

Tri County Chemical Eldorado Illinios

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

High Volume Applicators / Pre-plant Applicators

Improving Up-Time

A. Pump
B. Plumbing
C. Flowmeter
D. Strainers

Fluid Fertilizer Application

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High Volume Applicators / Pre-plant Applicators

Improving Up-Time

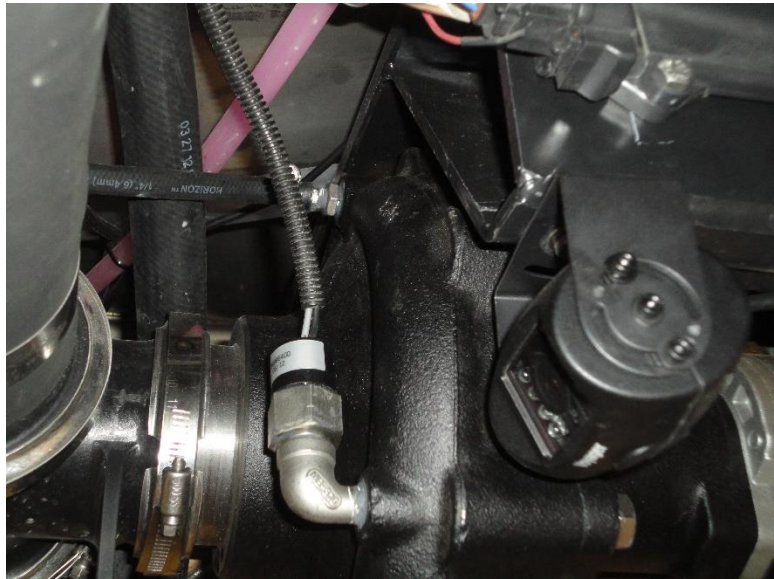
A. Pump –

1. Extreme Duty Seal
    a) Wet Seal w Sight Gauge
    b) Dry Seal w Vent Line
2. Stainless Impeller vs Poly Impeller
3. Hydraulic Motor
    a) Understanding the Control System Settings
    b) Min and Max PWM CAL numbers
    c) Preset PWM

B. Plumbing

C. Flowmeter

D. Strainers



Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

High Volume Applicators / Pre-plant Applicators

Improving Up-Time

A. Pump

B. Plumbing

   a) Wet Boom Stainless Plumbing vs Dry Boom

      a) Hose Routing – minimizing product setting

   b) Boom Dividers – improving product flow

   c) Replace End caps with Cam Lever Couple

   d) Air Valves and Air hose blowout

C. Flowmeter-

D. Strainers

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

High Volume Applicators / Pre-plant Applicators

Improving Up-Time

A. Pump

B. Plumbing

C. Flowmeter
   a) Standard Turbine Flowmeter for clear product
   b) Mag meter will handle everything
   c) Flush w water

D. Strainers

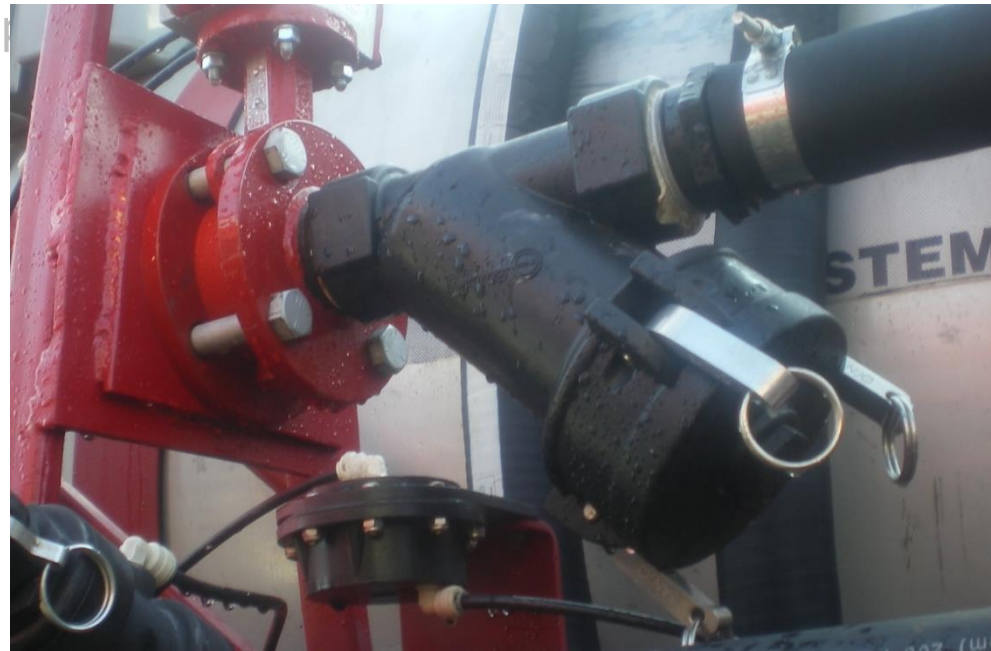
Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

High Volume Applicators / Pre-plant Applicators

Improving Up-Time

A. Pump
B. Plumbing
C. Flowmeter
    a) Standard Turbine Flowmeter for clear
    b) Mag meter will handle everything
D. Strainers



Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

High Volume Applicators / Pre-plant Applicators

Improving Accuracy

A. Control System
B. Flowmeter
C. Variable Rate
D. Nozzle Selection

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

High Volume Applicators / Pre-plant Applicators

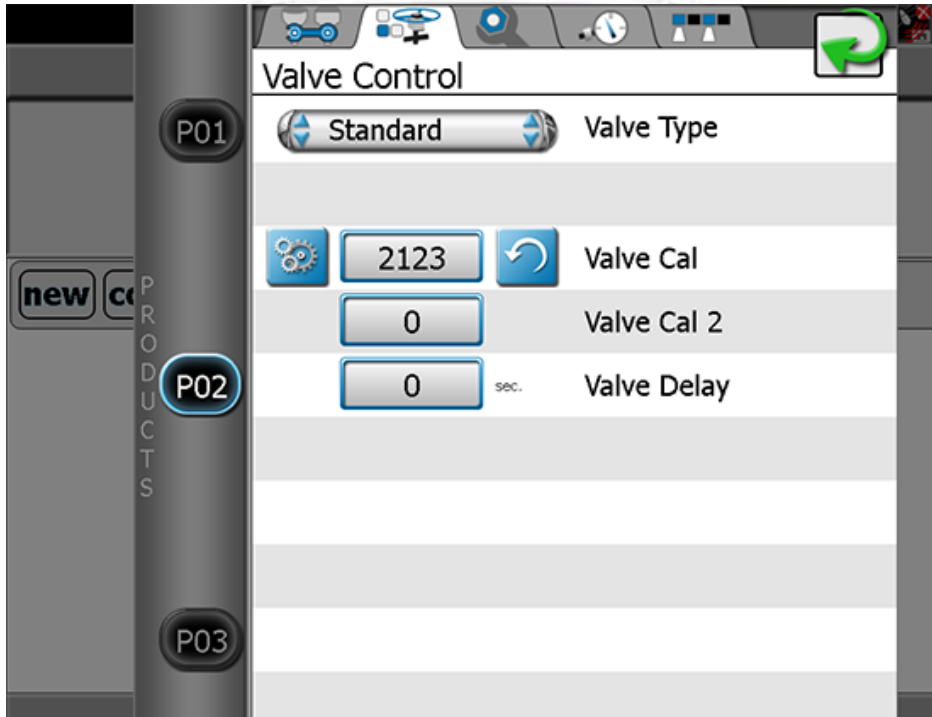
Improving Accuracy

A. Control System
   1. SCS 440-ISO and Everything In between
   2. CAL Numbers PWM valves to Valve CAL

B. Flowmeter

C. Variable Rate

D. Nozzle Selection



Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

High Volume Applicators / Pre-plant Applicators

Improving Accuracy

A. Control System

B. Flowmeter

1. Turbine vs Magmeter
2. Update Rate 1000hz vs 100hz
    1. Meter CAL 40 = 40 pulses in 10 gal
    2. Meter CAL 400 = 400 pulses in 10 gal

C. Variable Rate

D. Nozzle Selection

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

High Volume Applicators / Pre-plant Applicators

Improving Accuracy

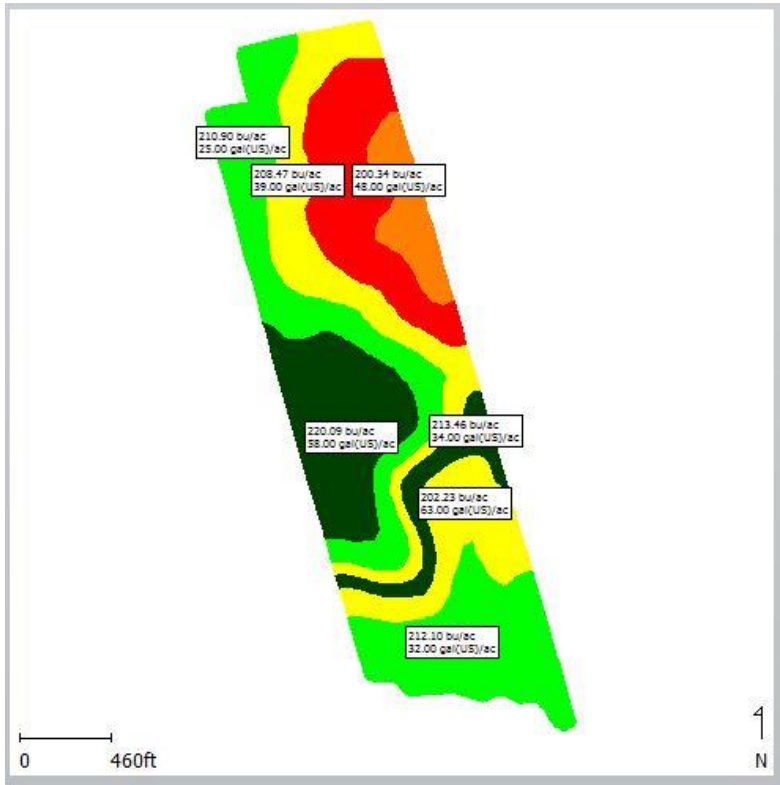
A. Control System

B. Flowmeter

C. Variable Rate

1. Rate Zones have smooth transitions
2. Does your controller offer a LOOK AHEAD for VR
3. Test your machines rate change response

D. Nozzle Selection



Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

High Volume Applicators / Pre-plant Applicators

Improving Accuracy

A. Control System
B. Flowmeter
C. Variable Rate
D. Nozzle Selection
    1. Speed of Newer Machine
    2. GPM = New Nozzles
    3. Larger Nozzles = Lower PSI and Less Plugging

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Application Equipment

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Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Post Applicators

Improving Up-Time

A. Pump
B. Plumbing
C. Flowmeter
D. Dry Check

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Post Applicators

Improving Up-Time

A. Pump
B. Plumbing
C. Flowmeter
D. Dry Check

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Post Applicators

Improving Up-Time

A. Pump
   A. HV pump vs Standard Volume
   B. Seals/ Impeller
B. Plumbing
C. Flowmeter
D. Dry Check

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Post Applicators

Improving Up-Time

A. Pump
B. Plumbing
    A. High volume vs Standard Plumbing
    B. Strainers
    C. Nozzle Bodies
    D. End boom flush valves
C. Flowmeter
D. Dry Check

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Post Applicators

Improving Up-Time

A. Pump
B. Plumbing
C. Flowmeter
    A. Min - Max GPM of a 120ft boom
    B. RFM 60 standard Plumbing
    C. MAG 200 3-200 GPM
    D. RFM 200-300 for HV
D. Dry Check

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Post Applicators

Improving Up-Time

A. Pump
B. Plumbing
C. Flowmeter
D. Dry Check
    A. Run Control System control valve
    B. Operate Boom Valves

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Post Applicators

Improving Accuracy

A. Control System
B. Flowmeter
C. Variable Rate
D. Nozzle Selection

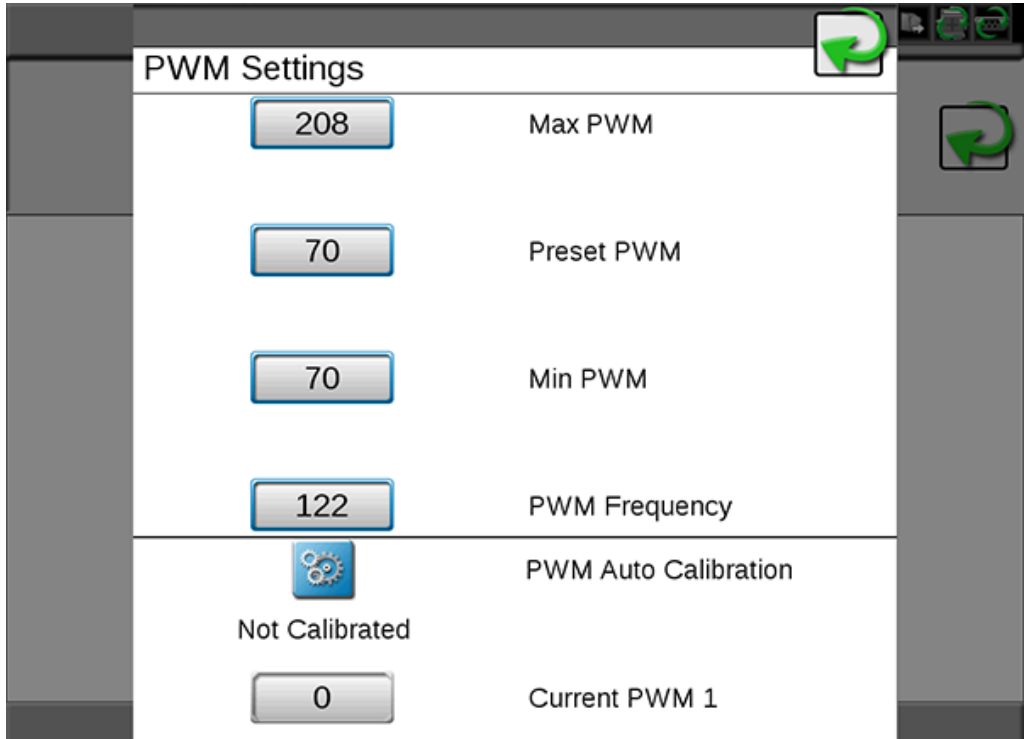
Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Post Applicators

Improving Accuracy

A. Control System
   A. Switching HV to Standard Volume
   B. Valve CAL
   C. PWM CAL
B. Flowmeter
C. Variable Rate
D. Nozzle Selection



Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Post Applicators

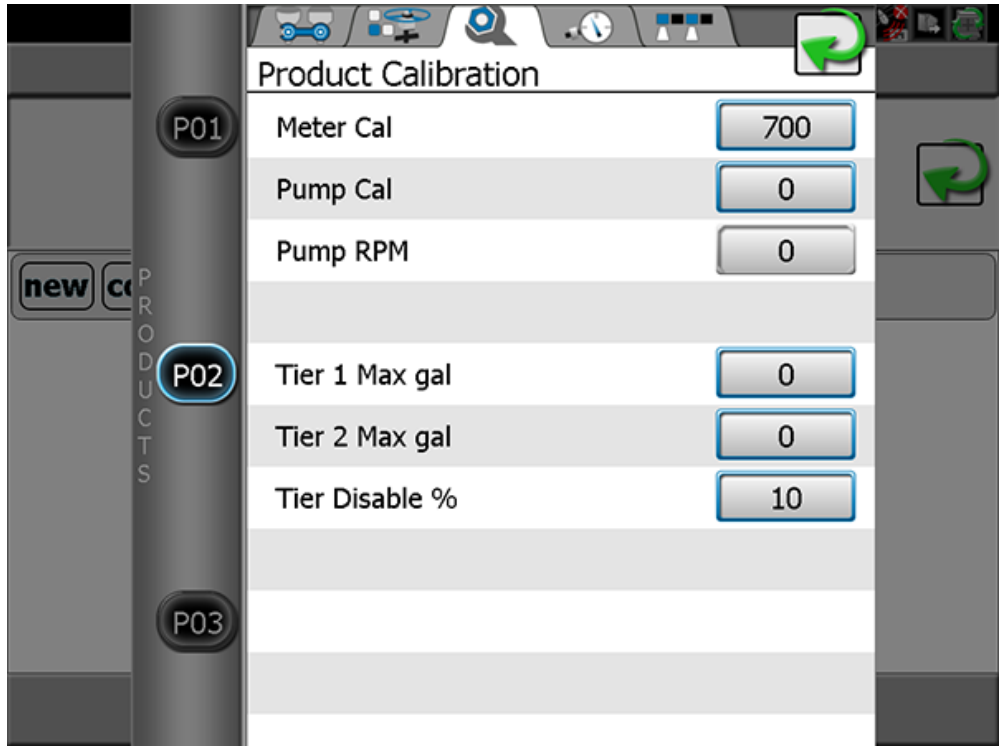
Improving Accuracy

A. Control System

B. Flowmeter
   A. RFM 60- RFM 300
   B. MAG Meter

C. Variable Rate

D. Nozzle Selection



Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Post Applicators

Improving Accuracy

A. Control System
B. Flowmeter
C. Variable Rate
    A. Capstan PWM
    B. Raven Hawkeye
    C. Variable Orifice Nozzles
D. Nozzle Selection

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Post Applicators

Improving Accuracy

A. Control System
B. Flowmeter
C. Variable Rate
D. Nozzle Selection
   A. PSI for Application
   B. Speed of New Machine
   C. AIM Command

	PSI										
	15	20	25	30	35	40	50	60	70	80	90
AIXR110015	XC	XC	VC	C	C	C	C	M	M	M	M
AIXR11002	XC	XC	XC	VC	VC	C	C	C	C	M	M
AIXR110025	XC	XC	XC	XC	VC	VC	C	C	C	C	C
AIXR11003	XC	XC	XC	XC	VC	VC	C	C	C	C	C
AIXR11004	UC	XC	XC	XC	XC	XC	VC	VC	C	C	C
AIXR11005	UC	XC	XC	XC	XC	XC	VC	VC	C	C	C
AIXR11006	UC	XC	XC	XC	XC	XC	VC	VC	VC	C	C

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- Pull Type Applicators with Liquid Fertilizer
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Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Pull Type Applicators with Liquid Fertilizer

Improving Up-Time

A. Pump
B. Plumbing
C. Flowmeter
D. Dry Check

Fluid Fertilizer Application
Improving Up-Time Improving Accuracy

Pull Type Applicators with Liquid Fertilizer

Improving Up-Time

A. Pump
    A. Sizing the pump for the application
    B. Tractor Hydraulics % = GPM
B. Plumbing
C. Flowmeter
D. Dry Check

Fluid Fertilizer Application
Improving Up-Time Improving Accuracy

Pull Type Applicators with Liquid Fertilizer

Improving Up-Time

A. Pump

B. Plumbing
   A. Placement of Tanks - on tractor or applicator
   B. Placement of Flowmeter 6-8” rule
   C. 3/8” hose 25 feet vs 1/2” hose = psi drop

C. Flowmeter

D. Dry Check

Fluid Fertilizer Application
Improving Up-Time Improving Accuracy

Pull Type Applicators with Liquid Fertilizer

Improving Up-Time

A. Pump
B. Plumbing
   A. Feeding the pump
   B. Using a PSI relief
   C. Manifold to Row 3/8” hose vs 1/2” w less Back PSI
   D. Back Checks
C. Flowmeter
D. Dry Check

Fluid Fertilizer Application
Improving Up-Time Improving Accuracy

Pull Type Applicators with Liquid Fertilizer

Improving Up-Time

A. Pump
B. Plumbing
C. Flowmeter
    A. Manifold Fittings
    B. Placement
D. Dry Check

Fluid Fertilizer Application
Improving Up-Time Improving Accuracy

Pull Type Applicators with Liquid Fertilizer

Improving Up-Time

A. Pump
B. Plumbing
C. Flowmeter
D. Dry Check
    A. Run Control System control valve
    B. Operate Boom Valves

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Pull Type Applicators with Liquid Fertilizer

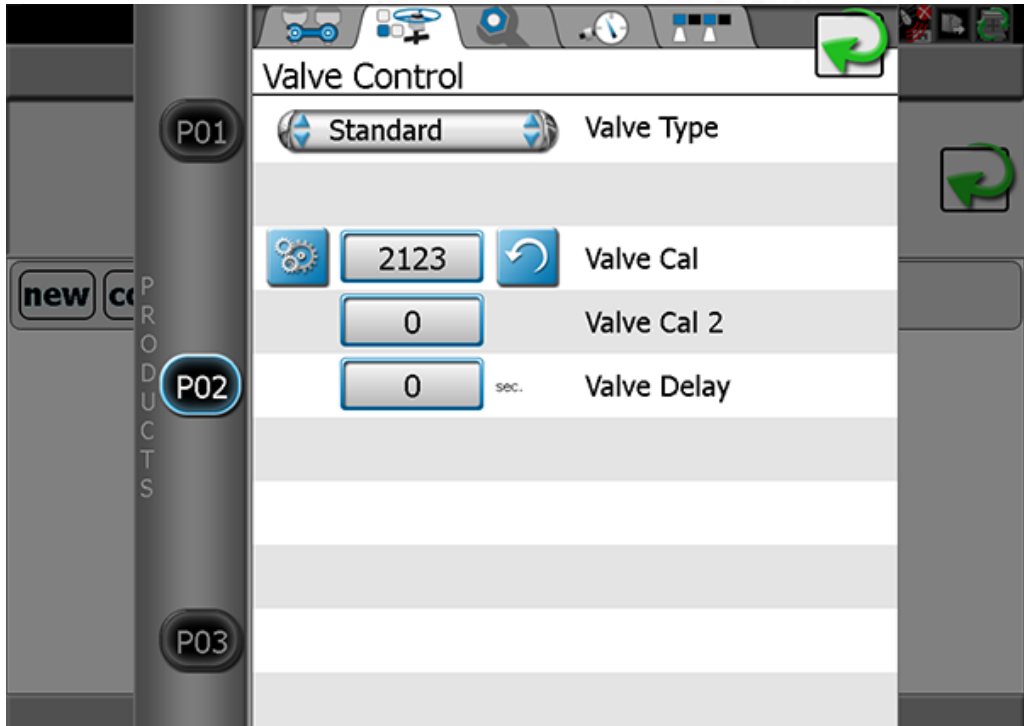
Improving Accuracy

A. Control System
   1. SCS 440-ISO and Everything In between
   2. CAL Numbers PWM valves to Valve CAL

B. Flowmeter

C. Variable Rate

D. Nozzle Selection



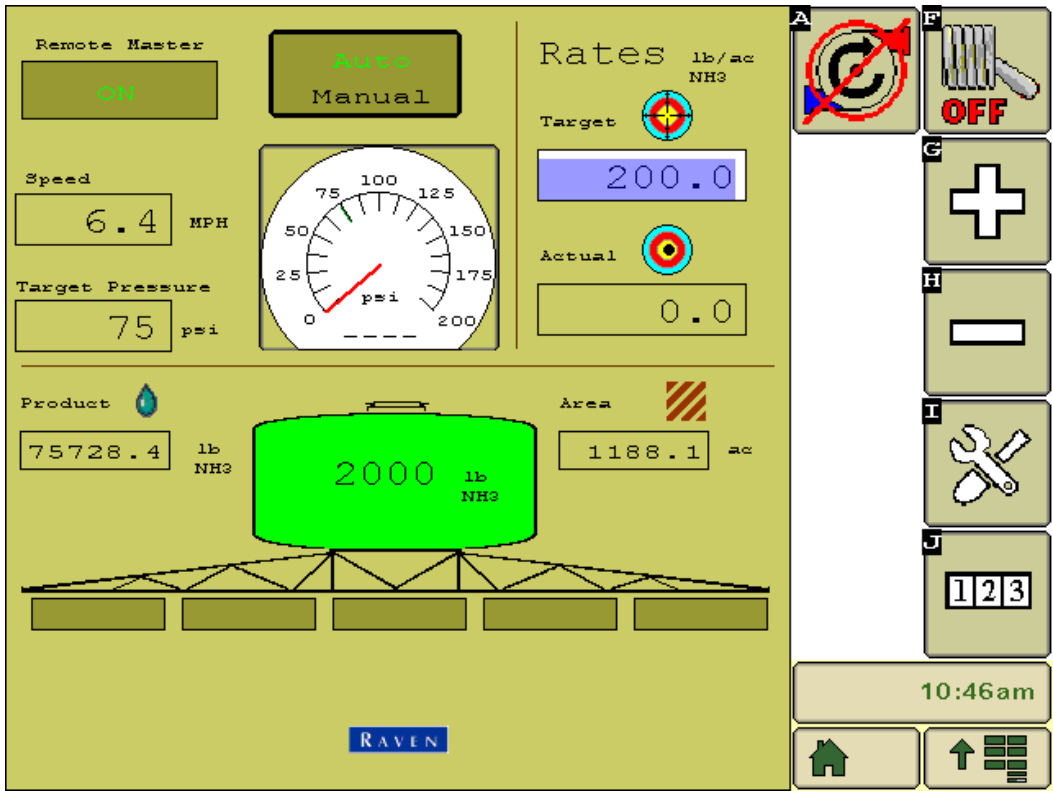
Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Pull Type Applicators with Liquid Fertilizer

Improving Accuracy

A. Control System
   A. 440-ISO
   B. Fine Tuning Control Valve
B. Flowmeter
C. Variable Rate
D. Nozzle Selection
E. Flow Monitor System



Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Pull Type Applicators with Liquid Fertilizer

Improving Accuracy

A. Control System

B. Flowmeter

   A. Placement of Flowmeter

   B. Keep it Full

C. Variable Rate

D. Nozzle Selection

E. Flow Monitor System

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Pull Type Applicators with Liquid Fertilizer

Improving Accuracy

A. Control System

B. Flowmeter

C. Variable Rate

   A. Controller Settings

   B. Capstan LF PWM

   C. Raven Hawkeye

   D. Variable Orifice Nozzles

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Application Equipment

- High Volume Applicators / Pre-plant Applicators
- Post Applicators
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- Planters with Liquid Fertilizer

Planters w Liquid Fertilizer

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Planters w Liquid Fertilizer

Improving Up-Time

A. Pump
B. Plumbing
C. Flowmeter
D. Dry Check

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Planters w Liquid Fertilizer

Improving Up-Time

A. Pump
    A. Pump System for the Rate and Material
    B. Electric Pump vs Hydraulic
B. Plumbing
C. Flowme
D. Dry Che

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Planters w Liquid Fertilizer

Improving Up-Time

A. Pump
B. Plumbing
    A. Sizing Hose to GPA
    B. Filtration
C. Flowmeter
D. Dry Check

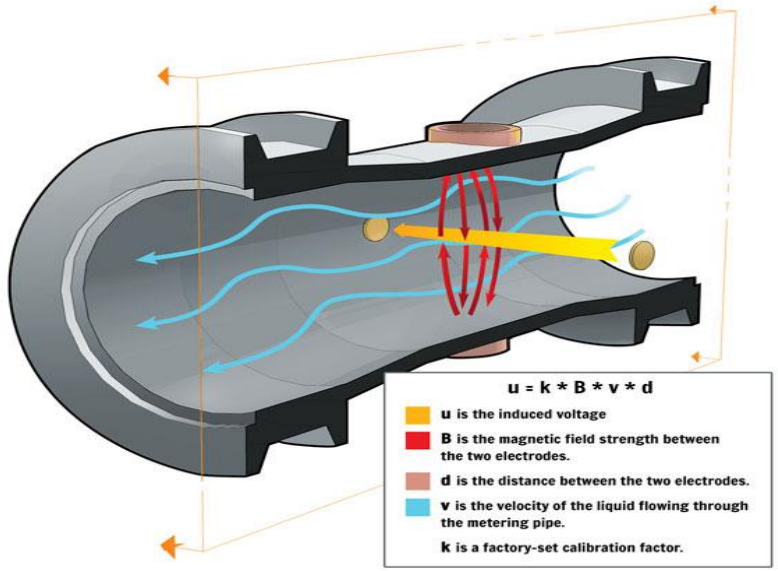
Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Planters w Liquid Fertilizer

Improving Up-Time

A. Pump
B. Plumbing
C. Flowmeter
D. Dry Check



Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Planters w Liquid Fertilizer

Improving Up-Time

A. Pump
B. Plumbing
C. Flowmeter
D. Dry Check
    A. Run Control System control valve
    B. Operate Boom Valves

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Planters w Liquid Fertilizer

Improving Accuracy

A. Control System
B. Flowmeter
C. Variable Rate
D. Nozzle Selection
E. Flow Monitor System

Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Planters w Liquid Fertilizer

Improving Accuracy

A. Control System
    A. SCS 440-ISO and Everything In between
B. Flowmeter
C. Variable Rate
D. Nozzle Selection
E. Flow Monitor System

Fluid Fertilizer Application

Improving Up-Time

Planters w Liquid Fertilizer

Improving Accuracy

A. Control System
B. Flowmeter
   A. Turbine
   B. Mag Meter
C. Variable Rate
D. Nozzle Selection
E. Flow Monitor System

Improving Accuracy

Turbine Flow Meters

- Low flow – .5 – 12 gpm
- High flow – 2 – 40 gpm

Magnetic Flow Meters

- No moving parts
- Very accurate
- Price is about $400 more than a typical turbine flow meter
- Available in 8 different sizes depending on the GPM requirement

Fluid Fertilizer Application

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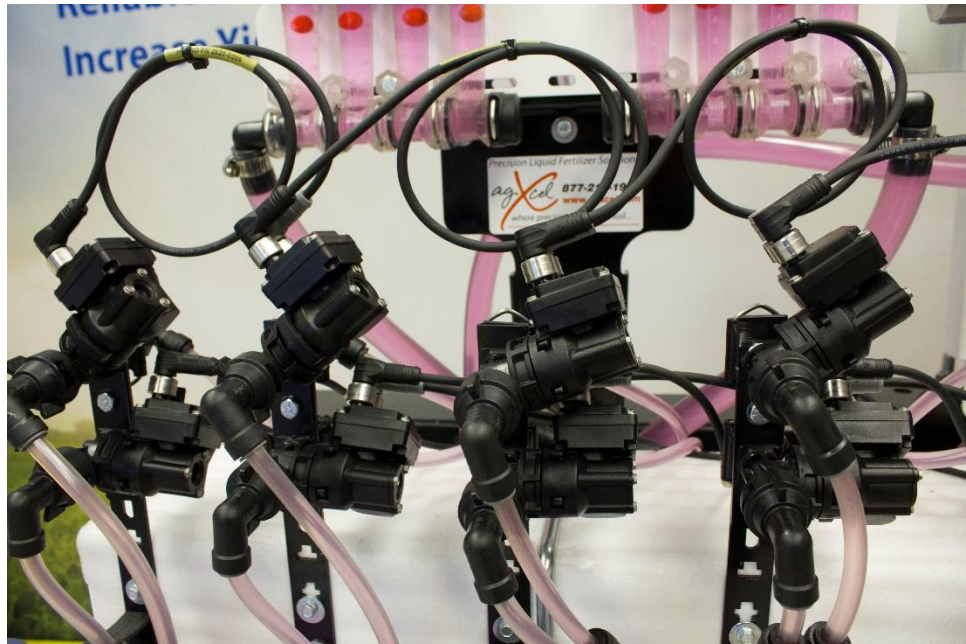
Planters w Liquid Fertilizer

Improving Accuracy

A. Control System
B. Flowmeter
C. Variable Rate
   A. AgXcel GX30iVRT
D. Flow Monitor System



Fluid Fertilizer Application

Improving Up-Time Improving Accuracy

Planters w Liquid Fertilizer

Improving Accuracy

A. Control System
B. Flowmeter
C. Variable Rate
D. Flow Monitor System
   A. TeeJet 6140 Flow Monitor
   B. AgXcel GX7 Row Monitor
   C. JOHN BLUE

Standard (Wired)

Premium (Wireless)

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Thank you