

Du Mond Ag, LLC



- Family Farm ~4500ac
- 4 Full-time employees
- Primarily Corn and Soybeans (50/50)
- Small amount of wheat to allow grid tiling
- Many trials conducted annually
- Frequently modify equipment & practices for optimization
- Equipped for full implementation of VRA with all inputs
- Data collection began in 2006
- VRA applications since 2010

GPS Signal

- Most manufacturers offer different levels
- WASS (Free)
- SF1 (Minimal Fee $\pm 12''$)
- SF2 ($\pm 4''$)
- RTK (\$\$\$ $\pm 1''$) More importantly REPEATABLE



Precision Agriculture

Todd Du Mond, Du Mond Ag, LLC

Equipment optimization

- GPS Signal - RTK
- Guidance
- Swath control
- Row control
- Rate Control
- Application Control
- Acceleration compensation
- Variable variety
- Implement Control
- Machine Sync
- WDT (wireless data transfer)

Precision Management

- Develop a strategy, goal means to the end
- Yield Data
- VRL
- Veris
- Grid sampling
- Software
- Data evaluation
- Performance data
- Weather data



Guidance

- Increase efficiency
- Allows operator to focus on details
- Versatile across all operations
- Enables control traffic
- \$3-\$5k



Basic Components

- Display (~\$5000)
- Receiver (~\$3000)
- Activations (~\$1-\$5000)
- Controllers

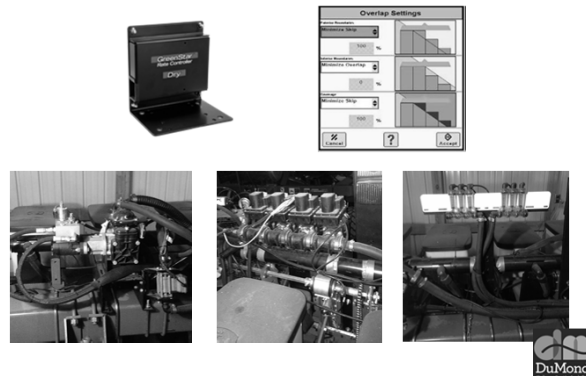


Row/section Control

- Controls application in sections
- Precise control (single row 20-30")
- Minimizes waste, over application
- \$1300 controller, \$3000 activation, + hardware

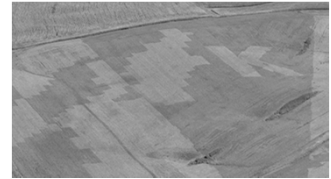


Rate Control



Multi-Variety

- Planters have the ability to switch varieties on the go to optimize seed placement.
- Question is how to EFFECTIVELY utilize this technology



Application Control

- Machines have the ability to turn on/off products as needed
 - Nitrogen Stabilizer
 - Additional Herbicide



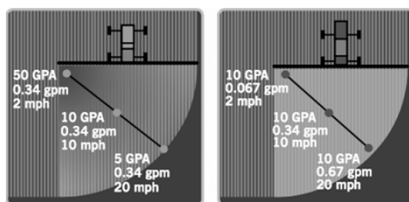
Implement Control

- Passive or Active
- Controls location by equip pos. not machine
- Valuable with wide equipment due to drift, side hills, arcs.



Sprayer Acceleration Compensation

- Individual Nozzle flow control/compensation



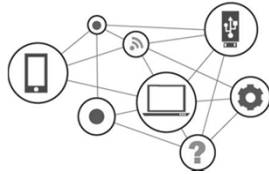
Machine Sync

- Machine to Machine control
- Phase 1 Combine-Grain buggy
- Real-time information flow



WDT (Wireless Data Transfer)

- Connects
 - Machine
 - Desktop software
 - Mobile devices
 - Consultants
 - Data security
- Real time transfer



Know your goal then develop the process necessary to achieve it



Custom built 24R20 Stip Tiller
w/ onboard UAN, section
Control 5', & VRA



Mulch film planter, +300GDU
and frost protection, early
Planting date, full season
corn -> greater potential



POTENTIAL OF PRECISION AG SYSTEMS



Precision Ag systems provide new information about the farm like never before, but...

- How do we use this technology to make better decisions & optimize production?
 - Do you have variable rate capabilities?
 - Do we truly understand how to maximize returns using variable rate analysis?



Du Mond Ag, Implementation

- Machine functionality
 - Guidance
 - Documentation
 - Section control
 - Application control
 - Machine control
 - Variable variety
 - Machine Sync
 - WDT (immediate data analysis)
- Limits in traditional side by side
 - Misses 90% of data
- Optimize everything Just like dairy!!!
 - Continually evolving learning
- Soil Health
- The Science of VRL Application
 - Slow process only 1 chance/yr!!!
 - Make a plan evaluate/stay the course
 - Maintain long term goals/direction
 - Understand soil, exposure, potential, Probability, Economic impact, Consequences
 - Predict speed bump/hurdles (harvesting silage!!) you will have!!
 - Understand the limits of the data (how it was collected, resolution...)
- Manage De-nitrification
 - Predictive modeling
 - Crop sensing



Precision Agriculture

Todd Du Mond, Du Mond Ag, LLC

Equipment optimization

- GPS Signal - RTK
- Guidance
- Swath control
- Row control
- Rate Control
- Application Control
- Acceleration compensation
- Variable variety
- Implement Control
- Machine Sync
- WDT (wireless data transfer)

Precision Management

- Develop a goal then a strategy & a means to the end
- Yield Data
- VRL
- Veris
- Grid sampling
- Software
- Data evaluation
- Performance data
- Weather data



Benefits/Outcomes of Implementation

- Machine functionality
 - Increased productivity/performance
 - Less down time
 - Better results
 - Less overlap
- VRL Application
 - Smoothing of soil variance and production
 - Increase production on same inputs applied differently
- Nitrogen management
 - Optimizing return
 - 2014 N conversion ratio of 1:1.4 (req. 1:1:1)
 - Environmental, economic



Yield Data

- Combines and Choppers
- **Must** be carefully calibrated!!
- Variety tracking/reporting



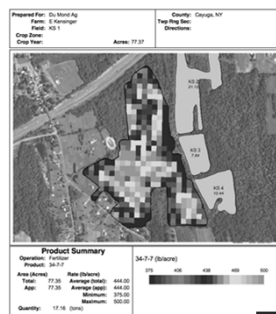
Grid Sampling

- Automated, fast, cost-effective
- Rec. Shape files (usable spatial data)

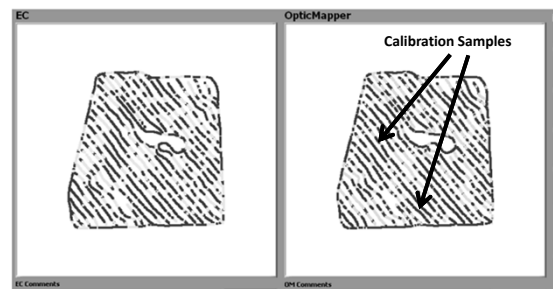


VRA (Variable Rate Application)

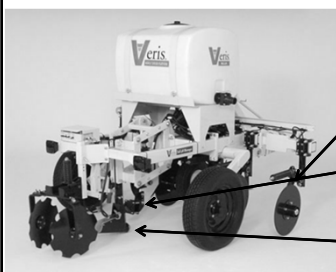
- Many products
 - Seed
 - Fertilizer
 - Lime
 - Chemicals
- Optimize application/allocation



Soil Property Data Collection



Veris Data Collection



- Electrical Conductivity
- Organic Matter
- pH

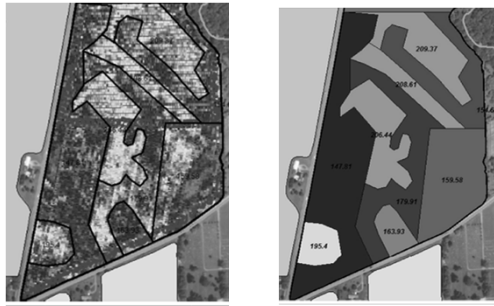


Software

- OEM Software
 - Usually necessary for managing guidance and equipment
 - Very poor at creating algorithms
- Analytically strong software
 - Can't manage equipment control (liability)
 - Often interacts with Excel for generation of complex algorithms

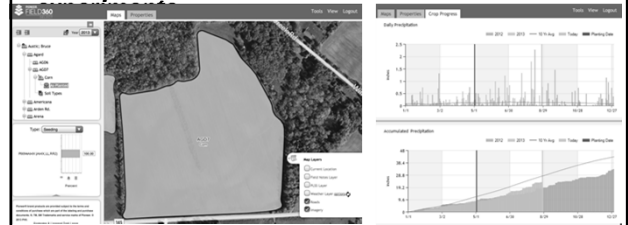


Data Analysis



Data Collection – Pioneer Field360

Incorporating weather data into multi-location



Optimizing Information & Technology



NYCSGA Precision Ag Research

- Started 2013
- Large scale
- Predict production potential based on intrinsic soil properties
- Evacuate multiple verities
- Provide baseline for algorithm generation

Contact:

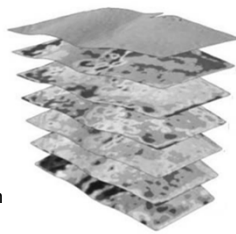
Savanna
skittellmitchell@hotmail.com

Visit Us at:
NYCORNISOY.ORG



In-depth understanding of production potential

- Prescription Seeding
- Yield Mapping
- Electrical Conductivity Mapping
- Organic Matter Mapping
- pH Mapping
- Field Level GDU's and Precipitation
- Fertility Sampling
- Compaction testing



QUESTIONS?

