Data Layers of Value in Corn Production

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Molly Caren Farm Manager
Molly Caren Ag Center
Home of the Farm Science Review
Farm operates as an earnings unit
Must remain profitable

Numerous Partnered Agronomy Projects
Terra-Byte
Nitrogen
Corn Pinch Row
Compaction and Down Force
Planter Type
Strip Till
Precision Nutrient Placement
And more
Assigning **Value** to Data

Must be able to guide a decision to provide **value**

Today and/or tomorrow

Provide efficiency, an archive, a direct ROI
In-season Focus

2.8 Gb of Data Collected of the Tier 1 Layers

These Layers Have High Confidence of Value

Soils Sampling, Yield, and As-Applied Planted Provide the Most Value

Pre-plant
- Weather
- CPU's
- Bare Soil
- Base Scouting

Tassel
- Imagery
- Base Scouting (Disease)
- Rescue N
- Population

Key Data Layer
- Bare Soil Image

Base Layer
- Disease Scouting
- Imagery
**Tools and Services**

### Digital Tools
- Climate FieldView
- Field View Drive
- Precision Planting 20/20 Monitor
- MyJohnDeere
- AirScout Aerial Imagery
- Weather Op
- Precision Planting POGO
- JD Link
- John Blue Blockage Monitor
- Ohio State PLOTS App
- IntegratedAg Soil Sample Results

### Software
- BOX
- SMS Advanced
- My JohnDeere
- Trimble Ag Software
- FieldView Plus Software
- GIS
- Excel
Soil Sampling (1.7Mb)
1 acre grids on 4-5 year interval

$17.50 per acre or $3.50 per ac/year

Data used to create management zones

ROI opportunities
Variable Rate fertilizer
P, K, Lime, Seed.

Nutrient Stewardship
# P & K Application

<table>
<thead>
<tr>
<th>Costs</th>
<th>Straight Rate</th>
<th>Variable Rate</th>
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<tbody>
<tr>
<td>MAP</td>
<td>$4,223 (210 lb/ac)</td>
<td>$2,788 (140 lb/ac)</td>
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<tr>
<td>Potash</td>
<td>$2,936 (210 lbs/ac)</td>
<td>$2,765 (199 lbs/ac)</td>
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<tr>
<td>Spread Charge</td>
<td>$489 ($5/ac)</td>
<td>$537 ($5.5/ac)</td>
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<tr>
<td>Total</td>
<td>$7,648</td>
<td>$6,090</td>
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</table>

VR Fertilizer ROI: $1,558 ($15.95/ac)

|---------|----------------|--------------|
Seeding Rx

- Generated by seeding zone
  1. 32K
  2. 34K
  3. 36K
- Observed 5-10 bu/ac increase
  - $18-$36/ac
- Costs:
  - $1.10 Seeding Rx
  - $5.50 Seeding Increase

VR Seeding ROI:
$11-$29/ac
As-planted Evaluation

1. Data
2. Information
3. Knowledge

Delineation  Prescription  Execution
As-Applied data provides confidence to get through the growing season challenges.

As-Planted (81.92MB)
Some as-applied solutions are free with equipment. CAN compatibility solutions for <$1000/device/year. Provided free with the application service.
As-Applied data has value from 
Record Keeping 
Hybrid Tracking 
Evaluating Cropping Systems 
On Farm Research 
Evaluating Operators 
And more…
As-Applied Data

Move from one machine to another

SYNC with multiple machines in the same field
As-Applied Data

Tracking treatments for on farm strip trials

Revisit locations any time during the growing season

Saves time and preserves identity
Value in Aerial Imagery (1.7 Gb)

- Bare Soil Field Condition Report
- Replant Tool
- Advanced Scouting
- Field Health Check
- Yield Estimator
- Long Term Archive

Multiple images per season for about $10 per acre

Higher Resolution = Higher Value
Preseason Bare Soil Imagery

Can provide background if no field history exists-rented ground
Seasonal influences-water damage
Be certain a field is fit to plant by scouting the cool/wet areas
Using Imagery as a replant decision tool and in field locator. #RePlant17 shown here.

Fieldview as-replanted

This image was taken 5 days ahead of the replant.
Advanced Scouting Techniques Using Imagery

Thermal Picture Used to detect disease induced stress. This region is the warmest in the field but it is not on a hill or thin spot. Start here!
3. Aerial Imagery – 6/29

Fungicide ROI
$18-$28/ac
Or 10-18 BPA
Yield Data

The Payout, The Reward, The Report Card

Did You Win or Lose?

If we have 40 Chances...
Only about 20 of them will be CORN.
Yield Data Value

Similar Platforms to as-applied data

Free or Low cost with machine

Evaluate Everything from the growing season
Yield Data Value

1. Data
From the machine(s)
small cost, small quantity.

2. Information
Archived in the Cloud and/or
on PC in GIS software.

3. Knowledge
Instant verification of current
year practices.
Powerful resource to use in
future growing seasons- can be
implemented immediately.
Other Tier 2 Layers

These layers have Value may not be priority

Unique to each farming operation

Weather continues to emerge as higher priority
### Seasonal and Multi Season Value

Accuracy and Delivery increase the value

**Cold Front Prediction $$$**

**Freeze/Frost Risk**

**GDU tracking**

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**Daily Planner**

**Issued:** Tuesday, May 01, 2018 at 05:00AM EDT

<table>
<thead>
<tr>
<th>OSU Farm Science Review</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
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<tr>
<td><strong>Weather Triggers</strong></td>
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<td>Wind Speed (mph)</td>
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<td>18</td>
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| High Temp (°F)          | 76  | 79  | 79  | 72  | 73  | 68  | 67  |
| Low Temp (°F)           | 40  | 56  | 65  | 56  | 51  | 49  | 52  |
| 24 Hr. Precipitation (in) | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| Snow Accumulation (in)  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ice Accumulation (in)   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Avg Wind Spd (mph)      | 11  | 14  | 15  | 18  | 6   | 5   | 5   |
| Max Wind Gust (mph)     | 25  | 35  | 35  | 35  | 35  | 35  | 35  |

**Weather Trigger Definitions**

*General Thunderstorms (Green)* - If thunderstorms develop, they are unlikely to become severe.

*Severe Thunderstorms Possible* - If thunderstorms develop, they have an increased threat of producing wind gusts in excess of 40 mph (35 knots), hail, and potentially tornadoes.

*Severe Thunderstorms Likely (Red)* - If thunderstorms develop, they pose a significant threat of producing wind gusts in excess of 58 mph (50 knots), large hail, and tornadoes.
Data Value
Low Cost Solutions
Multiple In Season ROI Opportunities
Multi Season ROI
Confidence
Efficiency
Archive
Validation
Thank You

Presentation Credit to
Trey Colley
IntegratedAg
airScout
Fieldview
MyJohnDeere
WeatherOps