Precision Business Planning Solutions

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President & C.E.O.

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Vice President Agronomic Planning & Sustainability
Our Vision

Enhance Farmers Ability to
- Increase profitability
- Increase production
- Produce sustainably
Our Mission

Comprehensive Solutions

Empower Retailers to Serve Growers
To stay relevant Retailers need to

- Bring Data Substantiated Advice to a grower
- Use Ag Tech to empower their team members
- Engage growers Digitally
- Be Responsive / Convenient / Frictionless
- Provide Expertise & Value a grower can understand
- Provide Business Insights (to help improve profit)
Helping Growers Via

• Our Retailer Partners:
  • Cooperatives
  • Independents Retailers
  • Equipment Dealers
  • Anyone serving a farmer
Enterprise Solution

FieldAlytics™
empowering decisions

- Field Records
- Analytics & Data Mgmt
- Geospatial Mapping
- Crop Compliance
- Work Order/Dispatching
- Soil Fertility
- Sub Acre Planning & ROI
- Sampling Scouting

Info Ag – 07/17/18
The right functionality with the right information on the right devices.
Primary Asset – Team & Culture

- Independent & nimble
- Experienced / Industry Savvy
- Investing in both staff & solutions for the long term
- Continue to attract, develop and expand talent
- An environment that allows big ideas to thrive
- Culture of continuous improvement & expansion
A Strategic Partnership to help Growers

Ag Retailers

EFC Systems

EFC - The Right Partner

Vision

Capability

Commitment
Helping a Grower Increase profitability

Dr. David Muth
Co-Founder of AgSolver
Data in Decision Making

Development of Precision Agriculture

Yield Monitoring

GPS Grid Sampling

Variable Rate Fertility Application

Precision Seed Placement

*Survey of 1,296 farmers by Corn Soy Digest Dec. 2016 edition

<table>
<thead>
<tr>
<th>Function</th>
<th>% of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Yield</td>
<td>66%</td>
</tr>
<tr>
<td>Map Field Boundaries</td>
<td>64%</td>
</tr>
<tr>
<td>Variable Rate Fertility</td>
<td>57%</td>
</tr>
<tr>
<td>GPS Guidance</td>
<td>55%</td>
</tr>
<tr>
<td>Analyze Inputs for Future Purchases</td>
<td>37%</td>
</tr>
<tr>
<td>Conduct Field Experiments</td>
<td>34%</td>
</tr>
<tr>
<td>Drainage Decisions</td>
<td>32%</td>
</tr>
<tr>
<td>Sidedress Nitrogen</td>
<td>27%</td>
</tr>
<tr>
<td>Communication – Landowners, etc</td>
<td>20%</td>
</tr>
<tr>
<td>Machinery Management/Scheduling</td>
<td>10%</td>
</tr>
<tr>
<td>Employee Management/Scheduling</td>
<td>7%</td>
</tr>
<tr>
<td>Do Not Use Data in Decision Making</td>
<td>4%</td>
</tr>
</tbody>
</table>
What are the Next Steps?

Precision Ag Solutions

- Data Automation
- Grower Profitability
- Sustainability

Operationalizing Precision Ag
Building Comprehensive Solutions

FieldAlytics™

Sampling Scouting
Geospatial Mapping
Soil Fertility
Sub Acre Planning & ROI

Field Records
Analytics & Data Mgmt
Crop Compliance
Work Order/Dispatching

Empowering Decisions
FieldAlytics – System Design and Structure

- Fully Web-Based Platform
  - Access Anywhere

- Cloud Hosted
  - Unlimited Scalability
  - 24/7 Monitored Systems Support

- Modular Design
  - User Defined Roles
  - Grower Access

- Neutrality
  - Private Labeled
FieldAlytics – Core Strengths

- Data Processing & Analysis
  - Analytic Tools and Reporting
  - Boundary Auto Association

- Machine Communication
  - Wireless File Sending
  - 3rd Party API

- Fertility Rx
  - Direct Lab Integration
  - Fertility Analysis Tools

Info Ag – 07/17/18
Machine Data Flow, Reporting, and Analysis

- Multi-year Analysis
- By Variety, Soil Type, Mgmt. Zone
- Field Trial Setup & Economic Analysis
- Crop/Product Summaries
Advanced Agronomy – VRT Management

Yield by Management Zone Analysis
Targeted Yield Goal by Zone

Yield Map

EFC SYSTEMS™
Advanced Agronomy – VRT Analytics

- Side by Side comparisons
- Detailed Rate and Cost breakdown
- See field variability and impacts
- Overlay actual rate or difference values
Enterprise Operations Management

Asset Management
- Live position updates
- Controls and alerts
- Automated reporting

Electronic Work Orders
- Live product lookups
- Labels and documents
- Alerts and warnings

Operations Dispatch
- Interactive map display
- Dispatch control interface
- Interactive mobile controls
FieldAlytics – Focus on User Data Experience

- **Workflow Enablement**
  - Job Setup
  - Dispatch Control

- **Compliance, Records & Planning**
  - Label Check
  - Reporting & Budgets

- **Mobility**
  - In-Field Solutions
  - Connectivity

- **Integrations**
  - Industry Leaders
  - Innovators and Movers

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Precision Business Planning – Impacts of Variability
• Between 2-3 million acres annually at an expected loss
• Over $1B annually in misallocated working capital
Precision Business Planning Workflow

1. Identify what is happening
2. Create a plan
3. Evaluate plan performance

Analysis and reports

Product and service placement

Business and agronomic performance analysis

Info Ag – 07/17/18
Precision Business Planning Workflow – Business Planning

- Intelligence Gathering
- Business Performance Review
- Opportunity Analysis
- Business Planning
- In-season Plan Adjustments

Agronomy and Operations

Land Improvement

Precision Management

Alternative Low Cost Revenue
Precision Business Planning Framework
## Precision Business Planning Framework

### Product Type
- Fertilizer (pounds/acre)

#### Comparison Metric
- Profit ($/ac)

### Table

<table>
<thead>
<tr>
<th>Soil</th>
<th>MAP</th>
<th>Potash</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 90</td>
<td>105</td>
</tr>
<tr>
<td>Type</td>
<td>Area (ac)</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
<td>----</td>
</tr>
<tr>
<td>84</td>
<td>37.4</td>
<td>26.0</td>
</tr>
<tr>
<td>198B</td>
<td>30.0</td>
<td>18.7</td>
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<tr>
<td>173</td>
<td>29.4</td>
<td>46.8</td>
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<tr>
<td>83B</td>
<td>19.1</td>
<td>93.3</td>
</tr>
<tr>
<td>407B</td>
<td>15.2</td>
<td>61.4</td>
</tr>
<tr>
<td>175B</td>
<td>6.9</td>
<td>-164.9</td>
</tr>
<tr>
<td>41B</td>
<td>6.9</td>
<td>-304.6</td>
</tr>
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</table>

*Product target rate categories are generated by breaking up the rate distribution into thirds. All actual rates are placed into the closest target rate column.*
Precision Business Planning Case Study – Data into Decisions

Situation Assessment
- Long history managing the field
- Highly variable soil characteristics
- January of 2011 included in a 3,500 acre lease auction

Data Outcome
- Identifying unique business units and how to manage them

<table>
<thead>
<tr>
<th>Year</th>
<th>Acres</th>
<th>Yield</th>
<th>Profit</th>
<th>ROI</th>
<th>Nonprofitable</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td></td>
<td>153.8</td>
<td>-$219</td>
<td>-27.2%</td>
<td>100%</td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td>170.6</td>
<td>$17</td>
<td>2.7%</td>
<td>27%</td>
</tr>
</tbody>
</table>
Case Study – Data into Decisions

What are the different business units?

Low Spots: Drainage Issues

Fine Sandy Loam: 80%+ Sand Fraction

Info Ag – 07/17/18
## Case Study – Data into Decisions

<table>
<thead>
<tr>
<th>Business Units</th>
<th>Yield Goal (bu/ac)</th>
<th>Seed Population (seeds/ac)</th>
<th>NH3 N (lbs N/ac)</th>
<th>UAN N (lbs N/ac)</th>
<th>Phosphorus (lbs P/ac)</th>
<th>Potassium (lbs K/ac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low ROI</td>
<td>90</td>
<td>19,000</td>
<td>100</td>
<td>0</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Good ROI</td>
<td>205</td>
<td>34,500</td>
<td>100</td>
<td>110</td>
<td>66</td>
<td>45</td>
</tr>
<tr>
<td>High ROI</td>
<td>230</td>
<td>37,500</td>
<td>100</td>
<td>135</td>
<td>74</td>
<td>51</td>
</tr>
</tbody>
</table>
## Case Study – Data into Decisions

<table>
<thead>
<tr>
<th>Metric</th>
<th>VRT Plan</th>
<th>Tile Investment</th>
<th>Pollinator Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit Impact</td>
<td>$22.02/ac</td>
<td>$47.65/ac</td>
<td>$23.78/ac</td>
</tr>
<tr>
<td>ROI Impact</td>
<td>2.8%</td>
<td>7.4%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Nonprofitable Acres</td>
<td>19%</td>
<td>19%</td>
<td>22%</td>
</tr>
</tbody>
</table>

**VRT Plan**

![VRT Plan Image]

**Tile Investment**

![Tile Investment Image]

**Pollinator Zone**

![Pollinator Zone Image]
Case Study – Data into Decisions

The Whole Story

- County average cash rent
- Tile input by land owner with $20/ac increase in rent on 3 year lease
- 15 acre pollinator zone on sand ridge
- VRT & Split N application

<table>
<thead>
<tr>
<th>Metric</th>
<th>Historical</th>
<th>Actual 2016</th>
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</thead>
<tbody>
<tr>
<td>Yield</td>
<td>170.6 bu/ac</td>
<td>180.6 bu/ac</td>
</tr>
<tr>
<td>Profit</td>
<td>$17.12/ac</td>
<td>$177.14/ac</td>
</tr>
<tr>
<td>ROI</td>
<td>2.7%</td>
<td>28.4%</td>
</tr>
<tr>
<td>Nonprofitable Acres</td>
<td>27%</td>
<td>3%</td>
</tr>
</tbody>
</table>
"Not focusing on environmental markets, rather environmental performance advantages within existing markets"

PACKAGED FOOD CONTROLLED BY 10 GLOBAL COMPANIES

<table>
<thead>
<tr>
<th></th>
<th>Baseline Management</th>
<th>Active Asset Management</th>
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</thead>
<tbody>
<tr>
<td>Annual Soil Loss (tons)</td>
<td>204</td>
<td>69</td>
</tr>
<tr>
<td>Annual Soil Carbon Change (lbs C)</td>
<td>8,137</td>
<td>44,341</td>
</tr>
<tr>
<td>Annual Nitrate Loss (lbs NO₃)</td>
<td>7,779</td>
<td>3,442</td>
</tr>
<tr>
<td>Annual CO₂ Loss (lbs CO₂)</td>
<td>751,311</td>
<td>717,169</td>
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</table>
Questions & Thank You

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