Changing Paradigms in Grain Farming

Early Lessons from a Network Innovation Company

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Chief Economist

@FBNfarrmers
WHAT IS FBN?

Network of farmers democratizing information, providing unbiased analytics, and advancing transparency for the farm economy.

@FBNfarmers
+8,000 MEMBERS
+30 MA
+100K SEED/CHEM PRICES
+20K SEED TAGS

@FBNfarmers
ANALYTICS
Agronomics, Price Transparency, Markets

CROP MARKETING
Production Contracts, Future Contracts, Advisory

FINANCE
INSURANCE
HEALTH

GENETICS NETWORK
Seeds, Chem, Fertilizers, Machinery & Services

®

@FBNfarmers
WHY A FARM NETWORK

● TRANSACTION VALUE
  ○ Collective Buying/Selling

● INFORMATION VALUE
  ○ User-Generated Knowledge
WHY A FARM NETWORK

● INFORMATION VALUE
  ○ Bigger AND Better Data
  ○ Objective - not commercially motivated
  ○ Improved Decision Making
MAKING THE WORLD YOUR PLOT TRIAL
ANALYTICS REVOLUTION

- Bigger Datasets / Faster Compute
- Open Source Tools, Ease of Adoption
- Focus on Prediction, Not Hypothesis Testing
MACHINE LEARNING AT THE FARM LEVEL

- THING PICKING (CLASSIFICATION)
- NUMBER PREDICTION (REGRESSION)
Beta - Corn Yield Estimate

Field Scenarios & Trend

- Good: 260 bu/A
- Average: 240 bu/A
- Bad: 220 bu/A

2 Week Trend: - 1.9 bu/A

Estimated yield over time

- May-01: 212 bu/A
- May-30: 242 bu/A
- Jun-29: 247 bu/A
- Jul-14: 248 bu/A
- Jul-29: 241 bu/A
- Aug-13: 240 bu/A
- Aug-28: 240 bu/A
Yield vs Seed Rate

P1197 (PIONEER®)
All data for this variety

111 days
Maturity

213.24 bu/A
FBN AVG YIELD

510,879.88
Total acres in FBN

Nitrogen
Row Spacing
Seeding Rate
Planting Speed
Planting Date
Planting Temperature
Harvest Date
Moisture
GDUs
Precipitation
Soil Productivity Index

Estimated Average
Likely range for the true average

Change in Yield (bu/ha)

Seeding Rate (Thousand Seeds/Acre)

Yield Results Yield Impacts
NETWORK DATA UNCOVERS YIELD GAINS

2017 Corn Yield Increase for Farmers Planting Top Variety for Their Soil

Average Yield Increase (bu/A)

<table>
<thead>
<tr>
<th></th>
<th>All FBN</th>
<th>Soils with at Least 50 Varieties</th>
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</thead>
<tbody>
<tr>
<td>2017 Yield</td>
<td>6 bu/A</td>
<td>17 bu/A</td>
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WHAT IS TRANSPARENCY?
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EASILY OBTAIN PRICES

COMPARE PRICES OF DIFFERENT CHOICES
WHAT IS TRANSPARENCY?

EASILY OBTAIN PRICES

COMPARE PRICES OF DIFFERENT CHOICES

UNDERSTAND HOW PRICES ARE SET (Costs + Premium)

AWAIRE OF EXISTING PRICE DISCRIMINATION
25% of US Grain Farms Buy Inputs Online*

Traditional ag retailers that bundle products and services together under the product are losing some customers to e-commerce sites that provide only the product.

*USDA-NASS 2017
Corn Production Cost Changes (20-Year)

- Seed: 281%
- Fuel: 34%
- Fertilizer: 68%
- Chemicals: 2%

Yield Up 36%

SOURCE: USDA-ERS
SEED INDUSTRY PRACTICES

- LACK OF PRICE TRANSPARENCY
- SEED RELABELING
- ZONE PRICING
ANATOMY OF A SEED LABEL

SAME VARIETY (GENETICS), DIFFERENT BRANDS

CURRENT AS JULY 30, 2018

@FBNfarmers
SEED RELABELING IS SIZABLE

- 50% of Corn and Soy Seeds are Sold under Multiple Brands
- 67% of Seed Companies Engage in Relabeling

*Current as July 30, 2018*
WHY IS SEED RELABELING AN ISSUE?

- Over Paying for Seed
- Lack of Genetic Diversity
- 5-10% of Farmers inadvertently Plant the Same Variety from Multiple Brands (FBN$RR).

*CURRENT AS JULY 30, 2018*
DKC64-34 (DEKALB®)

SmartStax®

Min Price
200

Average Price
315

Max Price
420

50% $290-$335

25% <$290

25% >$335
SUSTAINABILITY

Meet society’s food needs today without compromising tomorrow’s resources.

Four Major Food Companies Launch Sustainable Food Policy Alliance to Drive Progress in U.S. Public Policies that Shape What People Eat

Founding member companies include Danone North America; Mars, Incorporated; Nestlé USA; and Unilever United States

To Press Releases list

Washington, D.C., Jul 12, 2013
Consumers Want to Know About Practices Impacting...

- Soil
- Water
- Air
SUSTAINABILITY FILLS THE GAP

Organic / IP

- Chemical Application
- CRP
- Crop Rotation & Diversity
- Cover Crops
- Tillage Practices
- Nutrient Management
- Erosion Management
- Water Management
- Buffer zones

Conventional

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Select Attributes

- Chemical Application
- Cover Crops
- Crop Rotation & Diversity
- CRP
- Tillage Practices
- Nutrient Management
- Erosion Management
- Water Management
- Buffer zones

Benchmark Current Practices

Field Transparency

Reduction in GHG

Continuous Improvement

NETWORK+DATA=>CONSUME
Consumer Preferences - Not easily transmitted thru market signals

NETWORK - Identify Candidate Suppliers

DATA + ANALYTICS
Benchmarking, Performance, Enforcement

TRANSPARENCY
For Producers and Consumers
KEYS FOR NETWORK PROSPERITY

Network - Technology Enhanced, Representative for Users

Data - Ubiquitous, Unique

Analytics - Prescriptive Focused

Transparency - Creating Insights on Markets and Performance

@FBNfarmers
THANK YOU

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