Turning Data Into Insight for Farmers

Martin Rand, CEO, VitalFields
Global: Crop Production Demand Climbing

**RISING population**

1980: 4.4B
TODAY: 7.1B
2050: 9.6B+

Source: http://esa.un.org/unpd/wpp

**GROWING middle class**

2B
4.9B

Source: http://www.reuters.com/middle-class-infographic

**RISING animal protein consumption**

9% in 1965
14% in 2030

Source: UN FAO Food Balance Sheet, World Health Organization Global and regional food consumption patterns and trends

**DECLINING arable land**

1 ACRE per person in 1961
<1/3 ACRE per person in 2050

Source: The World Bank, Food and Agriculture Organization of the United Nations (FAO-STAT), Monsanto Internal Calculations
Technology Advancement Enabling Digital Agriculture

**Electronic Circuits**
- **32x** increase in computing power for the same cost in the past 10 years

**Wireless Data Transfer**
- **75%** drop in wireless data transfer price in the past 4 years

**Data Storage**
- **97%** drop in price per gigabyte of storage in the past 10 years

Source:
- Wikipedia.org, anandtech.com, Intel, CNET.com, processortimeline.info, thisp.net
- Cisco (global wireless data use) and Statista (global carrier data revenue estimate)
- Wayback Machine (Statistic Brain)
Implications for Agriculture
Everything That Affects Ag is Becoming Digitized

Seed Genetics  Environmental Conditions  Information from Hardware  Sensors
Adoption of Technology Leads to Increases in Crop Yields

U.S. Corn Yields
(in bushels/acre)

- Improved breeding = significantly higher yields
- Innovations = further improved yields and reduced risk
- Unlocking value of data = optimizing yields and sustainability

Green Revolution
Advanced Breeding & Biotechnology
Digital Ag Revolution

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Narrow the Yield Gap from Variability

2015 NCGA Corn Yield Contest winner
532 bu/acre vs. 168 bu/acre national average

364 bu/acre opportunity

2015 Monsanto Soy Yield Contest winner
134 bu/acre vs. 48 bu/acre national average

86 bu/acre opportunity

\[ Y = f(g, e, p) + \varepsilon \]

Yield = Genetics, Environment, Farming Practices + variability
Improve Sustainability

Sustainably Supporting Demand and Preserving Natural Landscapes

- Reduce the footprint of farming
- Increase crop yields
- Improve efficiency
- Reduce waste
- Improve diets

Source: National Geographic, “Feeding the World”, 2014
Climate FieldView™ and VitalFields

- VitalFields is now a part of the global leader in digital ag services
  - Strengthening Climate's efforts to deliver industry-leading digital technologies to farmers
  - Building one centralized digital ag platform to provide farmers with tools to optimize their operations
  - Expanding access to these tools in Europe and around the world
VitalFields prevented the overuse of 10-30 kg/ha nitrogen using data analysis on test farms

**Spring wheat**

- Spring wheat over fertilisation due to the yield objectives set too high for the soils. Over application of nitrogen was 20 kg N/ha. +21 €/ha gain.
- Plant protection: One pass of spraying could have been avoided. +24 €/ha gain.

**Winter wheat**

- Winter wheat over fertilisation of 10-15 kg N/ha. +13 €/ha gain.

**Winter rapeseed**

- Winter oilseed rape over fertilisation of 30 kg N/ha. +31 €/ha gain.
Digital Ag Today
Climate’s Vision for Digital Ag Tomorrow
A digitized world where every farmer is able to optimize and flawlessly execute every decision on the farm.
Clear and Consistent Approach to Data Privacy

» Farmers **own the data** provided to us

» Farmers **can delete their** data from our systems upon request

» We will **ask for farmer consent** before using information for any purpose other than those described in our policy
Thank You

For more information, visit Climate.com

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