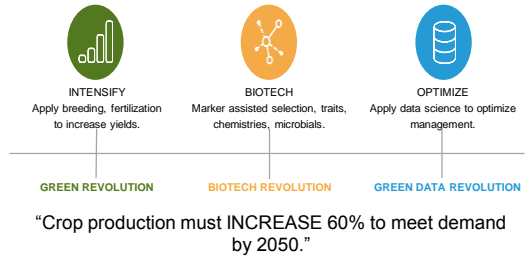




We believe the next revolution in agriculture is through data science



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We deal with data of various types and sources

<p>Weather</p> <p>Gauge Data</p> <p>Numerical Weather Models</p> <p>Multi-Sensor Derived Data</p>	<p>Field</p> <p>Public, MON and TCC Trials</p> <p>As Harvested Maps</p> <p>Other Variables</p> <p>plant phenology crop phenology as-applied maps topography</p>	<p>Soil</p> <p>Variables</p> <p>soil chemistry and texture soil moisture soil temperature</p> <p>Imagery</p> <p>Types</p> <p>multispectral & hyperspectral ground, air and satellite based coarse to fine spatial resolution</p>
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Products that help farmers protect and improve their operations

FieldView

National Conditions **FieldView** **Nitrogen Advisor**

Field Conditions **Field Health Advisor**

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Challenges we face around data

<p></p> <p>Data Challenges</p> <ul style="list-style-type: none"> • Spatio-Temporal Data • Heterogeneous Data • Missing Data • Noisy Data 	<p></p> <p>Learning Challenges</p> <ul style="list-style-type: none"> • Latent Features • Curse of Dimensionality • Multi-task Learning
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Open and easily accessible data are key

<p></p> <p>National Agricultural Statistics Service</p> <p>All Quick Stats and Cropland Data Layer (NASS)</p>	<p></p> <p>Natural Resources Conservation Service</p>	<p></p> <p>Cause of loss data (RMA)</p>
<p></p> <p>USGS</p> <p>NDVI time series (Landsat, MODIS) NLDAS Soil Moisture</p>	<p></p> <p>NASA</p>	<p></p> <p>NOAA</p> <p></p> <p>NATIONAL WEATHER SERVICE</p> <p></p> <p>PRISM</p> <p>Gridded precipitation (AHPS) Gridded temperature (PRISM Climate Group)</p>

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What are the needs now and in the future?

Data Repository

- Data is spread out across agencies - no comprehensive library

Documentation and Metadata

- Formats or documentation is inconsistent across websites
- Greater adoption of open, self documenting data standards (THREDDS, Climate Data Guide).

SLAs and Alerting

- Published SLAs and alerts on changes or operations of production datasets

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What are the needs now and in the future?

Accessing Data

- When we are ingesting new datasets, bandwidth is by far the biggest bottleneck. NEXRAD on AWS
- Latency and instability of some OPeNDAP servers we've used is so bad that sometimes it is actually quicker to download whole dataset

Actual Data

- Uncertainty around observations should be provided- we think in a probabilistic sense.
- Surface wind: . Presently wind is predominantly measured at 10m.

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