Agriculture Summit
Introduction

102nd OGC Technical Committee
Delft, The Netherlands
Josh Lieberman
Chair, Agriculture Domain Working Group
21 March 2017
Intro

- **Geo**: few activities more tied to location, geography, and the geospatial landscape than agriculture.
- **Data**: agricultural science, business, and policy increasingly tied to quantitative data about crops, soils, water, weather, markets, energy, and biotechnology from multiple stakeholders.
- **Sensing**: sustainable, evidence-based agricultural practices involve sensing, validating, integrating, and analyzing ever larger and more varied geospatial data streams.
- **Sharing**: interoperability of agricultural data consistent with privacy, security, and business interest are a challenge at every scale from local farm operations to regional markets, national policies, and global resilience.
- **Standards**: summit goal is to identify geospatial contributions and collaborations on international agricultural data standards that will be critical to successful data sharing and integration practices.
Purpose of Agriculture DWG

• Discuss and document of interoperability requirements for agricultural information or user communities;

• Develop collaboratively concepts relating to testbed, pilot, and interoperability experiment activities in the agricultural domain.

• Develop and/or recommend engineering reports for public release.

• Develop Change Request proposals (CR’s) for existing OGC Standards.

• Sponsor Standards Working Groups to develop new OGC standards, profile existing standards, or adopt community standards

• Host informational presentations and discussions about the use of adopted OGC Standards in the agricultural market.
Agricultural Data Use Cases

• Government and societal support for agriculture relies on the efficient exchange of information with growers on the geographic extent and status of agricultural resources and activities.

• Large and small firms are providing a wide range of agricultural data collection, analysis, and exploitation products and services. Large scale analytics and an efficient information marketplace requires accurate and straightforward interchange of data between diverse vendor platforms.

• Food safety requires sharing information about agriculture globally, with food industries, and also with citizens.

• Stresses such as climate change, population growth, and migration pose regional challenges that can only be addressed through data-driven resilient cultivation and sharing of information, problems, and solutions on a regional scale.

• The growing ubiquity and importance of agricultural sensors – mounted on field equipment, deployed in situ, or producing aerial and satellite imagery – is bringing agriculture face to face with the promise and challenges of the Internet of Things and its need for enabling geospatial standards.
Interoperability Chains

- **Logistics**
  - Supplier
  - Grower
  - Processor
  - Consumer

- **Policy**
  - Constituent
  - Research
  - Government
  - Industry

- **Technique**
  - Science
  - Observation
  - Practice
  - Policy
Variable Agricultural Units

- Region - climate, society, history, economy,
- Nation - infrastructure, policy
- Farm - scale, logistics
- Field - location, acreage, topography, soil
- Management Unit - treatment, observation
- Rows / subrows - variable rate application
- Horizon – soil nutrients, drainage, micro-ecology, tillage
- Plant - genetics, health, production function
- Herd - location, movements, density, impact
Aspects of Analytics

• Inputs
  • Landscape topography, drainage, exposure
  • Soil ecology
  • Plant genetics
  • Weather & climate

• Parameters
  • Treatments / recipes - seed, water, fertilizer, pesticide
  • Operations - weeding, pruning, drainage, etc.

• Outputs
  • Yield
  • Sustainability
  • Price - Profitability
  • Distribution - Population
## Schedule

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<td>Introduction, scenarios, interoperability drivers</td>
<td>Josh Lieberman</td>
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<td>13h55 - 14h20</td>
<td>Soil for starters</td>
<td>David Medyckyj-Scott</td>
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<td>14h20 - 14h45</td>
<td>Water from ground to sky</td>
<td>Andres Ferreyra</td>
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<td>14h45 - 15h10</td>
<td>FOODIE - Data Models for Crops from seed to store</td>
<td>Karel Charvat</td>
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<td>Field operations and telematics</td>
<td>Ben Craker</td>
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<td>Discussion - Spec needs and candidates</td>
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<tr>
<td>16h30 - 16h55</td>
<td>Science: geospatial data models, analytics, and semantics</td>
<td>Kris Matson</td>
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<td>Business: data value, ownership, security, integration</td>
<td>Jim Wilson</td>
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<td>Summary and Next Steps</td>
<td>Josh Lieberman et al</td>
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