Agriculture as Logistics

**logistics**

/loʊˈdʒɪstɪks/

noun

the detailed coordination of a complex operation involving many people, facilities, or supplies.

Sample of silage sequence of operations from Rotz, Ford, & Buckmaster, 2003
Integrating Data – Among Heterogeneous Systems

- Improving interoperability through open source efforts led by Purdue Open Ag Technology & Systems Center
- Industry collaboration/cooperation
- Data architecture - GOGT
  - Graph-structured
  - OADA-delivered
  - Geohash-indexed
  - Time-indexed
- Data flow into a “data lake” – Purdue pilot

Varied time scales
Varied resolution
Varied precision

CONTxT, a metadata app by Layton et al.

Data Flow concept by A. Walz
Integrating Data – With Models

• **Strategic** – Integrated Farming System Model
  • Row crop systems
  • Forage systems
  • Natural extension into livestock system performance & environmental effects

**Tactical** – specialized models
  • Coordinated field operations
  • Optimizing machinery sizing
  • Optimizing personnel deployment
  • Optimizing nutrient and resource use

*Cycle analysis – simplistically computerized by Buckmaster and Hilton, 2005*

Ag/Field Digital Twin concept, Asebedo, 2017
OATS Apps – currently using geotiff
Geo-referenced data – some better way

How about Cloud Optimized geotiff?
  • [www.cogeoo.org](http://www.cogeoo.org)

How would it handle time-dependent?

Is it widely adopted?