

Big Data opportunities for marketing of horticultural products

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“Lightning talk” in the workshop on “Big data for food, agriculture and forestry: opportunities and challenges”



Issues w.r.t. management

- Market orientation of the horticulture sector can be enhanced:
 - Many growers are production oriented
 - For many traders, their transactions are the main source of information
- No tradition of data based supply planning
- Reactive management, little anticipation

Issues w.r.t. data

- Available statistics do not present the level of detail required for management decisions
 - E.g., product categories:
“Pears” versus varieties like Beurré, Williams etc.
- Available data are not current, e.g. export statistics
- Growers and traders lack data about consumer trends and how the products are used and appreciated

Big Data opportunities

- Current detailed data on production, stocks, and (expected) supply are abundant in many public and private sources
- Social Media:
 - Data on consumers' appreciation and applications of products are abundant in Social Media
 - Growers' communications in Social Media indicate future supply
- Analytic methods to interpret the data are advanced

Relevant data for horticultural markets

- External factors affecting supply and demand:
 - Weather conditions, exchange rates, energy prices
- Consumption:
 - Market research, retail sales data, Social Media
- Production:
 - Areas/capacities, actual production, forecasts, FADN
- (International) trade:
 - Import/export statistics, phytosanitary certification requests, stocks, expected arrivals at (air)ports
- News media:
 - News about health aspects; food safety incidents

Market information for the horticulture sector: Big Data challenges

- Data are present in public administrations, but not open
 - Governments promote Open Data, but at a lower level many obstacles must be overcome
 - Entrepreneurs are concerned about competitive relations
- Semantic heterogeneity (in product classifications, etc.)
- Many SMEs in this sector have limited capacity to invest in the IT required for Big Data applications, including the collection of relevant Social Media data and semantic integration of data from a diversity of sources

- A Dutch public-private partnership
- To develop an infrastructure for market information
- Access a diversity of data sources
- Collect and structure data from Social Media
- Provide mappings between classifications of products etc.
- Offer a uniform interface with standard classifications
- Boost applications of market data
- Enhance market orientation & data based supply planning
- Minimize investment cost for individual SMEs

- Knowledge institutions: fundamental and applied research (Agriculture, IT, Data Analytics)
- Organizations and companies from horticulture and IT sectors
- Cooperation between fruit/vegetables and flowers/ornamental plants subsectors
- Participation of government and public data suppliers

BIG T&U

Consortium



1. Research on Semantic Technologies for data access and data integration
2. Research on Social Media filtering and real-time clustering
3. Data source descriptions (metadata) and mapping of classifications
4. IT architecture and development of software and other infrastructure
5. Social, legal, and financial aspects (competition, data usage rights, business case)
6. Application prototyping and community building across horticulture and IT sectors

Conceptual architecture



CONSUMERS

Social Media - Unstructured - Event-driven



HORTI-RADAR



Collect
Filter
Cluster

Topics
Trends
Alerts

SUPPLY CHAIN

Systems - Structured - Transaction-driven



HORTI-CONNECTOR



Anonimize
Aggregate
Map

Norms
Transactions
Registrations



HORTI-CUBE



Uniform interface and standard classifications for apps and ERP

BUSINESS

EDUCATION

RESEARCH

Information

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HORTI-RADAR

HORTI-CONNECTOR



HORTI-CUBE



Efficient, uniform access to a variety of market data sources