High Performance Agriculture

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Contents

• Stakeholders
• Issues
• Dutch approach
• Conclusions
High Performance Agriculture

- High Performance Agriculture
  - Information feed back and feed forward
- Learning to improve
  - increased volume, higher quality, less impact
- Inform chain
  - transparancy, reliable, predictable
- Monitoring
- Verification
Sustainable Development Goals

9 out of 17

1, 2, 8, 9, 12, 13, 14, 15, 17

High Performance Agriculture is in the heart of the UN
Stakeholders

- Governments
- Agriculture Business
- Food Business
- Consumers
- Educational Institutes
- IM challenges
Stakeholder Government

• Protection
• Create, maintain playing field for (international) business
• Global trade
• Fraud
• Food Security
• Soft Trade Values
• Reliable (Predictable & In control)
Government, food safety

- International and national regulations
  IPPC, OIE, Codex, HACCP, EU General Food Law
- Drugs, chemicals, residue levels
- Registration and licences for producers
- Regulations for storage, transport and processing
Stakeholder Agriculture Business

- Availability
  - fresh water
  - soil
- Increased Quality
- Increased Volume
- Increased Requirements
- Private certification
- Economics of Scale
- Negotiation position
Primary production information

• Which crop and which produce
• The resources used
  - Field, soil and water,
  - Labour
  - Inputs (seed, fertilisers, chemicals, water, energy)
  - Treatments, activities (why, what, when, where and who)
  - Local transport and Storage
• Meet the requirements defined by the buyer
• Farmer keeps record of everything
• Farmer provides all crop and produce information
• Farmer needs certification of farm and produce
Stakeholder Food Business

- Food Safety
- Public health, labeling of ingr. and allergens
- Private certification
- Food is very complicated
- Production chain is very complex
- Ingredients from everywhere
- Reduce food losses
- Reduce costs & maximalize benefits
Food information

• Who produced
• Where, When, How

• What is actually the *product*

• Quality?
• Proven quality?
• Legal?
Information

Food chain is very complex

Series of M:N relation of
- Products
- Parties
- Locations
- Processes

Pizza

- Flour
- Yeast
- Salt
- Water
- Vegetables, tomato, onion, pepper, garlic
- Fish, Sausage, Cheese
- Oil, Vinegar

Fresh, Froozen
Cooked, Uncooked
Sliced, Packed, ...
Product processing
Packing, trade and retail

• A node in the foodchain
• Control the input (product information)
• Control the proces
• Quality assurance

• A licence to produce
• Product certification

• A product can not go without the information
private business food safety

- Comply to regulations
- Comply to market requirements

- Branding and Marketing
- Reduce waste and recalls
- Risk management
  - Proces control
  - Information about inputs
  - Assessments, accreditation supplyers
Stakeholder Consumer

• more consumers
  - yopi
• demanding
  - experience, high quality
• critical
  - Ingredients, allergens, additives, conditioner
  - Organic
  - Health
Agriculture production and food safety

- Resources
- Expertise
- Risk management
- Ignorance / nonchalance
- Incidents / external events
- Misbehaviour
- Criminal minds
Food incidents

- Ehec, E.Coli, Salmonella
- Dioxine in animal feed
- Mineral oil in chocolate
- Horsemeat, meat from Brazil
- Spirits (fake vodka, methanol)
- Tjernobil, Fukushima Floods
Information position

• The product information is virtually attached to the instance of the product.

• Requirement
  - Identification of
    > Product instance or batch
    > Production location
    > Party
  - Proces / production information
  - Product information
  - Party information
Information exchange

• Standards messages
  - eCROP, eDAPLOS, TT product, EPCIS, eCERT

• Standard coding, code lists
  - GPC, EPPO, GLN, OIE, codex alimentarius

• Unique identification
  - GLN, animal tag, batch-id, container, storage, processing plant
  - Registration of events
Information exchange

• Info for certification
  - certification covers validation of product specification and qualification
• Risk management and proceso management
• Incidents measures
• Track and trace issues
• Base for trust, proven data and answers about product.
Benefits

- Reduction of administrative burden
- Reduction of transaction cost
- Re-use of data
- Higher quality
Policy in the Netherlands

- **Standardisation**
  taxonomy, syntax, protocols, code lists, identifiers

- **e-Identification and Authorisation**
  e-signature, proxys, data ownership, data usage

- **Shared data and linked data**
  data market, data stock

- **Certification of product and producer and risk profile**
  certified parties, products
The themes related

STANDARDISATION
agro taxonomy, standards and code list:

SHARED DATA
shared data / linked open data

IDENTIFICATION
E Signature and proxies: e-identification and authorisation

CERTIFICATION AND RISK PROFILE
Certification of product and producer

Based on

facilitate and use

Requirements demands and usage

facilitate and use

Based on
Scenarios

- Taxonomy and standards web services
- Data sharing, Open data
- Early availability, Re-use, Improved data quality, Up to date, Verifiable, Trusted
- e-Identification e-Proxy
- Farm mineral (manure) production and usage
- Crop protection chemical usage
- Crop protection reference database
- Farm data, Referential data, Legislation specification
- Farmers advice, Quality audit, Reliability, Predictable
**Scenario principle** quality, assurance transparancy

**Information source**

Organisation A

1. Qualify and publish
2. Collect and judge
3. Process

Organisation B..Z

1. Qualify and publish
2. Collect and judge
3. Process

Organisation Interaction
assurance, affordability and transparency
Conclusion

• Food information relies on transparency
• Transparency supports secure product quality
• Standards and shared data support transparency
• Product information is required for market access and food safety
• Farmer, processor, trader and consumer benefit from secure and transparent product information for market access, to sell or buy safe food
• ITC sustainable network and UNCEFACT standards contribute in these, at local market or global market, for farmer, SME, global player and authority.