Agriculture 4.0 needs GNSS-data for economic and sustainable farming

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Today

Video - insert
Technical challenge – Limitations
Social challenge – Transparency
Challenges – Networking of the entire farm
The challenge of the future – More intelligence on the m2 or the cow
Technologies

Optimization and application

Sensors of the new generation

Pesticides and biopesticides

GNSS-data

Sentinal-data

No- and low-till farming approaches and tools
Applications

Increased yield

Increased agricultural efficiency

Increased crop resistance to stressors like heat and drought

Increased water use efficiency

Reduced carbon footprint

Improved storage process

Targeted fertilizer and pesticide use
Process of milking – Reduce pressure of work and foster animal health
What does is mean with regard to data management?

Everything that can be automated, will be automated.

Everything that can be networked, will be networked.

Everything that can be digitised, will be digitised.

Everything that can be located, will be located.
The impact of digital agriculture

**Top Focus**
- Farm to fork
- Carbon footprint
- Reduce environmental impact
Scope of application in agriculture

**Major use cases**

- Manage machinery
- Reduce the input of fertilizier and chemicals
- Obtain best possible price
- Comply with regulations
Variety of european farming

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Machines
Pesticides
Advice
365FarmNet for the entire farm
Software for the farm management

365FarmNet
Cooperation and integration
Process in agriculture – Measurement and monitoring
Sensors – Reduce and optimize the input
Project GEOPAL

GEOPAL is based on the Global Navigation Satellite System (GNSS) for improved infield navigation in agriculture by leveraging GALILEO and EGNOS.

The system assists European farmers to improve the efficiency during the in-field an inter-field logistic activities such as harvesting, distribution and the bioproduction (biomass an agri-food) supply chains.

It is a European project founded by the EU as a part of the Seventh Research Framework Programme (FP7).

Partners: University Aarhus, CLAAS, LACOS, LEE

Duration of the project: 4/2011 to 10/2014.
Real-life example, with previous machining direction
Result of a machine with a working width of 15 metres
Result of a machine with a working width of 4 metres
What drives farmers? From Big Data…
...to Smart Data
The objective – from Big Data to Smart Data

For this approach to succeed, strategies are needed for:

- Data transfer
- Data structure
- Data analysis
- Data security

Farm management systems take care of data management and offer the farmer maximum advantage with minimum effort!
Big Data vs. Smart Data

Not the sheer amount of data („Big“), but their valuable content („Smart“) is the criterion.

Detailed, technical know-how of agricultural processes is a prerequisite for analysing data correctly.

Only those who structure, analyse and understand data, create real added value for the farmer.

The future belongs to those who are able to combine their knowledge of technology, users and domains!
Open for a new partnership
Partner concept

Benefits

Cooperation with local „heroes“

Concept fits in perfectly with the requirements of an agricultural holding
Outlook

1. The production's ability for cooperation with modern software including the collected data will decide upon the future success of businesses.

2. New business models will be developed which take the opportunities offered by new technologies into account and which are geared towards agricultural requirements.

3. New engineering processes will respond to new technical developments and pave the way for farmers and cooperatives.
4. The success of farmers depends on the extent to which they make use of automation and information technologies.

5. Big Data of the agricultural industry will turn into Smart Data in order to make every square metre of soil more intelligent so that the production of every litre of milk is made more effective and more animal-friendly.

6. In future, the entire food chain will communicate in a very transparent way with the consumer.
Thank you for your attention. I am looking forward to discussing these issues with you.

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