

agriLoc

Precision Farming

The challenges for agriculture and food production are increasing through changing conditions. A key issue is that while the population is increasing and the environment protection conditions are becoming stricter, the available area for agriculture is decreasing. Today agriculture is very productive and efficient through a high degree of automation, but relies particularly on accurate steering systems and connectivity for correction data and on-line services.

New technology tests and assessments provide important information and decision support for investment planning in agricultural technology.



Farmers' needs

- Reliable and highly accurate automatic steering of machines.
- Efficient and resource-saving execution of work down to individual plant treatment.
- Reliable mobile communication links for correction signals and on-line services.
- Independent tests and information on new agricultural technology for evaluation and decision making.

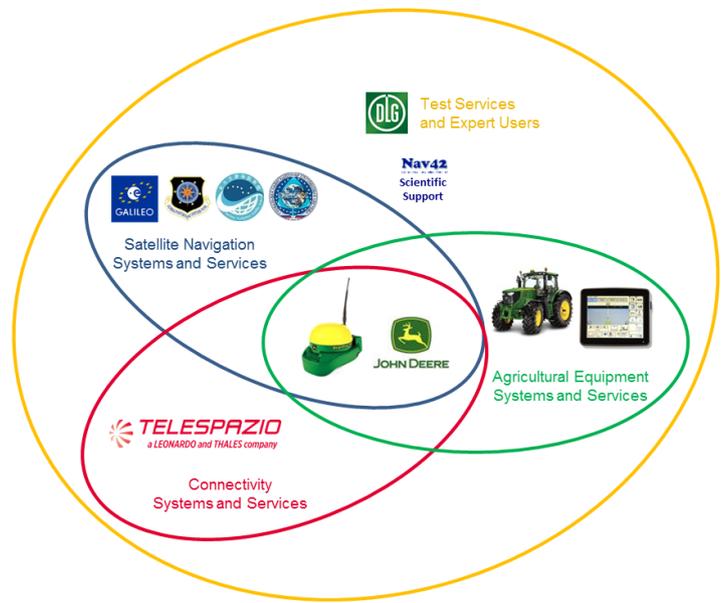
Challenges

- To provide navigation and automatic steering even under adverse conditions (e.g. shielding at forest borders).
- Highly accurate automatic steering of tractors and implements for new applications (e.g. mechanical weed removal).
- Reliable and cost-efficient connectivity even in valleys, at forest borders, in remote areas for reliable correction signal transmission for steering systems, and for broadband access to on-line agricultural services in the field (50% of the farmers in Germany have communication problems, and 5 000 do not have broadband access to the internet).
- From the farmers' point of view new agricultural technology is often very sophisticated, and it is difficult to evaluate its benefits. This requires reliable information based on new test technologies and methods.



Solution

- Satellite Navigation with new constellations (Galileo/Beidou) for highest reliability and accuracy.
- Reliable transmission of correction signals enhanced with telecommunication satellites.
- Satellite-based broadband Internet in rural areas and in the field.
- Resource-saving treatment of smallest areas down to individual plant level.
- Independent and neutral tests for the user.



Outcomes

According to expert assessments, more accurate positioning systems can help to reduce undesired overlapping. In this way productivity can be increased, and costs and machine-wear can be reduced. Furthermore, planning and treatment of smaller zones becomes feasible. It is estimated that by optimally exploiting higher accuracy that cost savings of 10—15% can be achieved. With the help of satellite-enhanced reliable connectivity this potential can be fully exploited while reducing costs and minimising machine down-time. Test reports on independently examined agricultural technology will support farmers in making their investment decisions.

Project details

The Demonstration Project is undertaken by:

Telespazio VEGA Deutschland

DLG-Testzentrum Technik und Betriebsmittel
with consultancy and support from Nav42

John Deere GmbH & Co. KG

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The project is further described at:

<http://artes-app.esa.int/projects/agriloc>
www.agriloc.de

Collaborating with ESA

ESA's Integrated Applications Promotion (IAP) programme funds feasibility studies and demonstration projects. It aims at generating sustainable services which meet the needs of public and private organisations. **agriloc** is just one example of IAP applications. Do you think that space technologies and services such as space imagery, satellite navigation, satellite communications and manned spaceflight technologies might help you to better address your operational challenges? ESA's IAP programme can make it happen.

For further details, please contact us at:

Email: artes-apps@esa.int

Website: <http://artes-apps.esa.int>