



**REPORT OF THE 1ST STAKEHOLDER COUNCIL MEETING**

**ISPRA, MARCH 28TH 2007**

**WIM DEVOS**

**05-MAY-2007**

**FIELDFACT-WP1-JRC-DEL-1.6.1**



**FIELDFACT: GNSS INTRODUCTION IN THE AGRICULTURE SECTOR**

**Report of the 1st Stakeholder Council Meeting**

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## EXECUTIVE SUMMARY

This document reports the topics and findings discussed during the 1<sup>st</sup> Stakeholder Council meeting in Ispra 28<sup>th</sup> March 2007.

During this meeting the Stakeholder Council has been inaugurated as a communication platform for the representation of the interests of the agricultural sector user community towards the GNSS service providers. The council discussed GNSS application within the agricultural business chain and analysed those applications identified in the draft Critical Analysis Report (CAR).

The Council sees that for the Low-End-Demonstrator area measurement applications should mirror a tool in direct support of a farmer's aid application.

For the High-End-Demonstrator the council sees a clear benefit from a variable rate application and a need for an authenticated evidence of farming operations.



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## 1 INTRODUCTION

### 1.1 Purpose and scope

The European global navigation satellite system (GNSS) Galileo is to be operational in close future. In order to promote this technology and assess user needs within agricultural sector, the GJU has initiated the FieldFact project.

The FieldFact Stakeholder Council is established as objective 2 of the work package WP1 of the FieldFact proposal. Its role is to provide a platform for the representation of the interests of the agriculture sector user community in the overall discussion for the GNSS technology and in particular for the EGNOS and Galileo optimization.

The Stakeholder Council Meetings are organized to inform the Stakeholder Council members about the project progress and obtain their feedback.

The purpose and scope of this document is to report the topics and findings reached during the 1<sup>st</sup> Stakeholder Council meeting in Ispra (IT) 28<sup>th</sup> March 2007. As such, this document addresses and fulfils the tasks T.1.4 and T.1.5 of WP1 of the project.

### 1.2 Intended audience / Classification

This document is intended for all project partners and Stakeholder Council members. The document is classified as a restricted document and it is not intended to be distributed outside the FieldFact project frame. It is presented here as a deliverable D1.6.1.

This report is designed as project internal document.

### 1.3 Associated documentation

The presentation of project progress was presented by the participants in form of slide presentation. The draft Critical Analysis Report and report on key stakeholder groups as well as list of identified Stakeholder Council members are associated documentation.

### 1.4 Reference Documentation

There is no reference documentation to this document

### 1.5 Abbreviations and Acronyms

DCMS	Dublin Core Metadata Standard
EGNOS	European Geostationary Navigation Overlay Service
GNSS	Global Navigation Satellite Systems
GSA	European GNSS Supervisory Authority
PPP	private public partnership



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## 2 DESCRIPTION OF THE WORK CARRIED OUT

### 2.1 General

The FieldFact Advisory Stakeholder Council is established as objective 2 of work package 1 of the FieldFact proposal. Its role is to provide a platform for the representation of the interests of the agricultural sector user community in the overall discussion for the EGNOS and Galileo optimization in terms of different aspects (e.g. commercial, PPP scheme and risk allocation between public and private sides, social benefits and public interests, industrial and research development and innovation, operational and system evolution).

The first council meeting represented mostly participants of the public administration sector members of the manufacturing sector were invited and have shown interest, but were unable to attend this particular first meeting.

The following participants were present during this 1<sup>st</sup> stakeholder council meeting:

- FieldFact (JRC): Kay Simon, Devos Wim (WD), Sagris Valentina
- FieldFact (Alterra): van der Wal Tamme (TvdW)
- WUR: de Bruin Sytze, assistant professor in the field of Geo Information Sciences;
- MS Administration: Maesschalck Gilbert (Belgium), Flemish department of Agriculture, responsible for combined data acquisition;  
Savelková Lucie (Czech Republic), Czech payment agency, responsible for on the spot checks;  
O'Rourke John and Creaner Jack (Ireland), Irish department of Agriculture

### 2.2 Meeting objectives

Apart from inauguration of the council, the objective of the meeting was to analyse and discuss the twelve GNSS applications identified in the Draft Critical Analysis Report (CAR) produced earlier by the FieldFact team. Furthermore, the council had to evaluate the proposed criteria for selecting agricultural GNSS applications for demonstrator development and assess a preliminary selection of four GNSS applications:

- parcel measurement
- soils sampling
- biomass monitoring
- variable rate application



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### 2.3 Agenda

TvdW gave a presentation on the FieldFact project and objectives. To achieve its objective of strengthening the use of GNSS in the agricultural community and demonstrate Galileo added value, FieldFact will develop a Low-end and High-end demonstrator.

WD provided an overview of the Draft Critical Analysis Report (reference D.2.1). This report assumes that the main GNSS drivers would be increased business efficiency, automated (authenticated) documentation and suitability for aid application control. The report identifies a total of 12 agricultural GNSS applications and applies the criteria defined in the February 2007 FieldFact project meeting in Opava (Czech Republic), A total of four applications were provisionally selected to be included in the demonstrators.

Low-end demonstrator: **soil sampling** and **parcel measurement**

High-end demonstrator: **biomass monitoring** and **variable rate application**

An open discussion was held between all participants.



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### 3 RESULTS OF WORK CARRIED OUT

As the Critical Analysis Report calls for the Stakeholder Advisory Council to provide input on the identification of GNSS applications, clarifications of the community needs and technical requirements and identification of barriers, the topics and remarks raised during the discussions are grouped according to these lines.

#### 3.1 Low-end demonstrator

##### 3.1.1 GNSS Applications

The Low-end demonstrator, esp. on the application for parcel measurement, should mirror a tool in direct support of a farmers' aid application. The demonstrator should be far more ambitious (maybe "Midrange Demonstrator") than a simple hand-held parcel measurement device or a tool for finding sampling locations.

There is a lot of potential for setting out a crop area or subplot within an agricultural parcel (i.e. an operation similar as during land consolidation but without the legal and permanent character). GNSS could then be used to locate certain protected area delineations (e.g.: Natura2000) or buffer zones (e.g. buffer around a surface water body) where boundaries have been drawn on a map with unsuitable scales for field reconnaissance or where these are not corresponding to topographic features.

##### 3.1.2 Needs

On both the aid application and control side, the priority need is rather for support in evaluation of eligibility in the field, rather than for improved accuracy of parcel measurement. Payment agencies are not interested in more accurate measurements.

On the other hand, it is expected that farmers would want to be able to measure at least as accurate as the payment agency.

The purpose of parcel measurement should be clarified. Is it area and position or is it intended to measure the vertices? When the focus is more on vertices ('mapping') it must be accompanied with GIS integration for the eligibility controls, where the value added should., as mentioned above, come from integration with GAEC conditions via a GIS kind of application. This integration of GPS and GIS seems to be a critical feature.

Signal integrity and authentication gives opportunities for new applications currently not available. The low-end demonstrator should also focus on this.

##### 3.1.3 Constraints

The low end demonstrator is 'aimed at the majority of farmers' as a target audience. This seems quite over ambitious, as not many farmers are to date prepared to make the investments required in equipment, knowledge and IT systems to work with the GNSS data. The 600 000 farms with more that 50 ha farmland seems a better target community, even though also this group is very heterogeneous and there are large differences between arable farmers in that size class and extensive sheep farms.

In many countries (e.g. in Ireland) the very activities the low-end demonstrator is aimed at are not carried out by the farmer himself but by third party contractors. The definition of the low-end demonstrator should be targeted towards all 'fieldwork' stakeholders.



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Whatever the tool, it will be essential to educate the target group on the use of the device and software. This training has to be extended to farmers' advisors, contractors, and consultancy service providers.

### 3.2 High-end demonstrator

Representatives of the farming tool industry shows a clean interest in this issue, but was unable to attend this council meeting

#### 3.2.1 Applications

The council sees clear benefits in a variable rate application where fertilizer or pesticides are applied within a mask of the parcel boundary (nozzles deactivated individually when outside the parcel) or controlled via the positioning within a GAEC-related zone (e.g. reduced application within a distance of a surface water body).

The council also identifies substantial possibilities for creating authenticated evidences of farming operation, both for a contractor who wants to declare his labour to a farmer client as for a farmer who needs to demonstrate compliancy with GAEC or other regulatory constraints. The idea of having some kind of tractor's 'black box' or 'tachograph' should be considered a distant future as the regulatory framework, which will be required for such measure, has not yet been discussed.

#### 3.2.2 Needs

The target group of the High-end demonstrator should be aligned with the professional groups identified in the Regulations. E.g. the FAS is required for farmers receiving payments in excess of € 15.000,-, corresponding to farmed areas of approximately 50 ha.

Acceptance of automated documentation would need a framework where the GNSS tracks and corresponding field operation logs are accepted by all stakeholders.

The Irish Machinery & Livestock Exhibition 2007 (25th to 27th September 2007) would offer a good opportunity to benchmark this sort of demonstrator if it can be ready by that time.

#### 3.2.3 Constraints

Variable rate application and biomass monitoring require high precision steering control of the machinery as potential benefits would be easily undone by overlapping or diverging of tracks. (a situation that is similar to the INS that controls the execution of the flight plan during an aerial photography mission).

As the integration of GNSS, regulatory data and other sensors' data in a GIS environment is essential for the High-end demonstrator, intrinsic understanding and implementation of the various national projection systems is critical.

### 3.3 Selection of GNSS applications for demonstrator use

The classification of application according to any of the three GNSS drivers is considered rather arbitrary, especially as it is felt that many applications might bring benefits on several domains.

Regarding the selection of the application for inclusion for the Low-end demonstrator (CAR table page 86), some adjustments were suggested:

Sampling location is probably NOT aimed at the majority of farmers

Surveying (i.e. outlaying crop / subplot) might aim at a larger group of farmers, meeting the Low-end definition and providing tangible individual benefits.



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Applying these new scores, the '**surveying**' (be it in a reduced scope compared to land consolidation) rather than the '**soil sampling**' might be selected for the Low-end demonstrator

Similarly, for the High-end demonstrator selection (CAR table page 88), the council feels that:

Machinery guidance probably DOES involve receiver integration (e.g. guidance poles)

Biomass monitoring probably IS NOT aimed at all European farmers

Parcel (i.e. boundary) measurement itself DOES NOT involve field level information

These revised scores would indicate that '**machinery guidance**' rather than '**biomass monitoring**' is a suitable application for the High-end demonstrator.



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#### **4 CONCLUSIONS & RECOMMENDATIONS**

The conclusion of this meeting will be circulated via a website bulletin board (e.g. [www.fieldfact.com](http://www.fieldfact.com)). They are as such not intended to present a particular view of interest. It is noted however that the council, if needed, can directly interact with the Galileo Supervising Authority.

The updated FieldFact CAR will be presented at some near future events:

at the GPS-workshop with LPIS update as central theme (April 25<sup>th</sup>, 2007, Rotterdam, NL),

a demonstrator demo will be given in the National Demo-day on Precision Agriculture (July 5<sup>th</sup>, Lelystad, NL).

The next advisory stakeholder council will be held in September 2007, as part of a 6 month cycle. By then, the council will probably have integrated some new members, notably from the agricultural machinery sector and farmers organisations.

(end of document)