REPORT OF THE 2ND STAKEHOLDER COUNCIL MEETING GAVIRATE JANUARY 14TH-15TH 2008

WIM DEVOS

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FieldFact

FIELDFACT: GNSS INTRODUCTION IN THE AGRICULTURE SECTOR

Report of the 2nd Stakeholder Council Meeting Gavirate January 14th-15th 2008

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To	Rob Lokers	WP leader WP3
To	Paul van der Voet	WP leader WP4
To	Adam Ciecko	WP leader WP5
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EXECUTIVE SUMMARY

This document reports the topics and findings discussed during the 2nd Stakeholder Council meeting in Gavirate Italy, on January 14th and 15th, 2008. Eight members representing public administrations, farmer organisations, the agricultural appliances industry and the academic sector were present at this session, in addition to representatives from each FieldFact work package.

On the first day, the overall project progress and the Low End Demonstrator were presented and discussed. The second day addressed certification and training, as well as the High End Demonstrator.

The Council members noted appreciation of the project progress in general, however they requested that an economic study to be carried out, in order to quantify the financial benefit of the use of GNSS technology within the agricultural sector. The Council considers that promotion of EGNOS and Galileo should emphasize the differences and complementary advantages compared to the already existing GNSS systems. The Council expressed its opinion that the Galileo programme will be a success story within agriculture sector, only if the identified requirements will be taken into consideration.

The Stakeholder Council recommended focussing on the following points:

- Conduct a quantitative and economic analysis in FieldFact project or include a link to already existing studies;
- Emphasise the differences and complementary advantages of Galileo programme in comparison to already existing GNSS systems (GPS, GLONASS), Emphasise the advantages and benefits of these upcoming Galileo services especially for applications in non-perfect conditions, such as mountainous regions;
- To promote GNSS technology and in particular upcoming EGNOS and Galileo services the FieldFact demonstrator should underline the positive aspects and not discourage the potential users; FieldFact should not create unrealistic expectations and thereby build a barrier to acceptance once Galileo is operational.

1 INTRODUCTION

1.1 Purpose and scope

The European global navigation satellite system (GNSS) Galileo is to be fully operational around 2012. In order to promote this technology and assess user needs within agricultural sector, the GJU funded 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 2nd Stakeholder Council meeting in Gavirate (Italy) 14-15 January 2008. 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 and therefore designed as a project internal document.

The document is classified as a public document. It is presented here as a deliverable D1.6.2.

1.3 Associated and reference documentation

The presentation of project progress was presented by the participants in form of slide presentation. The slide presentation documents are distributed among the meeting participants. Associated documentation

Other associated documents are the:

- FieldFact Proposal tender documents
- FieldFact Stakeholder Community (D1.1 – 1.5)
- FieldFact Report of the Inaugural Stakeholder Council Meeting (D1.6.1)
- FieldFact Draft Critical Analysis Report (D2.1)
- FieldFact Requirements Report (D2.3).

1.4 Reference Documentation

There is no reference documentation to this document.

1.5 Abbreviations and Acronyms

CAR	FieldFact Critical Analysis Report
GNSS	Global Navigation Satellite System

GPX	GPS exchange format (XML dialect developed by Topografix)
GSA	European GNSS Supervisory Authority
HED	FieldFact High End Demonstrator
KML	Keyhole Markup Language (XML dialect adopted by Google)
LED	FieldFact Low End Demonstrator
UWM	University of Warmia and Mazury
VAR	Variable Application Rate

2 DESCRIPTION OF THE WORK CARRIED OUT

2.1 General

The 2nd Stakeholder Council meeting was announced by email to the candidate participants on November 19th 2007 and repeated on December 11th. The formal invitation letter was sent on December 11th to the persons that were identified as stakeholders followed by the agenda and draft Critical Analysis report on March 15th.

An invitation was sent to stakeholder community, mainly focussing on farmers associations and industry and farm advisory bodies and consultants. Not all invited parties were able to participate in this 2nd Stakeholder Council Meeting, however the participants of this meeting represented a broader spectrum of agriculture sector user community than the first Council meeting, which took place on 28 of March 2007.

The formula of an overnight event was chosen because it facilitated the travel schedules of the participants and it provided an opportunity to have an informal exchange of ideas during the social evening dinner.

An internal FieldFact project meeting was scheduled immediately after this second Stakeholder Council Meeting. Therefore the FieldFact team leaders were present during the stakeholder Council to facilitate closer and more detailed communication between FieldFact and the agricultural user community stakeholders.

2.2 Participants

The following participants were present during this 2nd stakeholder Council meeting:

Name	Position	Organisation
Sytze de Bruin	assistant professor in the field of Geo Information Sciences;	Wageningen Universteit en Research (the Netherlands)
Gilbert Maesschalck	responsible for combined data acquisition;	Flemish department of Agriculture (Belgium)
Jan Basek (for Lucie Savelková)	responsible for on the spot checks;	Czech payment agency (Czech Republic),
John O'Rourke	responsible for controls	Irish department of Agriculture (Ireland)
Jack Creaner	responsible for GIS	Irish department of Agriculture (Ireland)
Alexander Sassenberg	market analyst & product planner	John Deere
Inga Klawitter	Secretary General	European Council of Young Farmers (CEJA)
Ludwig Willnegger	policy advisor	Professionals (COPA-COGECA):

The following FieldFact project members were also present:

Tamme van der Wal	FieldFact Project leader	FieldFact (Alterra)
Simon Kay	WP1 leader	FieldFact (JRC)
Pavel Trojacek	WP2 leader	FieldFact (Ekotoxa)
Rob Lokers	WP3 leader	FieldFact (Alterra)
Paul van der Voet	WP4 leader	FieldFact (Microsoft)
Adam Ciecko	WP5 leader	FieldFact (
David van der Schans	WP6 leader	FieldFact (PPO)
Wim Devos	WP1 staff	FieldFact (JRC)
Christoph Dittmann	WP1 staff	FieldFact (JRC)

Figure 2-1 Stakeholder Council meeting participants

2.3 Meeting agenda

Monday 14/01/2008	
14h00:	Welcome address
14h15 - 14h45:	Introduction into GALILEO Programme
14h45 - 15h15:	Introduction into FieldFact: goals and objectives
15h15 - 15h45:	FieldFact products: Low End Demonstrator (LED)

15h45 – 16h15:	Coffee Break
16h15 – 16h45:	FieldFact products: High End Demonstrator (HED)
16h45 – 17h30:	Users needs analysis
17h30 – 18h00:	Closing session: Round table discussion
20h00:	Welcome Dinner
Tuesday 15/01/2008	
09h00 – 09h15:	Opening session
09h15 – 10h15:	FieldFact project: achievements and future planning
10h15 – 10h45:	Stakeholder comments & suggestion on FieldFact
products/deliverables	
10h45 – 11h15:	Coffee Break
11h15 – 11h45:	Stakeholder/end user concerns of GNSS use within agricultural sector
11h45 – 12h30:	Open discussion
12h30 – 13h00:	Closing session
13h00:	Lunch

2.4 Meeting objectives

The meeting objectives were:

1. Inform the stakeholder Council members on the overall FieldFact project progress;
2. Advise the Council on actions taken as a result of the inaugural meeting;
3. Obtain additional feedback, opinions and recommendations from the Council;
4. Provide a communication platform between the Stakeholder Council and the key project partners.

3 MINUTES OF THE MEETING

Hereafter a list of presentation is given; each of the presentation was followed by agile discussion on the corresponding topic. Results of the discussion are presented in chapter 4.

3.1 January 14th 2008

Tamme van der Wal gave a presentation on the Galileo programme and how the FieldFact project interacts/contributes to it.

Wim Devos gave a presentation on stakeholder consultation events reviewing the response obtained during these events. The identified potentials and constraints were presented as well as the expectations of stakeholders were discussed as retrieved from the surveys conducted during the stakeholder consultations events. A modified priority list of applications for the FieldFact demonstrator was presented as a result of these stakeholder consultations.

Alexander Sassenberg indicated that the numbers of contacts are rather low and also finds the observed priority rating of Variable Application Rate (VAR) is somewhat unexpected. He feels there is a need for harmonization within the farm organization and farming cycle and calls for a package together accompanied with independent advice. John O'Rourke considers the case mapping/documenting applications are clear.

Pavel Trojacek then presented the Critical Analysis Report with regard to the work package WP2 of the FieldFact project. This presentation focused on description of the agriculture user community, their motives for using GNSS technology and linking agriculture applications to these motives. A description of the current state of these applications was also given. Requirements database was presented describing the functional and non-functional requirements as well as their application areas.

On this CAR presentation, Alexander Sassenberg considers that the stated numbers (e.g. "2% of the Dutch farmers") are speculative as no factual data currently exist. Studies of cost effectiveness are needed as there is no business without money. These studies are feasible for the LED, but more difficult in HED (purchases based on beliefs): Micro studies have been done by John Deere and other companies. Jack Creaner thinks the question to answer is how local application can be transferred throughout the EU, one solution would be to bundle the promotion tool in a package with instructions for use. The justification for the selected application needs backing with financial assessment also for promotional purposes.

David van der Schans informs that on a worldwide scale, the usual sequence of adoption of new technologies by countries is: first Australia, second US and third EU member states (where The Netherlands and the United Kingdom lead and Greece often ends up last)

Rob Lokers presented the LED which had already been developed to a mature stage taking into account some of the recommendations of the inaugural Council meeting, such as the GIS functionality.

Gilbert Maesschalck objects that in regions with good base maps (BE-FL), sampling and positioning with GNSS technology is not competitive to using already established GIS tools. Paul Van der Voet observes that for client/server interaction, the chosen standard GPX (as used in conjunction with Microsoft Virtual Earth) is probably less mature than KML (use by Google Earth).

3.2 January 15th 2008

Tamme van der Wal invited to stakeholders to express their main considerations or suggestions:

- Ludwig Willnegger expressed the need to demonstrate the added value, by using mass consumer products;
- Sytze de Bruin urged to quantify the benefits so to back up the statements, assumptions, and data with proof;
- Jan Basic suggested to quantify the benefits and underlined the importance of standardization;
- Jack Creaner recommended to focus on promotion activities as many LE devices are already available;
- Gilbert Maesschalck was pleased with the LED use but he identified work on training needs and a better elaboration of the link to the Farm Advisory System;
- Alexander Sassenberg felt that the qualitative aspect of the FieldFact activities is OK, but he considers the quantitative aspects are still missing. He recommends that the FieldFact-identified requirements should be communicated as critical needs for Galileo (rather than assume Galileo will offer added value). He believes there is a need to clear all interdependencies so that a complete solution can be entered in the farm management cycle;
- John O'Rourke advises to go for a simple tool that is useful in the overall EU context: where agricultural product prices go up and the production follows. With this rise of prices, the pressure on environment increases and this creates interest for GNSS applications;
- Inga Klawitter suggests a stronger link between the GNSS development and other developments and research are needed. FieldFact should tune to user needs and document the return on investment. The Young Farmer's Association wishes to be kept informed.

Also the FieldFact team leaders expressed their main conclusions of this discussion.

- Wim Devos considers the need to include financial information in the promotion campaign and focus on discrimination (value added) between GPS and Galileo;
- Christoph Dittmann underlines the importance of standardization;
- Rob Lokers mentions it is hard to meet the main project objective (demonstrate value added from Galileo) when Galileo itself is not accessible;
- David van der Schans feels the advantage lies in agronomy and economy. The need to spread the scope identified by the stakeholders is not identified in the Term of Reference;
- Pavel Trojacek Feedback of the past work is input for new development;
- Paul van der Voet agrees to focus on the economic aspects;
- Adam Ciecko remarks that as Galileo is delayed, this virtual operation of demonstrators creates concerns;

- Tamme van der Wal concludes that stakeholders expect that the project should look how to provide a more quantitative backing for the qualitative analyses and results.

Adam Ciecko gave a presentation on "Testing and Training on LED. The tests conducted in frame of this activity were performed on test fields of University of Warmia and Mazury (UWM) in Poland. During these tests data upload and download to the FieldFact Web Portal from and to the LED was performed. As a result of these tests the LED and the interaction with the FieldFact Web Portal was considered as satisfying, although improvements are necessary in order to avoid system hang-ups. The EGNOS signal reception tested with various GPS receivers was considered as not satisfactory due to lack of signal reliability and unreliable system notification as to whether the EGNOS signal is available or not;

The training units on LED were divided into two categories, each aimed at a specific target group: 1) farmers, and 2) inspectors. The training for farmers is designed to provide them with the general idea of GNSS and focuses on practical usage of this technology in their daily agricultural activities. The conceptual design of the training for farmers foresees one day training. The training designed for inspectors however, provides a more in depth education in GNSS technology and is foreseen to be accomplished within two days with an exam. The training unit for inspectors requires some technical/agricultural/geospatial knowledge backgrounds from the participants;

Alexander Sassenberg insists that certification must be considered in a package approach and deal with (and include provisions for) the multipath conditions, a diagnostic mode and the intended application. He further recommends raising the (expected) Galileo added value as a strict requirement and researching an "EGNOS-indicator anomaly" (witnessed on Thales devices that indicated EGNOS was active, while other devices indicated the opposite by Adam Ciecko);

David van der Schans and Rob Lokers gave the presentation on the FieldFact HED in a joint presentation. Firstly the potential of GNSS technology for high precision farming mode was presented. In particular focus was given to steering guidance and variable rate application. These applications were presented on examples from the Netherlands as they are practically used on high value crops. Secondly the global requirements for HED were presented and discussed. These global requirements are derived from the requirements report analysis and consequently linked to field applications. However, the presenters asked for a clear demonstration case;

The proposed selection of HED applications has a positional accuracy requirement that ranges from 30cm to 2m: differentiate for those that best show the Galileo value added. Jack Creaner suggests that precision farming applications are relevant for the 5% top land: whereas Galileo should open GNSS applications for the remaining 95%;

John O'Rourke adds that the potential role of authenticated documentation (contract workers) is important also for the HED, especially providing evidence for cross-compliance practices as well as guidance to comply with regulations/subsidies represents yet another potential;

According to Ludwig Willnegger, the role of the advisor to help putting data into value is currently problematic in the management cycle. The cost (finance) element must be demonstrated;

Sytze De Bruin mentioned that the FieldFact project seems a little reluctant to present data and suggests responsive analysis. Also he feels there is a need to clarify internal input for the HED: e.g. Biomass maps, ISOBUS standard. Paul Van der Voet agrees there is a need for a single EU standardisation solution (such as. XML);

Pavel Trojacek launches the idea that the HED is semi-virtual and centred around its screen. To attract participants during demo-events full simulation could be considered;

Alexander Sassenberg responds that the Demonstrator should, in absence of Galileo services, emphasise the positive aspects and not discourage a potential from purchasing current GNSS devices “until Galileo operates”. FieldFact should not create unrealistic expectations or negative awareness. This psychology is critical else the FieldFact demonstrator could build a barrier. He repeats that FieldFact should provide insight in the agricultural needs towards the GSA, which is currently mainly focused on transport.

4 RESULTS OF THE WORK CARRIED OUT

During this meeting several presentations were given by project partners covering different topics of the project. Each of these presentations was followed by round table discussion in an open and constructive atmosphere. The following points were distilled from the discussion:

1. Stakeholder Council members raised the question if the project has obtained re-confirmation from the user community for the prioritisation of applications and requirements as presented in the Requirement Identification and Priority Report (DEL-1.3). The priority of VAR seemed to be somewhat unexpected to the Council;
2. Stakeholder Council members requested a quantitative analysis of the prioritised applications in order to assess the economic impact on agricultural activities on micro economic level and to support the qualitative analyses carried out. They found our analysis so far very qualitative and were asking for more financial/economic justification (assess the investment motives of farmers). Studies on cost effectiveness were considered as important, because the return of investments is one of the key points in agricultural business;
3. Stakeholder Council members recommended also inclusion of farm advisory system providers in order to provide some advice upon how and when this technology could be applied by the farmer. The need of harmonization within the farming cycle has been mentioned by the stakeholder Council members;
4. Although the CAR report was appreciated by the Stakeholder Council members, some figures were questioned (e.g. 2% of the NL farmers use GNSS technology), since no clear evidence of source were given (no factual data currently exist);
5. The issue of how to transfer local application to the EU level has been discussed. In some areas with good base maps (e.g. BE) sampling and positioning with GPS is not competitive against the use of GIS tools. Data format standardisation is also an issue: the chosen GPX file format seems to be less well-known than KML. The need for a single standardised solution on EU level (e.g. XML) was clearly pointed out.
6. Studies on cost-effectiveness are needed. It is recommended to conduct these studies for both the LED and the HED. Some micro economic studies already exist, done mainly by private industry. Justification for the selected application needs backing with financial assessment also for promotional purposes.
7. The results from the testing exercise can be summarized as follow:
    a. Certification of devices in terms of data quality, signal integrity and authenticated documentation must be considered as a package approach and include provisions for multipath conditions and signal diagnostic mode;
    b. For the observed “EGNOS-problem” further research is recommended, in order to determine whether this problem is device related or caused by the EGNOS service;
    c. The expected Galileo added-value should be emphasized and clearly phrased as a strict requirement by the project;
8. Discussion on HED revealed that the demonstration case should show the advantages of GNSS technology for field applications in non-perfect conditions, e.g. in hilly/forested/urban areas or in vicinity of power poles, i.e. where the GPS/GNSS signal is usually affected

negatively by such factors. The demonstrator should be able, in absence of Galileo services, to emphasize the positive aspects and not discourage a potential user from starting to use current (GPS-based) GNSS; nevertheless, FieldFact should neither create unrealistic expectations nor negative awareness;

9. The potential role of authenticated documentation has been stressed during the discussion. Authenticated documentation has been recognized as important (e.g. contractors) for the HED, however the level of documentation needs to be adapted to the identified applications/requirements. Providing evidence for cross-compliance practices as well as guidance to comply with regulations/subsidies represents yet another potential for the HED.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The Stakeholder Council members appreciate the overall efforts and achievements of the FieldFact project.

However, the Stakeholder Council feels that the project has not addressed in a quantitative manner how the GNSS technology would affect the agricultural practice and what would be the expected benefit of it expressed in financial asset.

The FieldFact demonstrators, as a promotion tool, could be better targeted to specifically discriminate Galileo services from the familiar GNSS systems. The fact that these services are not yet operational forms a handicap.

For communication of the project results and achievements towards the GNSS Supervisory Authority (GSA) the Council turns the perspective; instead of "*Galileo will help to solve specific problems*" the Council communicates "*only if the specific problems of given applications will be addressed, Galileo can become a success story*".

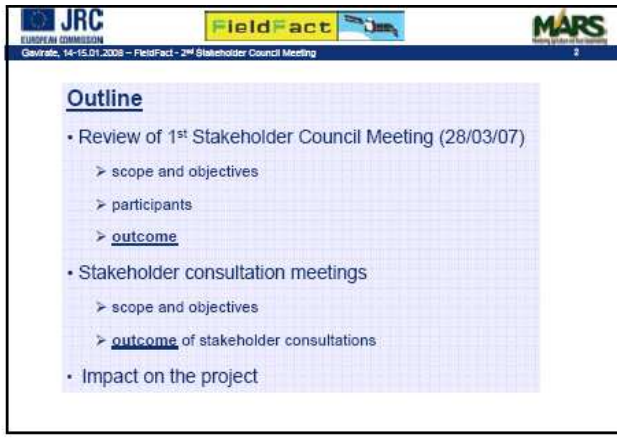
5.2 Recommendations

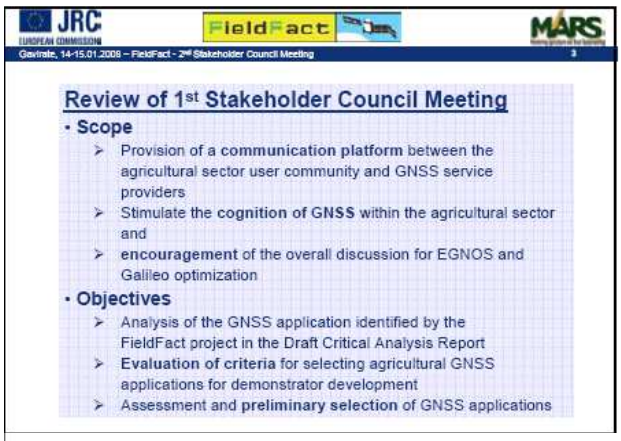
The Stakeholder Council recommends focussing on the following points:

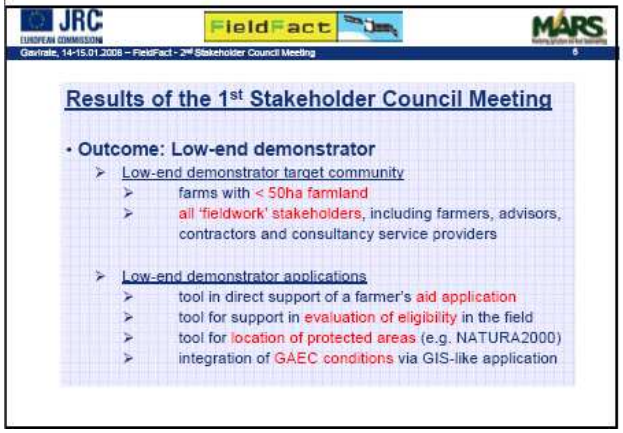
- The project should conduct a quantitative and economic analysis in FieldFact project or include a link to already existing studies; *FieldFact will address this in the results analysis (WP7).*
- The promotion efforts should emphasise the differences and complementary advantages of Galileo programme in comparison to already existing GNSS systems (GPS, GLONASS), The strongest advantages and benefits of these upcoming Galileo services, can be expected for applications in non-perfect conditions, such as mountainous regions; *FieldFact addressed this in the promotion campaign and during the GNSS workshop in Dublin in April 2008 the satellite visibility was extensively discussed. During the results analysis (WP7) FieldFact will also take up this recommendation.*
- To promote GNSS technology and in particular upcoming EGNOS and Galileo services the FieldFact demonstrator should underline the positive aspects and not discourage the potential users; the FieldFact project should not create unrealistic expectations and thereby build a barrier to acceptance once Galileo is operational. *In the promotion, demonstration and training*

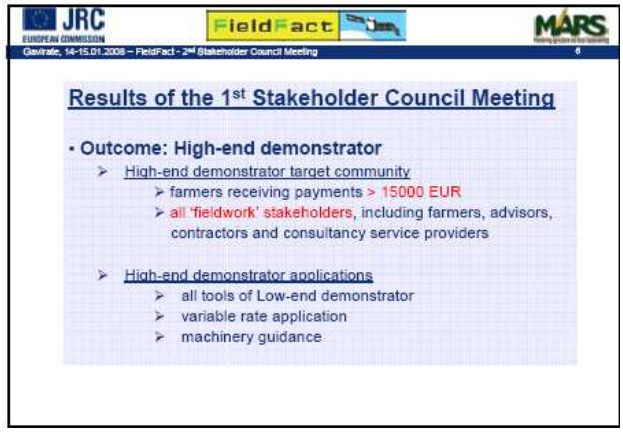
activities (WP5 and WP6) emphasis was given on the open signal and EGNOS augmentation. There were no unrealistic expectations given.

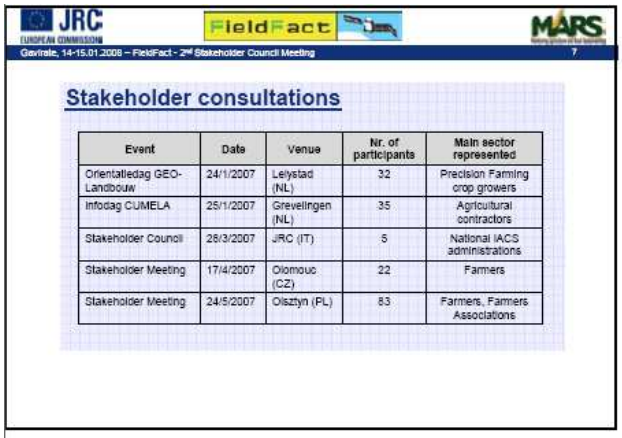
ANNEX: PRESENTATION ON STAKEHOLDER INVOLVEMENT

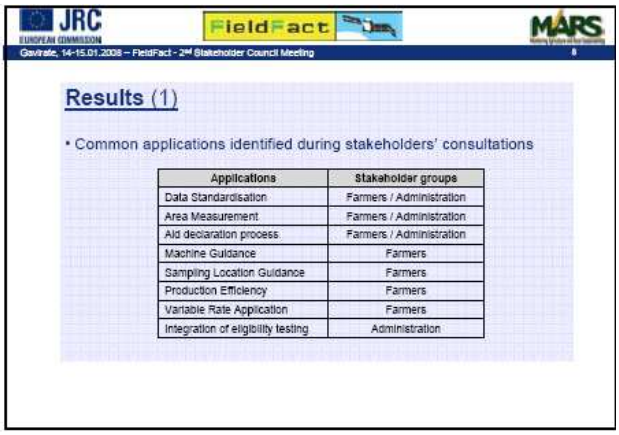


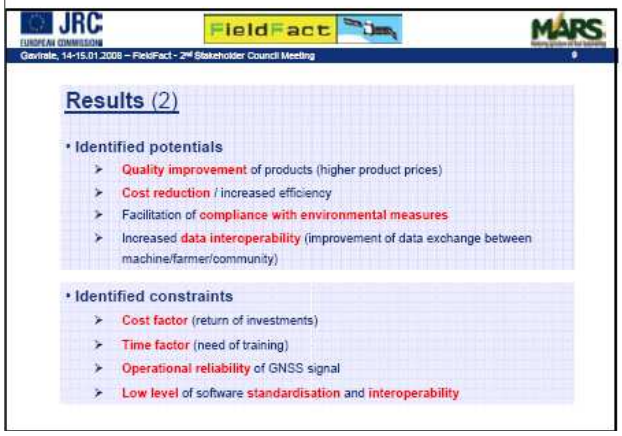


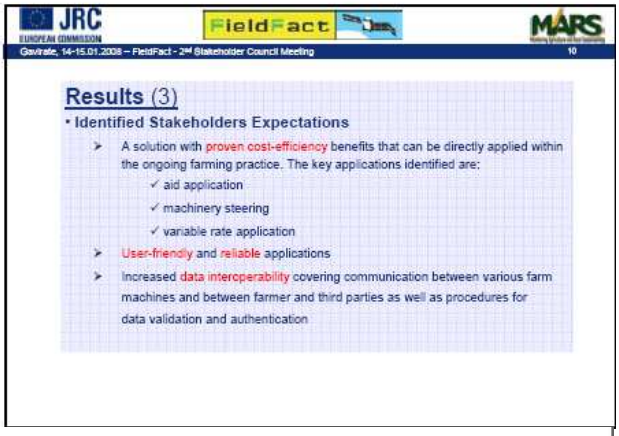


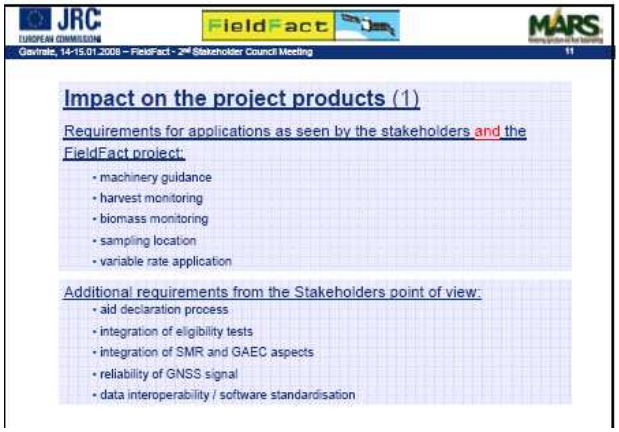


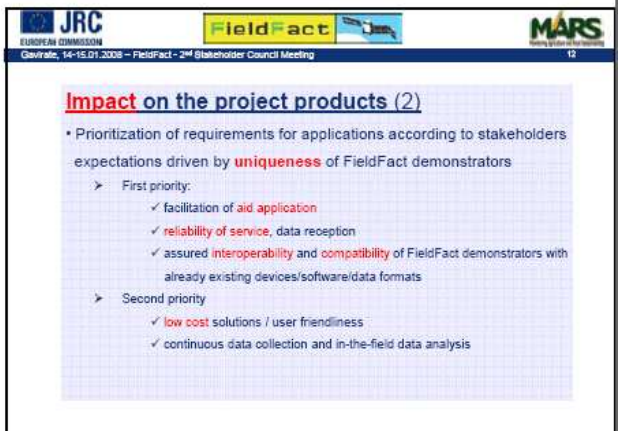












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