Summary results of the LPIS survey 2008
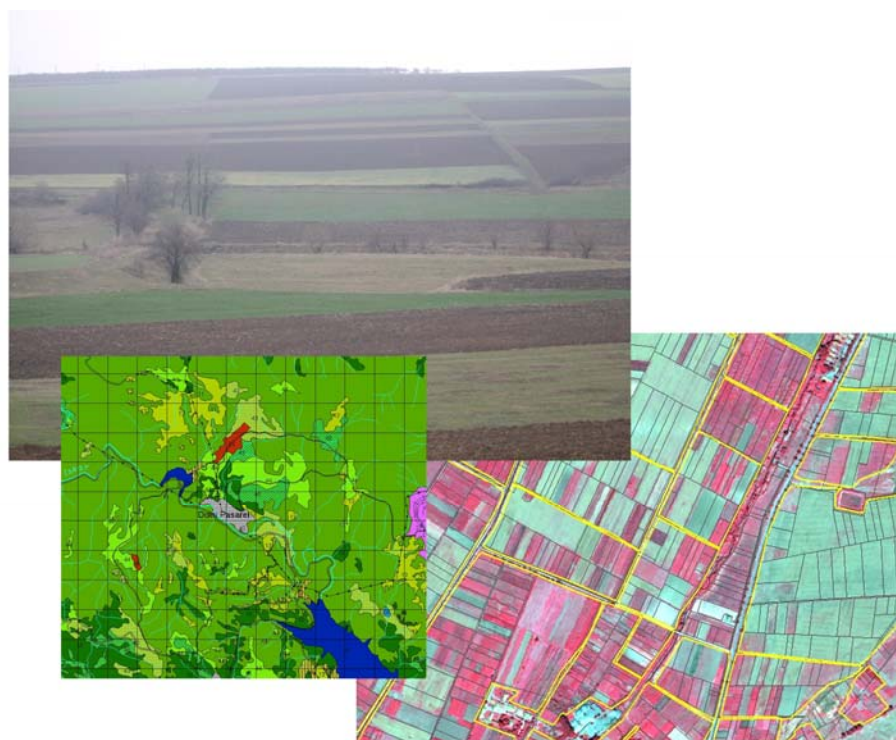
Workshop 'LPIS application and quality', Sofia, 17-18 September 2008

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Technical Report

Summary results of the LPIS survey 2008

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Content

1.   Introduction

1.1.   Objectives and scope

1.1.1.   The purpose of this report is to provide an overview on the most interesting findings during analysis of the questionnaire.

1.1.2.   This questionnaire was organized in the framework of workshop 'LPIS application and quality' which took place in Sofia (Bulgaria), 17-18 September 2008. It is a continuation of our efforts on gathering information about the current status of LPIS systems in the EU. The previous questionnaire was organized in 2006 (find document here) and was mainly focused on issues of the sources of information, on the methodological approaches in use for the LPIS update with particular attention on the compliance of the LPIS in respect to the 75%/90% rule. The questionnaire of 2008 continues to look for LPIS update techniques, trying to identify what is new. But in comparison to the questionnaire of 2006, this year higher attention was given to thematic consistency of geographic data sets stored in LPIS. The EU regulations call for an as-precise-as-possible quantification of the area which is eligible for direct payments. Therefore, a logical organisation of the geographic data and thematic content (e.g classification of land use/land cover) should provide for a maximum reflection of concepts, which laid down in the Regulation. In order to keep the survey short and provide space for new questions we skipped the topics concerning LPIS initial creation, data dissemination/integration and Web issues.

1.1.3.   We designed the structure of the questionnaire as follows: after a short (part 1) general information part questions were dedicated to (part 2) the structure of the database for core LPIS data - data sets effecting the primary task of LPIS – delineation of the eligible area. Further on questions were focused on (part 3) thematic content of those data sets, classification of eligible area types, and spatial representation of land uses eligible for different payment schemes. And finally, (part 4) group of questions about quality issues and update. All together, there were forty questions.

1.1.4.   It's worth mentioning that format of the questionnaire is something different from bilateral discussions. It has the advantage of collecting comparable metadata at the same moment of time, but it has also several drawbacks. First, it cannot be long - 40 questions is already on the limit - and as a result it is never detailed enough. Also, responses on a particular question can greatly differ in the level of details. The second disadvantage is a high risk of inconsistency between answers on the same question, which may occur even within a single, detailed response. It means in fact, that after first data collection and data analysis, the questionnaire should be followed up by bilateral correspondence in order to achieve an appropriate level of details and to avoid inconsistency. This version of the report (v1.0) is focused on analysis of the initial response to the questionnaire – data collected and responses received before 1st of November, 2008. The original, 'raw' data can be found in file://S:\FMPArchive\P\10108.xls and file://S:\FMPArchive\P\10108_2part.xls.

1.1.5. This year we received answers form 25 MS or regions/federal states, which is two responses less compared to 27 answers of 2006. 20 MS/regions participated in both questionnaires. These facts should be always considered when discussing the results and any statistical aggregation of two questionnaires. Table 1 shows the MS that responded and their answers on question about type of reference parcel in use.

**Table 1 Member States participating in LPIS questionnaires in 2006 and 2008**

EU Member State	2006	2008
Austria	x	CadP
Belgium - Flanders	AP	AP
Belgium – Wallone*	AP	PhB
Bulgaria	x	PhB
Cyprus	CadP	CadP
Czech Republic	FB	FB
Germany	PhB/FB/CadP/AP	PhB/FB/CadP/AP
DE-Baden	CadP	x
DE-Bavaria	FB	x
DE-NRW	x	PhB
Denmark	PhB	PhB
Estonia**	PhB	PhB/FB
Spain	CadP	CadP
Finland	FB	x
France	FB	FB
Greece	PhB	x
Hungary	PhB	PhB
Ireland*	AP	FB
Italy	CadP	CadP
Latvia**	x	PhB/FB/CadP
Lithuania	PhB	PhB
Luxembourg	AP	AP
Malta**		FB/AP
Netherlands	PhB	PhB
Poland	CadP	CadP
Portugal*	AP	FB
Romania	x	PhB
Sweden*	PhB	FB
Slovenia**	FB	FB/AP
Slovakia	PhB	PhB
UK - Eng	AP	x
UK - Northern Ireland	AP	x
UK - Scotland	AP	x
UK - Wales	AP	x
total:	27	25

2. LPIS core data structure

2.1. Reference parcel types

2.1.1. The main component of each LPIS is a dataset layer of reference parcels. This data set frequently accompanied by one or several layer used for further delineation of eligible area such as datasets for land cover/land use, exclusions and non-eligible features, less favourite areas for agriculture. All these layers together we consider as a core data.

It is interesting to notice that four of MS/regions from 20, which answered both questionnaires, have changed reference parcel type or re-think/redefined its definitions (*Belgium – Wallone, Ireland, Sweden, and Portugal). The summaries by reference parcel type for both dates are presented in the   Figure 1. Also four countries indicated that they use mixture of reference types or more than one type. Cases of RP type change and mixed systems are highlighted in the table 2.1 by ** mark. Figure 1 clearly shows that among MS/regions answered questionnaire in 2008 those who have opted for production block types (farmer's or physical block) of RP are dominating.
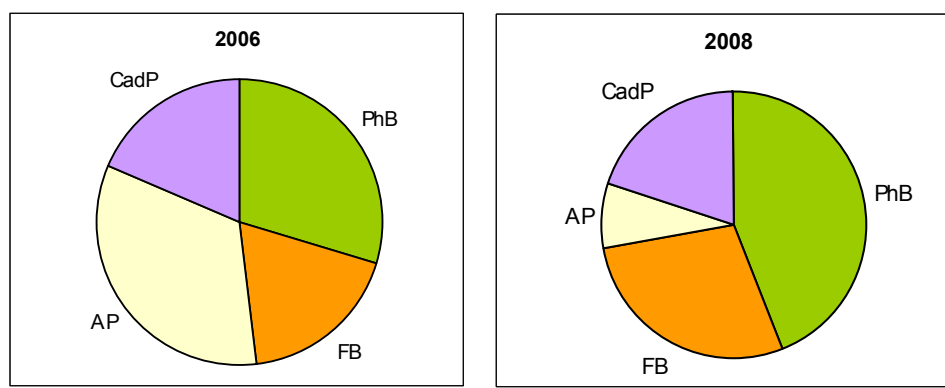
	2006	2008
Physical block	8	11
Farmer's block	5	7
Agricultural parcel	9	2
Cadastral parcel	5	5

Figure 1 Distribution of different types of reference parcel in questionnaires in 2006 and 2008.

2.2. Data layers participating in definition of eligible area

2.2.1. In order to find out how eligible land is defined in different systems, we designed several questions. The first group of them consider technical procedure/ data structure for handling eligibility. These questions are:

- **How many spatial feature layers are used to define the final eligible area?**
- **Single layer/ Overlay of two layers/ Overlay of more than two layers**

- **What spatial solutions do you have to handle exclusions (too small to be mapped)?**

- **None/Shape stored in separate layer/Point identification in separate layer/Flag or attribute to the RP**

2.2.2. Analysis of answers on above-mentioned questions can not be done without consideration of reference parcel type. The MS's solutions for eligible land delineation combined by reference parcel type are in the chart and table of (Figure 2). It is logical that systems based on cadastre definitely need additional layers to identify agricultural part of land property, but from the Figure 2 it can be seen that multi-layer approach widely used in different systems. As opposite to cadastre LPIS, physical block systems count for the highest rate of single layer use – 8 form 11 – due to the fact that for PB delineation the rule that it should contain homogenous land cover/land use and can be delineated as close as possible to contain only eligible land. For farmer's block approach it depends on that are boarders of land tenure and ownership are considered or only land with homogenous agricultural use. Thus, the answer to the most frequently asked question –is one layer enough? – will depend on what kind of the RP is used by the system in question and what boarders are considered.
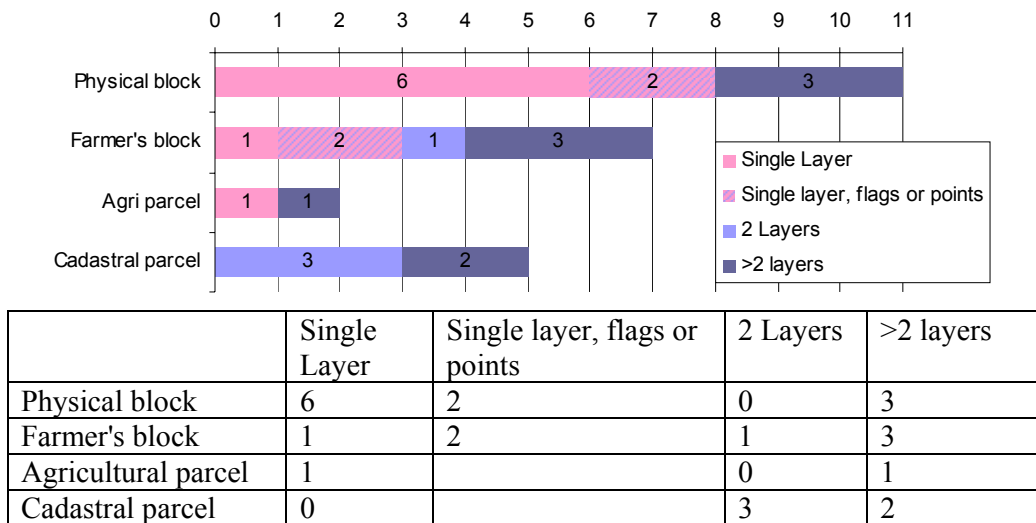

	Single Layer	Single layer, flags or points	2 Layers	>2 layers
Physical block	6	2	0	3
Farmer's block	1	2	1	3
Agricultural parcel	1		0	1
Cadastral parcel	0		3	2

Figure 2. Number spatial feature layers used to define the final eligible area by types of reference parcel

2.2.3. One reason for indicating of use of mixed systems (see Table 1 and par. 1.1.6) is very likely that, in addition to the main reference layer, MS administrations make use of declared agricultural parcels' layer. On the question- Is there a spatial layer for yearly declared Agricultural Parcels digitized (vector)?- 6 countries answered, that yes, 100% of parcels and 6 MS responded that only parcels subject to control are digitized. Figure 3 shows results by types of RP. Two thirds of production block systems (FB and PB) use this double-layer approach. On contrary cadastre based systems are use declared parcels' layer less.
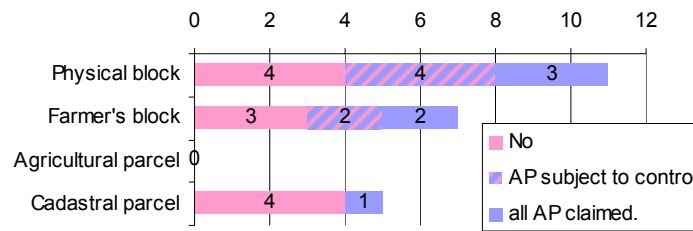
	No	AP subject to control	all AP claimed.
Physical block	4	4	3
Farmer's block	3	2	2
Agricultural parcel	0		
Cadastral parcel	4		1

Figure 3 Distribution of the answer to the question – Is there a spatial layer for yearly declared Agricultural Parcels digitized (vector)?- by reference parcel types.

2.2.4. The summary of the question - **what are the attributes of reference parcel? –** turned out difficult at this stage due to very different range of details in answers. Simple, at the first glance, question can return answer containing precise lists of more than 20 attributes, or, in contrary, just general sentences describing groups of attributes. We should consider in the future how to redefine or, may be, split this question in parts. Further contacts with MS is needed for clarification of answers received.

3. Thematic consistency of core data sets

3.1.1. The second group of questions relating to eligible land representation concerns land use/land cover issue in reference parcel layer. The questions of this group are:

- **My system covers: only agricultural land OR 100% of the country; gaps are not allowed**

- **What type of land use are registered in the LPIS (Art.44 of the Council Regulation 1782/2003)? -** Arable land; Permanent crop; Permanent pasture; Semi-natural grassland; Olive trees

- **For which of the additional Title IV schemas and /or CNDPs, spatial data are recorded?**

- **Do you store information on Agro-Environmental programs and measures? -** Yes, as attribute data to the reference parcel / Yes, as attribute data to the reference parcel / No

- **If you have land use classes defined for non-agriculture land,** please specify …

3.1.2. For land extend that is covered by LPIS (Figure 4), results seems logic for farmer's blocks and agricultural parcel system – it is generally only agricultural land. On the other hand, there are considerable number of physical block systems cover also non-agricultural land. These kind of blocks with predominant non-agricultural cover (classified as e.g. forest or urban) may include some low intensive agricultural areas such as plots of grass, corn, herbs etc around residences or in the forest. Surprising that there are 2 answers for systems based on cadastre indicating that they cover only agricultural land, when typically cadastre as such does not allow gaps. Very likely, it is about some extraction from the conventional cadastre, which is in use. In any case, these two cases should be followed further.
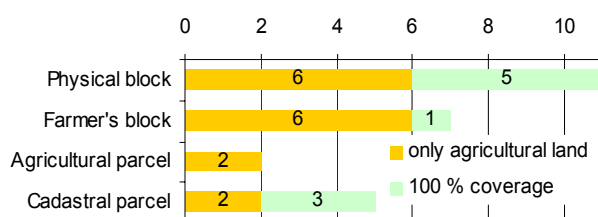

Figure 4 Extend of different land types covered by LPIS reference layer.

3.1.3. Further on we asked how is land under agricultural use is classified in order to reflect eligible land types mentioned in the article 44 of the Council Regulation 1782/2003. One can draw from above mentioned article following types: arable land, permanent pasture, olive trees under certain conditions, which are eligible for both SPS and SAPS and permanent crops, which are relevant only for SAPS or other then area based schemes. It is also the case that semi-natural pastures are often included e.g alpine pastures and pastures under common use (commons) relevant to bovine schemes. Table 2 shows range of answers aggregated in 5 groups and presented by types of reference parcel. The most common group is 'arable land/ pasture/ semi-natural pasture/ (+olives)/ + permanent crop' demonstrate tendency towards providing full range of eligible land types. Attention grabbing fact that this group almost solely used in FB/AP/CadP systems and only for physical block type derivations are considerable. Also interesting last line of the table where all land included in physical block system considered as arable (Denmark) so only arable land is mapped.

Table 2 Types of eligible land recorded in LPIS

SPS	+non-SPS	Physical block	Farmer's block	Agricultural parcel	Cadastral parcel
arable land, pasture, semi-natural pasture, (+olives)	permanent crop	3	6	2	3
arable land, pasture OR semi natural pasture	-	4			1
arable land, pasture	permanent crop	3			
arable land, (+olives)	permanent crop		1		
arable land	-	1			

3.1.4. For geographical data supporting information on Title IV additional schemas and CNDP's only 7 Member states indicated that spatial data is recorded. In one case it was mentioned that this information is included into the land-use layer and for other use of declared agricultural parcels' layer was indicated (non-AP type LPIS). Geographical data for all types of title IV schemes are stored BE-FL, SI and NL (protein crops #nuts; #energy crops; #arable crops_regional aid; #arable crops_area payment; #seeds).

3.1.5. Geographical data on GAECs in LPIS presented for soil erosion issues: minimum level of maintenance, slopes etc. Integration of this kind of data is mentioned by only 5 responders (BE-FL, PT, GE-NRW, HU, EE).

Most common geographical data types for AEM are 'afforestation areas' and 'landscape features'. Approaches to store information in LPIS are presented (Figure 5). Since AEM are obligations taken by farmer they can be presented easily in FB/AP systems, where farmers most actively involved in reference parcel delineation. Agro-environmental measures may or may be not presented PB and CadP.
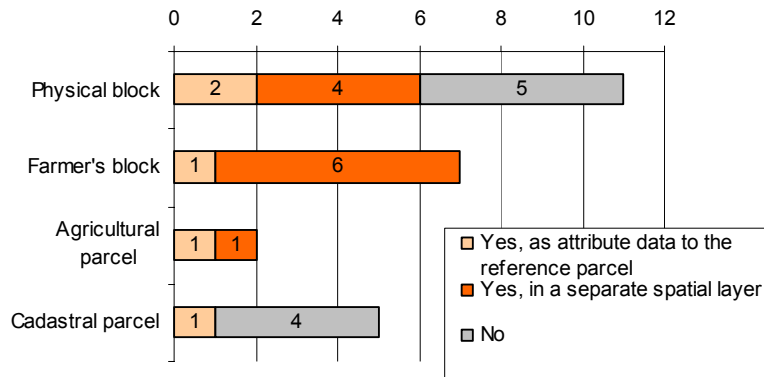

Figure 5 Use of spatial data on Agro-environment measures (AEM).

4. LPIS update

4.1. Overview

4.1.1. The process of updating of the geographic databases is a very important element of the system maintenance and should be adjusted to the type of data stored. In the case of the LPIS database several 'actions/processes' supporting the update issues should be recognized. However, the importance of single actions, are differently distributed over the Member States, sometimes is dependant on the reference parcel type or historical practice applied. To explore that, in the Questionnaire 2008, several questions considering the update practices were asked. In this part of the document, LPIS update practices are discussed basing on the responses collected during the survey.

4.1.2. Generally, in the respect of the time, whole process might be classified into two categories: the annual and unspecified (further specified by Member Sates). The annual, mostly covers a limited part of the dataset using different data sources (such as: farmer's application, results of the OTSC and CwRS, etc.), whereas the systematic update based on the new ortho-imagery or/and various data consolidation from other external sources (e.g. cadastre), covers significant part of the country or even entire territory but it might be performed lest frequent than the annual (e.g. 2-5 years circle).

4.1.3. The preferences in using different information by the Member States in update protocols, is diversified across Europe but a general trend might be visualised (Figure 6). Based on the answers received from responders the recent situation of update processes applied in the Member States is presented. To visualise the overall situation, the single bar represents the sum (with stdev) of all ranked (scale from 1-7) update data sources. Each responder reports a source of data mostly used for the LPIS update. Additionally, if the source suggested in the survey data, was not used at all, 'non applicable' answer was chosen. Additionally, to give full overview, additional graphs were prepared summarising the answers spitted by reference parcel type (more details see Table 3).

4.1.4. The preferences in using of different information by the Member States in update protocols, is diversified across Europe but a general trend is visualised. Referring to the results, the highest importance of the data sources in almost all systems occurred for the systematic update carried out basing on new ortho-imagery. The external data sources providing additional input to the process of the LPIS update, e.g. land consolidation and change of property classified in terms of temporal live circle as 'unspecified', were indicated as important for Member States that had established their systems on the cadastral parcel.
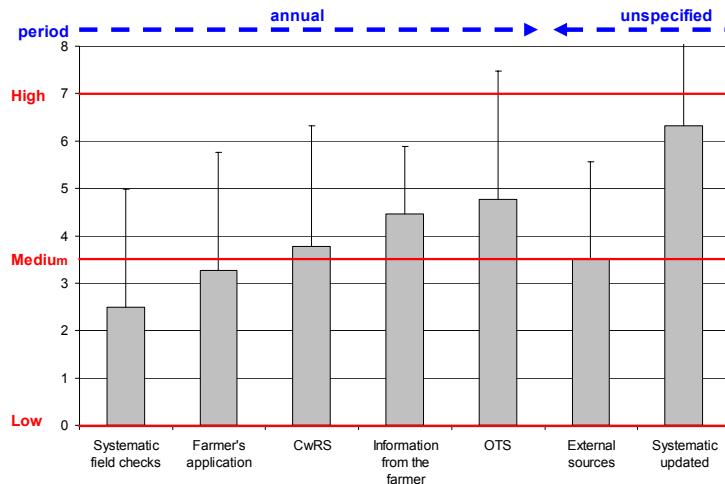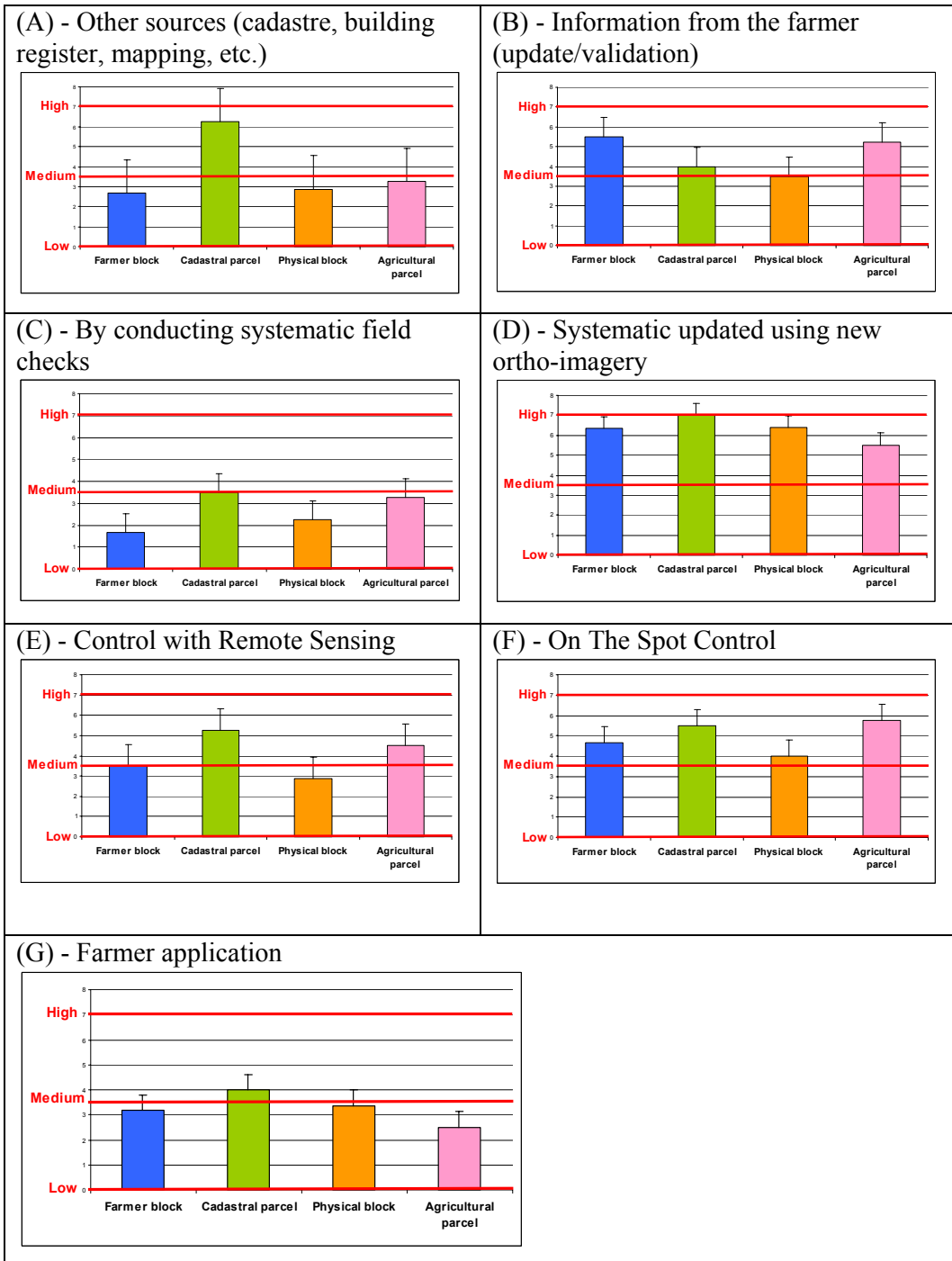
Figure 6 The preferred source of information used in the LPIS update process in MS participated in the survey.

4.1.5. The OTS checks and CwRS results provided by inspector in the annual circle were utilized for the update purposes. Both data sources were considered as of medium importance in applied scale (from 1 to 7). However, indicated mostly as important for the systems basing on cadastral parcel and agriculture parcel, but less important for physical block systems. It is important to underline, that only 60% of responders declared use of any risk analysis for OTS/CwRS considering LPIS update needs.

4.1.6. The general farmer input in the update process was expressed in two independent questions, with a thematic overlap between them. First, administration used the information received from farmer provided by any possible means which were validated and introduced into the system. In general, all responders considered this source as of medium importance in the annual update, nevertheless it might be observed that, especially for the system based on farmer block and agriculture parcel, the interest was much higher. Second, it refers to information received only annual aid application submitted by farmers, where the general importance of that data input channel was much smaller than the one obtained in previous question, except of the responses for CP and PB system. It shows that in those systems (CP, PB) usage of the farmers' input is limited to the information included in application form. In other hand, additional procedures (apart of annual aid application) were developed to collect and process the information from farmers in systems based on FB and AP.

4.1.7. The last declared as least important from above mentioned activities undertaken for update of the LPIS, was conducting of the systematic field checks. Mostly, it was declared in the systems basing on cadastral and agricultural parcel. For farmer block with rather low importance or not applied.

Table 3 Preferable update data sources used (by reference parcel type)

(A) - Other sources (cadastre, building register, mapping, etc.)	(B) - Information from the farmer (update/validation)
(C) - By conducting systematic field checks	(D) - Systematic updated using new ortho-imagery
(E) - Control with Remote Sensing	(F) - On The Spot Control
(G) - Farmer application	

4.2. Role of the farmer

4.2.1. The role of farmer in the LPIS update is clearly defined in the Regulation (Art 12.4 of Com. Reg 796/2004) which states that, when submitting the application form, shall correct the pre-printed graphic materials if any changes occurred on his land or if any information contained in the graphical materials is incorrect or outdated. Furthermore, if the correction relates to the area of the reference parcel, then the farmer must declare the up-to-date area of each agriculture parcel concerned and if necessary indicate the new boundaries of the reference parcel.

4.2.2. Just in the theoretic consideration, if the Member States administration provided to the farmer's necessary means to report the changes or other data inconsistencies and farmers reported the changes, then entire LPIS database would be updated every year. In addition, the sentence above would be true as far as the national administration would handle enormous application processing and database correction.
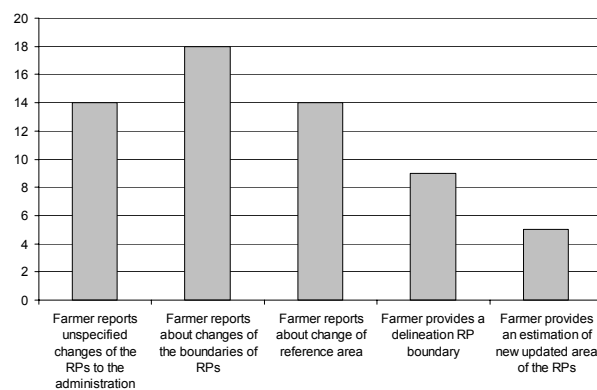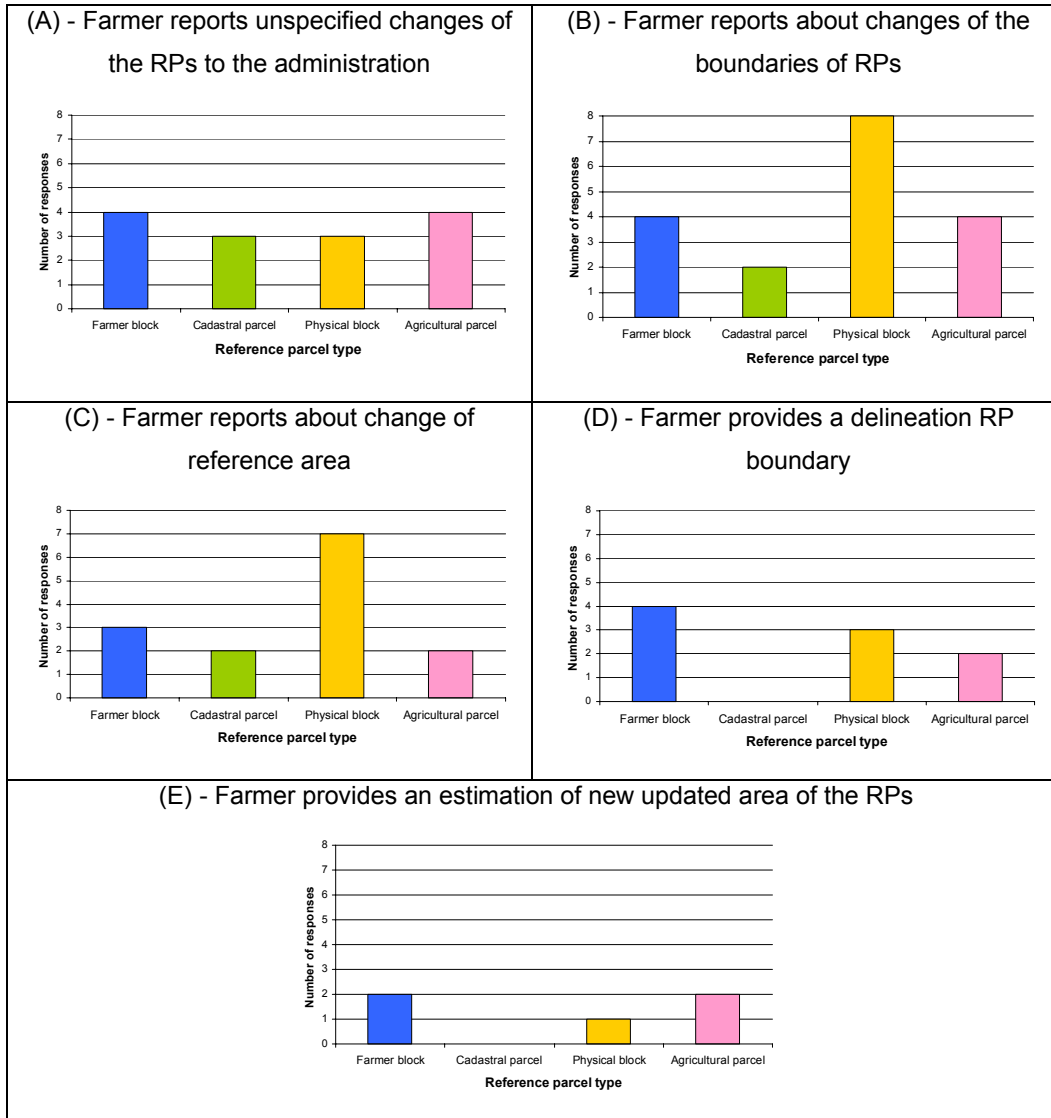

Figure 7 Summary – possible activities of farmer in the update process
(by number of responses)

4.2.3. Considering the importance of the aforementioned potential role of farmers in the update, the Member States are underestimating the possible benefits of using such a source of data (Figure 6). The most common action taken by farmers was to report on any unspecified changes. In fact, this is equally distributed over all countries. Two further actions, which are commonly used only in the physical block systems, were reporting on changes to the boundaries and reference area of the parcel to the administration. Furthermore, the delineation of the boundaries and estimation of the updated area of the reference parcel were mostly provided in all the systems, except for cadastral based systems (Table 4).

4.2.4. Many MS provide additional space for comments and notes in the application forms. Moreover, many MS give the farmers a possibility to provide information on their parcels during the whole year. Once the data is declared after a certain deadline it is only considered valid for the

following year campaign. For example, in the Czech Republic the farmers are obliged to report any change of parcel or land use in the LPIS in due time.

Table 4 The role of farmer in the LPIS update (by reference parcel type)

(A) - Farmer reports unspecified changes of the RPs to the administration

(B) - Farmer reports about changes of the boundaries of RPs

(C) - Farmer reports about change of reference area

(D) - Farmer provides a delineation RP boundary

(E) - Farmer provides an estimation of new updated area of the RPs

4.3.   Systematic update

4.3.1.   All responders confirmed existence of written specifications dedicated to the operator capturing object by the means of photo-interpretation, which is used to support vector data collection based on the up-to-date ortho-imagery in the process of systematic update.

4.3.2.   The range of systematic update is directly connected with the acquisition of new imagery during single campaign (e.g. 1/3 part of the country) and it is driven by the national arrangements. Further, it was found that in 55% of the responses all parcel were examined in the range of new ortho-image coverage, in about 30% cases the visual inspection of the parcels were limited only to the claimed parcels in the image range (Figure 8). The partial update solution, probably forced by limited time or recourses, caused a need of keeping track of the parcels which were excluded from systematic update and development of additional protocols applied when a parcel would be claimed again.
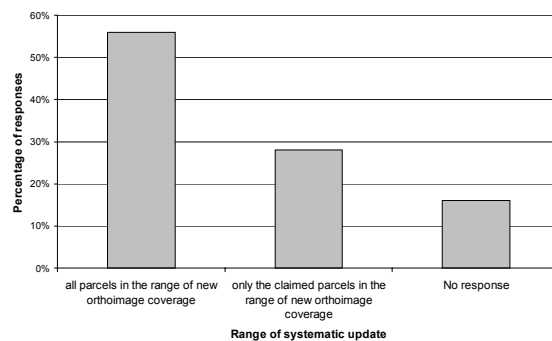

Figure 8 Range of the systematic update, parcel selection

4.3.3.   As it was mentioned above, the main source of information about the temporal changes of the land cover in the terrain is based on up-to-date the ortho-imagery. The recent developments in the techniques of image acquisition had a reflection in the growing interest of satellite and especially airborne digital sensors. More than 50% of responders indicated airborne digital camera as used image source of for updated purposes, about 30% still use of photogrammetric acquisition supported by airborne analogue cameras (Figure 9), a part of Cyprus where satellite imagery only is used. However, some MS (e.g. Poland) utilised airborne acquisition and in the selected parts of the country space borne.
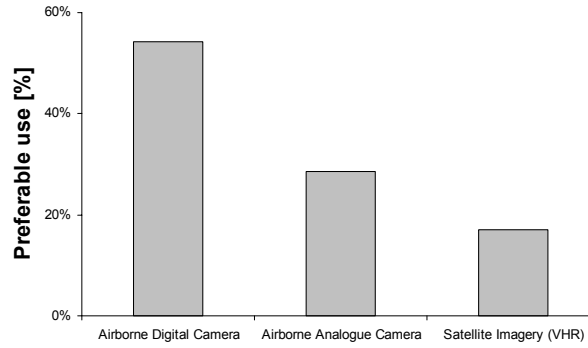
Figure 9 Otho-image sources used in systematic LPIS update process

4.3.4. Further, regarding to the status of airborne digital cameras acquisition for the LPIS update, more than 50% of respondents declared that the acquisitions were performed and the rest were planning image acquisition (excluding Cyprus). However, in this survey there were not any quantitative measures taken about the performed and planned image data collection.
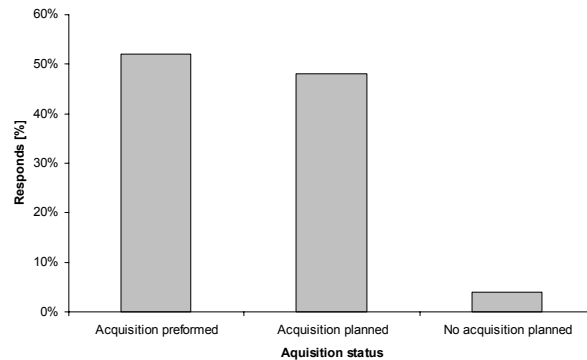

Figure 10 Status image data acquisition - Digital Camera

4.3.5. At the latest stage of the survey concerning the systematic update process, we tired to asses the level of automation applied. The automation in the sense of collecting updated information from the image data used. Several possible chooses were given, starting from fully manual (human operator) approach, through the approach based on the image classification, semi-automated methods, etc. (see Annex 6). In first feedback received, we found 80% of responses, indicating fully manual process. In fact, we had explored the rest responses, different than manual method, to learn more about new techniques applied. Unfortunately, the responds given in the questionnaire were caused by mistake or misunderstanding of the question. According to survey foundlings, it might be assumed that the fully manual method of data collection using photo-interpretations techniques is recently applied.

4.4. Currency of the system

4.4.1. The currency evaluation of the LPIS might be preformed applying various methods (e.g. based on information from image, aid application and field check). The most commonly used method was based on a systematic check performed on the new ortho-image data acquired for update and/or CwRS project purpose (Figure 11). Further, more than 50% of the responders indicated the analysis of the returns from the control of aid application as utilized evaluation method. The third source for currency assessment was the summary results from the regular field check. The statistical approaches of the LPIS currency assessment were used only in five MSs (BE(F), RO, DK, HU, SP). In the questionnaire we have not received any examples of another method used.
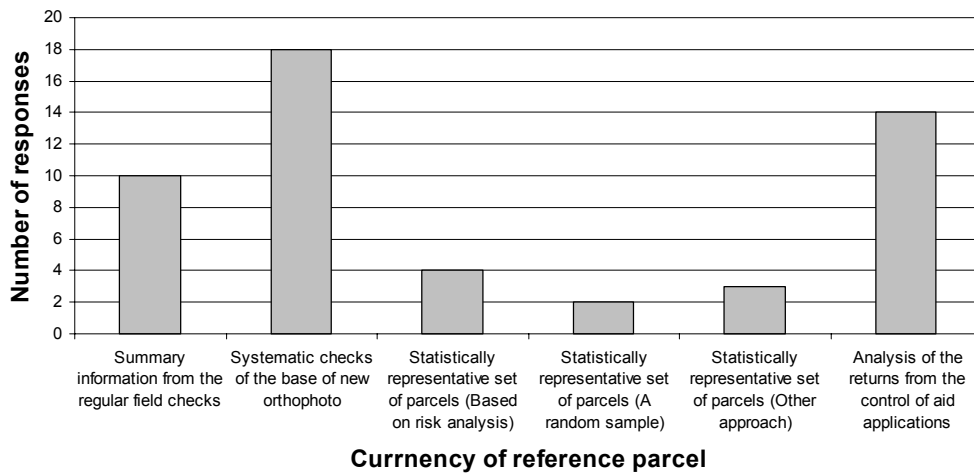

Figure 11 Currency assessment

4.4.2. The multiple choices of the question asked, gave a possibility to visualise an average number of action taken by MSs, split by reference parcel type, to asses the currency of theirs system. The graphical presentation refers to an average number of given responses (Figure 12). We found that, the evaluation of the currency of the LPIS based on the agriculture parcel was described by more than three conditions (maximum 6 – BE (F)), in the contrary the farmer block was checked by 1.5 method (a single method was indicated by CZ, EE, LV, IE).
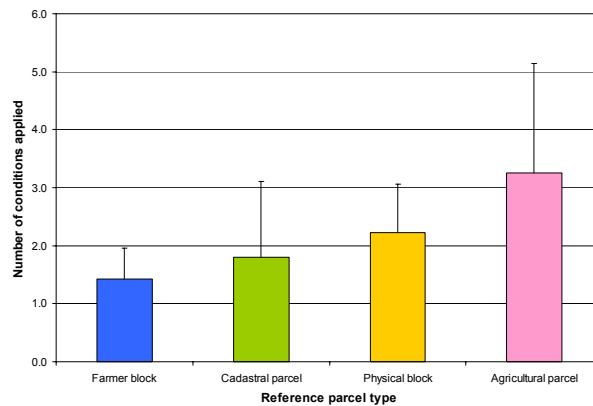

Figure 12 Currency of the system, number of action taken

4.4.3. The levels of application of the 75/90 rule for evaluation of the LPIS in MSs were varied (Figure 13). Considering all responses, about 70% indicated the rule is applied at the national level, more than 20% declared that the rule was used in the smallest administration unit (regional level).
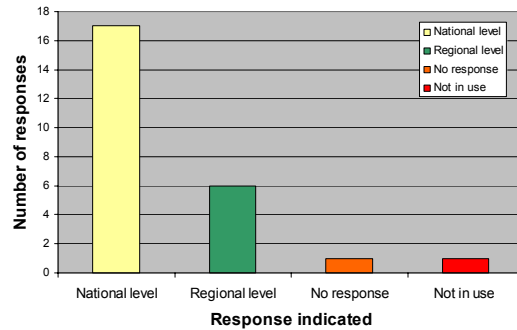

Figure 13 75/90 rule - level of application

5. Conclusions

5.1.1. The aim of this study was to provide an overview of the implementation status of the LPIS in the EU MS with a focus on a thematic content and logical organisation of the geographic data sets stored in LPIS; and we also looked for LPIS quality assessment and database update techniques. In order to keep the survey efficiently short and provide space for new questions we skipped the topics of previous questionnaire of 2006 concerning LPIS initial creation, data dissemination/integration and Web issues.

5.1.2. The advantage of questionnaire format is that it allows collecting comparable metadata at the same moment of time. This year we had lower rate of missing answers, because we did not requested rigorous statistics data we needed for assessment of 75%/90% rule in previous questionnaire. Questionnaire structure and size -40-questions- has proved itself as suitable solution for overview of the trends, but probably not enough for deeper analysis.

5.1.3. We also discovered several drawbacks of questionnaire approach, which were influencing the accuracy and reliability of the results. The following factors have (in a different degree) impact on the accuracy of the data provided and the final interpretation of the results:

- questions definition were not precise enough to ensure that the answers will be unambiguous; probably, they had to be accompanied with some additional description or glossary;

- responses on a particular question can greatly differ in the level of details;

- sometimes the technical expertise of the contacted persons does not fit to the topics to provide clear and correct answers on some of the questions;

- high risk of inconsistency between answers on the same question may occur even within a single, detailed response.

5.1.4. Part of the data provided in the questionnaire was validated against the existing information in GeoCap (previous reports and workshops). Also after first data collection and data analysis, the questionnaire should be followed up by bilateral correspondence in order to achieve an appropriate level of details and to avoid inconsistency.

5.1.5. A cross-correlation between the reference parcel types on one hand and data structure approaches and applied methods of update on the other hand was a main technique of analysis performed. In this study we tried to understand how the choice of one or another reference system type influences database structure and maintenance. Some findings are mentioned below.

5.1.6. First, we have discovered that national implementations tend to 'drift' from one to other reference system. Sometimes (after audit) it turned out that choice done during creation of the LPIS -and which worked well for years- does not satisfy current requirements. It triggers upgrade of the whole system. In some cases we have mixed system when geographic data stored not only for RP, but in addition for AP which are subject for control. And finally we have system which evolve gradually from e.g. Physical block to Farmer' block.

5.1.7. The thematic consistency of the core data layer is proved appropriate for majority of implementations, but complete overview and analysis of attributes within reference parcel layer require additional information in order to investigate, if a logical organisation of the geographic data and thematic content (e.g classification of land use/land cover) provide for a maximum reflection of concepts, laid down in the EU regulations.

5.1.8. The update process of the LPIS is diversified across Europe but a general trend might be drowned. The highest importance of the data sources in almost all systems occurred for the systematic update carried out basing on new ortho-imagery. Then, the results of inspections form OTS checks and CwRS were reported as important in the annual update information source. However, indicated mostly as important for the systems basing on cadastral parcel and agriculture parcel, but less important for physical block systems.

5.1.9. The external data (e.g. land consolidation) sources providing additional input to the process of the LPIS update were mainly indicated as important for Member States that had established their systems on the cadastral parcel.

5.1.10. Considering the potential role of farmers in the update, the Member States are underestimating the possible benefits of using such a source of data. The most common action taken by farmers was to report on any unspecified changes. Two further actions, which are used only in the physical block systems, were reporting on changes to the boundaries and reference area. The boundary delineation and estimation of the updated area of the reference parcel were mostly provided in all the systems, except for cadastral based systems.

5.1.11. The image data source used in systematic update process moved towards the digital airborne cameras comparing with the results of previous surveys. More than 50% Member States indicated use of images acquired by airborne digital camera, about 30% still use of photogrammetric acquisition supported by airborne analogue cameras. Further, almost all Member States are planning the image acquisition using airborne digital sensors (excluding Cyprus). However, in this survey there were not any quantitative measures taken about the performed and planned image data collection.

5.1.12. It might be very interesting for feature work to compare and summarize the written specification, used in the Member States, dedicates to photo-operators to support in the vector data collection based on the up-to-date ortho-imagery in the process of systematic update.

5.1.13. According to the survey results, about 30 % cases the visual inspections were limited to the parcels claimed in the range of the new ortho-imagery acquired. This partial update solution caused a need of keeping track of the parcels which were excluded from systematic update process but this questionnaire not explored the developments of additional protocols in Member States.

5.1.14. The fully manual (human operator) approach using photo-interpretations techniques is wildly applied in all MS's to collect the up-to-date information for the ortho-images. We have not found any information about use of image classification/extraction techniques applied which might lead to automation of data collection in the systematic update process.

5.1.15. The evaluation of the currency of the LPIS, according to survey results, was mostly preformed on the basis of systematic check conducted on the new ortho-image data acquired for update and/or CwRS project purpose. More than 50% of the responders indicated the analysis of the returns from the control of aid application as utilized evaluation method. The third significant source for currency assessment was the summary results from the regular field check. In the analyses we explored the number of action taken by MSs, categorised by reference parcel type, to asses the currency of theirs system. We found that, the currency evaluation of the LPIS based on the agriculture parcel was described by more than three conditions, in the contrary the farmer block was checked by 1.5 methods and a single method was indicated by CZ, EE, LV, IE.

6. Annex 1 Composition of the questionnaire

Please confirm with "Yes" that you agree with those terms in order to proceed further: *

○ Yes, I agree

Name and Surname *

Organisation *

EU Member State *

If Germany is selected and the answers are related to specific Lander ONLY, please specify it:

Please state the official (country specific) definition of Reference Parcel?

To what type is your reference parcel belonging? (please check all that apply)

☐ Agricultural parcel

☐ Farmer block

☐ Physical block

☐ Cadastral parcel

☐ Specify your own value:

What is your main reason to classify your reference parcel (RP), as you did in the previous question?

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Min size of RP, if different from DG-AGRI 7073

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What type of land use is registered in the LPIS (Art.44 of the Council Regulation 1782/2003)?

- ☐ Arable land
- ☐ Permanent crop
- ☐ Permanent pasture
- ☐ Semi-natural grassland
- ☐ Olive trees

If you have land use classes defined for non-agriculture land, please specify them bellow:

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What other external address/references are supported by LPIS for RP location (search function by municipality, farm ID, etc.)?

- ☐ administrative units
- ☐ address
- ☐ cadastral parcels
- ☐ farm ID from IACS
- ☐ Specify your own value:

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What are the attributes of the Reference Parcel feature?

How many spatial feature layers are used to define the final eligible area?

- ○ Single layer
- ○ Overlay of two layers
- ○ Overlay of more than two layers

What spatial solutions do you have to handle exclusions (too small to be mapped)?

- ○ Shape stored in separate layer
- ○ Point identification in separate layer
- ○ Flag or attribute to the RP
- ○ None

For exclusions, is the nature/type identified?

- ○ No
- ○ Yes

Do you store information on the type of RP boundary (e.g. hedge, road, ditch)?

- ○ No
- ○ Yes

What sub-units of the Reference Parcel are stored?

- ○ None
- ○ Specify your own value:

Is there a spatial layer for yearly declared Agricultural Parcels digitized (vector)?

- ○ No
- ○ Yes, all parcels claimed.
- ○ Yes, all parcels subject to control

Are there any reference map layers integrated?

- ☐ Geographical grid systems
- ☐ Geographical names
- ☐ Administrative units
- ☐ Addresses
- ☐ Cadastral parcels
- ☐ Transport networks
- ☐ Hydrography
- ☐ Protected sites

Please indicate bellow any other reference map layers/datasets you have integrated:

For which of the CNDPs, data is recorded as separate spatial data layer?

- ☐ durum wheat
- ☐ protein crop
- ☐ rice
- ☐ nuts
- ☐ energy crops
- ☐ starch potato
- ☐ arable crops_regional aid
- ☐ arable crops_area payment
- ☐ seeds
- ☐ other (pleasespecify)
- ☐ Specify your own value:

For which of the GAECs, data is recorded as separate spatial data layer?

☐ Soil erosion (Minimum soil cover; Retain terraces)
☐ Soil organic matter (Standards for crop rotations where applicable
☐ Soil structure (Appropriate machinery use)
☐ Minimum level of maintenance (Protection of permanent pasture; agricultural land; Maintenance of olive groves)

Do you store information on Agro-Environment programs and measures?

○ Yes, as attribute data to the reference parcel
○ Yes, in a separate spatial layer
○ No

If your RP is not cadastral parcel, does LPIS use/refer to cadastral data?

○ No
○ Yes

How is the LPIS mainly updated? (please rank the update data sources, according their relevance to LPIS update)

	Low		Average			High		
	1	2	3	4	5	6	7	Not applicable
Farmer application	○	○	○	○	○	○	○	○
OTS	○	○	○	○	○	○	○	○
CwRS	○	○	○	○	○	○	○	○
Systematic updated using new orthoimagery	○	○	○	○	○	○	○	○
By conducting systematic field checks	○	○	○	○	○	○	○	○
Information from the farmer (update/validation)	○	○	○	○	○	○	○	○
Other sources (cadastre, building register, mapping, etc.)	○	○	○	○	○	○	○	○

If relevant: What is the level of automatization of the periodic update process (based on new orthoimagery)?

- ○ Fully manual (human operator)
- ○ Based on pixel based image classification
- ○ Based on object based image classification
- ○ Mixed approach (semi-automated)
- ○ There is no systematic update performed
- ○ Specify your own value:

If relevant: What is the range of the systematic update process?

- ○ all parcels in the range of new orthoimage coverage
- ○ only the claimed parcels in the range of new orthoimage coverage
- ○ Specify your own value:

What is the source of orthoimage data used for periodic/systematic update?

- ☐ Airborne Digital Camera
- ☐ Airborne Analogue Camera
- ☐ Satellite Imagery (VHR)

What is the status of airborne digital camera image acquisition for the needs of LPIS update?

- ○ Acquisition preformed
- ○ Acquisition planned
- ○ No acquisition planned

Are there written specifications for LPIS operator for capturing and delineation of objects?

- ○ No
- ○ Yes

What is the role of the farmer in LPIS update?

- ☐ Farmer reports unspecified changes of the RPs to the administration
- ☐ Farmer reports about changes of the boundaries of RPs
- ☐ Farmer reports about change of reference area
- ☐ Farmer provides a delineation RP boundary
- ☐ Farmer provides an estimation of new updated area of the RPs

Are the LPIS values "frozen" from the start of the ongoing campaign up to the finalization of the controls (administrative and OTS)

- ○ No
- ○ Yes

Does the risk analysis for OTS/CwRS consider the areas where LPIS needs to be updated? (this is one example from the current guidelines)

- ○ No
- ○ Yes

How is the assessment of the currency of the reference parcels made?

- ☐ Summary information from the regular field checks
- ☐ Systematic checks of the base of new orthophoto
- ☐ Statistically representative set of parcels (Based on risk analysis)
- ☐ Statistically representative set of parcels (A random sample)
- ☐ Statistically representative set of parcels (Other approach)
- ☐ Analysis of the returns from the control of aid applications
- ☐ Specify your own value:

At what level, do you apply the rule 75%/90% for the evaluation of the LPIS?

- ☉ National level
- ☉ Regional level
- ☉ Local administrative level
- ☉ Selected geographical area

What topology rules are implemented in relation to the spatial data?

- ☐ Polygons must not overlap
- ☐ No holes allowed
- ☐ Dangle nodes not allowed
- ☐ Sliver polygons not allowed
- ☐ Spatial objects could share part of geometry
- ☐ Specify your own value:

What is procedure to resolve conflicts between two declaration (overlap)?

- ☉ No specific action, if overlap is bellow certain tolerance
- ☉ Farmers are contacted, if overlap is above certain tolerance
- ☉ Farmers are contacted, in any case
- ☉ Specify your own value:

Are the administrative checks purely alphanumerical (spatial context is not considered)?

- ☉ No
- ☉ Yes

* indicates a required field

(end document)

European Commission

Abstract

The purpose of this report is to provide an overview on the most interesting findings during analysis of the questionnaire. This questionnaire was organized in the framework of workshop 'LPIS application and quality' which took place in Sofia (Bulgaria), 17-18 September 2008. It is a continuation of our efforts on gathering information about the current status of LPIS systems in the EU. The previous questionnaire was organized in 2006 and was mainly focused on issues of the sources of information, on the methodological approaches in use for the LPIS update with particular attention on the compliance of the LPIS in respect to the 75%/90% rule. The questionnaire of 2008 continues to look for LPIS update techniques, trying to identify what is new. But in comparison to the questionnaire of 2006, this year higher attention was given to thematic consistency of geographic data sets stored in LPIS. The EU regulations call for an as-precise-as-possible quantification of the area which is eligible for direct payments. Therefore, a logical organisation of the geographic data and thematic content (e.g classification of land use/land cover) should provide for a maximum reflection of concepts, which laid down in the Regulation. In order to keep the survey short and provide space for new questions we skipped the topics concerning LPIS initial creation, data dissemination/integration and Web issues.

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