ICAS X
2026
8-10 July 2026 • Kraków, Poland

Data from farm management software can reduce response burden on farmers – Case: Statistics on plant protection products

Pasi Mattila
Natural Resources Institute Finland (Luke), Helsinki, Finland – pasi.mattila@luke.fi

Abstract

Farmers are burdened by the need to deliver various items of information about their farms for several purposes, both administrative and commercial. Once a piece of data is stored in some location it is worthwhile utilizing it in all instances where the data is required. Farm management software contains a lot of information about farm activities. Use of plant protection products (PPP) is one of the crop production operations that users of management software commonly record there.

So far, Natural Resources Institute Finland (Luke) has used a web survey supplemented with a telephone interview to collect PPP use data from farms in Finland. In the next data collection, electronic data from farm management software is going to be used as a new option for the farmer to declare the required data on PPP use for the year 2026. Electronic PPP data is also assumed by Eurostat to be the principal data source in the future collection of PPP data.

For the farmer, use of farm management software data is a more convenient way to declare the required PPP data than web survey or telephone interview. Because there are many farms that don't use farm management software, online survey and telephone interview will still be provided as means to respond to the survey.

The use of PPP data from farm management software will be arranged so that farmers will have the option to authorize their farm management software provider to transfer their PPP use data to Luke. While authorizing the use of PPP data from the software, the farmer also assures that the data is correct. For the farmers it will be important that they are aware of how their data is used and that they have control and trust over the use.

An application programming interface (API) will be constructed to enable the transfer of the PPP data from farm management software for the production of PPP use statistics for the year 2026.

Software companies have been motivated to co-operate, because the PPP data transfer from the software will be a useful functionality for their customers. The companies already have experience in this kind of co-operation, for example in connecting their farm management software with web services of farm subsidies administration. Experience gained in the use of PPP data from farm management software will help to expand the use of software data to other topics, such as fertilization.

Keywords: data collection; farm; software.

1. Introduction

Increasing amount of information is required from farms for several purposes, both administrative and commercial. On the other hand, it is possible to use the same electronically recorded data for various purposes. Once a particular piece of data has been stored somewhere, it is worth utilizing it for all the purposes for which this information is needed. Farm management information systems (FMIS) contain a lot of information about farm activities. Usage data of plant protection products (PPP) is among the crop production activities that farmers commonly record in a FMIS using one of the available farm management software.

There are several activities that aim at developing the compilation and use of data available in different sources [1, 2, 3]. Some of the data included may originate from FMIS.

Principals of fair data economy [4] would make versatile use of data more acceptable for the users. Farmers would be motivated to deliver their data to a service, if they have control over the use of the data and if they benefit from it. This is the aim of services such as Tritom [5]. Crowdsourcing can be used with some specific topics such as observation of pests and disease [6].

Farm-level data is increasingly needed for the production of a widening range of different statistics, and there is a growing interest in FMIS as a potential data source used directly for the statistics [7, 8]. This would be an important complement to already available farm-specific register data such as the Integrated Administration and Control System (IACS) applied in the member states of the European Union. Some accounting data from FMIS has already been used in the production of the statistics on finances of agricultural and forestry enterprises for many years [9].

To be interesting and useful for the farmer, delivering data from FMIS should succeed with minimal need for the farmer to modify the data. Required processing of the data should be carried out as an automatic preparation of the data for the transfer, or by the receiver of the data after the transfer. Processing the data in the farmer's FMIS before the transfer may be beneficial by reducing the amount of data to be transferred, because in that case source data necessary for the processing can remain untransferred in the source FMIS. Reducing the amount of transferred data also helps to reduce the need to disclose confidential data, thus making the use of data more acceptable for the farmer. On the other hand, processing the data in the FMIS requires more involvement from software companies in setting up the necessary arrangements.

2. Production of the PPP use statistics for the year 2026

The statistics on the use of PPPs in Finnish agriculture are produced by Natural Resources Institute Finland (Luke) according to the legislation of the European Union [10, 11] and they cover the main crops of Finnish agricultural production [12]. The statistics will next be produced from 2026 and from 2028 onwards annually. The PPP use data collection for 2026 will cover about 5000 Finnish farms. The sample consists of farms that are included in the autumn 2026 crop yield surveys. However, PPP data will be collected from these farms by a separate survey.

Some farms are obliged to report their PPP use data to the agricultural administration, which makes the data available for statistical production. These farms can thus be excluded from the PPP use survey.

3. PPP data collection

Online survey and telephone interviews have been used in the collection of PPP data from farms, and these methods will be utilized in the 2026 data collection, too. Use of the data recorded in farm management software will be implemented as a new response option. The goal is to involve all major providers of farm management software in Finland to make the PPP data from their software available for the survey.

A functionality will be added to the software to enable the farmer to declare PPP data. By choosing this option, the farmer authorizes the software company to transfer the data to Luke and assures that the data is correct. The software displays the crops of the farm, and the farmer selects those crops that Luke has previously announced by letter to be included in the survey. The arrangement must be applicable also in a situation where the user of the farm management software is a third party, for example an advisor or an accountant.

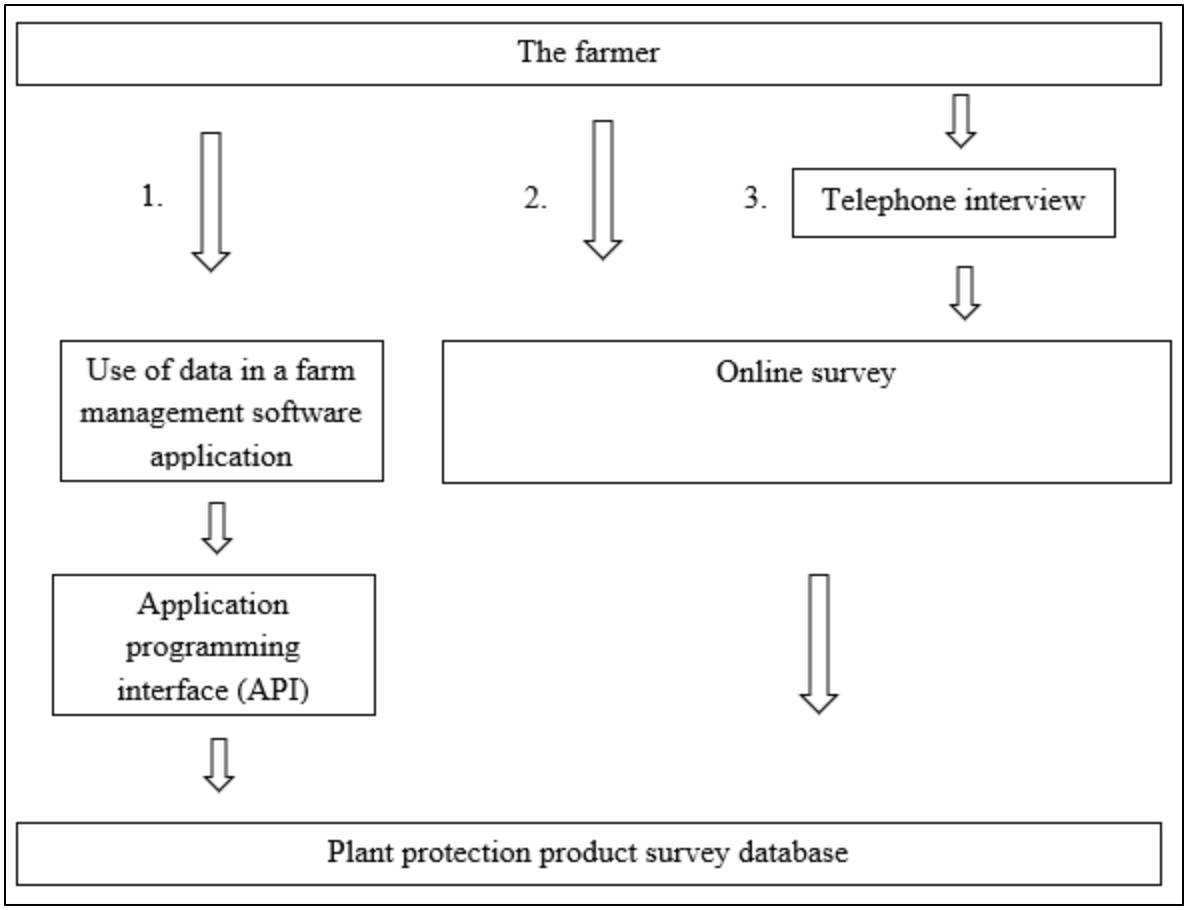

Figure 1. The three alternative ways to respond to the plant protection product survey of 2026 in Finland.

4. Data content of the data retrieved from farm management software

A pre-defined set of data is transferred over an application programming interface (API) to Luke's database (Table 1). Luke makes an agreement with each of the software-providing companies about establishing the arrangement described above. The interface does not transfer any data from Luke to the software company.

Table 1. Data to be transferred

Object	Characteristic
Farm	
	Farm ID (Finnish Food Authority)
Parcel	
	Parcel ID
	Area (hectares)
	Crop: code and name
	Date of planting
	Date of harvest
PPP application	
	Registration number of the PPP (Finnish Plant Protection Products Register)
	Name of the PPP
	Application rate of the PPP (numerical value and unit)
	Treated area (hectares), if different from parcel area
	Date of the PPP application

5. Time period covered

Data collection and transfer take place in the autumn of the reference year or in the following winter. The data is transmitted from the period starting at the beginning of July of the year preceding the reference year, in order to include the autumn applications of PPPs used for autumn sown crops. The time period for the data to be transferred ends with the date of data transfer. When processing the collected data, it is possible to organize the data based on the date of PPP treatment.

6. Conclusions

The arrangement of data transfer from farm management software planned for the year 2026 is simple in that it does not use a separate form, but parcel-specific data is transferred as is. This means a lower workload for the farm management software provider in setting up the data transfer. The weakness here is that the farmer does not see the totality of the data to be sent, but they must nevertheless assure that the data to be disclosed is correct. It must be clear to the farmer which of the data will be transferred and, thus, must be correct. The information obtained from the farm is parcel-specific, and in so far different from the farm- and crop-specific data obtained through online survey and telephone interviews. Obtaining parcel-specific data means more work in the production of the statistics while processing the collected data. Furthermore, there may be

differences in the structure of data between the different farm management software that must be taken into account in data processing. The situation corresponds to the use of data from agricultural administration, where the structure and content of the data are determined by the agricultural subsidy system and often require various processing to be useful for statistics production.

On the other hand, there are several factors that harmonize the data content in the farm management software of different providers. The different software must be consistent with the administration of agricultural subsidies, such as IACS [13]. This means uniform coding of farms, parcels and crops, for example. Furthermore, the national Plant Protection Products Register [14] gives common registration numbers and names for the PPPs, that are used in the farm management software. However, some other potentially useful parts of the farm management data are not as well organized, such as the data on fertilizers.

EU legislation already requires professional users of plant protection products to keep electronic records of the use of plant protection products and, on request, to submit the use data to the authority electronically [15]. Thus, Eurostat prefers the use of electronic records as a source of data for PPP statistics. However, the implementation of the regulation is still in its early stages, and it is rational to start electronic PPP data collection from farms that already use appropriate software. Hopefully, the new uses of farm management software will encourage farmers to make more efficient use of them in the operation of their farms as well.

References

1. European Commission. European Digital Infrastructure Consortium (EDIC) https://digital-strategy.ec.europa.eu/en/policies/edic (2026, accessed 2 March 2026).

2. CEADS. Common European Agricultural Data Space (CEADS) https://ceads.eu/ (2026, accessed 2 March 2026).

3. AgData 2026. European partnership for agricultural data (AgData) https://agricultureofdata.eu/ (2026, accessed 2 March 2026).

4. MyData Global association. https://mydata.org (2026, accessed 2 March 2026).

5. Tritom Data Intermediary Service. https://www.dataspace.fi/en/data-intermediation-service (2026, accessed 2 March 2026).

6. Natural Resources Institute Finland (Luke). LukeKasKas – Online service for reporting and tracking of pest observations in agriculture (in Finnish). https://www.luke.fi/fi/luonnonvaratieto/tiedetta-ja-tietoa/kasvinterveys/lukekaskas (2026, accessed 2 March 2026).

7. Agreste. Prophyl - Produits phytosanitaires dans les logiciels (Plant protection products from farm management information systems, in French) https://agreste.agriculture.gouv.fr/agreste-web/statisticon/prophyl/statisticon/ (2026, accessed 27 February 2026).

8. Paulussen R, Sabot P-M, Cazaban P, et al. Farm Management Information Systems for Agricultural Statistics. Abstract. 10th International Conference on Agricultural Statistics, Krakow, Poland 8–10 July 2026. https://www.isi-next.org/abstracts/submission/3878/view/ (2025, accessed 27 February 2026).

9. Statistics Finland. Statistics on the finances of agricultural and forestry enterprises: documentation of statistics / Data collection. https://stat.fi/en/statistics/documentation/mmtal 26.2.2026 (2026, accessed 2 March 2026).

10. European Union. Regulation (EU) 2022/2379 on statistics on agricultural input and output. https://eur-lex.europa.eu/eli/reg/2022/2379/oj/eng (2022, accessed 2 March 2026).

11. European Union. Implementing Regulation (EU) 2023/1537 laying down rules for the application of Regulation (EU) 2022/2379 as regards statistics on the use of plant protection products to be transmitted for the reference year 2026 and as regards statistics on plant protection products placed on the market. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32023R1537 (2023, accessed 2 March 2026).

12. Natural Resources Institute Finland (Luke). Use of pesticides in agriculture. https://www.luke.fi/en/statistics/use-of-pesticides-in-agriculture (2026, accessed 2 March 2026).

13. Finnish Food Authority. Vipu – viljelijän verkkoasiointi (Vipu – farmer’s net service, in Finnish). https://www.ruokavirasto.fi/tuet/maatalous/vipu/ (2026, accessed 26 February 2026).

14. Finnish Safety and Chemicals Agency (Tukes). The Finnish Plant Protection Products Register. https://www.kemidigi.fi/kasvinsuojeluainerekisteri/haku (2026, accessed 1 March 2026).

15. European Union. Implementing Regulation (EU) 2023/564 as regards the content and format of the records of plant protection products kept by professional users pursuant to Regulation (EC) No 1107/2009. https://eur-lex.europa.eu/eli/reg_impl/2023/564/oj/eng (2023, accessed 2 March 2026).