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Integrating administrative data sources to the new farm register

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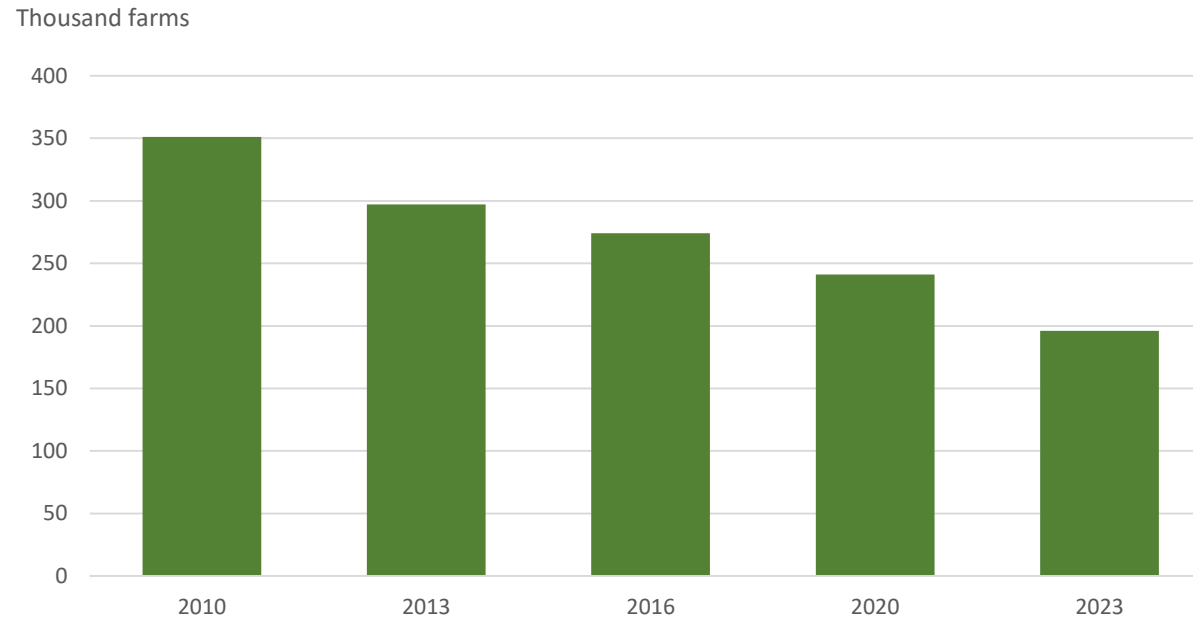
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**Workshop on Modernising
Agricultural Statistics
2-3 October 2023**

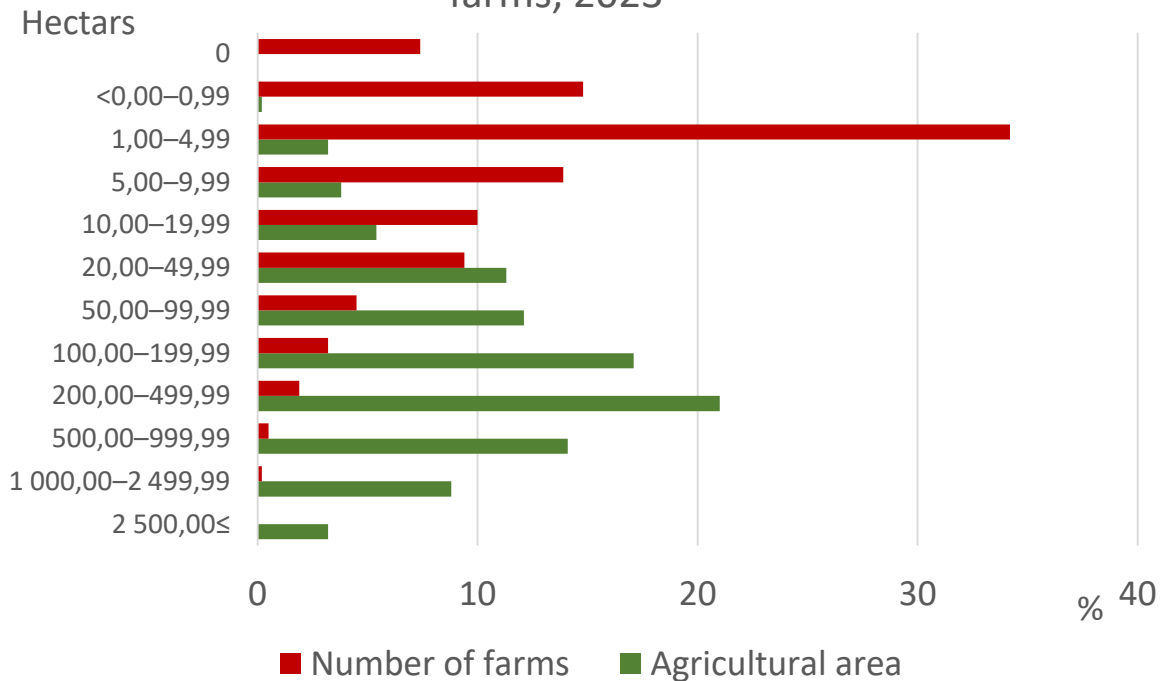
IFS 2023



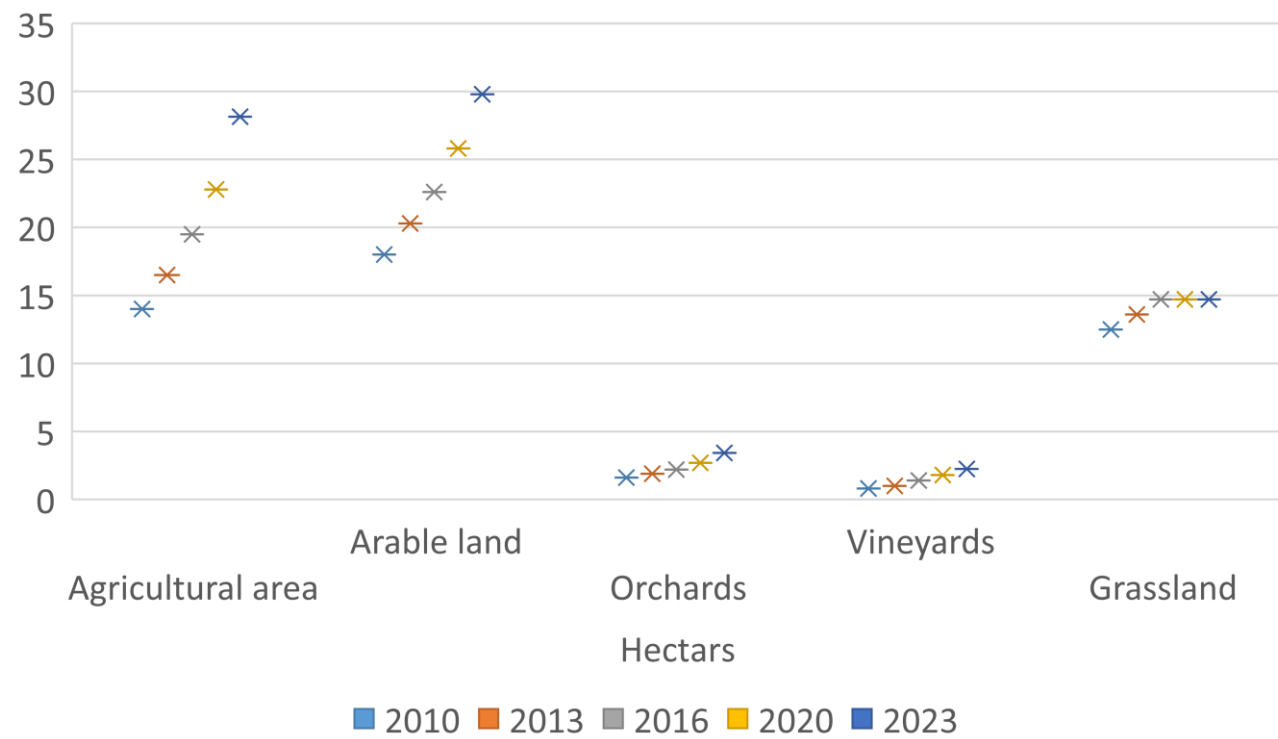
- Was conducted between 15/05 - 15/07/2023
- First preliminary results were published on 14/09/2023



Share of farms and agricultural area by size of the farms, 2023



The average land area by land use category, 2023



History

- Agricultural surveys in Hungary before 2020
 - Cluster sampling method was used
 - Sampling districts were selected and
 - all addresses within selected districts were visited to detect agricultural activity above the threshold
- Agricultural Census in 2010:
 - More than 2.2 million addresses
 - 570 thousand farms were recorded
 - More than a million addresses with only household agricultural activity (below the threshold)
 - More than a half million addresses which did not have any agricultural activity
- Even worse rate after 2010
 - FSS 2016:
 - ~600 thousand addresses and ~100 thousand farms
 - Number of holding were decreasing continuously
 - Number of addresses were stable
- Modernisation of agricultural statistics - Eurostat Grant
 - 07/2018 – 07/2020
 - aim to establish a new system for the Hungarian agricultural statistics

Main improvements in 2023 compared to 2016

- Improved timeliness – first data release after 60 days of the survey
 - (120 days in 2016)
- Reduced response burden, cost-effective survey method (74 thousand addresses compared to 600 thousand)
- Smaller over-coverage (54% compared to 600%)
- Increasing use of administrative data for Eurofarm variables (70 compared to 39)
- Increasing share of CAWI (26% compared to 15%)

Main components of the improvements

- **New farm register**
- **Integration of existing administrative data sources**
- **New farm threshold**
- **Improved sampling frame**
- Improving data processing and validation
- Exploitation of new estimation methods
- Geocoding/geolocation of farms

New farm register

- Main required functions of the new register:
 - regular update of information on the population of farms (using data from administrative databases and data collections)
 - performing queries to list farms with certain characteristics
 - producing address lists for data collections

- Previous farm register:
 - was based on the 2010 census information
 - stored only basic register information (name, address, legal status, etc.)
 - was not linked to other databases
 - did not update regularly and automatically by any database (survey information, other registers, administrative databases)
 - the application was outdated, it was developed 20 years ago

Data sources of the new register

- Hungarian Chamber of Agriculture
- Hungarian State Treasury
 - SAPS/BISS and other income supports scheme
- National Food Chain Safety Office
 - Animal registers
 - Licensed traditional small-scale producer
 - Family farms
- Organic farming registers
- National Council of Wine Communities
 - Plantations in wine production areas
- Hungarian Central Statistical Office business register

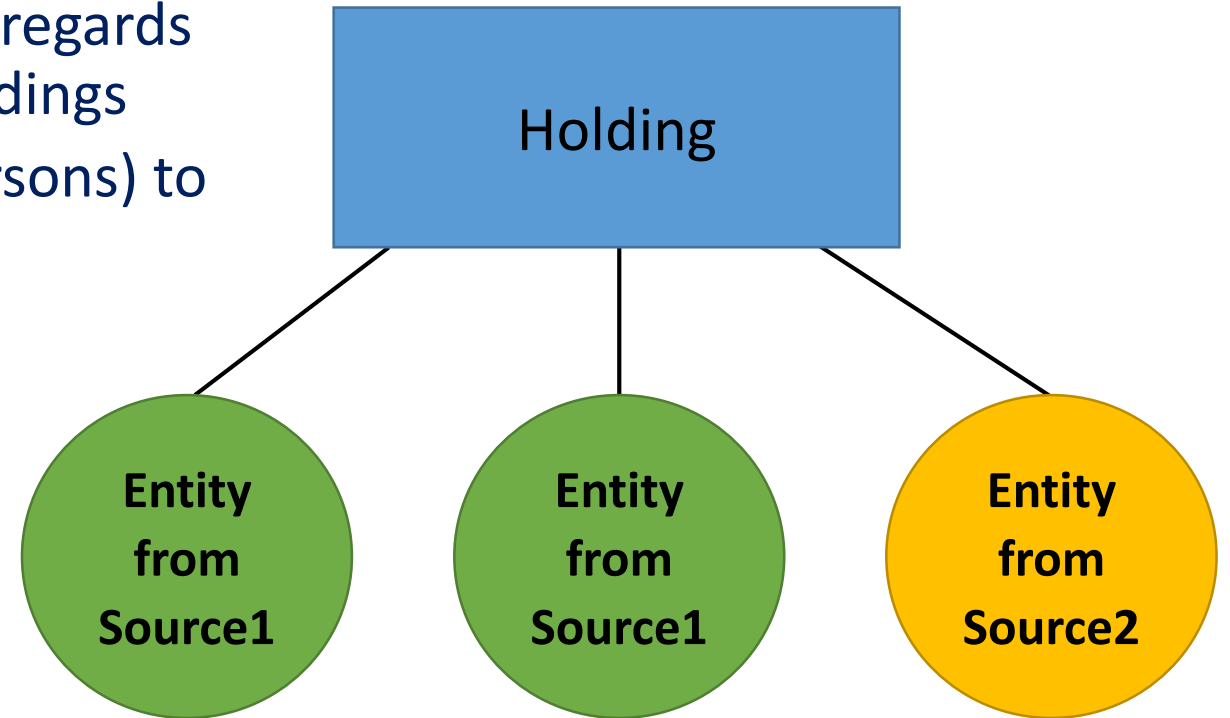
Data linkage

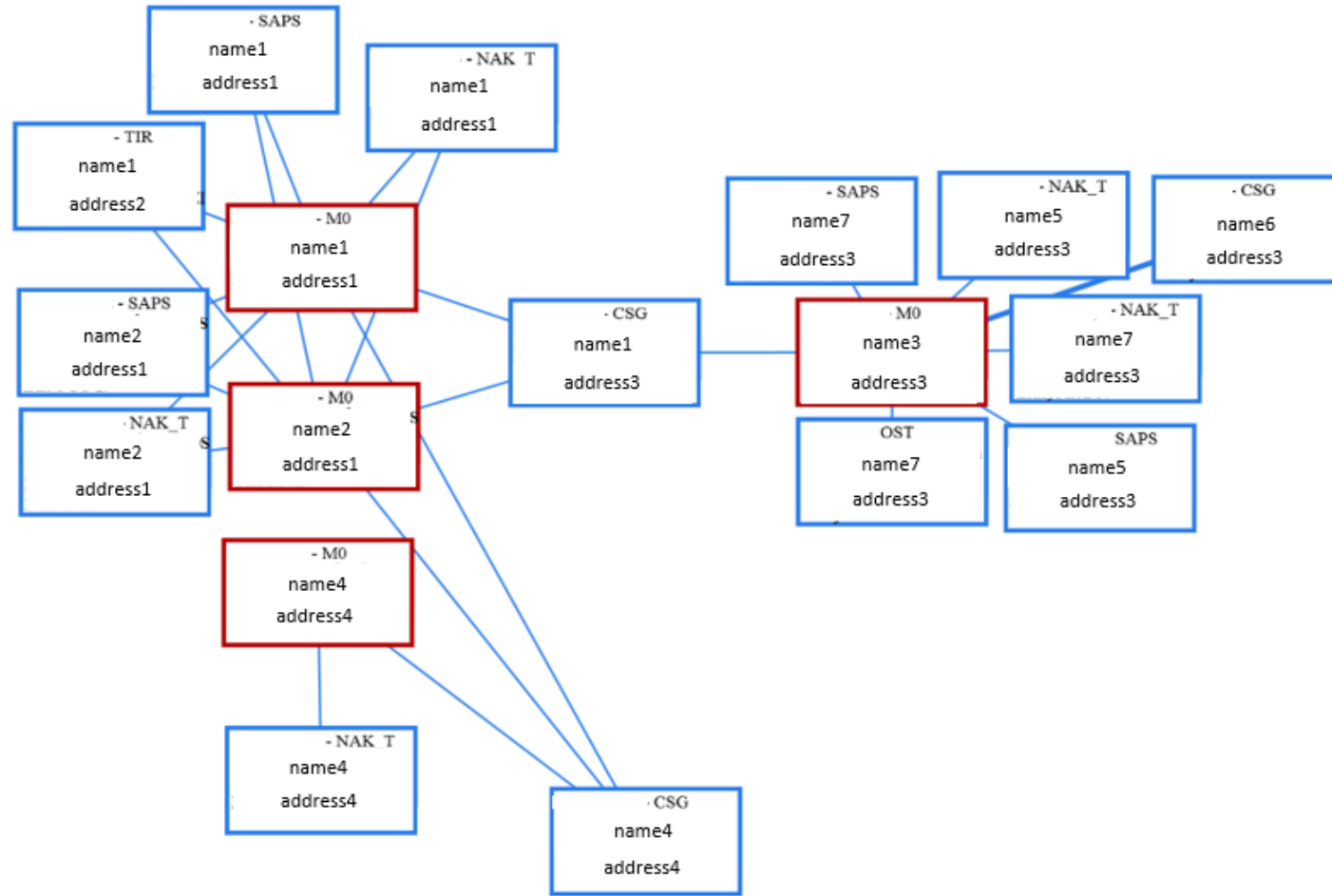
- Our register contains agricultural holdings
 - Agricultural enterprises
 - Private farms
- Administrative sources contain
 - Legal entities
 - Persons
 - Even more than one person per unit (family farms, small-scale producers)

- Linking Agricultural Enterprises (legal entities)
 - Matching based on tax number
 - Automatically

- Private farms

- Administrative databases consist of data regards to natural persons not to agricultural holdings
- We were linking persons (or group of persons) to our holdings





- Main challenges

- Each administrative database covers only a part of the total farm population
- The list of chamber members is the most complete database
 - But contains many out of scope units
- There were no common unique identifiers in different databases
- All database has a different structure and they keep the relevant information according their own requirements
- Separate process for linking for each of them

- Main challenges

- Persons who belong to same holding are listed separately in the administrative database
- It was hard to decide whether persons belonging to the same family were farming separately or together
- Data quality in administrative databases
- Incomplete or missing data
- Misspelled name
- Wrong or mistyped addresses
- Outdated information (e.g. deceased person, units with no agricultural activity)

New thresholds

- Based on the 2010 census information 72% of the farms used less than 1% of arable land
- The increase of the threshold helps to avoid to visit a large number of small farms
- Regulation (EU) 2018/1091 contains the list of the physical thresholds and the required coverage for the census
- In case of Hungary these thresholds do not ensure the 98% coverage criteria, therefore frame extension was needed

Old threshold	
productive land area including jointly or severally arable land, kitchen garden, orchard, vineyard, meadow, pasture, forest, fish-pond, reed	1500 m ²
orchards or vineyards, jointly or severally at least 400 m ² of fruit trees and 200 m ² of berries or vines	500 m ²
nurseries and other permanent crops	500 m ²
land area under cover	100 m ²
mushroom area	50 m ²
bigger animals, such as cattle, buffalo, pig, horse, sheep, goat, emu, ostrich, donkey	1 head
heads of poultry, jointly or separately, such as hens, geese, ducks, turkeys, guinea fowls	50 head
rabbits (not just breeding females), furry animals, pigeons for slaughter	25 head
bee hives	5 hive
agricultural services provided during the previous 12 months	

Hungarian threshold	
Productive area (arable land, kitchen garden, orchards, vineyards, grassland, forest, ponds, reed total)	1 ha
Orchard	0.25 ha
Vineyard	0.1 ha
Aromatic and culinary plants, herbs, flowers, ornamental plants, seeds, nurseries	0.2 ha
Potatoes	0.25 ha
Fresh vegetables and strawberries	0.25 ha
Greenhouses	100 m ²
Cultivated mushrooms	100 m ²
Cattle	1
Sheeps	10
Goats	10
Pigs under 20 kg	30
Pigs above 20 kg	2
Ostriches	3
Hens	50
Turkeys	30
Ducks	100
Geese	50
Rabbits	50
Agricultural service in the previous 12 months	

- Main variables have a good coverage even with the higher threshold though with significantly less farms to contact

	Number of farms	Standard Output	Agricultural area	Livestock unit	Total AWU
2010	61%	97%	99%	98%	78%
2013	60%	97%	99%	98%	79%
2016	64%	98%	99%	99%	82%

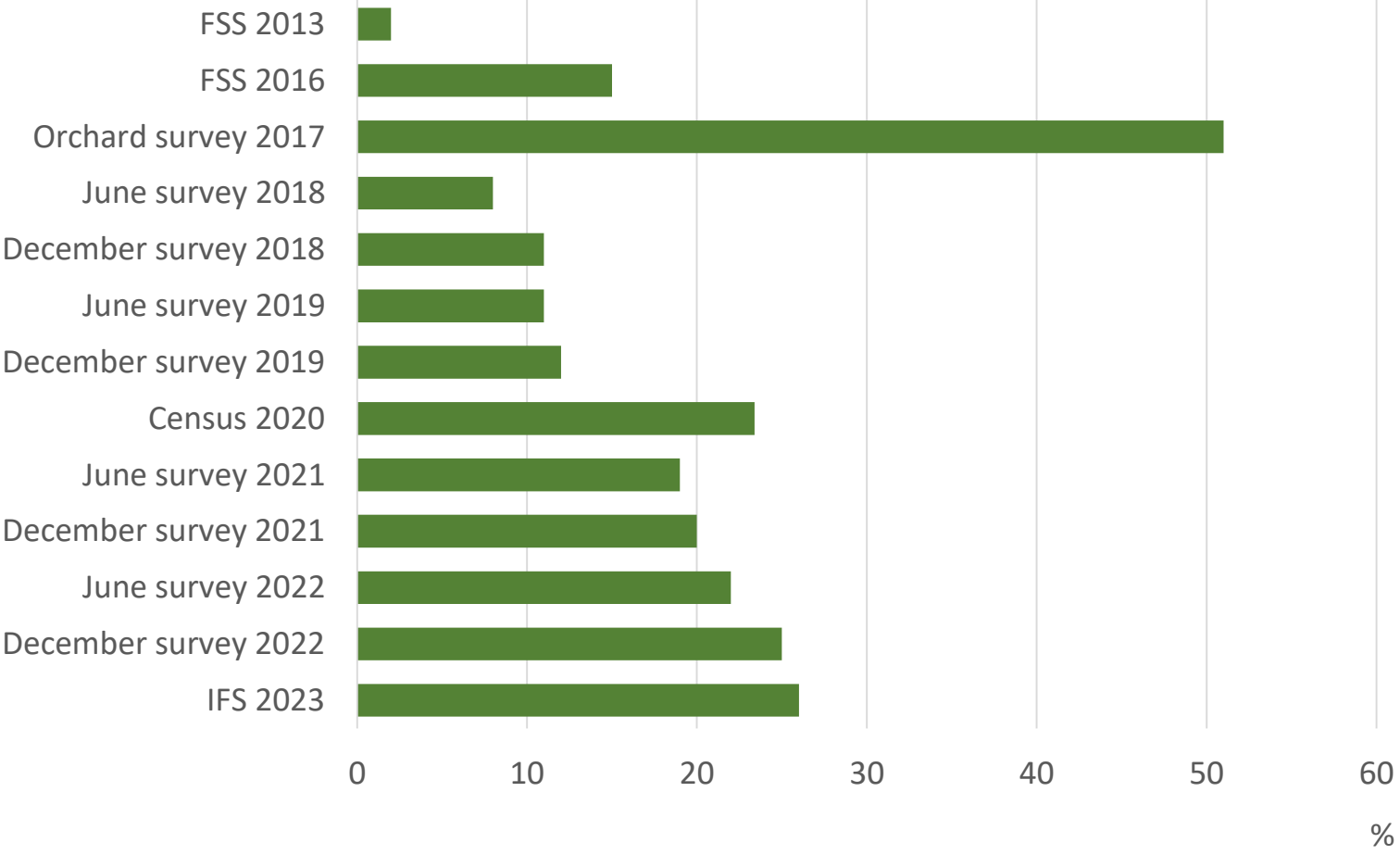
Improved sampling frame

- Before 2020 cluster sampling method was used
- Surveyors' districts were selected and all addresses within selected districts were visited to detect agricultural activity
- From 2020 based on the administrative information it is possible to identify the addresses where agricultural activity may occur

Considerations

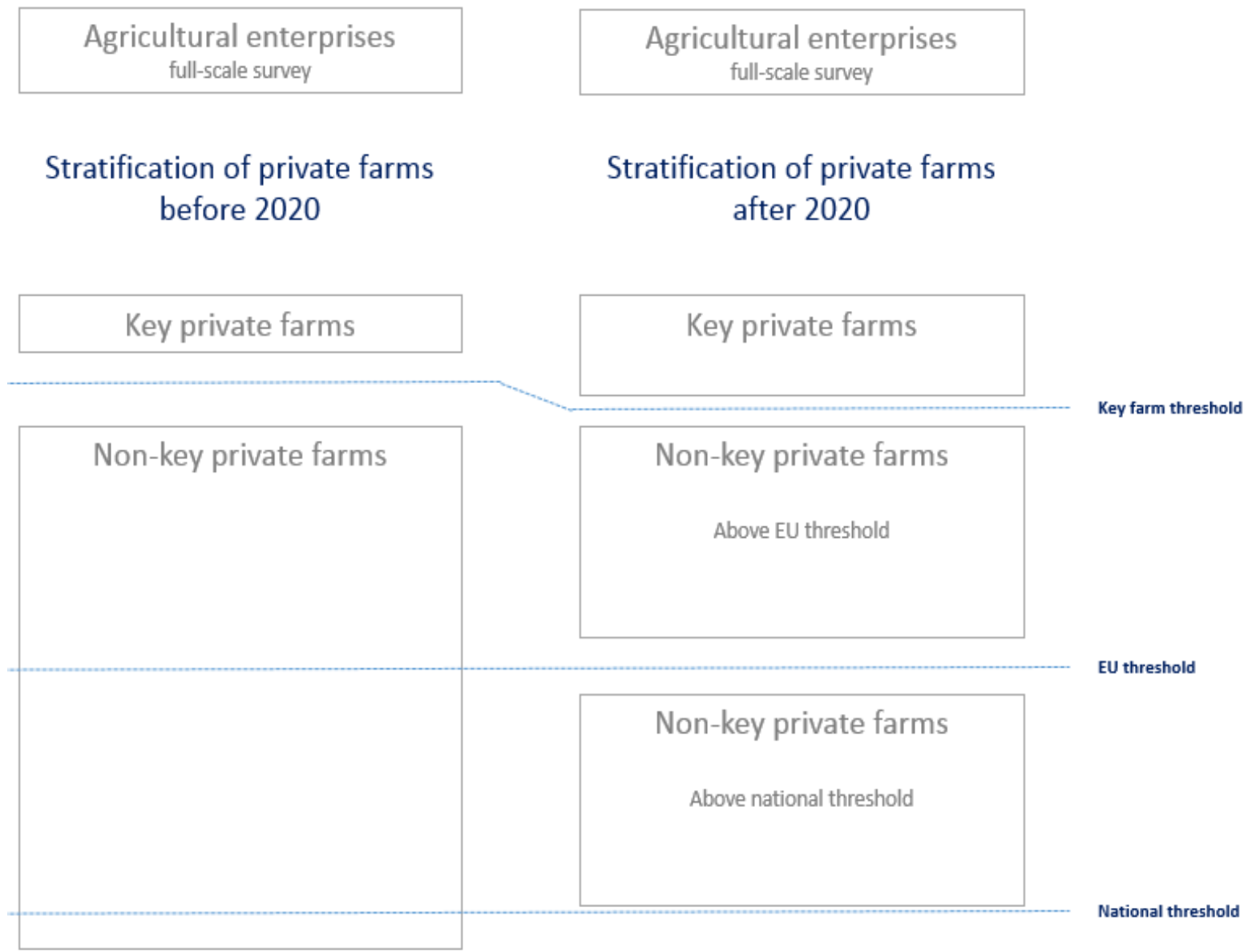
- The share of CAWI questionnaires was quite low before
- Travelling costs needed to be also taken into account when new sampling methodology was elaborated
- agricultural enterprises and the key private farms (which are the biggest private farms) are fully surveyed
- it was decided to keep the present one stage cluster sample
- sampling methodology to stratified random sampling is only possible if share of CAWI questionnaires increase significantly (from 2030???)

Share of CAWI



New stratification

- Agricultural enterprises (regardless their sizes),
- Key private farms (around 4 thousand farms with significant agricultural activity),
- Non-key private farms (farms above the EU thresholds)
- Households with agricultural activity (between the national and EU threshold)



2023			
Private farms	Number of addresses (thousand)	Preliminary number of farms (thousand)	Over-coverage
Under IFS thresholds, by national thresholds	27,7	10,9	153%
By IFS thresholds	42,3	32,9	28%
Key farms	4,4	4,3	2%
Total	74,3	48,1	54%

2016			
Private farms	Number of addresses (thousand)	Number of farms (thousand)	Over-coverage
By old thresholds	598,7	100,7	595%
By new thresholds	598,7	64,3	932%

Integration of existing administrative data sources

- replace data collection in case of the following variables
 - organic area,
 - organic livestock,
 - rural development measures,
 - participation in other environmental schemes,
 - permanent grassland eligible for financial support,
 - grapes for wines (PDO/PGI)
- 70 Eurofarm variables in 2023

Summary

- Continuous concentration of farms
- Adapting methodology
- New administrative sources