1 Introduction

The Integrated Farm Survey 2020 was conducted during autumn 2020 as an exhaustive survey. It followed sample structural surveys carried out in 2016, 2013, 2007, 2005, and 2003 and Agricultural censuses 2010 and 2000 in its contents and aims. Surveys on farm structure contribute to systematic building of European Communities' statistics on structure of agricultural holdings, which provide comparable outputs for all EU member states.

The aim of the survey is to obtain detailed and complex information on the Czech agricultural sector, i.e. its size, structure and development of agricultural holdings, on their equipment, specialisation of their production, and other gainful activities. The results are used in classification of agricultural holdings by their production orientation and economic size.

The data obtained in the survey are used for update of the Farm Register, which is maintained by the Czech Statistical office and serves as a basis for yearly surveys in agriculture. Results will be used for agricultural policy forming not only in the Czech Republic but also in the whole European Union.

1.1 Legislation

The Farm Structure Survey is conducted in all the European Union member countries following requirements of EU/EC legislation. The most important legal acts are Regulation (EC) No 2018/1091¹⁾ of the European Parliament and Commission Implementing Regulation No 2018/1874²⁾.

In the Czech Republic, the survey is conducted on the basis of Act No 89/1995 Coll., on the State Statistical Service, as amended, and of Programme of Statistical Surveys for the year 2020³.

1.2 Definition of the agricultural holding

Agricultural holding means a single unit, both technically and economically, which has a single management and undertakes agricultural activities based on the common statistical classification of economic activities (CZ-NACE), either as its primary or secondary activity. Among these activities belong: growing of non-perennial crops (01.1); growing of perennial crops (01.2) including wine production from self-produced grapes; plant propagation (01.3); animal production (01.4); mixed farming (01.5); support activities to agriculture and postharvest crop activities (01.6). Agricultural holdings raising other animals (01.49) are excluded, except ones raising and breeding ostriches, emus and rabbits, and dealing with bee-keeping and production of honey and beeswax. Furthermore, all agricultural holdings carrying out activities under 01.6 of CZ-NACE are excluded, except holdings exclusively maintaining agricultural land in good agricultural and environmental condition.

The thresholds for the Integrated Farm Survey 2020 were set by Regulation (EU) No 2018/1091 of the European Parliament and of the Council to correspond to 98% coverage of total cultivated agricultural land (excluding kitchen gardens) and 98% coverage of livestock units⁴.

¹⁾ Regulation (EU) 2018/1091 of the European Parliament and of the Council of 18 July 2018 on integrated farm statistics and repealing Regulations (EC) No 1166/2008 and (EU) No 1337/2011.

²⁾ Commission Implementing Regulation (EU) 2018/1874 of 29 November 2018 on the data to be provided for 2020 under Regulation (EU) 2018/1091 of the European Parliament and of the Council on integrated farm statistics and repealing Regulations (EC) No 1166/2008 and (EU) No 1337/2011, as regards the list of variables and their description.

³⁾ Decree No. 293 of 6 November 2019 on the Statistical Survey Programme for 2020, No. 125/2019 Coll., distributed on 14 November 2019, including Annexes 1 and 2.

⁴⁾ Livestock unit (LSU) means a standard measurement unit that allows the aggregation of various categories of livestock in order to enable their comparison. 1 LSU represents 500 kg of live weight of an animal.

Threshold values for the survey:

- 5 ha of utilised agricultural area (own or rented), or
- 2 ha of arable land, or
- 0.5 ha of potatoes, or
- 0.5 ha of vegetables and strawberries, or
- summed area of aromatical, medicinal, and culinary plants, flowers and ornamental plants, seeds and seedlings, and nurseries at least 2 000 m², or
- summed area of orchards and other permanent crops at least 3 000 m², or
- 1 000 m² of vineyards;
- 100 m² of areas under cover, or
- 100 m² of cultivated mushrooms, or
- 1.7 livestock units.

1.3 Questionnaire and Reporting duty

Reporting duty applied to all reporting units included in the sample.

The questionnaire was sent electronically to legal persons and natural persons with a data box. Natural persons without a data box with a large agricultural primary production were contacted by post. Farmers with small primary agricultural production were interviewed at their place of residence (business) by trained external interviewers.

Pursuant to Act No. 89/1995 Coll., on the State Statistical Service, as amended, the reporting unit shall supply all requested data.

1.4 Output tables

The tables in the publication summarise the data for agricultural holdings that utilise at least 98% of the agricultural land or keep at least 98% of the total number of livestock units.

Calculations in the tables are based on non-rounded figures (incl. totals).

1.5 Farm Structure Survey results in international comparison

The European Statistical Office (Eurostat) collects results from all member countries and compiles publications summarizing main characteristic features of agriculture in each of them. These publications are available on Eurostat internet pages (http://ec.europa.eu/eurostat/publications/all-publications).

Eurostat provides a database on its website, which is intended to serve for the comparison of the Farm Structure Surveys results on an international level; it contains aggregated tables in a demanded structure (http://ec.europa.eu/eurostat/data/database).

Several methodological differences should be taken into account when using data from the Eurostat database:

- According to the EU definition, hop is included in crops grown on arable land. In the Czech Republic, however, hop or hop-gardens are reported as permanent crops according to the Law No 252/1997 Coll., on agriculture, as amended. Due to this different approach, data on total arable area and permanent crops in Eurostat database differ from the data published at the national level. Data on total utilised agricultural area (permanent crops plus arable land) are identical.
- According to the EU definition, nurseries are included in permanent crops. In the frame of the Areas under Crops Survey, nurseries are reported as crops grown on arable land. Due to this fact, data in the Eurostat database differ from the data published at the national level likewise.

- According to the EU methodology, trees and bushes grown for use for energy production only are included in wooded area (of which short rotation coppices). In the Czech Republic, they are included in other permanent crops (of which short rotation coppices), i.e. they represent a part of the utilised agricultural area. Therefore, both the total utilised agricultural area and the wooded area in the Eurofarm database differ from the national data.
- According to the EU methodology, turnip rape is included in rape, while in the Czech Republic it is included in other oil crops.
- Areas of grain maize and of green and silage maize differ due to difference in inclusion of corn-cobmix. According to the EU methodology, it is included in grain maize unlike the practice in the Czech Republic where its areas are included in green and silage maize.
- Irrigable and irrigated area includes irrigated area of glasshouses, plastic houses, and areas under high accessible cover. Eurostat reports irrigated area excluding the area under cover.
- Data on manure management published at the national level may differ from those published by Eurostat. The publication includes data for all agricultural holdings.

SYMBOLS USED IN TABLES

- no cases registered
- . data unavailable or unreliable
- x not applicable
- 0 less than half the final digit shown and greater than real zero
- i. d. individual data

2 Methodological notes

Reference period for the Integrated Farm Survey 2020 for variables of state nature were related to 30 September 2020. Variables concerning use of labour force in agriculture were measured for the period October 2019 – September 2020 due to ALI (Agricultural Labour Input) methodology. Manure management variables refer to the 12-month period preceding the reference date.

Table 1 Agricultural holdings by legal forms

An agricultural holding applies organic farming if it abides by Organic Farming Act No 242/2000 Coll., as amended, and Council Regulation (ES) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91, and Commission Regulation (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control.

Table 2 Other gainful activities of the holding

Two types of other gainful activities are distinguished: ones directly related to the holding and not directly related to the holding. According to their share in the annual volume of working hours, they can be carried out as main or secondary activities.

Activities directly related to the holding are such activities for which either resources of the holding (area, buildings, machinery, etc.) or its products are used in the activity. If only the farm labour force (family and non-family) and no other resources of the holding are used, these activities are not seen as being directly related to the holding (the workers are seen as working under two separate arrangements).

Non-agricultural as well as agricultural work for other holdings is included.

Activities directly related to the holding do not include commercial activities not linked to any agricultural holding activity and localised on the holding are not another gainful activity of the holding (for example an insurance company, renting agricultural machinery that is not used on the holding, a shop where no own products are sold etc.); these activities are included in activities not directly related to the holding.

The information collected shall reflect "standard" situation of the holding, therefore any occasional other gainful activities are excluded.

Provision of health, social or educational services: any activity, which is linked to the provision of health, social or educational services and/or socially related business activities, in which either the holding's resources or its primary products are used.

Tourism, accommodation and other leisure activities: all activities in tourism, accommodation services, showing the holding to tourists or other groups, sport and recreation activities etc. where land, buildings or other resources of the holding are used.

Handicraft: items manufactured on the holding either by the holder, or by the family members, or by non-family labour force, provided that they are also carrying out farm work, regardless of how the products are sold.

Processing of farm products: all processing of a primary agricultural product to a processed secondary product in the holding, regardless whether the raw material is produced in the holding or bought from outside. This includes e.g. processing meat, making cheese, etc. Processing of farm products for self-consumption only or the sale of a possible surplus of such products is not included.

Renewable energy production: producing renewable energy for the market including biogas, bio-fuels or electricity, by wind turbines, other equipment or from agricultural raw materials. Renewable energy produced only for the holding's own use is excluded. Renting out the land only for the establishment of wind mills or selling of raw material to another enterprise for the production of renewable energy is excluded.

Wood processing: processing of raw wood in the holding for the market (timber sawing). Further processing, such as producing furniture from the timber, belongs under handicraft.

Aquaculture: production of fish, crayfish etc. in the holding.

Contractual work inside or outside the agricultural sector: contractual work using the equipment, differentiating between work that is inside or outside the agricultural sector, e.g. clearing snow, haulage work, landscape maintenance, agricultural and environmental services etc.

Forestry: forestry work using both the farm labour force and the machinery and equipment of the holding generally used for agricultural purposes.

Activities not directly related to the holding include activities performed by persons involved in agricultural work where no other resources of the holding (area, buildings, machinery etc.) are used.

Table 4 Labour force in agriculture, total

Regularly employed persons have carried out farm work every week on the holding in the period of 1 October 2019 – 30 September 2020, irrespective of the length of a working week. Persons who worked regularly for a part of that period but were unable to work for the entire period for any of the following reasons are also included:

- Special production conditions in the holding (e.g. holdings specialising in growing vegetables, grapes etc. and only requiring labour for a limited number of months);
- Absence by reason of holidays, sickness, accident or death;
- Commencement or cessation of employment in the holding (workers who stop for one farm to start working for another one during the survey period are also included here);
- Complete stoppage of work in the holding due to accidental causes (flooding, fire, etc.).

Holder's family members are the spouse, relatives in the ascending or descending line (including by marriage and by adoption) and brothers and sisters of the holder or his/her spouse. If they have carried out agricultural work but they have not lived in the same household with the holder, they are included in the section.

Working owners include partners in general commercial partnerships, general partners in limited partnerships, partners in limited liability companies and limited partners in limited partnerships, who work in their partnership but are not employed there.

Irregularly employed persons are those who did not carry out farm work regularly every week on the holding in the period of 1 October 2019 – 30 September 2020 for other reasons than listed above. Temporary workers at work peaks or those working in the holding in form of additional activity to their major occupation in another holding are included here. Persons with temporary contracts for work or contracts for services are mainly included in this section.

Persons not directly employed by the holding are either self-employed or employed by third parties, e.g. contractors (job agencies).

Annual work unit (AWU) is the full-time equivalent employment, i.e. the total hours worked divided by the average annual hours worked in full-time jobs. The annual fund of working hours is set at 1,800 hours and is

based on number of eight-hour working days per year minus minimum statutory claim for holiday and minus average number of hours not worked for incapacity for work. Category under 450 hours worked: coefficient 0.125; 450 till 899 hours: coefficient 0.375; 900 till 1,349 hours: coefficient 0.625; 1,350 till 1 799 hours: coefficient 0.875; 1 800 and more hours: coefficient 1.000.

Table 7 Manager of the agricultural holding

Only the highest educational attainment reached in the agricultural domain is included.

Practical agricultural experience only = experience acquired only through practical work on an agricultural holding (e.g. manager of the holding has juridical, economic etc. education).

Basic agricultural training = completed agricultural apprenticeship in agriculture (including horticulture, viticulture, pisciculture, veterinary science, agricultural technology and associated subjects).

Full agricultural training = secondary education completed with school-leaving examination or graduation at agricultural college, university or other institute of higher education in agriculture (including horticulture, viticulture, pisciculture, veterinary science, agricultural technology and associated subjects).

Vocational training is a training measure or activity, provided by a trainer or a training institution, which has as its primary objective the acquisition of new competencies related to the farm activities or activities related directly to the holding or the development and improvement of existing ones. The table includes vocational training undertaken by manager during the last 12 months.

Table 8 Arable land use

Data on areas under agricultural crops grown as a main crop in the reference year are reported in the table. Areas of crops for the production of renewable energy are included in particular crop types.

Other pulses include pulses not mentioned elsewhere and mixtures of pulses and cereals for the production of grain, regardless of their use. Includes e.g. field beans, chick peas, lentils, common vetch, and Hungarian vetch.

Potatoes, total include early, ware, seed, and starch potatoes.

Fodder roots include rutabaga, Jerusalem artichoke, turnip and other fodder roots (fodder beet, foyer carrot, fodder kale etc.).

Energy crops not mentioned elsewhere include crops intended exclusively for energy production, e.g. miscanthus, reed canary grass, cup plant (Silphium perfoliatum). Crops that can be reported under other items (e.g. cereals, rape, or crops harvested green) are excluded.

Other industrial crops include chicory root, fibre flax etc.

Table 9 Utilised agricultural area

Agricultural land, total includes arable land, hop-gardens, vineyards, kitchen gardens, orchards, permanent grassland, and other permanent crops.

Vineyards, total include both fertile and newly established (not yet yielding) vineyards. They are broken down by type of production into vineyards with grape varieties suitable for the production of wines with a protected designation of origin (PDO) and with a protected geographical indication (PGI). Vineyards with varieties that meet the requirements of Council Regulation (EC) No 491/2009, as amended, and relevant national legislation.

Kitchen gardens include utilised agricultural area where fruits, vegetables, flowers, and aromatic, medicinal and culinary plants are permanently grown usually for self-consumption. They can comprise both arable land and permanent crops area and they usually make up one unit with residential and farm buildings. Gardens for recreational purposes are excluded.

Rough grazings are areas of permanent grassland, usually on low quality soil, at high altitudes, low yielding; they cannot support a large density of animals. Stony ground, heath or moorland can be included. Areas of rough grazing mown instead of being grazed by animals because of their high natural value are included.

Short rotation coppices grown outside woodland include, for example: poplars and their hybrids, willows and their hybrids, European ash, European alder, grey alder.

Unutilised agricultural area means area previously used as an agricultural area and not farmed for a long time for economic, social or other reasons, not used in the crop rotation system anymore. No support schemes requiring maintaining the land area in good agricultural and environmental conditions are applied.

Table 10 Area of land, total

Forest land: area covered with trees or forest shrubs, including non-commercial forest-tree nurseries grown in woodland (use for the holding's own needs). Wooded agricultural area is included as well.

Other areas: area occupied with buildings, farmyards, paths and lanes, purpose communications, parking, manipulation or storage areas, as well as parks and tree alleys. It includes also area with ponds, watercourses, reservoirs, etc., belonging to an agricultural holding.

Table 11 Land use

The table contains data on the acreage of utilised agricultural area expressed in hectares (data is rounded off to two decimal places). Pursuant to Cadastral Act No 265/1992 Coll., as amended, the ownership of a real estate is recorded by the entry of the ownership right in the land register or in a different, corroborative way (a purchase agreement or a deed of gift, including motion to enter the record of the title of a real estate in the land register, or acknowledgement of the acquisition of inheritance, or the Land Office's decision on restitution procedure according to Land Act No 229/1991 Coll.). Any area of land that the holding provides to/receives from another holder on the basis of a contract in writing or by word according to pre-set conditions is considered land rented to/from others.

Agricultural land is the sum of plots of land utilised for the agricultural production process and includes arable land, hop-gardens, vineyards, kitchen gardens, orchards, permanent grassland, and other permanent crops.

Unutilised agricultural land refers to areas, which used to be utilised as an agricultural land but is not farmed any more for a long time for economic, social or other reasons and is no more included in any crop rotation system.

Table 12 Irrigation

The irrigable area is the total maximum range of utilised agricultural area that could have been irrigated in the reference year with the equipment and amount of water normally available on the holding.

The irrigated area is the area used for growing crops that has actually been irrigated at least once during the reference period.

Table 13 Areas under cover

Area of crops planted in glasshouses or plastic houses or under high accessible protective cover for the whole of their period of growth or for the predominant part of it.

Constructions with accessible high cover protect plants against direct sunshine, rain, wind, or hail, and prevent fast evaporation from the soil. They include plastic houses equipped with special protective nets or plastic films placed above permanent crops (orchards, vineyards).

Area under low, inaccessible cover, movable glass-covered frames, etc. is excluded.

Table 14 Utilised agricultural area fertilised

Mineral fertilisers contain the declared nutrients (nitrogen, phosphorous oxide, and potassium oxide) in the form of minerals obtained by an extraction or manufactured by an industrial physical or chemical process.

Livestock manure derived from organic origin as a by-product of livestock farming, with no further treatment. Natural processes as modification during the storage, mechanical separation of slurry, addition of loss reducing substances or improving nutrient efficiency are not considered as treatment. They include manure, slurry, liquid manure and other livestock manure (e.g. dry poultry droppings from non-litter housing, dung water, faeces and urine of farm animals during their grazing or stay on agricultural land).

Table 15 Livestock manure

Livestock manure exported from the holding mean livestock manure sold, exchanged for free, or exported from the agricultural holding for other reasons. They are intended to direct use as a fertiliser or for industrial processing. Includes also livestock manure that was used for energy production and is to be re-used in agriculture at a later stage.

Livestock manure exported from the holding mean livestock manure bought, exchanged for free, or imported to the agricultural holding for other reasons. They are intended to direct use as a fertiliser or for industrial processing. Includes also livestock manure that was used for energy production and is to be re-used in agriculture at a later stage.

Organic fertilizers, fertilizer aids and sludges produced in the holding or bought or exchanged for free and consumed in the holding include composts, vermicomposts, digestate, molasses stillage, farmyard manure of plant origin, process water and treated sewage sludge. Livestock manure is excluded.

Table 16 Manure consumption by application technique

Broadcast application: Manure is spread over the surface of an area of land or crop, without the use of bandspread or injection techniques and the application is followed by incorporation after a time delay.

Bandspread application: Liquid manure or slurry is applied to an area in parallel bands with no manure between the bands, using a device (band spreader) fixed to the end of a tanker or a tractor to discharge liquid manure or slurry at the ground level.

Injection: The application of liquid manure or slurry by placement in slots cut into the soil to various depths depending on the type of injector.

Table 17 Usage of storage facilities of livestock manure

Confined dunghills: solid manure is stored on a paved surface, partially or fully confined, normally for a period of several months.

Confined compost piles: solid manure is stored in confined compost piles, which are aerated and/or mixed.

Table 18 Capacity of storage facilities

The capacity of storage facilities for manure is defined as the number of months the storage facilities can hold the manure produced on the agricultural holding without any risk of runoff, and without any occasional emptying.

Table 19 Livestock

Number of production animals that are in the direct possession or management of the holding on the day of the survey (these animals are not necessarily the property of the holder). In case the animals are out of stock on the reference day, the usual number is recorded. Animals that are not used for production or other gainful activity, i.e. used for hobby activities only, are not included.

Dairy cows are cows kept only or mainly for the production of milk for human consumption or for further processing to dairy products.

Other poultry include guinea fowl, quails, pheasants, and pigeons kept for meat production.

Table 22 Grazing livestock

Exercise yard is a confined area covered with concrete, bare soil, or grass to which livestock have access from their housing and can move freely between it and the housing during the day. It can be equipped with a watering or feeding device.

Table 24 Animal housing

Other types of housing of cattle other than dairy cows include e.g. individual/group calf huts.

Table 27 Farm safety plan

The safety documentation defines measures and procedures concerning occupational safety and health at work in order to minimize risks arising from the performance of work in the agricultural holding.

The safety documentation usually includes information on methods and periodicity of training of employees regarding their responsibilities related to safe use of machinery and fertilizer handling in crop production, safety measures for livestock feeding, care and handling, evaluation of safety measures in the company, plans to update safety documents for particular types of production, etc.

4 Summary information on agricultural holdings in 2020

The presented outputs of the Integrated Farm Survey show summarized grossed-up data for 28 909 agricultural holdings (24 648 holdings of natural persons and 4 261 holdings of legal persons), which reached defined threshold values in 2020.

Holdings	Variable	2000	2020	Index (%) 2020/2000
Agricultural holdings, total	Number	39 082	28 909	74.0
	Utilised agricultural area (ha)	3 623 929	3 493 609	96.4
	Average utilised agricultural area per holding	93	121	130.3
	Labour force, total (persons)	241 743	176 815	73.1
	Labour force, total (AWU)	174 262	95 372	54.7
Holdings of natural persons	Number	36 198	24 648	68.1
	Utilised agricultural area (ha)	943 182	1 042 605	110.5
	Average utilised agricultural area per holding	26	42	162.3
	Labour force, total (persons)	81 359	61 815	76.0
	Labour force, total (AWU)	45 887	30 205	65.8
Holdings of legal persons	Number	2 884	4 261	147.7
	Utilised agricultural area (ha)	2 680 746	2 451 004	91.4
	Average utilised agricultural area per holding	930	575	61.9
	Labour force, total (persons)	160 384	115 000	71.7
	Labour force, total (AWU)	128 375	65 167	50.8

Table 1 Agricultural holdings in years 2000–2020⁵⁾

The number of agricultural holdings decreased by more than one quarter (-26.0%) compared to the 2000 survey. The number of holdings of legal persons increased almost by a half (+47.7%). This growth concerned especially limited liability companies (+112.8%); on the contrary, a significant decline affected the number of cooperatives (-33.7%). The number of holdings of natural persons decreased almost by a third (-31.9%).

In total 3 494 thousand hectares of agricultural area were utilised in 2020, i.e. 44.3% of the total area of the Czech Republic, compared to 46.0% in 2000. The total UAA decreased by 130 thousand hectares during the last 20 years. The possession of the agricultural land changes in the course of time: since 2000 holdings of natural persons gained (+10.5%) while holdings of legal persons lost (-8.6%) certain part of the UAA. The most significant loss was recorded for cooperatives (-40.8%). Holdings of natural persons held 29.8% of the UAA in 2020 compared to 26.0% in 2000.

There was also a major change in the ownership type: while in 2000 almost all utilised agricultural land was rented (92.0%), in 2020 agricultural holdings owned 27.3% of the UAA. Holdings of natural persons owned one quarter of the UAA in 2000 (27.1%) and nearly one half (44.8%) in 2020; in holdings of legal persons the share of own land rose from 1.3% in 2000 to 19.8% in 2020.

The average area utilised by one holding in the Czech Republic in 2020 accounted for 121 ha. The average area of a holding of natural person grew by 16 ha to 42 ha (+62.3%) since 2000. The average area of a holding of legal person dropped by 355 ha to 575 ha (-38.1%) during the same period.

The labour force totals decreased by 65 thousand persons (-26.9%) to 177 thousands persons during the period 2000-2020. Expressed in Annual Work Units, the labour force decline was even more significant; there was a decline by 79 thousands to 95 thousands AWU (-45.3%). Labour force loss occurred both in holdings of natural persons (-20 thous. persons) and in the holdings of legal persons (-45 thous. persons). The labour

⁵⁾ Results of 2000 survey were recalculated according to threshold levels used in the Integrated Farm Structure Survey 2020.

force irregularly employed on the basis of contracts for work or contracts for services increased in 2020; although it declined in holdings of natural persons (-3.5 thous. persons), it grew in holdings of legal persons (+11.5 thous. persons).

5 List of abbreviations

ALI	Agricultural Labour Input expressed in AWU
AWU	Annual Work Unit; i.e. 1 800 hours per year
ССМ	Corn-Cob-Mix
CZ-NACE	Statistical Classification of Economic Activities
EC	European Community
EEC	European Economic Community
EU	European Union
EUROSTAT	Statistical Office of the European Communities
LSU	Livestock unit
PDO	Protected Designation of Origin
PGI	Protected Geographical Indication
UAA	Utilised Agricultural Area