

## II. Methodological notes

Reference period for Farm Structure Survey 2013 for variables of state nature were related to 30 September 2013. Variables concerning use of labour force in agriculture were measured for the period October 2012 – September 2013 due to ALI (Agricultural Labour Input) methodology. Also other variables were recorded for the whole year (October 2012 – September 2013); namely irrigated area (Table 17), processing of own products, providing services, revenues from sales of own products (Tables 22, 23, and 24), and self-consumption of self-produced products (Table 25).

### **Table 2 Non-agricultural activities (directly related to the holding)**

Non-agricultural activities include all gainful activities directly related to the holding that do not comprise any farm work and have an economic impact on the holding.

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.

A commercial activity localised on the holding but not linked to any agricultural activity is not considered as another gainful activity of the holding (i.e. an insurance company, renting agricultural machinery that is not used in the holding, a shop where no own products are sold, etc.).

The information collected shall reflect “standard” situation of the holding, therefore all occasional other gainful activities are excluded.

**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 either land or buildings or other resources of the holding are used.

**Handicraft:** items either manufactured on the holding by the holder or 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 if 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 not included here. Renting out the land only for the establishing the wind mill 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 (sawing timber). 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 for another holding usually using the equipment of the holding, e.g. clearing snow, haulage work, maintenance of the landscape (mowing road ditches), 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.

### **Table 3.1 and 3.2 Labour force in agriculture, total**

Regularly employed persons have carried out farm work every week in the holding in the period of 1 October 2012 – 30 September 2013, 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:

- a) 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);
- b) Absence by reason of holidays, sickness, accident, and the like;
- c) Commencement or cessation of employment in the holding;
- d) Complete stoppage of work in the holding due to accidental causes (flooding, fire, etc.).

**The holder's family members** are the spouse and children, the holder's parents, the spouse's parents, relatives obtained by entry into marriage or adoption, brothers and sisters of the holder and of the holder's 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 partnerships, general partners in limited partnerships, partners in limited liability partnerships and special 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 every week in the holding in the period of 1 October 2012 – 30 September 2013 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 the number of working days with 8 working hours a day 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 4 Labour regularly employed by age groups**

Labour force of the holding of natural persons includes a holder, holder's family members (with or without employment contract), who carry out farm work on the farm irrespective of whether they work regularly or not, regularly working employees. Holdings of legal persons supplied data for their managers and employed persons, employees and working holders.

#### **Table 8 Agricultural education of the manager**

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 9 Land use**

The table contains data on the acreage of utilised agricultural area and arable land expressed in hectares. 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.

**Arable land** includes land plots utilised for growing agricultural crops in a crop rotation and also includes lands temporarily covered with grass or with multi-annual fodder crops, areas under glass/plastic foil and hotbeds. Fallow land set aside for regeneration for one year as a rule is also counted in. The fallow land can be free of any crops, can have natural vegetation, or can be sown only for the purpose of green manure. It is a part of a crop rotation system and, therefore, is considered to be an utilised agricultural land.

**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 (arable land is not more included in any crop rotation system).

## **Table 10.1–10.4 Arable land use**

Data on areas under agricultural crops grown as a main crop in the reference year are reported in the tables. These areas under crops include in particular crops on arable land, but they also include areas under crops in orchards and kitchen gardens as well as in temporarily ploughed permanent grassland. Areas under successive secondary crops are reported separately.

**Other pulses** include fodder and other pulses, mixtures of pulses and cereals.

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

**Fodder roots** include fodder beet, turnip, marrow, Jerusalem artichoke, turnip cabbage, fodder carrot, beet root, fodder cabbage.

**Other industrial crops** include chicory root, rumex for energy use and other industrial plants not mentioned elsewhere (e.g. hemp, etc.). Short rotation coppices on arable land are also included.

## **Table 11 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.

**Vineyards for production of quality wine, other wine and table grapes** include only fertile ones. **Quality wine** production include grape varieties normally grown for the production of wines with a protected designation of origin (PDO) or with a protected geographical indication (PGI), which comply with the requirements (i) of Council Regulation (EC) No 479/2008 or, where applicable, the most recent legislation and (ii) the corresponding national rules. **Table grapes** include grape varieties normally grown for the production of fresh grapes.

**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.

### **Table 12 Area of land, total**

**Forest land:** areas 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:** areas occupied with buildings, farmyards, paths and lanes, purpose communications, parking, manipulation or storage areas, as well as parks and tree alleys.

### **Table 13 Area under special crops**

**Genetically modified crops** mean any organism as defined in Article 2 of Directive 2001/18/EC of the European Parliament and of the Council, as amended. In the Czech Republic, planting of genetically modified maize, potato and soya varieties is allowed (Law No 78/2004 Coll., on use of genetically modified organisms and genetic products, and Decree No 89/2006 Coll., on detailed conditions for planting genetically modified crops).

### **Table 14.1–14.4 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 of animals off the holding on the day of the survey, their usual number is used. Animals kept for hunting purposes are excluded.

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

### **Table 15 Machinery and equipment**

The table includes number of machines owned by agricultural holding (including financial leasing), irrespective of their conditions and operability.

**Wheel and track-laying tractors, tool carriers** include only two-axle tractors, small-size tractors and other motor vehicles providing the power for agricultural machines and carrying them.

**Combine harvesters, cutter harvesters and root crop and vegetable harvesters** include drawn, mounted and self-propelled machines.

### **Table 16 Equipment used for renewable energy production**

Equipment used by the agricultural holding for production of renewable energy during the reference year for the market (grid connected) or for own agricultural production (non-grid connected). Equipment situated on land belonging to the holding is excluded if the farmer is not involved in energy production, either through investment or active participation (i.e. he just receives rent for the land). Equipment used only for the farmer's household is also excluded.

**Wind energy** is kinetic energy of wind exploited for electricity generation in wind turbines. Direct mechanical energy derived from wind is also included.

**Biomass** is solid, liquid or gaseous organic, non-fossil material of biological origin used for the production of heat, electricity or transport fuels.

**Biogas** is a gas composed principally of methane and carbon dioxide produced by the anaerobic digestion of biomass (controlled microbial break-down of organic material under anaerobic conditions in which biogas and digestate are produced).

**Solar radiation** is a radiation exploited for hot water production and electricity generation. Flat plate collectors and photovoltaic cells are included.

**Hydro-energy** is a potential and kinetic energy of water converted into electricity in hydroelectric plants. Direct mechanical energy derived from water is also included.

**Other types of renewable energy sources** include other equipment for renewable energy production not mentioned elsewhere (e.g. geothermal energy).

#### **Table 17 Irrigation**

The table shows the total potentially irrigable area in the Czech Republic in hectares and actually irrigated area (in hectares).

**Irrigable area** is maximal area that can be possibly irrigated.

**Irrigated area** is the area that was irrigated minimally once in the reference period.

#### **Table 18.1 and 18.2 Organic farming**

Organic farming is a type of agricultural farming characterized by saving natural resources and by limits or bans imposed on the application of substances or methods that burden the environment. Breeding of animals is carried out in compliance with ethological requirements, the application of veterinary medicaments is controlled and considerate processing procedures are used.

An agricultural holding applies organic farming if it abides by Organic Farming Act No 242/2000 Coll., as last 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. An applicant for organic farming **shall submit an application for the registration of organic farming at an eco-farm**. The application shall include all particulars pursuant to Act No 242/2000 Coll., as last amended, and Decree No 16/2006 Coll., issued by the Ministry of Agriculture of the Czech Republic. If the registration is asked for more farms, the application shall be submitted for each eco-farm separately.

The application can be submitted for crop growing only, or for both crop growing and livestock breeding, or for livestock breeding only, providing it has already been decided on the crop growing registration.

An eco-farm is a closed economic unit including land, farm buildings, equipment for operation and possibly livestock used for organic farming.

#### **Table 19 Extent of organic farming**

**Conversion period** refers to a transient period in which the holding's agricultural farming is transformed into organic farming. It begins on the day the application is received by the Ministry of Agriculture of the Czech Republic and ends on the day the Ministry issues its decision on the registration of the applicant. The decision on the registration is issued for unlimited duration and is related to data stated in the application.

A holding applies organic farming provided that it is registered or under conversion to organic farming.

#### **Table 22 Providing services**

Financial benefits (sales) earned from services provided by the agricultural holding to external customers are included.

#### **Table 23.2 Processing of own products**

The table shows quantities of self-produced agricultural products (not of final products made of them), processed by agricultural primary producers in their own production capacities in the reference period (e.g. to meat products, dairy products, peeled potatoes for wholesale consumers, potato chips, jams, fruit juices, wine, feeding stuff).

**Table 24 Revenues from sales of own products**

**Christmas trees** include trees planted in nurseries as ornamental trees, not trees gained in thinning or by cutting upper parts of felled forest trees.

**Hides and skins** include raw furs and reptile and bird skins from fur farms, not of skins from slaughter houses.

**Table 25 Self-consumption of self-produced products**

The table shows self-produced products consumed in the reference period as foodstuffs in the household or in the holding of an agricultural producer and self-produced products given to employees as wages in kind. Products consumed in canteens for employees are also included. Products consumed by animals are excluded.

**Table 26 Destination of the holding's production**

**Consumption of the final production** in the holder's household contains gifts to family and relatives without remuneration. Agricultural products used as input for other production, such as forage for animal production, are not included in the final output.

**Direct sales to consumers** mean sales to persons (final consumers) who consume bought products and do not resale them.

## **Sampling and grossing-up methodology**

### **Population and sample**

**The population** for Farm Structure Survey 2013 is based on the Farm Register (47 932 active agricultural holdings); it was developed using threshold values (see Introduction, Definition of the agricultural holding).

Out of these active units 26 577 units were involved in the sample. These units cover 99.27% of the utilised agricultural area and 98.81% of the Livestock units (LSU) in total.

**The sample** was defined as stratified random sample from the population based on affiliation of each unit to defined grossing-up group (stratum). Certain sampling rates for all the units in the group (stratum) within the population were assigned to each stratum. Units with sampling rate under 100% were generated from the population using random number generator without replication. Random number generator program SAS Enterprise Guide 4.2 was used for this purpose.

### **Stratification and grossing-up**

Reporting units were sorted into strata on the basis of combination of three variables:

- size category;
- affiliation with a region according to farm's headquarters or natural person's permanent residence;
- affiliation with an agricultural production area.

Each code of stratum consists of six-digit chain *XXYYZZ*, where:

a) *XX* reaches value 11 to 15 or 99 and depends on size of the holding as concerns UAA and/or LSU:

- 11 (sample percentage 7%): 0.00–9.99 ha of UAA or 0–1.99 LSU
- 12 (sample percentage 10%): 10.00–24.99 ha of UAA or 2–4.99 LSU
- 13 (sample percentage 15%): 25.00–49.99 ha of UAA or 5–9.99 LSU
- 14 (sample percentage 20%): 50.00–119.99 ha of UAA or 10–19.99 LSU
- 15 (sample percentage 25%): 120.00–199.99 ha of UAA or 20–49.99 LSU
- 99 (sample percentage 100%):
  - 200.00 ha and more of UAA
  - 50 LSU and more
  - 40 heads of poultry and more
  - 20 heads of sheep and more
  - 5 heads of goats and more
  - 1.50 ha of vineyards and more
  - 2.00 ha of orchard and more
  - 1.10 ha of vegetables and more
  - 0.30 ha of flowers and more
  - 0.30 ha of strawberries and more

For this classification to particular size categories reaching any minimum value in category "99" was more important for a concerned unit than its utilised agricultural area or livestock units.

b) *YY* represents abbreviated code of region (NUTS3) and reaches one of the following values: 11, 21, 31, 32, 41, 42, 51, 52, 53, 61, 62, 71, 72, and 81.

c) ZZ indicates affiliation of a unit to agricultural production area:

- Maize area and its subareas 11, 12, 13,
- Sugar beet area and its subareas 21, 22, 23,
- Potato area and its subareas 31, 32,
- Potato-oats area and its subareas 33,
- Mountainous area and its subareas 41, 42.

Due to insufficient total area in subareas 11, 12, and 13, the units belonging to subareas 12 and 13 were attached to subarea 11. Similarly, subarea code 42 was replaced by code 41. Therefore only codes 11, 21, 22, 23, 31, 32, 33 and 41 were allowed.

Number of grossing-up strata constructed using this way results in 521 combinations, although the theoretical maximum of combinations is 672 (6 x 14 x 2). This classification was employed only in sample generating (keeping the proportionality among regions) and in final aggregation by region. Only XXZZ code, i.e. maximum 48 grossing-up strata, was used in final grossing-up to the population level.

Weights for particular strata were calculated according to formula:

$$W_h = \frac{N_h}{n_h};$$

where:  $W_h$  weighting coefficient for stratum  $h$ ;  
 $N_h$  number of units in the population generated from Farm Register in stratum  $h$ ;  
 $n_h$  number of units in a sample in stratum  $h$ .

The output of the grossing-up procedure is an aggregated dataset derived from the dataset whose records consist of aggregates for particular grossing-up groups.

Note: During calculation of relative standard errors 27 units showing extreme values were identified; their weighting factor had to be changed to 1 and these units were moved to stratum of 100%.

## **Output tables**

Published tables contain summarized grossed-up results for the population (the whole agricultural sector in the Czech Republic) and for agricultural holdings having together at least 98% of utilised agricultural area or at least 98% of livestock units.

The results were calculated using non-rounded values (with 8 decimal places). Therefore summary totals in the tables not always equal to the sum of their sub-items which are published in a rounded form.