Standard documentation
Meta information
(Definitions, explanations, methods, quality)

on

Survey on fruit plantations 2012

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2012

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Contents

Executive Summary .............................................................................................................................................4

1. General information ........................................................................................................................................7
  1.1 Objective and purpose, history ............................................................................................................... 7
  1.2 Contracting entity ..................................................................................................................................... 7
  1.3 Main users .................................................................................................................................................. 7
  1.4 Legal basis ................................................................................................................................................ 9

2. Concepts and Processing ...............................................................................................................................9
  2.1 Statistical concepts and methodology .....................................................................................................9
    2.1.1 Statistical purpose ............................................................................................................................... 9
    2.1.2 Observed unit / reporting unit / presentation unit ........................................................................... 10
    2.1.3 Data sources, coverage ..................................................................................................................... 10
    2.1.4 Reporting unit and respondents ...................................................................................................... 10
    2.1.5 Survey format ................................................................................................................................... 10
    2.1.6 Sample characteristics ...................................................................................................................... 10
    2.1.7 Survey techniques / data transmission ............................................................................................ 11
    2.1.8 Survey questionnaire (including explanatory notes) ....................................................................... 11
    2.1.9 Survey participation ......................................................................................................................... 12
    2.1.10 Variables surveyed and derived, indicators (including definitions) ............................................. 12
    2.1.11 Classifications used ......................................................................................................................... 12
    2.1.12 Regional breakdown of the results ............................................................................................... 12
  2.2 Production of statistics, processing, quality assurance measures .............................................................13
    2.2.1 Data capture .................................................................................................................................... 13
    2.2.2 Coding .............................................................................................................................................. 13
    2.2.3 Editing and verification of data sources used .................................................................................... 13
    2.2.4 Imputation (where responses are missing or data incomplete) ....................................................... 15
    2.2.5 Compilation of the final data set, (other) models and statistical estimation techniques used .......................................................................................................................................................... 15
    2.2.6 Other quality assurance measures .................................................................................................. 16
  2.3 Publication (accessibility) .........................................................................................................................17
    2.3.1 Preliminary results ............................................................................................................................ 17
    2.3.2 Final results ..................................................................................................................................... 17
    2.3.3 Revisions ......................................................................................................................................... 17
    2.3.4 Publication media ............................................................................................................................. 17
    2.3.5 Treatment of confidential data ......................................................................................................... 17

3. Quality ............................................................................................................................................................17
  3.1 Relevance .................................................................................................................................................. 17
  3.2 Accuracy ................................................................................................................................................... 18
    3.2.1 Sampling effects ............................................................................................................................... 18
    3.2.2 Non-sampling effects ....................................................................................................................... 18
      3.2.2.1 Quality of data sources used ...................................................................................................... 18
      3.2.2.2 Coverage (misclassifications, undercoverage / overcoverage) ................................................... 19
      3.2.2.3 Missing responses (unit non-response, item non-response) ....................................................... 19
      3.2.2.4 Measurement errors (entry errors) ............................................................................................ 19
      3.2.2.5 Processing errors ...................................................................................................................... 19
      3.2.2.6 Model assumption effects ......................................................................................................... 19
  3.3 Timeliness and punctuality .........................................................................................................................19
  3.4 Comparability .............................................................................................................................................20
    3.4.1 Comparability over time ................................................................................................................... 20
    3.4.2 Comparability over region ................................................................................................................. 20
    3.4.3 Comparability over other domains ................................................................................................... 20
  3.5 Coherence ..................................................................................................................................................20

4. Outlook ............................................................................................................................................................21
Executive Summary

This survey on commercial fruit plantations, which is conducted at five-year intervals on the basis of an EU Regulation, provides comprehensive data on the production structure of certain types of fruit in Austrian commercial fruit farming. besides detailed information on the size of the cultivated area and the number and age of the trees, the survey also records the most important varieties of fruit. The results of this survey enable the data to be differentiated by size categories and key production areas, and regional results to be presented according to political districts. Organic commercial fruit farming is also considered.

In terms of apples, pears, apricots and peaches (including nectarines), the survey was conducted as a primary statistical survey. In addition, the cultivated areas of dessert apples, dessert pears, quinces, peaches, nectarines, apricots, cherries, sour cherries, damsons, plums, bush berries, strawberries, nuts, sweet chestnuts, elderberries and other fruit from administrative data of Agrarmarkt Austria (AMA) were analysed as secondary statistics.

Commercial fruit farming is distinguished from extensive forms of agriculture (domestic gardens, mixed orchards) by its primarily commercial focus (>50%) and, usually, regular distances between the plants and a level of care suited to the production of high-quality dessert fruit. For this reason cider apple plantations with their corresponding structure are included in the survey.

The selection framework used for the 2012 survey included all holdings that had stated commercial fruit growing areas in the 2010 Farm Structure Survey. These were compared with data from Agrarmarkt Austria (analysis of multiple area applications 2011) and data from the Survey on Fruit Plantations 2007 in order to filter out solely those holdings with the relevant types of fruit (see Fig. 1). Where doubt existed, holding units were left in the survey population. In addition, the provincial chambers of agriculture were asked to look through their lists of holdings and, if relevant, to provide information about further holdings. By making this preliminary selection it was possible to reduce significantly the number of units that did not meet the survey criteria and therefore also reduce the burden on respondents as a result of non-responses.

The survey was conducted with the assistance of the provincial chambers of agriculture, as a result of which ongoing contact with their fruit growing experts was required during the course of the survey. In the federal province of Burgenland its own survey officials (trained staff from the district chambers of agriculture) were provided by the provincial chamber of agriculture for local data collection.

Central data logging and analysis were, however, carried out in their entirety by Statistics Austria (Crop Production Department of the Spatial Statistics Directorate).

The survey was conducted in the form of a concentration sample, which almost achieved the scope of a full survey. However, holdings considered not relevant in terms of commercial fruit growing were excluded by a survey threshold of 0.2 ha (total of surveyed types of fruit). By contrast with earlier surveys, the net area was no longer calculated from the number of trees and planting distance. Instead, the fully utilised area was directly surveyed in line with the administrative data. A comparison of the current results with those from the 2007 survey – as well as with those from earlier surveys in 2002, 1997, 1994 and 1989 – is thus only possible to a limited extent. The results from 2007 were, however, adjusted in accordance with the new definition and published in this manner in the 2012 publication.

When designing the 2012 survey questionnaire, particular attention was paid to the issue of uniformity with previous questionnaires. As in 2007, information about organic cultivation was requested in the 2012 survey as this is becoming an increasingly important aspect of commercial fruit farming.

To ensure the high quality of the results, comprehensive plausibility checks were performed when processing the data, including the use of data from previous surveys (2007 and 2002).
All types of fruit to be surveyed directly were stipulated by the relevant national legislation; as a result of this, commercial fruit growing areas with other crops such as cherries, damsons, berry fruit and nuts and elderberries etc. were not recorded as primary statistics. These were however added in accordance with statutory requirements by using administrative data (AMA 2012).

Fig. 1: Selection of the survey population – simplified diagram
## Survey on fruit plantations 2012 – Important elements

<table>
<thead>
<tr>
<th>Main purpose of the statistics</th>
<th>Commercial fruit cultivation in Austria in 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed unit / reporting unit / presentation unit</td>
<td>2,530 fruit holdings</td>
</tr>
<tr>
<td>Type of statistics</td>
<td>Primary statistical survey (concentration sample with the character of a full survey), secondary statistics (analysis of multiple applications from Agrarmarkt Austria)</td>
</tr>
</tbody>
</table>
| Data sources/Survey techniques | Primary survey of fruit farmers  
Secondary statistics: multiple applications from Agrarmarkt Austria |
| Reference period or due day | 1 June 2012 |
| Periodicity | Every five years |
| Survey participation | Obligatory |
| Legal bases | Federal Law Gazette II No. 164/2012 dated 18 May 2012  
| Regional breakdown | Municipalities |
| Availability of the results | Preliminary data: t + 8 months  
Final data: t + 11 months |
| Other | Because the definition of areas has changed, a comparison of the current results with those from the 2007 survey – as well as with those from earlier surveys – is only possible to a limited extent. The results from 2007 were, however, adjusted in line with the new definition and included in the 2012 publication. |
1. General information

1.1 Objective and purpose, history

The survey on commercial fruit plantations serves primarily to describe the production structure of Austrian commercial fruit farming. Comprehensive data was gained relating to the size of the cultivated area, the number and age of the trees as well as their main varieties and their relative distribution by federal province. A differentiation by size category and production focus and the presentation of regional results by political districts and municipalities (special evaluation) were also possible.

The survey on commercial fruit plantations was conducted for the first time in 1973 as a separate survey and follows on from the fruit tree counts carried out at irregular intervals from 1938 onwards that can now be regarded as historical. Increasing interest in specialist crops meant that a separate survey relating to intensively managed fruit farming was viewed as necessary; 1967 saw the last fruit tree count carried out as a full survey. It provided extremely comprehensive information, particularly relating to the composition and structure of mixed orchards. The intensive fruit farming surveys were initially conducted every three years, and then, beginning with the 1979 survey, at five-year intervals, which, with the exception of the 1997 survey (adjustment to the EU timescale) has been the case ever since.

The primary interest of the EU is to record the production potential, i.e. the area and structure of commercial fruit plantations. However, only the most important crops from a pan-European point of view were included in the catalogue of fruit types that must be included in the survey. Based on the specified coverage (lower survey thresholds) according to EU Regulation No. 1337/2011, Austria is only obliged to communicate data about apples; however, the surveying of pear, apricot, peach and nectarine plantations was additionally ordered by national legislation – Federal Law Gazette II No. 164/2012 Statistics on Commercial Fruit Plantations. Furthermore, organic farming was also surveyed. In respect of all other significant fruit crops in Austria, administrative data from Agrarmarkt Austria was used, which provides information about cultivated areas by type of fruit based on land subsidy applications (“AMA multiple applications”).

The results of the survey on fruit plantations are included in the crop statistics and subsequently provide basic data for the supply balance sheets and the Economic Accounts for Agriculture (EAA). The master data (data on holdings) gained in the course of the survey is made available to the Agriculture and Forestry Register.

According to the current EU regulation, further surveys are scheduled at five-year intervals from 2012. Because at national level, there may be changes at any time in terms of interest in survey content that is not stipulated by the EU, modifications to the catalogue of questions for future surveys are a possibility, particularly when one takes into account strict cost considerations. Expansion of the EU market, particularly in conjunction with EU enlargement towards the east, will also exert an ongoing influence on survey procedures in the future.

1.2 Contracting entity

- European Union (Statistical Office of the European Union - Eurostat)
- Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW)

1.3 Main users

National institutions:

- Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW);
• Austrian Chamber of Agriculture (LKÖ);
• Regional and district chambers of agriculture;
• Regional governments;
• Statistics Austria (in-house users)
• Austrian Institute of Economic Research (WIFO)
• Federal Institute of Agricultural Economics (AWI)
• Environment Agency Austria (UBA)
• Austrian Agency for Health and Food Safety (AGES)
• Federal Office for Food Safety (BAES)

International institutions:
• European Commission (DG for Agriculture, Eurostat)
• OECD

Other users:
• Media
• Agricultural colleges
• Universities
• Farmers
• General public

Figure 2: Overview of the main data users
1.4 Legal basis

National legal basis:
Federal Law Gazette II No. 164/2012 dated 18 May 2012: Regulation of the Federal Minister of Agriculture, Forestry, Environment and Water Management regarding statistics on commercial fruit plantations

EU legal basis:

Text with EEA relevance

Figure 3: Development of a legal basis for surveying commercial fruit plantations

2. Concepts and Processing

2.1 Statistical concepts and methodology

2.1.1 Statistical purpose

Primary survey: Apple, pear, apricot and peach (including nectarine) crops from commercial fruit plantations in Austria in 2012: holdings, area, number of trees, year of planting by fruit type and variety, organic cultivation.

Extensively used fruit plantations such as mixed orchards and domestic gardens that are recorded separately in the crop statistics did not fall within the scope of the survey.

Reporting date: 1 June 2012.

Administrative data: Agricultural holdings that in 2012 were managing primarily commercially one or more plantations of dessert apples, dessert pears, quinces, peaches, nectarines, apricots, cherries, sour cherries, damsons, plums, bush berries, strawberries, nuts, sweet chestnuts, elderberries or other fruit.
In respect of those types of fruit that were covered by the primary survey, the corresponding administrative data was used for a plausibility check.

2.1.2 Observed unit / reporting unit / presentation unit
Commercial fruit holdings (in accordance with the Agriculture and Forestry Register).

2.1.3 Data sources, coverage
Primary survey: Commercial fruit holdings with apple, pear, apricot and/or peach (including nectarine) plantations.

Secondary statistics: Commercial fruit holdings, provided they submitted a multiple application (MFA, subsidy application for agricultural land) to the AMA (Integrated Administration and Control System - IACS)

2.1.4 Reporting unit and respondents

• Commercial fruit holding/operator:
  Persons required to submit information for the purposes of the survey were operators of agricultural holdings who operated, for primarily commercial purposes, an apple, pear, apricot and/or peach (including nectarine) plantation with a contiguous minimum cultivated area of 20 are. Commercial fruit plantations are normally planted using a regular system and exhibit a good level of care suited to the production of high-quality dessert fruit. For this reason cider apple plantations with their corresponding structure were included in the survey. Chambers of agriculture and survey officials (local interviewers nominated by the Burgenland Regional Chamber of Agriculture) were involved in the survey in a supporting role.

• Agrarmarkt Austria / BMLFUW (administrative data)

2.1.5 Survey format
Concentration sample corresponding almost to a full survey.

As for the preceding surveys, a minimum fruit area [total of 20 are of surveyed types of fruit] was specified for the survey. The main purpose of this, though, was to filter out extensively used plantations and domestic gardens, as holdings with an area below this threshold are viewed as irrelevant in terms of commercial fruit growing (see also section 3.2.1 “Sampling effects”). The selection framework used comprised those holdings that had stated land used intensively as fruit orchards in the 2010 Farm Structure Survey. By means of comparison with the AMA administrative data (MFA 2011) and the Fruit Plantation Survey 2007, holdings with the required types of fruit could be filtered out or added. Intensively run fruit holdings where the composition of fruit types was not known were left in the survey population. Additional holdings were included in the survey population based on information from the Agriculture and Forestry Register and from the chambers of agriculture. Altogether 2 530 holdings (excluding non-responses) were surveyed.

Secondary statistics: Electronic transfer of data from AMA multiple applications (Integrated Administration and Control System - IACS)

2.1.6 Sample characteristics
Concentration sample (see 2.1.5) / secondary statistics.
2.1.7 Survey techniques / data transmission

The survey questionnaires were dispatched from mid-May 2012 either to the holding operators directly (Carinthia, Lower Austria, Upper Austria, Styria, Tyrol, Vorarlberg, Vienna) or to the Burgenland Chamber of Agriculture for forwarding to the survey officials (persons nominated by the chamber of agriculture who obtained the data from the holding operators directly). The holding number, municipality number and the name and address of the person required to provide information were pre-printed on the forms, with the result that the respondents only had to make any necessary corrections to the master data.

Each survey questionnaire was accompanied by an information letter and a sheet containing explanations for completing the questionnaire (see Survey questionnaire incl. Explanatory notes). A stamped addressed envelope was included for returning the questionnaire.

Figure 4: Schematic depiction of the survey process

Survey mode by federal province

Burgenland: The survey documents together with the pre-printed master data were sent to the chamber of agriculture and then forwarded to survey officials who obtained the relevant information directly on site from the holding operators themselves and/or assisted the operators in completing the form. The completed forms were in turn sent by the survey officials to the chamber of agriculture, which forwarded all the collected documents to Statistics Austria.

Carinthia, Lower Austria, Styria, Tyrol, Vorarlberg, Vienna: The survey questionnaires were dispatched by Statistics Austria to the holding operators directly. The holding operators had to send the completed forms to the relevant chamber of agriculture, which was responsible for initial plausibility checks, completeness checks and reminders. The collected forms were then returned by the chambers of agriculture to Statistics Austria.
Upper Austria: The survey questionnaires were sent by Statistics Austria directly to the holding operators. The holding operators had to return the completed forms to Statistics Austria directly.

Electronic questionnaire

All holding operators were given the opportunity to fill in and return the survey form electronically. The questionnaire was available on the Statistics Austria website in both PDF and Excel format and could be downloaded, filled out and returned by e-mail directly to the Austrian Federal Statistics Office. Accompanying instructions for electronic dispatch also included links to the explanatory notes and to the Directory of Municipalities (for looking up the municipality number to be entered on the form). The Excel version of the survey form contained brief information texts in the form of pop-up comments that were shown when the respondent clicked on the relevant field.

This recording pathway was used by 7% of respondents.

Administrative data: The required data (analysis status: September 2012) was transferred electronically on an individual holding basis in October by the Federal Ministry of Agriculture, Forestry, Environment and Water Management (this data is also used each year to generate the crop and cultivation statistics) and used for both the plausibility checking of the primary data and the area analysis of indirectly surveyed types of fruit.

2.1.8 Survey questionnaire (including explanatory notes)

Survey questionnaire (incl. Explanatory notes) and Accompanying letter.

2.1.9 Survey participation

Mandatory.

2.1.10 Variables surveyed and derived, indicators (including definitions)

Primary statistics (see also: Survey questionnaire and Explanatory notes):

- Organic management of fruit plantations of the holding according to Regulation (EEC) No 834/2007
- Apple plantations by variety, year of planting, number of trees and area in m²
- Pear plantations by variety, year of planting, number of trees and area in m²
- Peach (white flesh) plantations by variety, year of planting, number of trees and area in m²
- Peach (yellow flesh, including nectarine) plantations by variety, year of planting, number of trees and area in m²
- Apricot plantations by variety, year of planting, number of trees and area in m²

Tree densities, density categories and size categories as well as different regional units (Austria/federal provinces/political districts) were also shown.

Secondary statistics (administrative data): Area in hectares of dessert apples, dessert pears, quinces, peaches, nectarines, apricots, cherries, sour cherries, damsons, plums, bush berries, strawberries, nuts, sweet chestnuts, elderberries and other fruit.

2.1.11 Classifications used

No coding was required for national purposes. Density and size categories were used in the display of results.

The variety and type codes stated in Implementing Regulation No. 592/2013 were used.

2.1.12 Regional breakdown of the results

Federal provinces (NUTS 2), political districts, municipalities.
2.2 Production of statistics, processing, quality assurance measures

2.2.1 Data capture
Data was inputted manually using an input form into a database (see Fig. 5: Input window) with a pre-integrated plausibility check. The electronically received data (Excel or PDF form) was transferred directly to the database in Excel format. The administrative data was transferred electronically to Statistics Austria and analysed.

2.2.2 Coding
Not relevant for national purposes; IT-assisted application of the EU codes (see also section 2.1.11, “Classifications used”).

2.2.3 Editing and verification of data sources used
Check for completeness (return control)
By linking the input data with the existing holding data (dispatch population), it was possible to ascertain the number of returns and generate a list of forms still outstanding at any time. The response rate was 100%.

The processed (inputted) forms were filed by municipality number, thus making them easy to inspect in future.

Adjustment of master data
The master data records were displayed in the input window according to the dispatch population, side by side and in duplicate (see also Fig. 5: Input window). The corrections noted by the holding operator could be made in one of the two records. This allowed the changes to be shown by contrasting the data records (old – new) in a table (database query) and then made available to the Statistics Austria Agriculture and Forestry Register project group for the purposes of adjusting the register data.

Comparison data
The corresponding data from the preceding fruit plantation surveys (2007 and 2002) in aggregate form (area by type) was visible to the administrator in the input window of the internal processing database; this data could also be displayed in detail if required (by variety and year of planting). During inputting the administrator could also view the fruit growing area data relating to the given holding and held by Agrarmarkt Austria for 2011 and 2012 (multiple application, MFA) as well as the fruit growing areas cited in the 2010 Farm Structure Survey (full survey). These options greatly simplified data entry and plausibility checks as they enabled a large number of unclear answers in the survey questionnaire to be corrected without troubling the respondents.

Input reliability
To prevent inputting errors and the duplicate creation of characteristics in the programme, the parameters fruit type, variety and year of planting were linked to background tables, which meant that the possible input values were pre-defined. The data in these background tables could be augmented at any time if required (e.g. by the addition of new fruit varieties). The fruit type and variety could also be selected during input via a pull-down menu. The “Copy data record” option simplified and also accelerated data inputting where there were many similar detailed data records (e.g. numerous varieties of apple), which only had to be “reworked” slightly after copying (e.g. by inserting a different year of planting).

Integral plausibility checks (queries)
Thanks to the plausibility checks integrated in the application, incomplete entries could be largely avoided from the outset since only combined input of the various parameters – variety,
year of planting, number of trees and area – was possible for each individual data record. With the preset queries it was possible to view an updated list of the various plausibility issues at any time, e.g.:

- Differences from the 2007 data
- Differences from comparable AMA data
- Mandatory fields not completed (e.g. organic)
- Contradictory information (e.g. data entry despite non-response)

**Missing/incorrect answers by holding operators**

The most common errors, which generally required contacting the respondent, were caused by incorrect or missing data on the questionnaire. The respondents did not normally have any difficulty in listing the fruit types and areas by variety; however they frequently forgot to enter the year of planting or the number of trees. With the aid of the data records from the 2007 and 2002 surveys integrated in the database, it was possible to add much of this information without troubling the respondents. Nevertheless, around 60 holding operators (3%) had to be contacted by telephone as a result of missing/incorrect answers of this kind.

**Input checks**

Input value checks based on the data in the original documents (survey questionnaires) were made in the form plausibility checks and the random selection of survey questionnaires. A total of around 600 forms (18% of the population) were checked as regards the accuracy of the input values in this way. Although the input errors verified and corrected in this control population were not quantified exactly, the errors were seen as insignificant in the context of an overall qualitative assessment.

**Figure 5: Input window – internal data acquisition (model)**

**Data adjustment**

- Clarification over the telephone in the case of ambiguities (e.g. contradictory answers, absence of essential information); a note was made in the input window if a telephone call...
was required.

- Through a comparison with the corresponding data record from 2007/2002 and/or multiple application data from 2011/12 and the 2010 Farm Structure Survey, it was possible to correct some errors resulting from spelling or input errors (e.g. place value errors, etc.) and also supplement individual parameters (e.g. year of planting not provided). Obviously incorrect area data (e.g. net area instead of fully utilised area) was also easier to correct by inputting correction factors for each fruit type.

- Estimates to relieve the respondent's workload, e.g.:
  - Minor adjustment of the area where there was only a slight difference from comparable AMA data
  - Estimate of the year of planting in the case of imprecise entries (e.g. “1990-1994” → 1992)

Both the plausibility check and correction of the plausibility issues were carried out on an ongoing basis during data entry. The fact that several administrators could simultaneously access all data records enabled concurrent data processing based on different requirements, which in turn ensured the continuity of the work.

2.2.4 Imputation (where responses are missing or data incomplete)

See also section 2.2.3, “Editing and verification of data sources included” and section 3.2.2, “Non-sampling effects”.

2.2.5 Compilation of the final data set, (other) models and statistical estimation techniques used

Based on the dispatch population (3 277 holdings) and a response rate of 100%, a total population of 2 350 holdings that met the survey criteria were used for the analysis. The processing of the data (see also section 2.2.3) was performed with the aid of IT-assisted plausibility checks, which resulted in the rapid identification of missing characteristics and implausible data and enabled these to be supplemented and/or corrected in a multi-stage process using various measures such as checking the original data, correcting obvious errors, use of comparative data and telephone enquiries (see Fig. 6). This work resulted in the production of an authentic database from which the publication tables were created.

According to EU specifications, certain varieties or groups of varieties needed to be identified separately. Because the fruit varieties were not specified on the questionnaire and had to be entered by each operator without any guidelines, all fruit varieties were recorded initially and only assigned to categories during the analysis process, thereby allowing the relevant EU requirements to be taken into account.
2.2.6 Other quality assurance measures

To ensure the correct assignment of varieties to variety groups and verification of variety names and synonyms, specialist advice was sought from experts at the Higher Federal School of Wine and Fruit Growing Klosterneuburg in respect of the last surveys (2002-2007). In addition, new varieties recorded during the current survey were verified and assigned by means of careful Internet research and use of specialist literature. For the classification of varieties of apricot according to ripening times as required for EU purposes, the expertise of the Higher Federal School of Wine and Fruit Growing Klosterneuburg was sought.

Fruit growing experts from the provincial chambers of agriculture and survey officials conducted initial plausibility checks as part of the completeness checks. During data acquisition and processing there was therefore on-going contact with the provincial chambers of agriculture and survey officials.

Fig. 6: Schematic depiction of data processing
2.3 Publication (accessibility)

2.3.1 Preliminary results
In February 2013, after the authentic database was available, an initial analysis of the key data at federal province level was published.

2.3.2 Final results
In May 2013, a summary report with detailed results tables was published.

2.3.3 Revisions
None.

2.3.4 Publication media
The results are published in the following publication media of Statistics Austria:

Press release
Summary report
Standard publications:
- Survey on commercial fruit plantations 2012
- Agricultural Statistics 2012
- Statistical Yearbook of Austria

Internet:
- Website of Statistics Austria
- STATcube database

2.3.5 Treatment of confidential data
Data from which a specific holding can be inferred was not included in the publications.

Pursuant to Section 11 of the Federal Law Gazette II No. 92/2007, data on individual holdings was forwarded to the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW).

In accordance with an agreement pursuant to Article 15a of the Federal Constitutional Law (B-VG) between the Federal Government and the federal provinces concerning cooperation in the area of statistics, anonymised individual data records must be forwarded (on request) to the statistical departments (“organs insofar as they supply regional statistics”) of the regional governments.

Master data is saved in a password-protected database managed by the “Crop Production” project team.

3. Quality

3.1 Relevance
According to EU Regulation 1337/2011: “Structural statistics on permanent crops are essential for the management of markets at Union level. It is also essential for structural statistics on
permanent crops to be covered in addition to the annual statistics on areas and production governed by other Union legislation concerning statistics.”

In accordance with the EU Regulation, both the methodology and the actual implementation of the survey in the individual federal provinces are regularly discussed by the Eurostat working groups with the involvement of GD AGRI and members of other working groups.

National relevance: Delivery of basic data for crop statistics, supply balance sheets and Economic Accounts for Agriculture and subsequently for the National Accounts, as well as the provision of updated master data for the maintenance of the Agricultural and Forestry Enterprise Register (LFBIS Act).

Information on the structure of Austrian commercial fruit farming and therefore influence on market policy and subsidy measures.

In-depth working group meetings involving the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW, also known as Ministry of Life) and the chambers of agriculture concerning the catalogue of questions and the methodology are held prior to each survey.

3.2 Accuracy

3.2.1 Sampling effects
The survey included all holdings “above” the specified survey threshold (>20 are in total of surveyed types of fruit). In line with the opinion of the national working group, because fruit plantations “below” this survey threshold are viewed as not relevant for commercial use, the survey can be considered a complete survey within the holding units surveyed. As the survey population from the 2010 Farm Structure Survey (full survey of all agricultural holdings) was used and the lists of holdings were furthermore compared with the data from Agrarmarkt Austria (MFA/multiple application 2011) and with the provincial chambers of agriculture in order to record new additions, it can be assumed that the fruit growing holdings were recorded completely. It was possible to achieve a response rate of 100% by means of a comprehensive reminder procedure consisting of a combination of phone calls and written reminders.

3.2.2 Non-sampling effects
In contrast to previous surveys where the net cultivated area was calculated from the number of trees, tree spacing and row spacing, in 2012 – based on the usual AMA definition of area – respondents were asked about the fully utilised area. Because of this methodology discontinuity, a certain degree of imprecision in terms of area data cannot be ruled out.

Tree age: Because the measurement of tree age was based on the time of planting, respondents were asked about the year of planting in order to calculate the tree age.

3.2.2.1 Quality of data sources used
Through direct questioning (primary survey) and the support of the provincial chambers of agriculture, it was possible to achieve largely complete coverage and so a high level of quality can be assumed.

Administrative data: The data recorded by AMA through the processing of multiple applications can be considered to be of very high quality because of the precise checks conducted in relation to the applications for subsidies. However, only those holding units were included that sought subsidies. In addition, there is no clear delimitation from extensive fruit farming (see also section 3.5).
3.2.2.2 Coverage (misclassifications, undercoverage / overcoverage)

The selected population comprised the commercial fruit holdings listed in the Agriculture and Forestry Register, the master data of the 2010 Farm Structure survey, Agramarkt Austria’s multiple application master data of all fruit holdings and also the additional holdings known to the chambers of agriculture. It is thus assumed that a maximum level of completeness was achieved.

Of the 3 277 holdings to which correspondence was sent, 747 (23%) could not be used for the analysis. These holdings either did not satisfy the survey criteria or were below the survey threshold. The high proportion of non-responses is primarily due to the fact that the selection framework used could not unambiguously filter out the survey population. This was because on the one hand holdings with the necessary types of fruit were not entirely identifiable beforehand and on the other hand a clear differentiation from extensive fruit farming is not possible based on the multiple application master data. Therefore, all “fruit” holdings from this dubious subpopulation had to be questioned in order to achieve coverage that was as complete as possible.

3.2.2.3 Missing responses (unit non-response, item non-response)

Unit-Non Response: Due to the involvement of provincial chambers of agriculture and of survey officials in Burgenland, who questioned the holding operators locally, missing responses were able to be kept to a low level even before the start of the reminder process by Statistics Austria. It was possible to achieve a response rate of 100% by means of a comprehensive reminder procedure consisting of a combination of phone calls and written reminders.

Item-Non Response: There were quantitatively significant missing responses in respect of the characteristics year of planting and number of trees. With the aid of the data records from the 2007 and 2002 surveys integrated in the database, it was possible to add much of this information without troubling the respondents. Nevertheless, around 60 holding operators (3%) had to be contacted by telephone as a result of missing/incorrect answers of this kind (section 2.2.3).

3.2.2.4 Measurement errors (entry errors)

The following measures were carried out to minimise data entry errors:

- Easily understandable input form.
- Prevention of typing errors by linking the input fields to background tables, meaning that only the correct spelling or a specific format was permitted.
- Plausibility check during data entry (for example, nonsensical years of planting could not be entered).

3.2.2.5 Processing errors

None known.

3.2.2.6 Model assumption effects

None known.

3.3 Timeliness and punctuality

The reporting date for the survey was 1 June 2012. In accordance with national legislation, all documents were to be returned to Statistics Austria by 30 September 2012. Since the reminder process lasted until December 2012, the final analysis could not be started till then. An efficient
analysis and plausibility checking process, which allowed many work stages to be carried out before the complete data population was available, meant that the first results could be published in February 2013 and the data analysis could be concluded in the first quarter of 2013. The main final results could be published as early as May 2013 after relevant processing of the detailed tables. Data transfer to Eurostat took place in July 2013 after the creation of the specific data transfer tables in accordance with the analysis and formatting requirements set out in Implementing Regulation No. 592/2013 (deadline according to EU regulation: 30 September 2013).

3.4 Comparability

3.4.1 Comparability over time

In terms of the selected population, methodology, design of the questionnaire and production of the publication tables, the survey was designed so as to ensure maximum comparability with the 2007 survey. This was enabled by the similar structure of the questionnaire form on the one hand, and by largely retaining the existing survey methodology (involvement of provincial chambers of agriculture and survey officials) on the other.

By contrast to the last surveys of this type (e.g. 2002 and 2007) where the net area was calculated from the number of trees and planting distance, in 2012 the fully utilised area (gross) was surveyed. Because of this – and because the threshold values were raised – direct comparison with the 2007 published results is no longer possible. In order to be able to interpret the current values, it was therefore necessary for the publications to adjust the comparison values from 2007 as far as possible to the specifications laid down for the 2012 survey. However, because of the methodological discontinuity, a certain degree of imprecision in terms of comparability of the results cannot be ruled out.

3.4.2 Comparability over region

There is comparability between the various regional units (federal provinces and political districts) thanks to the use of uniform methodology.

Because the survey parameters have largely been harmonised by the EU Regulation, the results are also comparable with those of other EU countries.

3.4.3 Comparability over other domains

An evaluation by size classes, years of planting and fruit varieties offers further opportunities for comparison, and in turn the opportunity to generate various user specific special evaluations.

3.5 Coherence

Within the farm structure survey there is a question on the fruit growing area of agricultural holdings. This area is comparable to a limited extent with the data from the survey on fruit plantations, but only in those survey years in which it is possible to distinguish between intensive and extensive fruit plantations.

Similarly, in the analysis of multiple applications Agrarmarkt Austria (AMA) records fruit growing areas that are also comparable to a limited extent (and are therefore also used at holding level for plausibility checks in the survey on fruit plantations). As not all fruit holdings participate in the subsidy programme, caution should be exercised when making comparisons at aggregated level. In addition, there is no clear delimitation vis-à-vis extensive fruit farming. Since the AMA also does not differentiate between fruit varieties and years of planting as required by EU Regulation 1337/2011, complete coverage of the required survey characteristics from administrative data is not possible.
4. Outlook

Production-related aspects:
In future surveys it is intended to offer respondents the possibility of online reporting (e.g. eQuest). In contrast to the previous e-mail option where each questionnaire had to be processed separately, this should make it considerably easier to transfer the reported data to the database for further analysis.

Content-related aspects:
The future survey programme is clearly defined by the EU Regulation. However, any additional national requirements are specified before the start of the survey by decision makers with the involvement of appropriate experts. Since the stipulated scope of the survey as per the EU Regulation only partially covers Austrian commercial fruit farming, the national requirements must be redefined before each survey on the basis of current user requirements.

Publication-related aspects:
The publication concept of Statistics Austria is subject to continuous further development, whereby the aim is always to expand the publication offering for the data users. Attention will be also paid to this aspect in the surveying of commercial fruit plantations, whereby the aim will be to increase the use of electronic media and databases (e.g. STATcube).

Glossary

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGES</td>
<td>Austrian Agency for Health and Food Safety</td>
</tr>
<tr>
<td>AMA</td>
<td>Agrarmarkt Austria</td>
</tr>
<tr>
<td>AWI</td>
<td>Federal Institute of Agricultural Economics</td>
</tr>
<tr>
<td>BAES</td>
<td>Federal Office for Food Safety</td>
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<tr>
<td>BMLFUW</td>
<td>Federal Ministry of Agriculture, Forestry, Environment and Water Management (also known as Ministry of Life)</td>
</tr>
<tr>
<td>DG for Agriculture</td>
<td>The European Commission's Directorate-General for Agriculture and Rural Development is responsible for agricultural and rural development policy. It handles all aspects of the Common Agricultural Policy (CAP), i.e. from market organisations through rural development policy and financial matters to agricultural issues on the international level.</td>
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<tr>
<td>EAA</td>
<td>Economic Accounts for Agriculture</td>
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<tr>
<td>Eurostat</td>
<td>Statistical Office of the European Communities</td>
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<tr>
<td>FSS</td>
<td>Farm Structure Survey</td>
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<tr>
<td>IACS</td>
<td>The Integrated Administration and Control System is the legal basis on which the EU regulates subsidy payments. All regulations governing land-related and animal-related aid are included in this system. In addition to the regulations governing applications and amendments, the IACS also includes a procedure for IT-supported verification, on-site controls and monitoring, as well as sanctions.</td>
</tr>
<tr>
<td>LFBIS</td>
<td>The Information System for Agricultural and Forestry Holdings (LFBIS) enables the Federal Government to consolidate data on individual holdings (data on holding statistics and agricultural funding). The LFBIS master file is maintained by Statistics Austria, while the LFRZ is responsible for technical support.</td>
</tr>
<tr>
<td>LFR</td>
<td>Agriculture and Forestry Register</td>
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LFRZ Computing and Technology Centre for Agriculture, Forestry and Water Management

LK Österreich Austrian Chamber of Agriculture

MFA Multiple application for land areas

The multiple application for land areas, which consists of several sections (cover application form, cultivated areas, animal list, etc.), is used by applicants to apply for funding via the competent district chamber of agriculture.

NA National Accounts

OECD Organisation for Economic Co-operation and Development

STAT Statistics Austria

UBA Environment Agency Austria

WIFO Austrian Institute of Economic Research

Reference to supplementary documentation/publications

A detailed quality report was created in accordance with EU Regulation 1337/2011 in conjunction with the data transfer to Eurostat.

Annex

The Standard documentation contains links to the following sub-documents (available in German only):

Survey questionnaire (incl. Explanatory notes)

Accompanying letter