

2007 Farm Structure Survey
National Methodological Reports (NMR)

Member State: Austria

2007 FARM STRUCTURE SURVEY NATIONAL METHODOLOGICAL REPORT

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LIST OF ABBREVIATIONS

ASA	Arable surface area
AMA	In addition to its functions as Austria's office for market organisation, intervention and payments, Agrarmarkt Austria is also responsible for administering most subsidies
FSS	Farm Structure Survey
LESS-FAVOURED AREA	In accordance with the provisions of EU law, less-favoured areas are divided into three categories: "mountain areas", "other less-favoured areas" and "small areas"
BMLFUW	Federal Ministry of Agriculture and Forestry, the Environment and Water Management
ESU	European Size Unit (1 ESU corresponds to 1 200 Euro of Standard Gross Margin)
EUROFARM	An agricultural data base created by the Statistical Office of the European Communities
EUROSTAT	Statistical Office of the European Communities
DG AGRI	The Commission's Directorate-General for Agriculture and Rural Development is responsible for agricultural policy and rural development policy. It is involved in all aspects of the Common Agricultural Policy (CAP), from market organisation to rural development policy, financial affairs and international agricultural issues
TA	Total area
GLÖZ G-FLÄCHEN	Grassland areas which are to be kept in a good agricultural and ecological condition and which are no longer used for production. Only the annual minimum maintenance measures (e.g. clearing) to avoid the encroachment of trees, bushes or desertification are applied, and there is no annual utilisation of plant growth (e.g. for harvesting or pasture)
IACS	Integrated Administration and Control System
LBG	Wirtschaftstreuhand- und Beratungsgesellschaft m.b.H., (LBG Business Trust and Consultancy Company) which, among other things, is also responsible for the Agricultural Accounting Information Network (INLB).
LFBIS	Agriculture and Forestry Holding Information System, which allows the Federal authorities to

	combine data on individual holdings (statistical data on holdings and on agricultural subsidies). The LFBIS master data file is maintained by Statistics Austria, while the LFRZ is responsible for technical maintenance.
LFRZ	The Agriculture, Forestry and Water Management Computing Centre, which manages a number of data bases, including the LFBIS, for the BMLFUW. Data files used by AMA for subsidy management are also managed by the LFRZ.
EAA	Economic Accounts for Agriculture
MFA	Areas subject to multiple applications
MÖST	Petroleum Tax Refund (for agricultural diesel)
ÖPUL	Austrian Programme for Environmentally Sustainable Agriculture
STANDARD GROSS MARGIN (SGM)	The standard gross margin (SGM) within the meaning of Commission Decision 85/377/EEC is the difference between the standardised monetary value of gross production and the standardised monetary value of the shares in expenditure, which can be easily attributed to such production. Non-deductible costs include labour costs, costs for mechanisation, costs of buildings and cost for most work performed by third parties, particularly harvest costs. The SGM is an economic criterion which is expressed in money terms: per hectare of used agricultural area in the case of crop characteristics and per head of livestock in the case of animal characteristics. The calculations are net of turnover tax.
NA	National Accounts

SUMMARY

Austria's Farm Structure Survey was conducted in 2007. The survey reference date was 1 December 2007. The legal basis was Council Regulation (EEC) No 571/88 of 29 February 1988 on the organisation of Community surveys on the structure of agricultural holdings, in the version of Council Regulation (EC) No 2467/96 of 17 December 1996, as last amended by Council Regulation (EC) No 204/2006 of 6 February 2006 adapting Council Regulation (EEC) No 571/88.

At national level, Austria's Federal Minister for Agriculture and Forestry, Environment and Water Management adopted a Regulation (BGBl. II No 310/2007) on the basis of the Federal Statistics Act 2000, BGBl. I No 163/1999, as last amended by BGBl. I No. 136/2001, BGBl. I No. 71/2003, BGBl. I No. 92/2007).

Austria conducted its first survey of all agricultural and forestry holdings in 1902. Subsequent farm surveys were held in 1930, 1939 and 1951, and every ten years from 1960 to 1990. These were interspersed with land-use surveys, conducted every three to four years, and, as from 1973, labour-force surveys. Surveys of machinery and equipment were also carried out separately at six-year intervals. The first Farm Structure Survey based on a random sample was conducted in 1993, but the questionnaire was still largely based on the characteristics of the 1990 agricultural census for the sake of comparability in the continuation of the national time series. It nevertheless incorporated some initial adjustments to bring it closer into line with EU requirements while taking account of Austria's own needs. The questionnaire for the 1995 survey was completely aligned with the EU's list of characteristics in the year of accession. Following a consequent recommendation by the Working Party of the special advisory subcommittee on Agricultural Statistics, a full survey was conducted. Another sample survey was carried out in 1997, and Austria was permitted for the first time to use administrative data. The European Union intended the Farm Structure Survey to be carried out in the form of a comprehensive at the turn of the decade, with the Member States able to choose between 1999 and 2000. In Austria, the FSS took place in 1999, with a reference date of 1 June. The Farm Structure Surveys 2003 and 2005, in common with that of 2007, took the form of a sample survey with 1 December as the reference date.

Implementation of the Farm Structure Survey can be divided into three project sections:

1. Preparation and planning (creation of a national legal basis, design of survey documents, drawing of the sample, sending the survey documents to the local authorities, assisting the survey bodies by telephone during the implementation phase);

2. Checking responses for completeness, issuing reminders and collecting missing data, checking data for completeness and plausibility; collecting, processing and combining data from the various sources;
3. Tabulation, data analysis, publication and preparation of data for EUROSTAT.

The basis for the selection of the sample holdings was the farm register, although administrative sources were also used. The 2007 Farm Structure Survey was based on a single-stage stratified sample design. The strata were built on the characteristics of the Farm Structure Survey 1999. The holdings in the selection frame were divided for each *Land* into several strata. The sample size amounts to 40000 holdings.

Under current Austrian legislation, the local authorities are responsible for conducting the Farm Structure Survey - i.e. they have the task of collecting data from respondents via survey bodies. The documents needed for the survey were sent to the local authorities and to the farmers. The Farm Structure Survey was accomplished by means of a web-based questionnaire. The farmers had the possibility of delivering their response by means of a user ID and password either directly, using their own PCs, or via a PC at the competent local authority. The forms for holdings to which none of the survey criteria applied - because the holding had ceased operation in the meantime or the land had been sold or leased - also had to be returned to Statistics Austria with a note to this effect in the space provided for giving reasons for leaving the form blank. The local authorities were paid a fee for their work.

Farmers who had not filled in their questionnaires within the given period and those who refused to provide information were reminded by registered post and informed about the legal consequences of refusal. 270 respondents ignored this final reminder and were fined by the competent administrative district authority.

Once the replies were received, they were loaded into the database. Statistics Austria then began the task of checking the information provided by the respondents.

The data sets were then checked for completeness and plausibility using an extensive plausibility program that distinguished between three types of error:

Automatic error: the system was programmed to correct such errors automatically;

Information error: these were checked by the processing staff, who either confirmed that the data were correct or made appropriate corrections;

Error items: eliminated by staff.

The data sets were checked for missing, incorrect or implausible information using an extensive plausibility program. The staff themselves could correct logical errors. In the case of missing or implausible entries, information from other sources, such as administrative data or individual data from the 1999, 2003 or 2005 Farm Structure Survey were used, if possible, to supplement and/or check the data. Otherwise, the respondents were contacted by telephone. Checks and/or corrections had to be made for around 30% of farms.

The requisite administrative data for individual farms were evaluated from the IACS database and from the livestock database. The data-processing department prepared these data for further processing.

Since data had been obtained from a variety of sources (Farm Structure Survey, administrative data), the individual data sets needed to be combined. This was done on the basis of the common farm number.

The aggregated results were checked by comparing them with the results of the last Farm Structure Survey and with information from other sources.

On completion of the processing and after final adjustment of the data sets and checks on all the data, it was possible to draw up and publish the figures in tabular form.

1. INTRODUCTION

1.1 History, scope

Implementation of the 2007 Farm Structure Survey was required by the European Union. Pursuant to Regulation (EC) No 2467/96, the FSS had to be carried out between 1 December 2006 and 1 March 2008 for the crop year corresponding to the 2007 harvest. In Austria, the Survey reference date was 1 December 2007.

The first survey of all agricultural and forestry holdings in Austria took place as early as 1902. Further censuses of holdings were carried out in the 1930s, 1939, 1951 and in the period from 1960 to 1990 at 10-year intervals. In the intervening periods, land use surveys and, as from 1973, Labour Force Surveys, were carried out at three- to four-year intervals. The machine park was also surveyed separately at 6-year intervals. The first Farm Structure Survey to be carried out on a sample basis was in 1993. The questions were, however, based largely on those of the farming census of 1990, in order to guarantee the comparability of the national time series. It nevertheless incorporated some initial adjustments, in order to bring it closer into line with EU requirements, while taking account of Austria's own needs. The questionnaire for the 1995 survey was completely aligned with the EU's list of characteristics in the year of accession. Following a consequent recommendation by the Working Party of the special Advisory Subcommittee on Agricultural Statistics, a full survey was conducted. Another sample survey was held in 1997, when Austria was, for the first time, permitted to use administrative data. The European Union provided for a Farm Structure Survey to be carried out as a full survey at the turn of the decade, giving Member States the option of conducting this in either 1999 or 2000. In Austria, the Farm Structure Survey was conducted in 1999, with 1 June as the reference date. As in the case of the compulsory Farm Structure Survey of 2003, the 2005 FSS was carried out as a sample survey with 1 December as the reference date.

Farm Structure Surveys are one of the key sources of statistical information on agriculture and forestry. The aim is to obtain accurate, up-to-date results for the structural features of Austrian agriculture and forestry and on their comparability with other EU Member States. This information is required in order to study the causes and background of structural change in this important sector of the economy, and to draw specific conclusions for the future. These data form an indispensable basis for informed decision-making on agricultural policy at national and international level.

1.2 Legislation

The legal basis at EU level is Council Regulation (EEC) No 571/88, as amended by Council Directive 2467/96/EC. The list of characteristics and the definitions were adapted to current needs by Regulation (EC) No 204/2006. The deadlines for the transmission of survey results for 2007 to Eurostat are laid down in Regulation (EC) No 2139/2004. Commission Decision 2007/80/EC provides for the use of information from sources other than statistical surveys.

In Austria, the national legal basis for implementing the 2007 Farm Structure Survey (the Regulation of the Minister for Agriculture and Forestry, the Environment and Water Management on the Compilation of Statistics on the Agricultural Structure and the National Livestock Herd in 2007, BGBl. II No 310/200) was laid by said Minister pursuant to the Federal Statistics Act 2000, BGBl. I No 163/1999, in the version in BGBl. I No 136/2001, BGBl. I No 71/2003, BGBl. I No 92/20077.

The above-mentioned Ministerial Regulation governs the following:

- **Ordinance on the compilation of statistics: Implementation of the Farm Structure Survey by Statistics Austria**
- **Statistical units, survey population**
- **Reference date, reference period**
- **Survey characteristics**
- **Survey type.**

The survey characteristics are obtained personally in the framework of the sample-based Farm Structure Survey by questioning some 40 000 statistical units or by obtaining administrative data from Agrarmarkt Austria.

The selection of the holdings was done on the basis of a stratified random sample by Statistics Austria.

- **Implementation of the survey**

The questions are asked using standardised survey documents (electronic questionnaire and explanatory notes), which are designed and made available to the respondents by Statistics Austria.

- **Obligation to provide information**

Article 9 of the Federal Statistics Act 2000, as amended on survey characteristics lays down an obligation to provide information insofar as it cannot be obtained from administrative data.

Physical and legal persons and partnerships under commercial law who/which operate a statistical unit in their own name are obliged to provide information.

Moreover, natural and legal persons and partnerships under commercial law who either operate a selected holding which does not meet the criteria for inclusion in the survey or who have sold or closed their holding are required to provide the relevant information in the form of a reasoned nil return.

- **Obligation on respondents to cooperate**

Respondents have to provide their information on time, in full and to the best of their knowledge. The information can be provided at the offices of the local authority within a deadline determined by the local authority or by 14 December 2007, by filling in an electronic questionnaire which the data provider then sends to Statistics Austria.

- **Information on respondents**

Statistics Austria is required to inform respondents of the legal consequences, under Article 66 of the Federal Statistics Act 2000, as amended, of refusing to provide information or by intentionally providing incomplete information or information which the respondent knows to be incorrect.

- **Obligation on the communes to cooperate**

Local authorities within whose jurisdiction a farm selected via random sampling by Statistics Austria is situated are required to cooperate in the survey. To this end, Statistics Austria must inform the local authorities concerned of the addresses of the farms included in the sample.

Local authorities, where their respective mayors select survey bodies, in case of direct participation of the authority in the survey complete the electronic survey questionnaires.

Where information is provided directly by the communes, they are required to cooperate, in that the census bodies appointed by the Mayor must enter the results of oral interviews in the questionnaire electronically. The completed questionnaires must be sent electronically to Statistics Austria by 24 January 2008 at the latest.

- **Obligation on the holders of administrative data to cooperate**

Agrarmarkt Austria is required to transmit the administrative data necessary for collecting the survey characteristics at the request of Statistics Austria free of charge on an electronic data carrier.

- **Obligations on other persons**

The former managers (owners) of statistical units are obliged to cooperate in the identification of the new respondent by Statistics Austria.

- **Reimbursement of expenses**

The communes were paid 4.47 euro for every selected statistical unit by way of reimbursement for the cost of taking part in the survey.

- **Transmission of data to the LFBIS**

Statistics Austria is required to transmit the data on individual holdings to the Federal Minister for Agriculture and Forestry, the Environment and Water Management for inclusion in the Agriculture and Forestry Holding Information System (LFBIS).

The tasks and obligations of Statistics Austria in terms of compiling federal statistics are laid down in the Federal Statistics Act 2000 (BGBl. I No 163/1999, in the version in BGBl. I No 136/2001, BGBl. I No 71/2003, BGBl. I No 92/2007). Thus, under the Federal Statistics Act, Statistics Austria is required, among other things, to use the available administrative data instead of information obtained using its own questionnaires, so as to minimise the respondents' workload. The Act also contains provisions governing data protection.

2. CONTENT

2.1 Characteristics and reference period

The structure of the list of questions comprised the following main subject areas, as required under EU law:

- **basic information** sheet: for the holding's activities, etc.: indication of the reason for a nil return,
- **holding data** sheet (holding number, name and address of the holding, etc.) used for updating the Agricultural and Forestry Register,
- **arable land** sheet,
- **land use** sheet (crop types, types of tenure, organic farming, irrigation),
- **livestock herd** sheet,
- **labour force** sheet (owner of the holding, holding manager and family farm or forestry workers and non-family workers) and
- **rural development** sheet.

Additional topics required solely for national purposes were not included in the 2007 Farm Structure Survey. In order to satisfy both national needs and various Directives, e.g. on livestock surveys, the survey of the individual characteristics was more detailed for certain groups. Those characteristics were aggregated prior to transmission to EUROSTAT in line with the rules for the provision of FSS data:

- **Type of tenure of the total area**
Given the importance of forestry in the Austrian economy, it was decided to continue surveying the type of tenure of the total area of holdings for the purpose of national analyses, in order to ensure comparability with data from previous surveys.

- Cultivation on arable land and types of crop
As the information on areas under crops are used as a basis for harvest calculations, which, among other things, are subsequently used in the EEA, individual areas are surveyed at a greater level of detail than that required by the EU Regulation.
- Livestock population
As the requirements of the various EU Directives on livestock population surveys are met simultaneously with the Farm Structure Survey, the levels of detail of the characteristics were adjusted accordingly.

A further deviation from EU requirements lies in the population of farms relevant to the survey. Given the importance of agriculture to the Austrian economy, holdings devoted exclusively to forestry were again included at national level in the selection of sample holdings for the 2007 Farm Structure Survey.

The definitions used are essentially based on Regulations (EC) Nos 1444/2002, 2139/2004 and 204/2006.

Deviations from the EU definitions can be found in only a few areas. Those deviations can mostly be attributed to specific national circumstances. Examples include:

- The number of hours of a "full-time employee" was set at 2 000 hours per year (250 working days of eight hours), whereas the EU Regulation provides for only 1 800 hours per year (225 working days of eight hours). As these are only guidelines, and as the European requirements are, according to experts, too low for Austria, the national Working Party of the Agricultural Statistics Advisory Committee decided to increase the number of hours as from the 1995 Farm Structure Survey.
- In some areas, it is difficult to make a precise division between agriculture and forestry or to attribute activities to one or the other, since many of Austria's agricultural holdings include forested land. This is why, for example, the agricultural working times include some forestry activities.

The following characteristics in the EU list of characteristics were deemed "insignificant" in the case of Austria and therefore did not feature in the questionnaire:

- C06a: Determination of a holding's output: Does the holder's household use more than 50% of the holding's final production in value terms?
- G01c: Nuts
- G04c: Vineyards, of which normally producing: table grapes
- I02: Mushrooms

- I08e: Areas which are no longer used for production purposes and in respect of which subsidies are paid, and areas for which set-aside premiums are paid, subdivided into: Other areas.
- J17: Rabbits, breeding females
- J18: Bees
- L10: Total number of equivalent full-time working days not listed under L/1 to L/6 in the last 12 months prior to the survey date (agricultural activity), worked by persons who are not directly employed by the holding (e.g. the employees of service supply agencies).

The following characteristics were declared to be "not applicable" to Austria:

- D07: Rice
- D25: Cotton
- G01b: Fruit and berry species of subtropical climate zones
- G02: Citrus plantations
- G03: Olive plantations
- G04b: Vineyard produce normally intended for "other wines"
- G04d: Vineyard produce normally intended for "raisins"
- G06: Other permanent crops
- G07: Permanent crops under glass

Other particularities:

Austria was allowed under EU Regulation to survey nuts under the heading "Fresh fruit and berry species of temperate climate zones".

The survey **reference date** was 1 December 2007. Exceptions were the following reference periods:

1. for data on area-related survey characteristics: the crop year 2007,
2. for data on the labour force, machinery and equipment, as well as storage for fertilisers: the period from 1 December 2006 to 30 November 2007.

For data concerning poultry, the reference date in the case of temporarily emptied poultry houses is the day preceding the last emptying between 1 November 2007 and 1 December 2007.

One change compared to Farm Structure Surveys before 2003 is, that the livestock population has also been covered since the 2003 survey. However, this required the reference date to be shifted from June to December since, to minimise respondents' workload, the requirements of the EU Directives on livestock surveys also had to be met.

2.2 Questionnaire

The 2007 Farm Structure Survey used various data sources:

- **Farm Structure Survey**

The Farm Structure Survey was again carried out via the Internet, using a web-based questionnaire which was prepared by the "e-Quest Metadata Manager" PC program. This is a personalised web-based questionnaire, i.e. the name and address are already given and only have to be checked (and corrected, if necessary). Moreover, with a view to reducing respondents' workload, data on land areas were already available from the Multiple Application (MFA; status as of September 2007), and merely had to be adjusted to take account of areas not included in the MFA. The questionnaire was designed in such a way that certain types of incorrect entry were not admissible and the system displayed error messages accordingly. Farmers were able to make their reports by entering their user ID and password, either directly, from their own computer, or from offices of the competent commune.

A leaflet containing brief information was made available to help respondents use the questionnaire. The web-based questionnaire also provided tips for completion. Detailed information on the questionnaire was set out in the manual made available by Statistics Austria. The manual contained explanatory material for the communes (survey bodies) and guidelines for completion targeted at respondents. Moreover, detailed technical instructions and a description, together with the browser settings, could be downloaded from Statistics Austria's homepage.

The main advantages of an electronic questionnaire were as follows:

- If the holder has the possibility of reporting directly, he no longer has to go to the local authority to fulfil his obligation to provide information.
- In order to reduce the burden on holders and the local authorities, the land area data from the AMA-multiple application forms (MFA: situation as of September 2007), were pre-completed in the web-questionnaires for each of the holdings, and they needed only to be completed with the additional areas (forests, areas of buildings and yards, kitchen gardens, etc). This was only possible when the questionnaire was activated using the access-codes of the holder (user-ID and password) irrespective of whether the holder used his own PC or one belonging to the local authority.

- Targeted data-checks performed as soon as data were input ensured that implausible entries were signalled by means of warning and error messages, and consequently they were corrected without delay. This made it possible to eliminate a number of telephone enquiries during the data-processing phase.
- All calculations were checked automatically.
- A detailed assistance system was included in the questionnaire and provided information on text-related matters.
- Data entry could be discontinued at any time with a view to continuing it later. Entries already made were stored on Statistics Austria's server.
- As the survey data were transmitted to Statistics Austria electronically, they could be immediately processed, thus making it possible, in most cases, to dispense with manual data-entry or automatic data-reading. It was therefore possible to eliminate a further source of error.

Specimen questionnaire (appended)

- **Administrative data**

Commission Decision 2007/80/EC allowed Austria to use administrative data. The institutions in questions made these data available in the form of electronic data files (EXCEL-File, ACCESS-data base).

3. SURVEY METHODOLOGY

3.1 Survey organisation

The project team

Statistics Austria bears ultimate responsibility for implementing the Farm Structure Survey. The Farm Structure Survey is one of many projects of the Agriculture and Forestry Sector of the Directorate for Spatial Planning (Raumwirtschaft). Its specialist team is supported by EDP and statistical experts (sampling, analyses, etc.). Technical advice is provided by the Working Party of the Advisory Committee on Agricultural Statistics, which comprises leading experts at various relevant institutions/organisations in the agricultural sector.

The Farm Structure Survey is carried out in three phases:

1. Preparatory and planning tasks (internal and external organisation of the Farm Structure Survey (administrative data)), creation of a legal

- basis, compilation of the questionnaire, sampling, dispatch of documents, provision of information over the telephone;
2. Processing incoming survey data, e.g. checks on completeness, implementation of extensive plausibility checks, initiating emergency procedure, obtaining administrative data;
 3. Preparation and analysis of data in the form of tables and graphs, drafting the corresponding texts, publication of results in numerous publications and preparation and transmission of data sets on individual holdings to EUROSTAT.

The main tasks were:

- Compiling the survey programme in line with EU requirements and taking national requirements into account;
- Cooperating in drafting the national Ordinance with the Ministry of Agriculture;
- Cooperation with the Register Department with a view to sampling;
- Coordination of tasks between the competent departments and the IT Department;
- Design of a plausibility program in cooperation with the IT Dept.;
- Giving the IT Dept. instructions for programming work with a view to compiling the tables;
- Compilation of questionnaires, implementing Directives and other documents, instructing printers to print the documents, dispatching documents to the communes and respondents;
- Drafting documents for use by the authorities involved in the survey;
- Training survey staff in how to process the survey;
- Telephone hotline providing survey bodies and respondents with information during the survey phase;
- Obtaining, processing and combining data from the various sources;
- Urgency of receiving completed questionnaires which have not been returned and obtaining missing data;
- Reminding respondents who had not replied and reporting non-respondents to the competent authorities;
- Checks on the completeness and plausibility of the data;
- Tabulation, publication and dissemination of results;
- Processing individual data in line with EU rules and transmitting them to EUROSTAT.

Advisory Committee on Agricultural Statistics

The Federal Statistics Act 2000 (in the version in BGBl. I No 136/ 2001, BGBl. I No 71/2003, BGBl. I No 92/2007) provides for the creation of Advisory

Committees for the various relevant areas of activity. The Farm Structure Survey comes under the aegis of the Advisory Committee on Agricultural Statistics, which comprises experts from various Austrian institutions (representatives of the Ministry of Agriculture, the Governments of the *Bundesländer*, Chambers of Agriculture at *Bundesland* level, the Austrian Chamber of Agriculture, LBG Wirtschaftstreuhand- and Beratungsgesellschaft (a limited company), the University of Agriculture (Universität für Bodenkultur), etc.). This body is tasked with providing Statistics Austria, which bears ultimate responsibility for the survey as such, with mainly technical advice and support in the planning and implementation of the survey.

The Working Party met on 7 November 2007 to discuss the 2007 Farm Structure Survey. Its main focus was:

- Implementing the 2007 Farm Structure Survey: the web-based questionnaire

The Communes and their survey bodies

In common with many other agricultural surveys, the Farm Structure Survey was implemented with the help of the communes. Austrian territory is divided into 2 357 regional administrative units (communes), 16 of which were not involved in the 2007 Farm Structure Survey. This means that there were an average of about 17 surveyable **holdings in each commune**, although the number of holdings in each commune varies from just one to more than 200. As it was again possible to submit replies directly, an option which was used by about 34% (AS 2005: 25%) of farmers and forest managers, there was a decrease in the number of units needing to be surveyed by the survey bodies.

The communes are required to take part in the survey in that the census bodies designated by the Mayor question the respondents in person and complete the questionnaire electronically. Communal officials were used in most cases. The advantage of this was that they were personally acquainted with some of the respondents and were familiar with regional circumstances. By and large, the communal officials were able to perform their survey duties in normal working hours. The task of the survey bodies was to encourage respondents to visit the communal offices with a view to answering the questions and to help them with their answers. They were also responsible for correct completion of the questionnaires and for the complete coverage of local holdings which were covered by the survey. The communes were legally obliged to cooperate in the Farm Structure Survey. They were paid a fixed sum per holding (an amount laid down in the Ordinance).

3.2 Calendar (overview of work progress)

Discussion and analysis of suggestions for improving the 2005 Farm Structure Survey and checks on implementation of those suggestions	From October 2006
Design and testing of the questionnaire	February – October 2007
Checks on the availability of administrative data	2 nd quarter of 2007
Compilation of other survey documents (instructions for use, etc.)	June – November 2007
Drafting of the national Regulation in cooperation with the BMLFUW	June – November 2007
Design of the plausibility program by specialists	July – December 2007
Obtaining administrative data	September 2007 – June 2008
Drawing the sample; checks; release for dispatch	October 2007
Printing, addressing and sending the survey documents	October – November 2007
Meeting of the Working Party of the Advisory Committee on Agricultural Statistics	November 2007
Publication of the national Ordinance	November 2007
Reference date	1st December 2007
Programming the plausibility programme; design of the plausibility application by the IT Dept. and tests of its functions by specialists, using fictitious holdings	December 2007 – February 2008
Data taken from the web-based questionnaire in tranches for processing by the IT Dept.	January – April 2008
Urgently awaited questionnaires, warning procedures	February – July 2008
Plausibility checks	March – August

	2008
Compilation and programming of the tabulation program and of the EUROSTAT data files	March - August 2008
Checks on results; analysis	August/September 2008
Discussion of results by a Committee of Experts	September 2008
Transmission of individual data to EUROSTAT	September 2008
National dissemination and publication of the results in the form of a press release, rapid report, an article in <i>Statistische Nachrichten</i> , and publication on the Internet	From October 2008

3.3 Preparing the survey operations ('Planning the survey')

3.3.1 Population and frame

The **population** of the Farm Structure Survey included all agricultural and forestry holdings in the Agriculture and Forestry Register which carry out agricultural and forestry activities.

- **Definition of an agricultural and forestry holding**

An agricultural and forestry holding is a single unit, both technically and economically, with single management and which produces agricultural and forestry products or which keeps areas which are no longer used for production purposes in a good agricultural and ecological condition in accordance with Council Regulation (EC) No 1782/2003. The holding may also produce other (non-agricultural) products and services.

- **The statistical survey units within the meaning of the Farm Structure Survey were as follows:**

1. Agricultural and Forestry holdings with a UAA of at least one hectare;
2. Wine-growing holdings with at least 25 ares under market vines;
3. Holdings with at least 15 ares of intensively utilised fruit orchards, or 10 ares under berries, strawberries, vegetables, flowers or decorative plants, or under vine or forest, or nurseries;

4. Holdings which operate greenhouses (under glass or foil) covering at least one are, the majority of the produce being grown for market;
5. Livestock holdings with three head of cattle, five pigs, 10 sheep, 10 goats or 100 head of poultry of any type;
6. By derogation from the limits set out in points 1 to 5, forestry holdings with at least three area of forest were also survey units for national purposes.

- **Changes to the survey criteria in the last 10 years**

The only significant changes to the survey size criteria were made at national level for the 1999 Farm Structure Survey. The changes involved raising the lower limits for land area and the size of livestock herds. At EU level, the lower limits which were set following Austria's accession to the EU Treaty in 1995 have been maintained ever since.

- **Sampling frame**

The sampling frame for the 2007 Farm Structure Survey essentially comprised the active holding units (232 516) in the Agricultural and Forestry Register, which are continually updated in the light of various primary agricultural surveys and by comparison with various types of administrative data (applications for subsidies, etc.).

3.3.2 Survey design

- **Survey form**

The 2007 Farm Structure Survey (AS07) was a sample survey.

- **Sampling plan**

The sample was designed as a multi-stratum random sample with free extrapolation for each stratum.

- **Sample size**

The sample used in previous Farm Structure Surveys (40 000 holdings) has proved to be appropriate. This sample size was therefore maintained. This meant that about 17% of all holdings were sampled.

- **Stratum characteristics**

Selected characteristics from the AS99 (e.g. total area, area under kitchen gardens, vegetable plantations or vineyards, and the size of the work force) were used wherever possible for stratification purposes. As the AS07 included a livestock census, the most recent

data on horses, cows, cattle, pigs, sheep, goats, chickens, other poultry and game were used for stratification.

- **Stratification**

The holdings in the sampling frame were divided into between 8 and 16 strata, depending on the *Bundesland*. Strata with numbers 1 to 5 (Salzburg, Tyrol, Vorarlberg and Vienna), or 1 to 9 (the other *Bundesländer*) were formed by a combination of size classes of total area in hectares (total area) and arable surface area in ha (ASA). The other strata comprise holdings with a large livestock population, a large work force or significant fruit or wine crops.

For stratification purposes, the following conditions had to be met in each *Bundesland*:

Condition A1: horses > 20 or cattle > 100 or pigs > 300 or sheep > 50 or goats > 10 or hens > 500 or other poultry > 50 or game > 20 or non-family workers employed on a regular basis > 3 or non-family workers employed on an occasional basis > 3

Condition A2: 50 < cattle <= 100

Condition A3: 50 < pigs <= 300

Condition A4: 30 < cattle <= 50

Condition A5: 20 < pigs <= 50

Condition A6: 5 < horses or 10 < sheep or 5 < goats

Condition A7: Kitchen gardens > 3 ha or fruit plantations > 3 ha or vineyards > 3 ha.

In the **Burgenland, Carinthia, Lower and Upper Austria and Styria Bundesländer**, holdings were attributed to one of 16 strata in the following manner:

If condition A1 is met	=====>	Stratum 16,
otherwise, if condition A2 is met	=====>	Stratum 15,
otherwise, if condition A3 is met	=====>	Stratum 14,
otherwise, if condition A4 is met	=====>	Stratum 13,
otherwise, if condition A5 is met	=====>	Stratum 12,
otherwise, if condition A6 is met	=====>	Stratum 11,
otherwise, if condition A7 is met	=====>	Stratum 10,

otherwise, as shown in the following table ("Detailed stratification ...") in strata 1 to 9.

For the **Salzburg, Tyrol and Vorarlberg Bundesländer**, holdings were attributed to one of 11 strata in the following manner:

If condition A1 is met	=====>	Stratum 11,
otherwise, if condition A2 is met	=====>	Stratum 10,
otherwise, if condition A3 is met	=====>	Stratum 9,
otherwise, if condition A4 is met	=====>	Stratum 8,
otherwise, if condition A5 is met	=====>	Stratum 7,
otherwise, if condition A6 is met	=====>	Stratum 6,

otherwise, as shown in the following table ("Detailed stratification ...") in strata 1 to 5.

For Vienna, holdings were attributed to one of 8 strata in the following manner:

If condition A1 is met, =====> stratum 8,
 otherwise, if condition A2 or A3 or A4 or A5 or A6 is met, => stratum 7,
 otherwise, if condition A7 is met, =====> stratum 6,
 otherwise, as shown in the following table ("Detailed stratification ...") in strata 1 to 5.

Detailed stratification and delimitations per *Bundesland* can be gleaned from the following table:

<i>Bundesland</i>	Stratum	Total area	Arable area	Size of the	
				population	sample
Burgenland	1	TA<12	ASA<1	7467	71
	2	TA<12	1<=ASA<4	2970	63
	3	TA<12	4<=ASA	1494	61
	4	12<=TA<64	ASA<13	999	109
	5	12<=TA<64	13<=ASA<31	949	122
	6	12<=TA<64	31<=ASA	430	84
	7	64<=TA	ASA<77	251	251
	8	64<=TA	77<=ASA<125	196	58
	9	64<=TA	125<=ASA	99	99
	10	if condition A7 is met		1287	687
	11	if condition A6 s met		273	137
	12	if condition A5 is met		121	55
	13	if condition A4 is met		93	50
	14	if condition A3 is met		219	183
	15	if condition A2 is met		88	59
	16	if condition A1 is met		631	631
Kärnten	1	TA<26	ASA<1	10414	817
	2	TA<26	1<=ASA<5	2385	342
	3	TA<26	5<=ASA	823	158

	4	26<=TA<115	ASA<7	2896	566
	5	26<=TA<115	7<=ASA<23	376	87
	6	26<=TA<115	23<=ASA	100	26
	7	115<=TA	ASA<9	721	644
	8	115<=TA	9<=ASA<43	34	15
	9	115<=TA	43<=ASA	35	35
	10	if condition A7 is met		17	11
	11	if condition A6 is met		1433	245
	12	if condition A5 is met		272	53
	13	if condition A4 is met		1182	279
	14	if condition A3 is met		412	161
	15	if condition A2 is met		593	216
	16	if condition A1 is met		977	977
Lower Austria	1	TA<23	ASA<2	20707	543
	2	TA<23	2<=ASA<10	7736	418
	3	TA<23	10<=ASA	3226	148
	4	23<=TA<71	ASA<19	4110	312
	5	23<=TA<71	19<=ASA<37	2824	174
	6	23<=TA<71	37<=ASA	2136	133
	7	71<=TA	ASA<64	904	305
	8	71<=TA	64<=ASA<106	658	58
	9	71<=TA	106<=ASA	239	164
	10	if condition A7 is met		2861	600
	11	if condition A6 is met		1710	191
	12	if condition A5 is met		865	135
	13	if condition A4 is met		3250	367
	14	if condition A3 is met		2144	336
	15	if condition A2 is met		1834	266
	16	if condition A1 is met		3275	3275

Upper Austria	1	TA<16	ASA<1	14030	688
	2	TA<16	1<=ASA<5	5636	479
	3	TA<16	5<=ASA	1805	184
	4	16<=TA<44	ASA<8	4248	484
	5	16<=TA<44	8<=ASA<18	1568	208
	6	16<=TA<44	18<=ASA	775	55
	7	44<=TA	ASA<23	508	230
	8	44<=TA	23<=ASA<48	178	17
	9	44<=TA	48<=ASA	209	63
	10	if condition A7 is met		55	20
	11	if condition A6 is met		1922	222
	12	if condition A5 is met		461	65
	13	if condition A4 is met		4127	317
	14	if condition A3 is met		2203	307
	15	if condition A2 is met		2774	393
	16	if condition A1 is met		3429	3429
Salzburg	1	TA<26	ASA<1	5650	1385
	2	TA<26	1<=ASA	510	155
	3	26<=TA<115	ASA<1	1510	459
	4	26<=TA<115	1<=ASA	159	43
	5	115<=TA		366	366
	6	if condition A6 is met		1069	282
	7	if condition A5 is met		18	7
	8	if condition A4 is met		1137	343
	9	if condition A3 is met		34	17
	10	if condition A2 is met		464	249
	11	if condition A1 is met		447	447
Styria	1	TA<20	ASA<1	19206	775

	2	TA<20	1<=ASA<5	10717	632
	3	TA<20	5<=ASA	1991	169
	4	20<=TA<94	ASA<7	5152	555
	5	20<=TA<94	7<=ASA<22	823	103
	6	20<=TA<94	22<=ASA	146	22
	7	94<=TA	ASA<6	1029	545
	8	94<=TA	6<=ASA<33	34	9
	9	94<=TA	33<=ASA	25	25
	10	if condition A7 is met		1083	100
	11	if condition A6 is met		2131	148
	12	if condition A5 is met		867	64
	13	if condition A4 is met		2285	326
	14	if condition A3 is met		2194	213
	15	if condition A2 is met		946	162
	16	if condition A1 is met		3079	3079
Tyrol	1	TA<26	ASA<1	10080	1491
	2	TA<26	1<=ASA	1259	264
	3	26<=TA<157	ASA<1	2567	567
	4	26<=TA<157	1<=ASA	217	47
	5	157<=TA		655	655
	6	if condition A6 is met		2647	397
	7	if condition A5 is met		83	18
	8	if condition A4 is met		959	271
	9	if condition A3 is met		50	16
	10	if condition A2 is met		334	96
	11	if condition A1 is met		935	935
Vorarlberg	1	TA<19	ASA<1	3389	897
	2	TA<19	1<=ASA	133	55
	3	19<=TA<88	ASA<1	748	341

	4	19<=TA<88	1<=ASA	41	20
	5	88<=TA		297	297
	6	if condition A6 is met		492	125
	7	if condition A5 is met		31	13
	8	if condition A4 is met		329	79
	9	if condition A3 is met		31	22
	10	if condition A2 is met		187	94
	11	if condition A1 is met		318	318
Vienna	1	TA<7	ASA<1	521	38
	2	TA<7	1<=ASA	194	47
	3	7<=TA<44	ASA<11	55	30
	4	7<=TA<44	11<=ASA	43	43
	5	44<=TA		59	59
	6	if condition A7 is met		43	43
	7	if condition A2 o. A3 o. A4 o. A5 o. A6 is met		14	14
	8	if condition A1 is met		89	89
Austria				232516	39999

- **Distribution of the sample**

The sample of 40 000 holdings was broken down among the nine *Bundesländer* in proportion to the root of (total area in ha + number of cattle + number of pigs). Within each *Bundesland*, the sample size for each *Bundesland* was allocated to the strata in proportion to the product of the sample size and standard deviation. For the latter, a weighted average of the standard deviations of the arable area and total area was used. If that average in a particular stratum was smaller than the standard deviation of the cattle herd, the latter was used. This distribution algorithm was such that, in strata with large holdings (i.e. holdings with large areas or large livestock herds), a disproportionately large number of holdings were placed in the sample. In some cases this amounted to a comprehensive survey of the most important strata.

- **Amalgamation of statistical surveys**

In order to reduce the respondents' workload, the Farm Structure Survey was designed in such a way that it met the legal requirements on the livestock population survey.

3.3.3 Pilot Survey

The survey bodies were granted "guest access" to a test questionnaire, so that they could familiarise themselves with the web-based questionnaire and its functions and could practise filling in the questionnaire.

The plausibility programme was tested using fictitious holdings.

3.3.4 Informing and training staff and respondents

- **Information for the survey bodies**

Preliminary information for the communes: In mid-November 2007, Statistics Austria informed the communes by e-mail of the forthcoming Farm Structure Survey. The e-mail also explained the option of "guest access" to the web-based questionnaire for testing and practice purposes.

Implementing provisions: Through the existing administrative structure in Austria, the authorities in the *Bundesländer* were asked by Statistics Austria to inform the authorities involved in the survey (local and municipal authorities in towns and cities, and district authorities) and to send them the instructions for conducting the survey compiled by Statistics Austria (procedure, deadlines for returning questionnaires, etc.). The Bundesland authorities issued circulars to the local authorities informing them of the arrangements necessary for their cooperation in the 2007 Farm Structure Survey. Statistics Austria sent the survey documentation (access data, handbook with guidelines for conducting the survey, explanatory notes, etc.) directly to the survey bodies.

During the survey proper, Statistics Austria staff provided the survey bodies and data providers with advice by telephone (hotline).

In addition, the responsible Federal Ministry (the Ministry of Agriculture), the bureaux of the *Bundesland* authorities, the various district authorities, the Chambers of Agriculture and district farmers' associations were informed about the 2007 FSS by post.

- **Staff training and instructions for those responsible for processing**

Statistics Austria staff were given working guidelines and corresponding instructions for processing the Farm Structure Survey. The procedure for writing the plausibility and data analysis programs was also agreed on during internal consultations with the IT Dept.

- **Information for respondents**

In order to highlight the importance of this survey for the agricultural and forestry population, articles were published in agricultural journals shortly

before implementation of the 2007 Farm Structure Survey. Information was also made available on Statistics Austria's homepage.

The selected farms which were required to provide survey data were informed both by Statistics Austria directly, by letter, and by the survey bodies. Moreover, the communes were required to post official notices at various, prominent places within their jurisdiction.

3.4 Sampling, data collection and data entry

3.4.1 Drawing the sample

To draw the sample from the sampling frame, the farms within each stratum were sorted in ascending order according to their arable area. There was systematic selection for each stratum using a starting number Z_{bh} and an increment S_{bh} . The increment S_{bh} of a stratum bh takes the form of a ratio (farms in the sampling frame/desired sample size). A random number between 1 and the increment is generated as starting number Z_{bh} . The farms selected were those whose sequence number corresponded to one of the numbers $[Z_{bh} + (i-1)S_{bh}]$, $i=1,2,3,\dots$. The selection was made on Statistics Austria's IBM mainframe, using dedicated PLI programs.

3.4.2 Data collection and input

As with most agricultural surveys, the 2007 Farm Structure Survey was carried out with the help of the communes, which the Ordinance had assigned the task of implementing the survey at local level. In November 2007, Statistics Austria asked the authorities in the *Bundesländer* to issue official instructions for implementation to the local authorities (*Bezirkshauptmannschaften*), the local authorities (*Magistrate*) of towns and cities with their own Charter and the communes. These letters contained key information on matters such as how to proceed and deadlines for completion, so as to ensure that the survey progressed smoothly.

The survey documents were posted to the communes and respondents in November 2007. For farmers, they comprised a leaflet containing the most important information, including a brief guide on how to use the web-based questionnaire. An accompanying letter and instructions on how to complete the questionnaire (including a detailed description of the latter) were also made available. The communes also received lists of addresses and official notices. The latter had to be posted at various prominent places within their jurisdiction.

The 2007 Farm Structure Survey was conducted exclusively by means of a web-based questionnaire, i.e. farmers again had the option of submitting their replies, using a user ID and password, either directly, from their own PC, or using a PC at their competent commune. The questionnaire is personalised, i.e. the names and addresses of the holdings were already filled in and therefore only needed to be checked and corrected, if necessary. Detailed

information on how to use the questionnaire and on implementation of the Farm Structure Survey were sent directly to the respondents and the communes. A dedicated Statistics Austria hotline was available to answer farmers' questions during the survey phase. Questions could also be sent by e-mail to Farm Structure Survey@statistik.gv.at.

Farmers who obtained help from their commune and who submitted their answers via the commune were given an appointment and asked to bring their user ID and password and their replies, plus any relevant documents. The competent communal official then entered the farmer's user ID and password, accessed the appropriate questionnaire and helped the farmer complete it.

By using their own access information (user ID and password), the communes were able to access a list of holdings (comprising all holdings in the commune which were still to be questioned). This list also served the communes as a tool during the "urgently awaited questionnaires" phase, as the holdings which returned their questionnaires directly to Statistics Austria were regularly removed from the list of holdings, i.e. the only remaining holdings were those which had not yet returned their questionnaire to Statistics Austria and which therefore had to be urged to do so or had to be summoned to appear at the commune.

In the event that the farmer had lost his user ID and password or had not brought them with him, the list could be used to access the questionnaire (but without the MFA/AMA land area data, on data protection grounds).

Data entry methods:

An electronic web-based questionnaire was used for the FSS, i.e. separate data collection was not necessary in most cases. Rather, the data could be transferred directly by the IT Dept., from the questionnaire to the mainframe computer. The only data which needed to be entered manually were those relating to holdings which had returned a hand-written form by post or by fax to Statistics Austria.

3.4.3 Utilisation of administrative data sources

(for those Member States which are authorised to use such data sources)

Commission Decision 2007/80/EC authorised Austria to use administrative data sources.

FSS characteristics

...for which sources other than statistical surveys may be used

C05e) Does the holding also apply organic farming methods to animal production?

Arable land

Cereals for the production of grain (including seeds)

- D01 Common wheat and spelt
- D02 Durum wheat
- D03 Rye
- D04 Barley
- D05 Oats
- D06 Grain maize
- D08 Other cereals for the production of grain
- D09 Protein crops for the production of grain (including seeds and mixtures of pulses and cereals)
- D09e Peas, field beans and sweet lupins
- D09f Lentils, chick peas and vetches
- D09g Other protein crops harvested dry
- D10 Potatoes (including early and seed varieties)
- D11 Sugar beet (excluding seeds)
- D12 Fodder roots and brassicas (excluding seeds)

Industrial plants

- D23 Tobacco
- D24 Hops
- D26 Rape and turnip rape
- D27 Sunflowers
- D28 Soya
- D29 Linseed
- D30 Other oilseed crops
- D31 Flax
- D32 Hemp
- D33 Other textile crops
- D34 Aromatic and medicinal plants and herbs
- D35 Other industrial plants not elsewhere specified

Vegetables, melons, strawberries

- D14 Outdoor or under low (inaccessible) protective cover
- D14a Open field

- D14b Market gardening
- D15 Under glass or high (accessible) protective cover
- Flowers and ornamental plants (excluding nurseries)
- D16 Grown outdoors or under flat (inaccessible) protective cover
- D17 Under glass or other high (accessible) protective cover
- D18 Fodder crops
- D18a Temporary grassland and grazing land
- D18b Other herbaceous fodder crops
- D18b_i Green maize (maize for silage)
- D18b_iii Other forage plants
- D19 Arable land seeds and seedlings (excluding cereals, pulses, potatoes and oil seed plants)
- D20 Other crops on arable land
- D21 Fallow land (including green fallow) for which no subsidies are payable
- D22 Fallow land (including green fallow) for which subsidies are payable and with no economic use
- F Permanent pasture and meadows
- F01 Pasture and meadow, excluding rough grazing
- F02 Rough grazing
- F03 Permanent meadow and pasture which is no longer used for production purposes and which qualifies for subsidies
- G Permanent crops
- G01 Fruit plantations (including berry plantations)
- G01a Fresh fruit and berry species of temperate climate zones
- G04 Vineyards of which normally producing:
 - G04a Quality wine
 - G05 Vine and tree nurseries
- I08 Areas which are no longer used for production purposes and for which subsidies are payable, and areas subject to set-aside incentive schemes, broken down into:
 - I08a Areas which are no longer used for production purposes and which qualify for subsidies
 - I08b Areas used for the production of agricultural primary materials for non-food and non-feed purposes (e.g. rape, trees, bushes etc., including lentils, chick peas and vetches)
 - I08c Areas converted into permanent pasture and meadow

I08d Former agricultural areas converted into woodland or being prepared for forestation

For the following characteristics, an application was made to be allowed to use administrative data, but as these were not available for the reference date, these characteristics were included in the Farm Structure Survey questionnaire:

- J01 Equidae
- J09 Sheep (all ages)
- J09a Sheep, breeding females
- J09b Other sheep
- J10 Goats (all ages)
- J10a Goats, breeding females
- J10b Other goats
- Pigs
- J11 Piglets having a live weight of under 20 kg
- J12 Breeding sows weighing 50 kg and over
- J13 Other pigs
- Poultry
- J14 Broilers
- J15 Laying hens
- J16 Other poultry
- J16a Turkeys
- J16b Ducks
- J16c Geese
- J16d Poultry not elsewhere specified
- J19 Animals not elsewhere specified

Source proposed

Brief designation

Integrated Administration and Control System (IACS)

Relevance and comparability

Correlation/discrepancies compared with definitions of FSS characteristics

Essentially, there is a good correlation between the characteristics. In isolated cases, Statistics Austria had to assign the IACS data to the relevant items in the Farm Structure Survey programme.

Clarity

Legal basis:

Council Regulation (EC) No 1782/2003 of 29 September 2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers and amending Regulations (EEC) No 2019/93, (EC) No 1452/2001, (EC) No 1453/2001, (EC) No 1454/2001, (EC) 1868/94, (EC) No 1251/1999, (EC) No 1254/1999, (EC) No 1673/2000, (EEC) No 2358/71 and (EC) No 2529/2001.

How is the reference period of the administrative source determined?

For the current harvest year, area data must be provided by 15 May.

Information on ecological farming has to be provided by 15 November.

Completeness

Does the administrative source provide a complete data set?

If not, how is the missing information derived?

No. With the exception of ecological holdings, data are only available for holdings which submit a multiple application to Agrarmarkt Austria. Holdings which do not submit a claim in a particular year are required to make the data available in the course of the Farm Structure Survey.

"Coherence" (i.e. consistency)

Have the figures provided by the administrative data set been compared with figures given by other data sets describing the same phenomenon (and if so, with what result)?

Yes. The information in the IACS was compared with the results of agricultural surveys carried out in the traditional manner (Farm Structure Surveys and livestock censuses). Comparison of the items revealed a very good match.

Accuracy

Has the accuracy of the data been checked (and if so, with what result)?

Yes. As *in situ* inspections are carried out at farmers' premises as part of the IACS and false declarations punished by reductions in premiums, it can be

assumed that the administrative data are highly accurate. The use of a digital cadaster map (DCM) is also expected to yield accurate information on areas.

FSS characteristics

...for which sources other than statistical surveys are to be used

Cattle

- J02 Bovines, under one year old, male and female
- J03 Male bovines aged between one and two years
- J04 Female bovines aged between one and two years
- J05 Male bovines aged two years and over
- J06 Heifers aged two years and over
- J07 Dairy cows
- J08 Other cows

Source proposed

Brief designation

Cattle Register

Relevance and comparability

Correlation/discrepancies compared with definitions of FSS characteristics

The Cattle Register contains the complete bovine categories for the breakdown of individual items in accordance with the guidelines for the Farm Structure Survey.

Clarity

Legal basis:

Regulation (EC) No 1760/2000 of the European Parliament and of the Council of 17 July 2000 establishing a system for the identification and registration of bovine animals and regarding the labelling of beef and beef products and repealing Council Regulation (EC) No 820/97.

How is the reference period of the administrative source determined?

Since the end of 1998, the entire Austrian cattle stock has been recorded in the Cattle Register. Since 1 January 1999, it has been obligatory, in line with the requirements of EU law, to report births and other changes within seven days of the change (birth, disposal, purchase, death) all changes must be

reported to the Cattle Register. Analyses can therefore be made for any reference date.

Completeness

Does the administrative source provide a complete data set?

If not, how is the missing information derived?

Yes.

Coherence

Have the figures provided by the administrative data set been compared with figures given by other data sets describing the same phenomenon (and if so, with what result)?

Yes. Comparisons were made between the analyses of the Cattle Register and the results of the livestock censuses. There was a close correlation between the results of the two data sources.

Accuracy

Has the data's accuracy been checked (and if so, with what result)?

Yes. The data were checked as part of the application to use administrative data from the Cattle Register instead of statistical cattle surveys. The use of data from the Cattle Register makes for greater accuracy and reliability of the results for the cattle population, as a series of checks are performed in the course of the administrative process.

FSS characteristics

...for which sources other than statistical surveys are envisaged to be used

A02 Less-favoured area

A02a Mountain area

A03 Agricultural areas with environmental restrictions

Source proposed

Brief designation

Area delimitations of the BMLFUW

Relevance and comparability

Correlation/discrepancies compared with definitions of FSS characteristics

The delimitation of "less-favoured areas" in Austria is done in accordance with EU rules.

For characteristic A03, areas defined as NATURA 2000 areas were used. In Austria, the *Bundesländer* are responsible for designating NATURA 2000 areas. The reported areas are tested by the European Commission for eligibility.

Clarity

Legal basis:

Less-favoured areas: Council Directive 95/212/EC of 29 May 1995 concerning the Community list of less-favoured farming areas within the meaning of Directive 75/268/EEC (Austria).

NATURA 2000 areas: Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora and Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds.

How is the reference period of the administrative source determined?

The most recent validated boundaries were used. Geographical attribution was determined by the place of establishment of agricultural and forestry holdings.

Completeness

Does the administrative source provide a complete data set?

If not, how is the missing information derived?

Yes.

Coherence

Have the figures provided by the administrative data set been compared with figures given by other data sets describing the same phenomenon (and if so, with what result)?

Yes. Comparisons were made between the results of the Farm Structure Survey and the actual areas in accordance with the territorial divisions. It should be borne in mind that for the purposes of the Farm Structure Survey, all areas of agricultural and forestry holdings are attributed to the area of the place where the holding is established, even if its land lies partly outside the territorial borders. It should also be noted that agriculture and forestry are not practised in every defined territory.

Accuracy

Has the accuracy of the data been checked (and if so, with what result)?

Agricultural and forestry holdings were attributed by Statistics Austria to individual territories on the basis of the holdings' place of establishment.

Processing administrative data

For cultivated areas on arable land and set-aside areas, the LFRZ was tasked by the Federal Ministry of Agriculture with analysing IACS data. To this end, however, Statistics Austria had to provide the attributions of the available IACS data in the context of multiple applications to the headings required by the FSS survey programme. The data file compiled by the LFRZ contained the data on individual holdings required for amalgamation with the Farm Structure Survey, i.e. the communal or holding number and individual area data were known for every holding.

Analyses of the Cattle Register and the information on ecological holdings were made available by the Federal Ministry of Agriculture. The territorial divisions of less-favoured areas were also transmitted by the Ministry of Agriculture. These data were made available to Statistics Austria in electronic form and processed by its IT Dept. With a view to linking the various data sets, the administrative data had to be processed and entered in the mainframe computer. Areas defined as NATURA 2000 areas were made available by the Tyrol Government (Coordination Point for NATURA 2000 Delimitation in Austria).

Combining administrative data from other sources with data on holdings from the Farm Structure Survey

The differing purposes of subsidy administration and statistics led to discrepancies when administrative data were combined with data from the 2007 Farm Structure Survey. In order to combine the data sets from various sources appropriately, searches had to be undertaken with a view to correcting the discrepancies.

The problems arose mainly as a result of:

- different holding numbers for statistical and subsidy purposes;
- amalgamation or division of holding units for subsidy administration purposes;
- differing treatment of Alpine communities, and
- different definitions for statistical and subsidy administration purposes.

3.4.4 Data checks

The questionnaire was designed in such a way that certain data items were checked for plausibility before being entered or before the questionnaire was sent out, with the result that serious errors did not go undetected and were not accepted. Preventive measures were also taken to avoid instances of individual questionnaire sheets inadvertently being "skipped over": the marker was required to enter either "No entries on this page" or "The entries on this page are complete" on every page of the questionnaire.

Formal checks on the data involved a plausibility program containing about 100 plausibility rules. The program was developed in cooperation with the IT Dept. Care was taken to ensure that missing, incorrect and implausible entries were detected by the program and either highlighted or immediately corrected.

The plausibility rules made distinctions between the following types of error:

- Automatic errors

These were errors that could be automatically corrected using programmed instructions - for example:

- ◆ In the case of holdings owned by legal persons, entries under "family workers" were deleted.

- Information errors

This mainly involved identifying input errors. Limit values were incorporated into the program for certain items in particular, e.g. to prevent entries being made in the wrong units of measurement (for example m²) in the case of specialised crops. If these limits were exceeded, this fact was reported. Processing staff then had to investigate or use their specialised knowledge to confirm that the data were correct or make the necessary corrections.

- Other errors

Processing staff had to correct these, either by consulting the information providers or on the basis of their specialised knowledge.

The functionality of the plausibility program was first checked using fictitious holdings. The correction applications contained a number of deliberate errors in order to check whether the program would recognise and report them.

Micro-level processing was carried out by means of extensive plausibility checks. The errors detected (incorrect entries, missing or implausible data) had to be investigated and rectified by the processing team. Errors were eliminated and plausibility checks carried out directly via the application. The correction application is designed to prevent further work until certain points, such as invalid coding or miscalculated totals, have been corrected. Once the data sets have been processed, they are rechecked by an extensive plausibility program. Holdings for which errors still remain are listed and must be processed once again. This process is repeated until the program detects no more errors or inconsistencies.

The corrections are made by specially trained staff of Statistics Austria. In the plausibility work, particular attention is given to large holdings, so as to prevent area underestimates. A comparison was made with the previous Farm Structure Surveys (1999 and 2003), and holdings with substantial area discrepancies (200 ha difference in farms of up to 1 000 ha or a 20% discrepancy in farms of more than 1 000 ha) were listed. Years of experience show that area figures (especially for Alpine pastures and wooded areas) are very often missing in this domain, but can be corrected by researching the available data sources (applications for Alpine farming incentive grants, forestry yearbook, etc.) or by telephoning the respondents.

3.4.5 Non-response

To minimise non-response through unreturned questionnaires, Austrian local authorities are involved in carrying out the survey. These authorities are well acquainted with local circumstances and are, in most cases, familiar with the agricultural holdings in their area. The local authorities also have to ensure that all questionnaires are returned, and it was their responsibility to ask the holdings (either in person, over the telephone or in writing) to complete the questionnaire. Some 1 300 respondents which had failed to complete the questionnaire on time, or which had filled it in incorrectly, had to be reminded, by registered letter. Some local authorities and holdings then requested a new deadline for returning the forms. Such holdings were partly targeted by telephone-interview procedures by staff at Statistics Austria.

There were a variety of problems:

- **Accessibility:** respondents could not be contacted, either by telephone or in person, or appeared at the local authority's offices to provide information only after repeated requests.
- **Refusal to provide information:** extensive explanations or persuasion were often needed to induce respondents to provide information. Farm owners who still refused to provide information were asked once again by Statistics Austria in May 2006 via the responsible administrative agencies to take part in the administrative procedure. Since Statistics Austria has no powers to implement administrative penal procedures, the corresponding notifications for these holdings had to be reported to the responsible local authorities (*Bezirkshauptmannschaften*), which are responsible for legal prosecutions in Austria. The approach was that a fine was imposed, plus a respite for late registration of the necessary data. Apart from a few exceptions (0.5% of holdings), the persons concerned tended to show comprehension and completed the questionnaire.
- **Completing the questionnaire themselves:** some farmers stated that they would complete the questionnaires themselves, but then failed to do so, or only after repeated promptings.
- **Loss:** if a questionnaire was lost, Statistics Austria had to issue another copy.

For the hotline staff at Statistics Austria, a list of frequently asked questions was compiled as a means of preparing them for questions from "difficult" respondents. These colleagues also helped the survey bodies associated with the "difficult" respondents.

3.5 Data processing, estimation and analysis

3.5.1 Methods for handling missing or incorrect data items

The data sets were checked for missing, incorrect or implausible information, using an extensive plausibility program. About 30% of the holdings with missing, incorrect or implausible data were detected by the program. For each holding, all errors were listed and categorised (automatic, information, other). These error lists were used as a processing aid by Statistics Austria's project teams which were authorised to process and rectify the data sets.

The correcting operations took place via a correction application in the mainframe system.

The staff themselves could correct logical obvious errors. Missing or incorrect entries were completed from other data sources wherever available (e.g. administrative data from IACS or ÖPUL) to avoid burdening the respondents. The forestry yearbook, containing the areas of Austria's largest forestry holdings, was another means of checking data, but even the information on applications for the petroleum tax refund were used for error-checks. If these sources were not exhaustive, individual items from the 1999, 2003 or 2005 Farm Structure Survey were used, wherever possible, to supplement and/or check the data. Where this did not provide clarity, individual holdings had to be contacted by telephone.

Moreover, the nil returns were examined. If, for example, administrative information on the holding was available, the holding was surveyed again. This was done in close collaboration with staff dealing with the Agriculture and Forestry Register, as the information from the nil returns (business closure, leasing, etc.) were used for updating the registers.

Most input errors were identified and corrected by the plausibility program.

3.5.2 Estimation and sampling errors

- **Extrapolation (weighting)**

AS07 was analysed using free extrapolation.

x_{bhj} denotes the expression of a quantitative characteristic (area, livestock population, etc.) of holding j in *Bundesland* b and stratum h , n_{bh} denotes the size of the sample (= selected holdings – missing reports) in stratum bh , and N_{bh} denotes the number of holdings in the sampling frame in stratum bh . Each data set was weighted by the extrapolation weighting N_{bh} / n_{bh} .

The estimate for the characteristics sum \hat{X} is therefore the weighted sum of the characteristic values $\hat{X} = \sum_{j=1}^{n_{bh}} \frac{N_{bh}}{n_{bh}} x_{bhj}$

The tabular presentation was made on Statistics Austria's IBM mainframe, with the help of a dedicated PLI program.

- **Random error**

The variance $S_{\hat{X}}^2$ of estimate \hat{X} is equal to $S_{\hat{X}}^2 = \sum_{b,h} \frac{(N_{bh} - n_{bh})}{n_{bh}} N_{bh} s_{x,bh}^2$

$$\text{where } s_{x,bh}^2 = \frac{\sum_j x_{bhj}^2 - \frac{\left(\sum_j x_{bhj}\right)^2}{n_{bh}}}{n_{bh} - 1}$$

The simple standard error is $\sqrt{S_{\hat{X}}^2}$

The standard error was also calculated using Statistics Austria's IBM mainframe, with the help of dedicated PLI programs.

3.5.3 Non sampling errors ⁽¹⁾

Undercoverage

There is no undercoverage of agricultural holdings because newly created holdings usually submit subsidy applications and their administrative data are used for inclusion in the Agriculture and Forestry Register.

Over-coverage

None.

Misclassification

Did not occur.

Contact errors

Documents had to be reissued to 1 100 holdings whose documents had been lost or mislaid. About 300 holdings (approximately 0.75% of the number to whom the documents were sent) whose documents were returned to Statistics Austria as undeliverable because of incorrect or incomplete addresses were identified with the help of the communes, and the documents were resent.

Measurement errors

Most entry errors (e.g. incorrect units of measure) by respondents and/or survey bodies were identified by plausibility checks and corrected.

⁽¹⁾ *Non sampling error* is error attributable to any factor other than sampling. Non-sampling errors arise during the planning, conduct, data-processing and final estimation stages of all types of survey.

Processing errors because of transmission

Where Internet problems occurred, there were occasional instances of data sets being only partially transmitted.

Non-response

- Holdings which had been sold or otherwise ceded: 1 130
- Holding does not satisfy the survey characteristics: 5 010
- Refusal to respond: 168
- Other reasons (e.g. owner of holding deceased without successor, owner gone abroad and whereabouts not known, nil return because of holdings having been merged, etc.): 435

In the case of sample surveys, instances of non-response from holdings must be included in the extrapolation. However, a distinction must be made here between “genuine” and “false” non-response. “Genuine” non-responses concern holdings that still exist but for which there are no data. “False” non-responses are units which no longer exist at the time of the survey. Whereas “false” non-responses are recorded in the survey as nil returns, and have no effect on the extrapolation factor, that factor has to be applied to “genuine” non-responses.

Non-response

The questionnaire was designed in such a way that it could only be sent once the compulsory fields had been correctly completed. This made it possible to reduce the non-response rate. Moreover, various tests were performed as part of the plausibility check.

3.5.4 Evaluation of results

Once the processing was complete, the results were extrapolated. These were then checked at macro-level and compared with the results of the 1999, 2003 and 2005 Farm Structure Surveys, and with other available sources such as the Cattle Survey, subsidy data, the Livestock Register, and information on organic farms, etc. For some characteristics, wherever necessary, micro-level sample-based verification was performed. Because of the disparate aims, definitions, etc. of the various data sources, and as a result of the sample-based extrapolation of the results for the 2007 Farm Structure Survey, the results do not provide a 100% match.

4. PUBLICATION AND DISSEMINATION

For sampling reasons, the results of the 2007 Farm Structure Survey are published only at NUTS 2-digit level.

The sampling plan for the Farm Structure Survey is tailored to the NUTS 2-digit level, not to analysis at NUTS 3- or 5- digit levels.

EUROSTAT – Eurofarm data base and various publications

Individual data on each holding unit in accordance with EU criteria and requirements are transmitted to EUROSTAT via eDAMIS for entry in the Eurofarm data base and publication purposes.

Publication of results at national level

Publication of the results of the 2007 Farm Structure Survey is scheduled to take place as follows:

- **Press release**

The most important data will be available in the form of a press release containing preliminary national information in the 4th quarter of 2008.

The press release will be made available on the Internet at www.statistik.at.

- **Internet:** On Statistics Austria's homepage in the 4th quarter of 2008

- **Rapid report**

Furthermore, a rapid report containing the results (text and tables), concepts and definitions will be published in the 4th quarter of 2008. The legal basis, survey implementation and processing of the survey results will also be discussed. The publication will be completed by textual analyses of the results compared with those of previous surveys, supplemented by comparative tables and graphs.

Pursuant to the Federal Statistics Act 2000, in the version in BGBl. I No 136/2001, BGBl. I No 71/2003, BGBl. I No 92/2007, Statistics Austria is obliged to make the main results available via the Internet free of charge. They are available at www.statistik.at.

The rapid report is available on the Internet free of charge as a pdf file or, for a fee, in booklet or electronic form (Excel file).

- **Statistische Nachrichten**

The *Statistische Nachrichten* will examine various topics arising from the Farm Structure Survey. In addition to describing the method and results, the articles contain graphs as an aid to interpretation.

- **Statistical Yearbook, Agricultural Statistics and Farming in Figures ("Zahlenspiegel")**

Various Statistics Austria publications contain contributions setting out the results of the Farm Structure Survey.

These publications, which include a CD-ROM, are also available for a fee. They can also be downloaded as pdf files free of charge at www.statistik.at.

- **Standard documentation; meta-information**

(Definitions, explanatory notes, methods, quality)

Concepts, definitions and explanations relating to the information on the 2007 Farm Structure Survey, plus notes on the methods used and on quality, are available free of charge, in a standardised form, at www.statistik.at.

- **LFBIS (Agricultural and Forestry Holdings Information System)**

The Regulation governing the Farm Structure Survey obliges Statistics Austria to transmit the data to the Federal Minister of Agriculture for entry in the LFBIS.

Access to data on individual holdings

Under the Federal Statistics Act 2000 (in the version in BGBl. I No 136/2001, BGBl. I No 71/2003, BGBl. I No 92/2007), access to data on individual holdings is, on data protection grounds, only available to certain persons, and under certain conditions. Moreover, it is only allowed to communicate data on individual holdings if the legal basis contains specific provisions for doing so. Thus, as part of the 2007 Farm Structure Survey, data on individual holdings are transmitted to the Federal Minister of Agriculture. Austria applies a special rule to cooperation between Statistics Austria and the Statistical Offices of the *Bundesländer*. In order to avoid duplicate questioning, and on economic grounds, individual data must be made available, on request, to the appropriate authorities at *Bundesland* level, pursuant to a written agreement between the Federal Government and the *Bundesländer* on cooperation in matters relating to Federal statistics, so that the Statistical Offices of the *Bundesländer* can perform their tasks. The data may only be used for statistical purposes and are subject to the legal provisions governing data protection.

Alignment of master data and standardisation of registers

The use of various data sources, especially administrative data, makes it essential to focus on standardising and coordinating the register units when aligning the Agriculture and Forestry Register with the Registers used for processing subsidy applications. This will simplify survey implementation and processing and the amalgamation of data sets in future. The current revision of the Agriculture and Forestry Register is expected to improve the integration of administrative data.

Use of administrative data

Statistics Austria intends to continue making greater use of administrative data in future, as a replacement for its own surveys. This is required under the

Federal Statistics Act 2000 (as amended), which came into force on 1 January 2000, and also serves to reduce the administrative workload on farmers/respondents.

Coordination of lists of characteristics and standardisation of concepts and definitions

In order to facilitate the inclusion of administrative data in the statistical surveys and in order not to confuse respondents unnecessarily, the list of characteristics were coordinated with each other and the descriptors, concepts, explanations and definitions were standardised.

Lastly, Austria recognises that forestry does not have the same economic importance throughout the EU as it does in Austria. Many Austrian holdings include forests which make a substantial contribution to their total output.

REFERENCES

National laws and regulations:

- Federal Statistics Act 2000, BGBl. I No 163/1999, in the version in BGBl. I No 136/2001, BGBl. I No 71/2003, BGBl. I No 92/2007
- Ordinance of the Federal Minister for Agriculture, Forestry, the Environment and Water Management on the Compilation of Statistics on the Farm Structure and the National Livestock Herd in 2007, BGBl. II No 310/2007

Community Regulations:

- Council Regulation (EEC) No. 571/88
- Council Regulation (EC) No. 2467/96
- Commission Regulation (EC) No. 2139/2004
- Commission Regulation (EC) No. 204/2006
- Commission Decision 2007/80/EC.

ANNEX

Survey form for the 2007 Farm Structure Survey

See "**AS2007_Webfragebogen-Screenshots-web.pdf**" (enclosed)