

9 April 1997
Original: ENGLISH

ECONOMIC COMMISSION FOR EUROPE

FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

CONFERENCE OF EUROPEAN STATISTICIANS

Study Group on Food and Agricultural
Statistics in Europe

(Geneva, 30 June-3 July 1997)

Item 11 of the provisional agenda

A STUDY ON CLASSIFICATION OF AGRICULTURAL HOLDINGS IN TURKEY

Document submitted by the State Institute of Statistics of Turkey ¹

I. INTRODUCTION

1. In this study, the Turkish agricultural holdings were classified according to their type of farming and economic size. The EU typology system was applied to Turkish agricultural holdings, in order to compare the similarities as well as the differences between the Turkish agricultural holdings and the EU's.

II. SOURCES OF DATA

2. Most of the agricultural holdings in Turkey do not keep accounts. Therefore, in order to determine gross margins and specific variable costs, the 1994 Crop Budget Information Form compiled by provincial branches of the Bank of Agriculture were used. In addition, the results of the survey on input use and costs of temporary crops for the year of 1994 carried out at the provincial level by General Directorate of Agricultural Crops and Improvement of the Ministry of Agriculture and Rural Affairs were also utilized for the missing crops in the first survey.

1 Document prepared by Mrs. Aype Arslan, Department of Agriculture and Industry Statistics.

3. The Agricultural Holdings (Households) Survey of the 1991 General Agricultural Census (G.A.C.) conducted by the State Institute of Statistics was used as the farm structure survey. This survey was carried out in 4,000 sample settlements. From each settlement, 8 households were drawn by the systematic sample selection method. From the total of 31,762 households surveyed, 31,695 holdings were employed in this study.

III. CALCULATION OF STANDARD GROSS MARGINS

4. For all enterprises, gross margin is the difference between the monetary value of agricultural production (gross production) and the main specific costs corresponding to the production concerned. Gross production is the sum of the value of the principal products and of the secondary products.

5. For crops, gross production was calculated by multiplying average yield by average sales price of crop concerned in each province. The value of straw was included in cereals concerned.

6. Specific costs for crops changing from one crop to another consist of:

- seed and seedlings;
- inoculant;
- fertilizer;
- nitrogen,
- potassium,
- phosphorus,
- composed
- manure;
- crop protection products;
- herbicides,
- insecticides,
- fungicides
- packaging material;
- water for irrigation purposes.

7. For greenhouses, specific costs consist of:

- seed and seedlings;
- soil for seedlings;
- bag for seedlings;
- soil fumigation;
- manure;
- chemical fertilizer;
- nitrogen,
- potassium,
- phosphorus,
- hormone
- crop protection products;
- water for irrigation purposes;

- packaging material;
- covering material;
- heating (wood, oil, etc.);
- plastic rope.

8. The standard gross margins (SGMs) were only calculated for breeding livestock. Breeding bovine animals were broken down as culture, cross-breed and domestic. The gross production for breeding bovine animals is the value of the milk and young animals. The gross production for sheep is the value of the milk, young animals, and wool, for angora goats, it is the value of the milk, kids and angora, and for ordinary goats, it is the value of the milk, kids and hair.

9. For breeding livestock, specific costs consist of:

- feed;
- concentrated feeding,
- barley,
- bran,
- dried hay,
- bagasse,
- silage,
- salt-marble dust,
- straw
- energy and water;
- health and hygiene (vaccine, medicine, veterinarian);
- other specific costs.

10. The SGMs correspond to a production period of 12 months (calendar year). Although SGMs are calculated from arithmetic averages for three years or three agricultural production years in the EU typology system, for this study, SGMs were calculated only for the year of 1994.

11. The SGMs for crops were determined on the basis of area expressed in decare. The SGMs related to livestock were determined by head.

12. The SGMs relating to all enterprises were calculated on the basis of 9 agricultural regions. The gross margin of each individual enterprise was firstly computed on the basis of province, and then the arithmetic mean of gross margin of each individual enterprise was used to obtain the standard gross margin of it at regional level. The 9 agricultural regions and provinces covered in each region are given in Appendix 1.

13. For some characteristics in the list of characteristics for the farm structure survey, SGMs were not calculated, since those characteristics were not reported in the Agricultural Holdings (Households) Survey or gross production or specific costs related to those characteristics were not compiled. Those characteristics are as follows: Fodder roots and brassicas (D12); Flowers and ornamental plants (D16 and D17); Arable land, seed and

seedlings (D19); Other arable land crops (D20); Nurseries (G05); Permanent crops under glass (G07); Mushrooms (I02); Equidea (J01); Pigs (J11, J12 and J13); Poultry (J14, J15, J16 and J17); Bees (J18). The data for J02 to J10 was modified according to available data since the number of animals obtained from the Agricultural Holdings Survey was not appropriate for age groups in the list of characteristics. For this study, type of animals and age groups are:

- Breeding bovine animals
- Cattle
 - i) Cow (culture), two years and older
 - ii) Cow (cross-breed), two years and older
 - iii) Cow (domestic), two years and older
- Sheep and Goats
- Sheep
 - i) Female, one year and older
 - Ordinary goats,
 - i) Female, one year and older
 - Angora goats
 - i) Female, one year and older

14. Standard Gross Margins calculated are given in Table 1. The standard gross margin of market garden was used for both melon and water melon and the standard gross margin of citrus fruit was applied to mandarin, lemon and sour orange. The standard gross margins of other vegetables and other fruits were used for all vegetables and fruits grown, but the standard gross margins were not calculated, in each region.

15. Standard gross margins in TL are converted to ECU by using the exchange rate of 1994:

$$1 \text{ ECU} = 35,535 \text{ TL} \quad (\text{Eurostat, 1995})$$

16. Using SGMS calculated by region, the 31,695 holdings selected by the sampling method in the Agricultural Holdings Survey were classified according to their type of farming and economic size. The number of sample holdings classified were then expanded to regional and national levels, to obtain the economic size and type of farming for 4,059,586 holdings in Turkey.

17. Special cases

- i) Only one SGM was calculated for each crop without differentiating for types.
- ii) For holding with cattle, cow vetches, alfalfa, sainfoin and beets for fodder were treated as if they had a SGM value of zero. The cost of these crops was deducted when the SGM value was calculated for cattle. For holding with no cattle, any fodder crops were normally treated in the same way as other crops and corresponding

SGM values were applied.

- iii) The same SGM values were used for the first cultivation and the second cultivation of crops concerned.
- iv) The standard gross margin for permanent pasture and meadow (F01/F02) was assumed to be 1 ECU.
- v) In the Agricultural Holdings (Households) Survey of the 1991 GAC, if a holding had two or more different fruits in the same orchard, the area of this orchard was considered as the area of the fruit having the largest number of trees. So standard gross margin was applied only for this fruit and the others were disregarded.
- vi) Dry onion and dry garlic were classified as field crops.

Eurostat,(1995). Basic Statistics of the EU Comparison with the Principal Partners of the European Union. 5E. Luxembourg.

IV. DETERMINATION OF THE ECONOMIC SIZE OF AGRICULTURAL HOLDINGS

18. To derive the economic size of holdings in ESU, the scale of each enterprise in decare or by head was determined for each holding. The scale of each enterprise was multiplied by the appropriate SGM to find out the enterprise SGM. The total standard gross margin of each holding was computed by summing up the different enterprise standard gross margins. Then, the economic size of each holding in ESU was obtained by dividing total standard gross margins by 1200 ECU. The holdings were classified into one of nine size classes.

19. The number of holdings in Turkey by their economic size at regional level are given in Table 2. According to the results, 90.69 percent of the holdings in Turkey are in the size class of less than 4 ESU. It means that the annual gross margin of these holdings is approximately less than 170 billion TL for 1994. In accordance with the EU typology system, these type of holdings are very small holdings.

V. DETERMINATION OF TYPE OF FARMING OF AGRICULTURAL HOLDINGS

20. The type of farming of a holding was determined by the relative contribution of the various types of enterprise to its total standard gross margin. The specialized holdings on crop farming were classified by general and principal types of farming. Since the data is not available in the detail of the list of characteristics, a different kind of classification from the EU typology system was adopted for the animal husbandry. The farming types used are given below;

1. Specialist field crops
11. Specialist cereals
12. General field cropping
2. Specialist horticulture
20. Specialist horticulture
3. Specialist permanent crops
31. Specialist vineyards
32. Specialist fruit and citrus fruit
33. Specialist olives
34. Various permanent crops combined
4. Specialist grazing livestock
Specialist cattle
Specialist sheep and goats
Various livestock combined
6. Mixed cropping
60. Mixed cropping
8. Mixed crops - livestock

21. The number of agricultural holdings in Turkey by general and principal types of farming is given in Table 3 and Table 4 at national and regional levels. In Turkey, mixed cropping-livestock holdings constitute a sizable proportion. According to the results, the number of these holdings is 1,039,207 which represents 25.60 percent of the total. This group is followed by the groups of mixed cropping with 14.76 percent, specialist cattle with 13.45 percent and general field cropping with 13.21 percent.

22. The number of holdings by general type of farming and land size is presented in Table 5. When the number of holdings by land size is considered, it is observed that the number of specialist grazing livestock and mixed cropping-livestock holdings concentrates in holdings with less than 19 decares. In the 50-999 decare group, holdings are mostly specialized on field crops and mixed crop-livestock activities. Most of holdings operating more than 1,000 decares of land are specialized on field crops.

VI. COMMENTS

23. New studies such as setting up a threshold that excludes small farms, establishing farm registers and redesigning the available questionnaire considering the list of characteristics or designing a new questionnaire should be carried out to be able to adopt the EU typology system.

24. Input subsidies are an important component of agricultural support policies in Turkey. Therefore, the specific costs deducted from gross production are biased downwards and small. So it seems that we might have the same results by using the gross production for each enterprise.

25. In this EU system, it appears that the economic size classes are not appropriate to economically analyze the agricultural holdings in the countries

like Turkey, where the agricultural holdings concentrate in the size class of less than 4 ESU.