

# Twenty years of agriculture in Europe

## Ever larger holdings but different economic situations

Claude VIDAL

### Statistics in focus

#### AGRICULTURE AND FISHERIES

THEME 5 – 9/2000

#### AGRICULTURE

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### Ever larger holdings

Farm numbers declining as farms grow in size! This is the conclusion that can be drawn from observing the number and size of holdings over thirty years (Statistics in Focus N° 1/2000 - theme 5).

This conclusion summarises a variety of national situations and trends. Nevertheless, it highlights a link between the number of agricultural holdings (5.8 million in 1975 compared with 4.2 million in 1997 for EU-9), their physical size<sup>1</sup> and their economic size<sup>1</sup> (Figure 1).

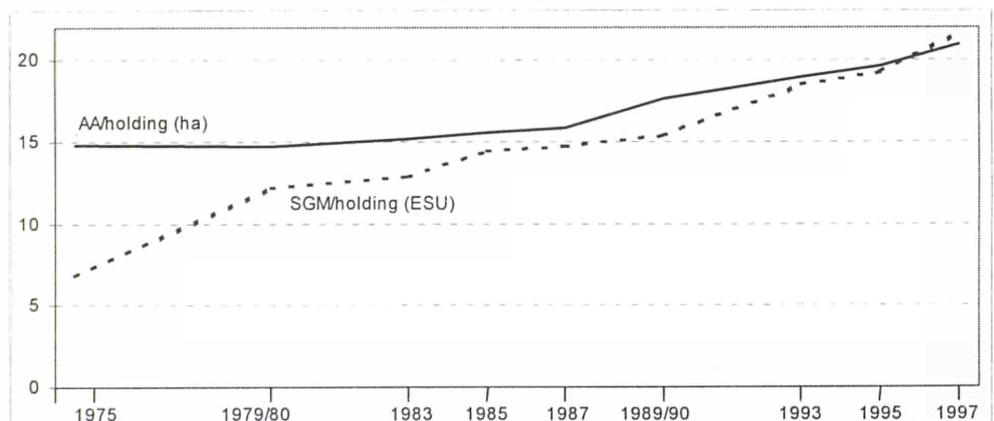


Figure 1: trend in the physical size (UAA) and economic size (SGM) of holdings in EU-9

The link between the number and physical size of holdings is above all a mathematical one. An overall stable UAA is being spread over fewer holdings.



<sup>1</sup> For more precise definitions, refer to Box 2 on page 7.



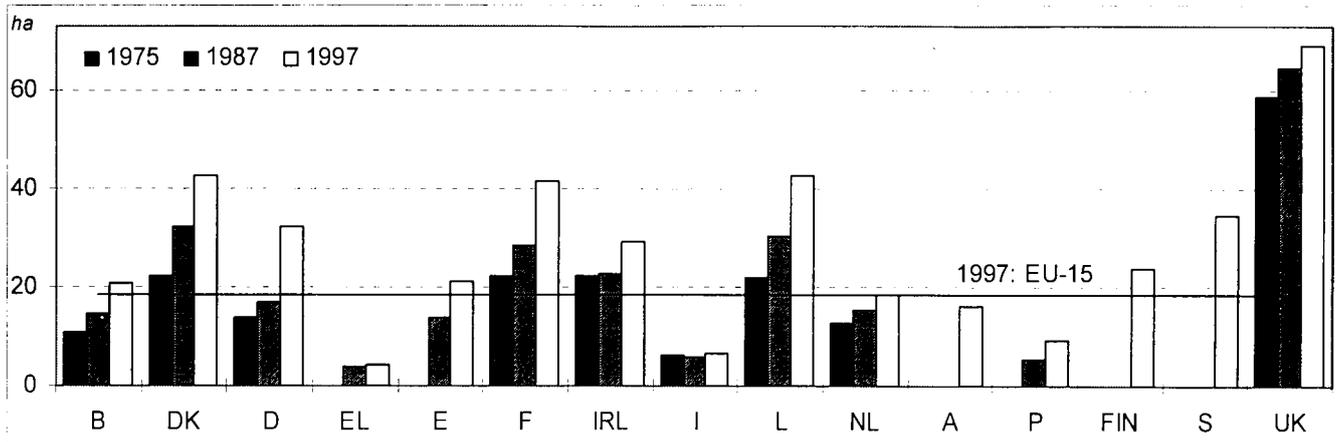


Figure 2: UAA per holding in 1975, 1987 and 1997

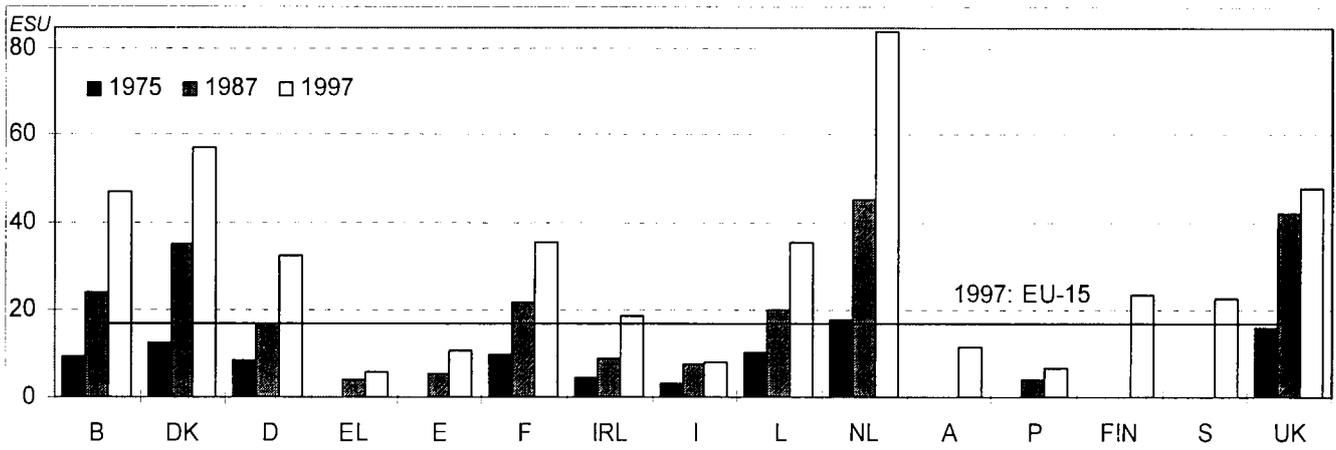


Figure 3: standard gross margin per holding in 1975, 1987 and 1997

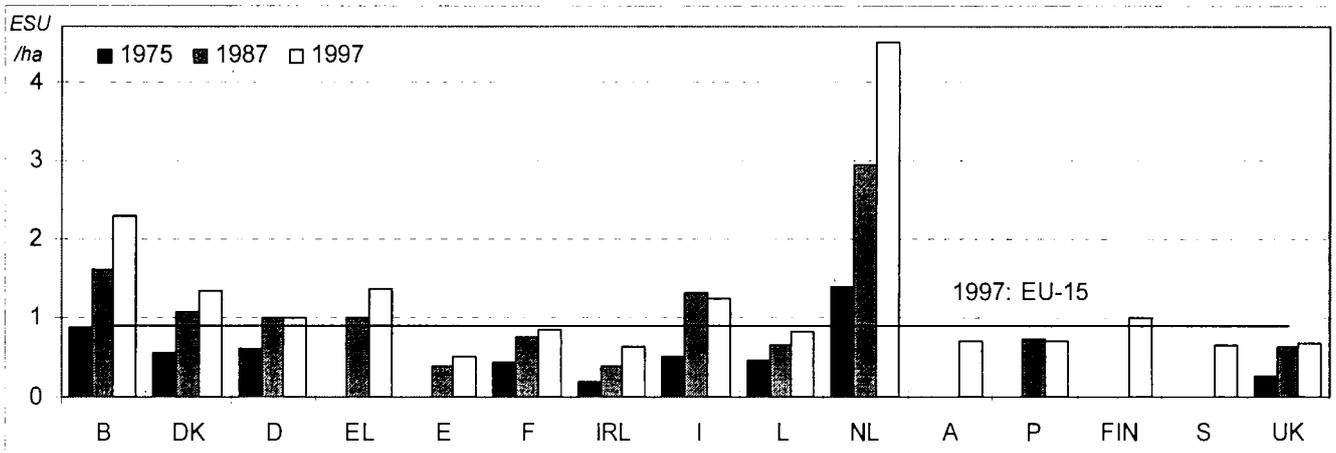


Figure 4: standard gross margin per hectare in 1975, 1987 and 1997

The difference in the average economic size of holdings from one Member State to another is the result of specific national situations (physical size and intensification), specific sectoral production characteristics (the economic context) and/or averages which have a blurring effect on much more marked regional phenomena.

However, it would appear that the physical and economic size and the link between them are significant in this sense. The average UAA of holdings is a good indicator of their number and physical size in that the overall UAA varies little. The SGM/ha depicts the degree of intensification and economic context.

*Box 1: ratio between SGMs and UAA of holdings in regions of EU-15 (1997)*

The graphs on the opposite page show the link between SGM and UAA per holding for each European region (level NUTS 2). The national and regional averages are represented by dots. Regions are linked to the countries they belong to. The resultant "spiders" stress the regional diversity of farming in some countries (France, Germany, Spain, United Kingdom) and the apparent uniformity of others.

For these different diagrams, the proportions are maintained, even if the scale changes. To facilitate comparisons, two markers have been introduced:

- the symbol  $\boxtimes$  represents the EU-15 average in 1997 (18.4 ha and 16.7 ESU per holding),
- the dotted line represents the average SGM/ha for EU-15 in 1997; its slope is 0.91 ESU/ha.

The slope of the line joining a point and the origin of the graph represents the SGM/ha (Figure 5).

The less steep this slope is, the lower the SGM/ha. This is the case of extensive grazing stock holdings (with few inputs), represented in a schematic distribution of the dominant production factors (Figure 6).

Conversely, the steeper the slope, the higher the SGM/ha. This is the case of horticultural holdings and off-field holdings of grain-fed livestock (pigs, poultry) and holdings specialising in permanent crops (PC). The latter are on average the smallest in economic terms.

Arable land crop holdings (AL) have medium SGMs/ha. The smallest are vegetable-growing holdings (v) and the largest are those specialising in cereals and oil and protein crops. Dairy cattle holdings are physically large (forage areas) and their SGM/ha varies with the degree of intensification.

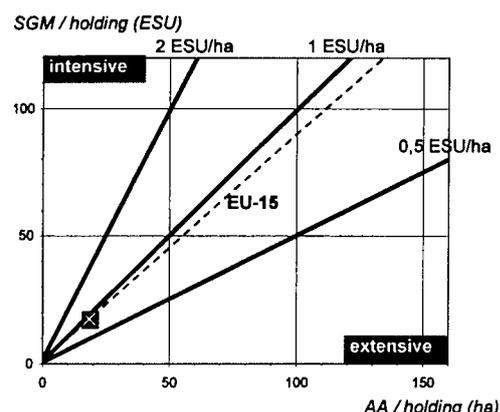


Figure 5: SGM, AA and intensification

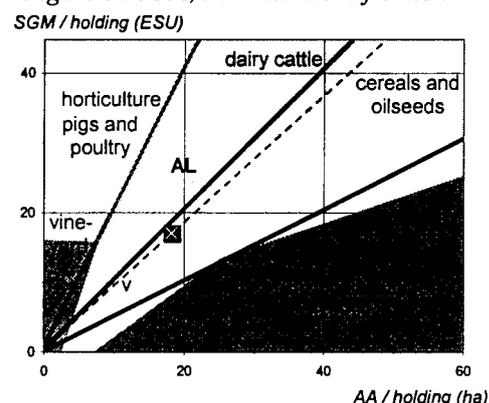


Figure 6: scheme for the link between UAA, SGM and types of production

## The result of varied regional situations

- One should note the case of **the five new German Länder** (Figure 7), which are still characterised by their organisation into large agricultural structures before reunification. Their SGMs/ha are not much lower than the European average. In view of their physical size, the holdings have a much greater economic size than anywhere else in Europe. The only European regions with fairly similar characteristics are *East Anglia*, *East Midlands* (United Kingdom), *Ile-de-France* and *Picardie* (France), which are main crop regions. These new *Länder* finally have little influence on Germany's agricultural structures since the national average is not very much affected by these extremes.
- In France and the United Kingdom (Figure 8), and in Italy and Germany, there is substantial **regional diversity**, which emphasises the wide range of types of farms. This aspect should be seen together with the fact that regional averages themselves are an aggregation of, in some cases, fairly different situations.
- **Specific cases** can be highlighted, however:
  - the Netherlands, Belgium and Denmark are classed as countries of intensive farming, since the structure of agricultural holdings there is highly rationalised and production has been optimised (Figure 9);
  - in the countries of medium-intensity farming, the SGMs/ha are similar to each other and close to the European average. In Finland, regional price support has a blurring effect on diversity (Figure 10);
  - the countries of southern Europe, including Austria, are characterised by holdings with a small economic or even physical size (Figure 11 and Figure 12);
  - some European regions such as *Scotland* (United Kingdom), *Alentejo* (Portugal), *Castilla-León*, *Aragón* and *Extremadura* (Spain), which are disadvantaged, have very low SGMs/ha. They have generally very little effect on national averages, with the exception of *Alentejo*.
- The most **intensive regions** in Europe are Madeira and Liguria, with 9.4 and 6.7 ESU/ha, but they are marginal in area terms. The average SGM/ha is 0.71 ESU/ha in Portugal and 1.3 ESU/ha in Italy, compared with 4.5 ESU/ha in the Netherlands (the highest national average).

Link between SGM and UAA of holdings at regional level in EU-15 (1997): Figs 7 to 12

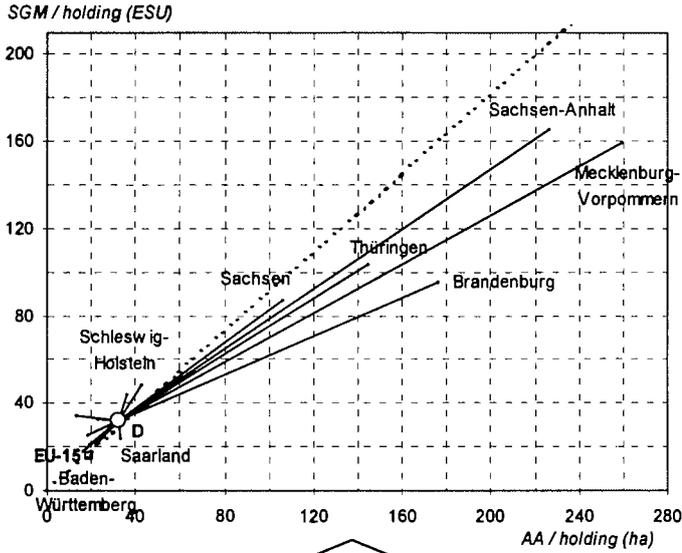


Figure 7: the importance of new Länder in Germany

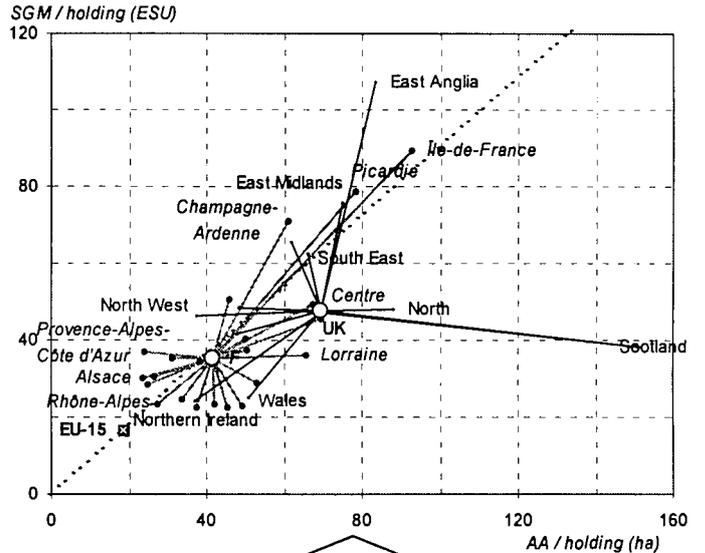


Figure 8: countries with varied characteristics

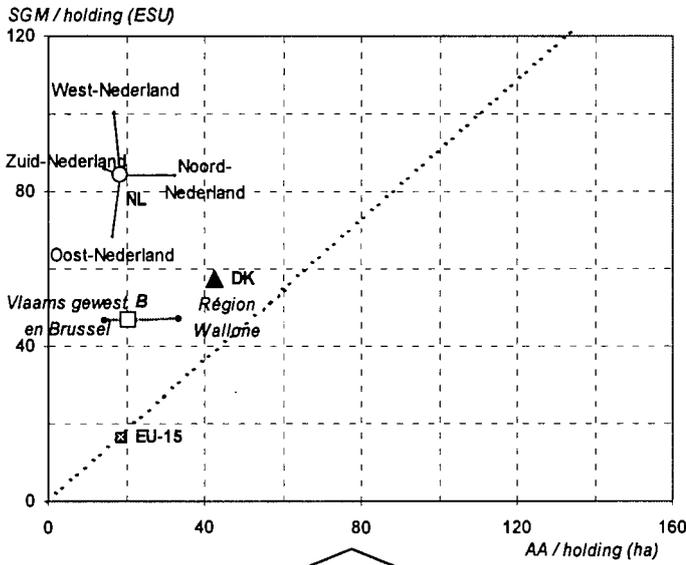


Figure 9: countries with intensive agriculture

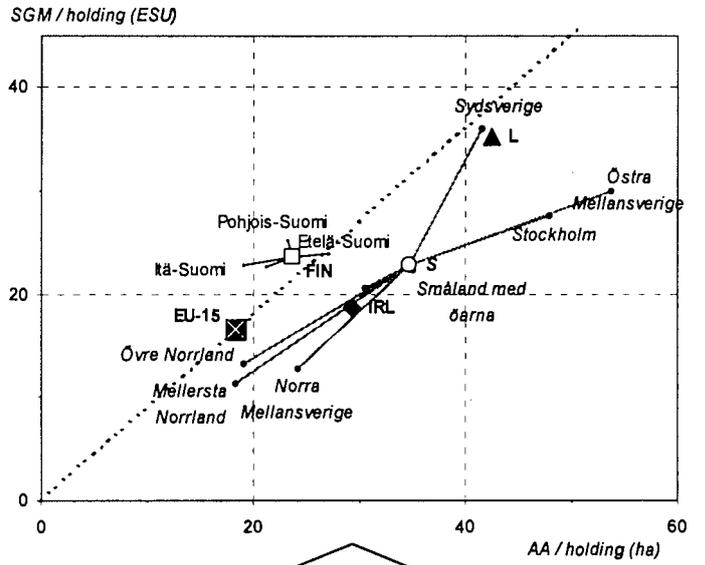


Figure 10: countries with medium-intensive agriculture

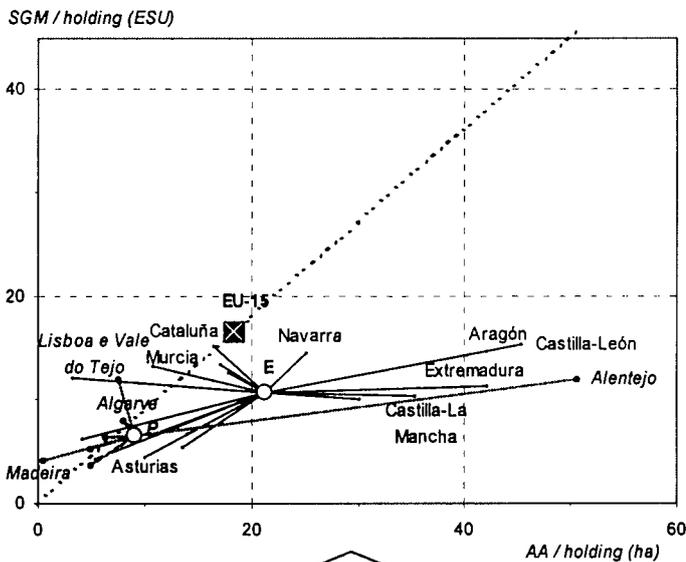


Figure 11: the Iberian Peninsula

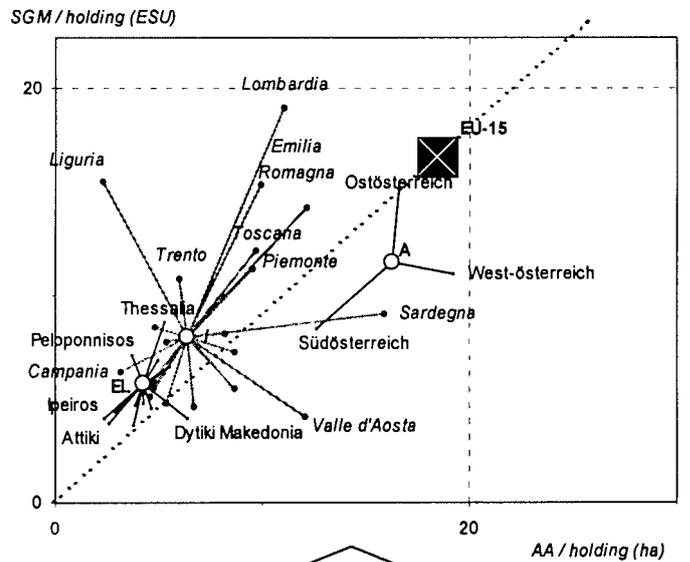


Figure 12: the Europe of small holdings

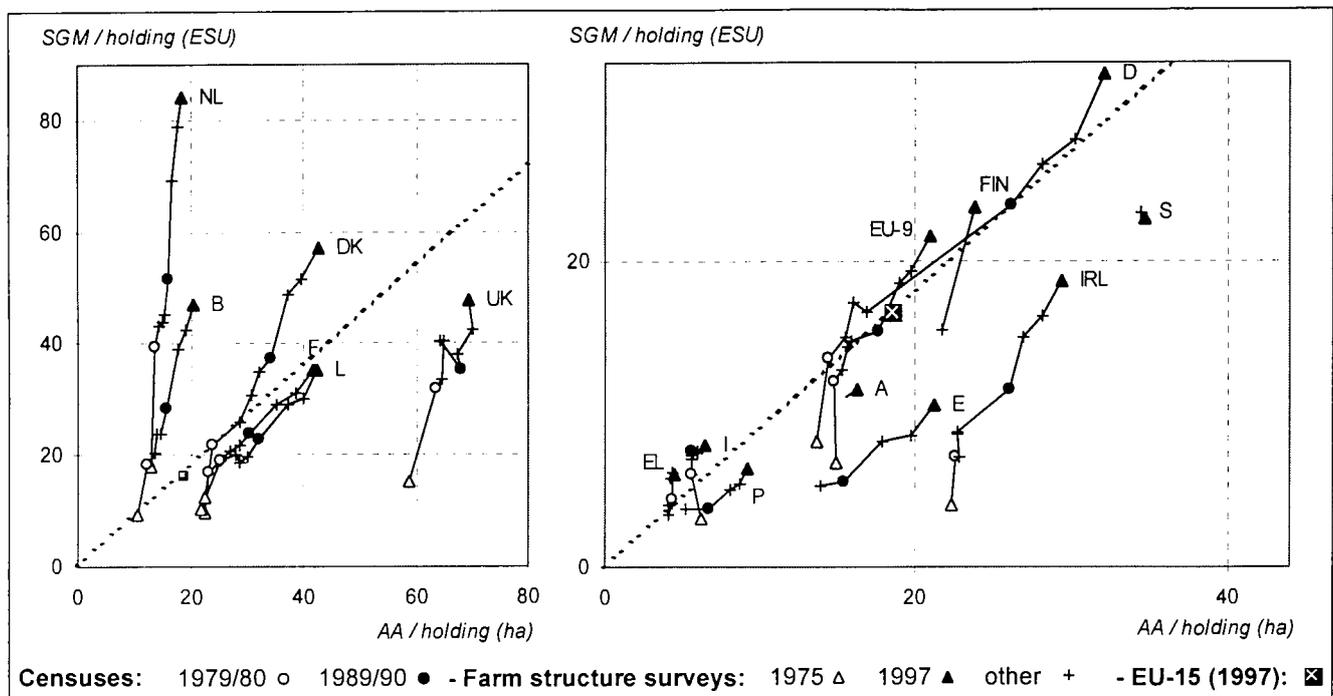


Figure 13: trajectories of holdings at national level according to UAA and SGM

### Specific national trends

The depiction of trends in national averages also allows different types of behaviour to be brought out (Figure 13).

The trajectories represent an overall trend in agriculture. For each country, they are the result of a combination of effects for different types of production and different regions. These effects may be cumulative or offset each other. If the trajectory is radial (with the line passing through the origin of the reference plane), the SGM/ha is constant and the proportionality between the physical and economic size is maintained.

- In the **Netherlands** and **Belgium**, the physical size of holdings is almost stable, but the increase in the SGM/ha is higher than the European average. This is the result of the adaptation of farming practices to economic conditions. The continuous increase in the economic size of holdings is reflected by a vertically ascending trajectory.
- In **Germany**, reunification has a clear influence on the national trajectory between 1987 and 1989/90, with a clear increase in the size of holdings. The SGM/ha goes down and they only recover their 1987 level 10 years later.
- **Denmark** and **Ireland** develop a combination of an increase in the physical size and SGM/ha: in other words, of the economic size of holdings. **Germany** before reunification has a comparable trajectory if the effect of reunification is discounted. In **Finland**, the same phenomenon is observable, but only between 1995 and 1997.
- **Greece** and **Italy** benefit from an increase, albeit irregular, in the economic size of their holdings only, up to 1990: the result of gains in productivity and a favourable economic situation. The fall in SGM/ha for Italy after 1990 and for Greece after 1993 is explained by the already mentioned impact of the state of the market for crop products.
- In **France** and **Luxembourg**, diversity smooths out the effects of random short-term economic factors to produce a profile similar to that of EU-9.
- **Spain**, clearly distinguishes itself from the other countries of southern Europe with a net physical increase in agricultural structures.
- Although the restructuring of agriculture in **Portugal** after its entry in EU-12 is reflected by an increase in the physical size of holdings, this aspect declines in significance subsequently.
- In **Austria**, between 1995 and 1997, the size of holdings changed very little. In **Sweden**, the apparent stability is the effect of a change in the threshold for the size of holdings surveyed between these two dates.
- In the **United Kingdom**, in the period 1980-1990, there was a decline in the SGMs/ha of holdings fattening cattle (-26% between 1985 and 1990) and a reallocation of part of the area under forage crops to extensive sheep farming. The portion of holdings specialising in *non-bovine grazing livestock* (farmltype<sup>1</sup> 44) doubled, increasing from one in six in 1980 to one in three in 1990. Their SGM/ha is 0.17 ESU/ha or 4.5 times less than that of other British holdings.
- This reallocation of areas under forage crops after the introduction of milk quotas (1984) is noticeable in Germany to a lesser extent. In Ireland, the sheep population almost tripled in the 1980s. The size of this change was under-estimated in the intermediate surveys (1983 to 1987) and reassessed in 1989/90. They are thus less abrupt than they appear.

### a) physical size of holdings

The **physical size** of agricultural holdings is measured by the **utilised agricultural area** (UAA). This is expressed in hectares (ha) and includes arable land, permanent grasslands and pastures, areas under permanent crops and kitchen gardens. They exclude areas not used by the holding.

### b) gross margin

On a holding and for each type of farming (for example, production of wheat, cows' milk, quality wine, sheep meat, etc) the **gross output** is calculated. This is the economic value of the main product (for example, wheat) and secondary products (for example, sold straw) including specific aids (premiums). **Specific costs** are production costs which can be allocated directly to this production (e.g. seed, fertilisers, plant protection agents, irrigation water, feed, veterinary fees, packing, harvest labour, etc). The **gross margin** (or profit on sales) is the difference between gross output and specific costs.

The gross margin is normally used to compare production opportunities. It is an indicator of the intensity of production for a particular farm activity, and of the economic advantage of different types of activity.

### c) standard gross margin (SGM)

For farm structure surveys, the gross margin is not calculated for each holding. Its estimation, the **standard gross margin** (SGM) is obtained via the following methodology:

1. estimation for each farm activity of the SGM per hectare (crop production) and SGM per livestock unit (livestock production) at regional level for an average of three years;
2. reallocation of the partial SGMs per farm activity to holdings in proportion to the areas or livestock population;
3. consolidation of different partial SGMs at holding level.

### d) European size units (ESU)

The SGM may be expressed in monetary units. This allows a comparison for a given date within one and the same monetary zone between different types of farming or holdings. The **European Size Unit** (ESU) is a reference unit used at European level to express the total SGM of a holding. The ratio of monetary values to ESUs thus varies over time. An ESU was equivalent to ECU 1000 in 1975 and to ECU 1200 for the 1997 survey.

### e) uses of SGMs

The SGM expressed in ESUs is used (i) to classify holdings according to their **farm type** and (ii) as an indicator of the **economic size** of holdings.

When expressed on a per hectare basis, it depicts the **intensity of production** and the **quality of the economic environment**.

Production is said to be intensive if it provides a high yield over a small area, and it is described as extensive in the opposite case. For other intensification indicators, the SGM can be standardized by any other appropriate production factor (size of livestock, manpower, etc). However, this use may be more than the SGM can bear.

The quality of the economic environment refers mainly to the upstream (agricultural suppliers) and downstream (agricultural products) markets. But it also includes national, regional or sectoral characteristics such as direct aid for products, prices, or the effects of different rates of inflation between countries on the prices of agricultural products and/or products needed by agricultural holdings.

### f) limits of SGMs

The SGM is an estimate per type of farming at regional level. Therefore, it is only meaningful at a more general spatial or sectoral level (national level or aggregation of farm types).

The economic values used for calculating SGMs per type of farming are collected over a period (three years) prior to the survey year. For "fluctuating" types of production (where volume and price may vary substantially from one year to another) there may therefore be a time lag between the technical values (volumes) and economic values (prices).

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## For information on methodology

Claude Vidal in collaboration with Pol MARQUER, Eurostat/F1, L-2920 Luxembourg, Tel. (352) 4301 32636, Fax (352) 4301 37317, E-mail: claud.vidal@cec.eu.int  
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