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EUROPEAN COMMUNITY EXPERIENCE IN COSTS OF PRODUCING WHEAT

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INTRODUCTION:

Wheat is a major French and European commodity. There are approximately 400 000 wheat producers in France producing 25 million metric tons of wheat on 4 million hectares. E.E.C. wheat production is slightly higher than 70 million metric tons.

French wheat production is very intensive, as in all of the northern plains of Europe. Soft wheat is the main type of wheat produced in these plains while Durum is cropped in the Mediterranean regions of the E.E.C.. Yields are high in relation to North American standards. France averaged up to 6.4 metric tons per hectare in 1989, but production typically varies from 4 to 9 tons per hectare. These yields require high levels of nitrogen ranging from 150 to 200 units per hectare in three applications, similar to the U.S. corn production.

All French wheat producers belong to the Association générale des Producteurs de blé (A.G.P.B.), which is similar to the U.S. National Association of Wheat Growers.

DAEA

1990

Wheat - cost of production

A.G.P.B., which is funded by wheat growers, owns two major organizations. The Institut Technique des Céréales et des Fourrages (I.T.C.F.), provides extension information to producers on how to improve production. The second organization is UNIGRAINS which is a bank, owned and financed by the cereal growers. This bank does not loan to producers but finances the processing of cereal and animal products.

UNIGRAINS estimates the costs of production for wheat, barley, corn, rapeseed and sunflowers. However, only wheat will be discussed in this paper, as it features the most detailed analysis.

This paper has the following objectives :

1. to present information regarding the costs and returns of French wheat production.
2. to evaluate the cost of production, study its trends and compare costs with the prices over time.
3. to compare the French situation with European and North American competitors.

GENERAL METHODOLOGY:

Unigrains initiated French cost of production data for wheat because neither the Ministry of Agriculture, nor research institutions or universities could provide information about this subject. Two methods of assessing cost of production were considered:

1. starting from standards of production, in terms of labor, machinery and prices of inputs. This approach however cannot meet the high variability in European actual farm conditions.

2. considering the total farm and the total of its costs. Farm costs will likely not be equal to an optimized farm in terms of some inputs such as machinery or labor. But this method reflects the exact conditions of production in Western Europe, and in France.

UNIGRAINS selected the second method, but did not have the resources to build a sample of cash grain farms. So, the selection was made using existing data. Three sources are available in France:

1. The European Community Network of Farm Accounts, as Réseau d'Information Comptable Agricole, RICA, in France, which is the basis of the so called "objective method" of price establishment by the Commission, but no longer used for this purpose. But RICA provides no crop enterprise data.

2. The National Institute of Agricultural Research, INRA, has a good sample, but is too small (two groups of 25 farms) and located in a very narrow region of the Paris Basin.

3. The Institut de gestion et d'économie rurale, IGER, a federation of local accounting centers for farmers and paid by users. IGER has a data bank, which collects farm accounting records all over France, on a regional basis (French Département). This allows geographical approaches. The problem is that these data are not homogeneous across Départements. However, Départements where cash-crops are relatively unimportant are unable to provide data. From this data bank, UNIGRAINS collects a sample of more than 3000 farms, located in 16 Départements (Figure 1).

In summary, IGER data do not precisely meet the study data requirements nor are they representative of the total

French production because they somewhat biased towards the Northern part of France, which is the specialised area in cash-crop farming. Nevertheless, the samples represent more than half of the French wheat production.

Each farm provides to the IGER data bank its general account and direct costs per crop. The direct costs are the following:

- seed;
- fertilizer;
- pesticide;
- custom operations, with corresponding labor included;
- and,
- French and European commodity specific taxes.

These taxes are included in the farmgate price and are paid by the farmers for each ton of wheat sold. French taxes calculations include wheat board (ONIC) and professional organisations, general agricultural extension services and a special added contribution to social security. This tax on the product, which is paid only on cereals and oilseeds, is added to the normal general farm taxes based on the acreage of each farm.

This level of the direct costs is named "variable expenses". The difference between receipts and variable expenses is Gross Margin and provides the basis for the choice between crops in the rotation.

Indirect cash costs. These indirect cash costs are:

- repairs;
- fuel, lube and electricity;
- hired labor;
- social security paid by the enterprise;
- insurance and general farm taxes;
- interests on operating loans; and,
- general farm overhead.

Allocation of indirect costs is always problematic.

Different type of allocation schemes have been tested on real farms where more detailed data were available. But the key has to be a very simple system that works for all farms. The results show that, for machinery, the best method is to allocate the cost in proportion of the acreage of the crop in the rotation; for other costs the best allocation system seems to be the proportion of the gross value of each production of the total receipts of the farm.

The sum of these cash costs constitute the level I structural expenses. Return over these expenses are not usually used by French farm management specialist.

Capital replacement and land costs are the level II structural expenses, which is a mix of cash and calculated costs. Capital replacement costs are extracted from the general farm accounts, which are based on French tax accounting rules. These costs are allocated in the same fashion as indirect costs. Machine costs are based on acreage; everything else is based on gross value. For land, no distinction is made between owned and rented land; all land is considered as rented, and in each Departement the cost of owned land is calculated in the same manner as rented land.

Return over variable expenses and levels I and II structural expenses, which is defined as "Agricultural Income", diagnoses farm business health and is used by both banks and government institutions. Other items are seldom calculated.

Unpaid labor, which is family labor, is estimated from actual presence of the family on the farm, and is considered to be fixed. Hence, family labor is generally over-estimated in comparison to technical requirements, but

this reflects the situation of French and European farms, where people are full-time farmers but are not fully employed. Family labor wage rates are set at hired labor rates in the Departement. Hence, there is considerable variability between regions.

The last item, the cost of non-land equity is seldom calculated by accountants. UNIGRAINS values non-land equity at a low rate of interest (6 %).

The following results of this research represent a weighted average of French production, the weighting is by the wheat production of each Departement.

MAIN RESULTS:

The composition of the cost shows the predominance of the structural expenses (level I + level II) which represents 50 % of the total expenses. The variable expenses reach only a third of the cost (Table 1).

TABLE 1: COST OF WHEAT PRODUCTION IN FRANCE, BY ITEM
(Crop Year 1987)

Item	French Francs per Hectare	US\$ (1987) per Hectare	Rounded %
Variable Expenses	2,255	375	28
Specific Taxes	515	86	6
Structural Expenses (Level I)	2,235	371	28
Structural Expenses (Level II)	1,880	312	24
Family Labor	845	140	11
Cost of Owned Capital	265	44	3

Source: UNIGRAINS

While the absolute costs levels are important, it is more important to consider how costs have varied over time. UNIGRAINS files began in 1982 but data collection and

processing delay the results; in the summer of 1990, only data for 1987 are available. Data for 1988 and 1989 costs are extrapolated by use of indices.

Main conclusions regarding the costs of wheat production in French francs overtime are (Figure 2):

1. From 1982 to 1986, the cost of production per hectare has risen 30 % then stabilized, in current value.
2. The variable expenses have slightly decreased after 1986, but it seems to be difficult to stabilize the structural expenses.
3. The cost per metric ton displays different patterns than costs per hectare, because of variations in yields: costs per tonne were stable from 1982 to 1984 (1984 yields were very high), a tremendous increase in 1985 to 1987 (bad yields), decrease in 1988 and finally stabilized in 1989.
4. Gross value of production per hectare has increased at a rate of 4 % from 1982 to 1986. The decrease and stabilisation in the following years was caused by the

European Common Agricultural Policy with the scheme of Maximum Guarantee Quantities which provides, as a result, a decrease in cereal prices of 3 % per year.

5. The net return to management and risk per hectare was positive the first years (1000 FF/ha - 143 to 124 US\$/ha following year value of US\$), null in 1985, very negative (- 700 to 800 FF/ha = -54 to -150 US\$/ha) in 1986 and 1987 and negative but near zero the last years.

Interestingly, trends in wheat production costs are considerably different when expressed in US \$ (Figure 3). The value of the US dollar increased by 37 % between 1982 and 1985, then decreased by 33 % from 1985 to 1987. The increase of the French cost per hectare in Francs from 1982 to 1986 is turned into a slight decrease in US dollars. The stabilization of the cost in Francs after 1986 appears as an increase in dollars.

From a European point of view, wheat production has not been profitable since 1985. As a result the cost per hectare has stabilized as farmers adapted to a changing less profitable environment. Other indicators, as the index of income of French cash grain crops, shows the same trend. In Francs, the decline reached 35 % in 5 years in

real value. Moreover, the disparity between the French farmers which are significantly larger than southern French farmers who have lower yields and incur more drought risks, is increasing overtime. Unfortunately, our data cannot precisely measure the differences.

COMPARISONS IN THE EEC:

UNIGRAINS has begun comparing the costs of production between different EEC countries. The costs of wheat production are compared based on 1988 data.

In all countries, except the United Kingdom, it is very difficult, as in France, to find good data. This task is made more difficult when the country has many small farms and is located in southern Europe. Data exist in Germany, but are not easily available. In Italy and Spain, very often, farm accounts simply do not exist, even for large farms. Hence, research is limited to specialized grain areas with full-time farming.

TABLE 2: COSTS OF PRODUCTION FOR WHEAT IN THE EEC
1988 CROP YEAR (COMMERCIAL ECU)

	FIONNA	LOWER SAXEN	EAST ANGLIA	PARIS BASIN	PO VALLEY	CASTILLA LEON
	DENMARK	GERMANY	U.K.	FRANCE	ITALY	SPAIN
Yield (t/ha)	7.2	7.2	6.9	7.3	6.7	2.7
Price per tonne	183	179	163	154	177	186
Cost per hectare	1,343	1,314	1,000	1,029	1,186 to 1,100	443
Cost per tonne	186	183	144	143	176 to 164	166
Net return per hectare after taxes	-31	+67	+83	+76	+1 to +85	+41

Source: UNIGRAINS

Inside the EEC, problems of currencies, government programs, taxes and price distortions exist in the same way

as between EEC and USA or Australia. Hence, the comparisons are not easily made, and the analysis had to be simplified. The general scheme of analysis is the same as in the first part of this paper but COP for France in Table 2, even price per ton, cannot be directly compared with those of Table 1. Nevertheless, a number of rough comparisons can be made based on 1988 crop year data:

1. In terms of cost per hectare, the lowest COP is in Castilla-Leon in Spain. Due to the low input intensity, it generates per hectare cost of only half of the European average. Cost per hectare in East Anglia in United Kingdom and Paris Basin in France are at the same level, approximately twice as high. The Pô Valley in Italy is 10-15 % higher than France and U.K., Fionna in Denmark and Lower Saxen in Germany are 30 % higher.
2. In terms of cost of production per metric ton, the results are more similar. The lowest costs are observed in East Anglia and Paris Basin, around 145 ECU per metric ton, 145 US \$ per ton for an exchange rate of 1 for 1 (which seems to be the long term rate), 169 US \$ for 1988 exchange rate and 178 US \$ for the exchange rate of July 1990. COP per tonne in the Pô Valley and Castilla Leon are 15 %

3. But, in the Common Market, prices are not equalized, because of monetary disparities. Prices are higher in countries where costs are high and the differences of competitiveness are restrained a first time.
4. In some countries, general taxation and government policies can cancel a handicap of competitiveness and reverse profitability patterns as in Germany.

CONCLUSION:

The following conclusions can be made from this analysis.

A large number of difficulties are encountered in both intra country and inter country comparisons. Intra country results can be improved by the establishment of series of COP. Nevertheless, the following problems must be addressed.

1. The sample has to be extended to the Southern regions of France, in order to have a more representative sample of French wheat production: this will be possible with time.
2. Comparisons with optimized costs have to be done. They will allow a better appreciation of progress in production costs.

2. Comparisons with optimized costs have to be done. They will allow a better appreciation of progress in production costs.
3. The study should include an examination of COP variability and its underlying causes.
4. The work with other European countries requires the building of a network of cooperation but will always suffer from the lack of data for some countries.

Annexes : detailed data.

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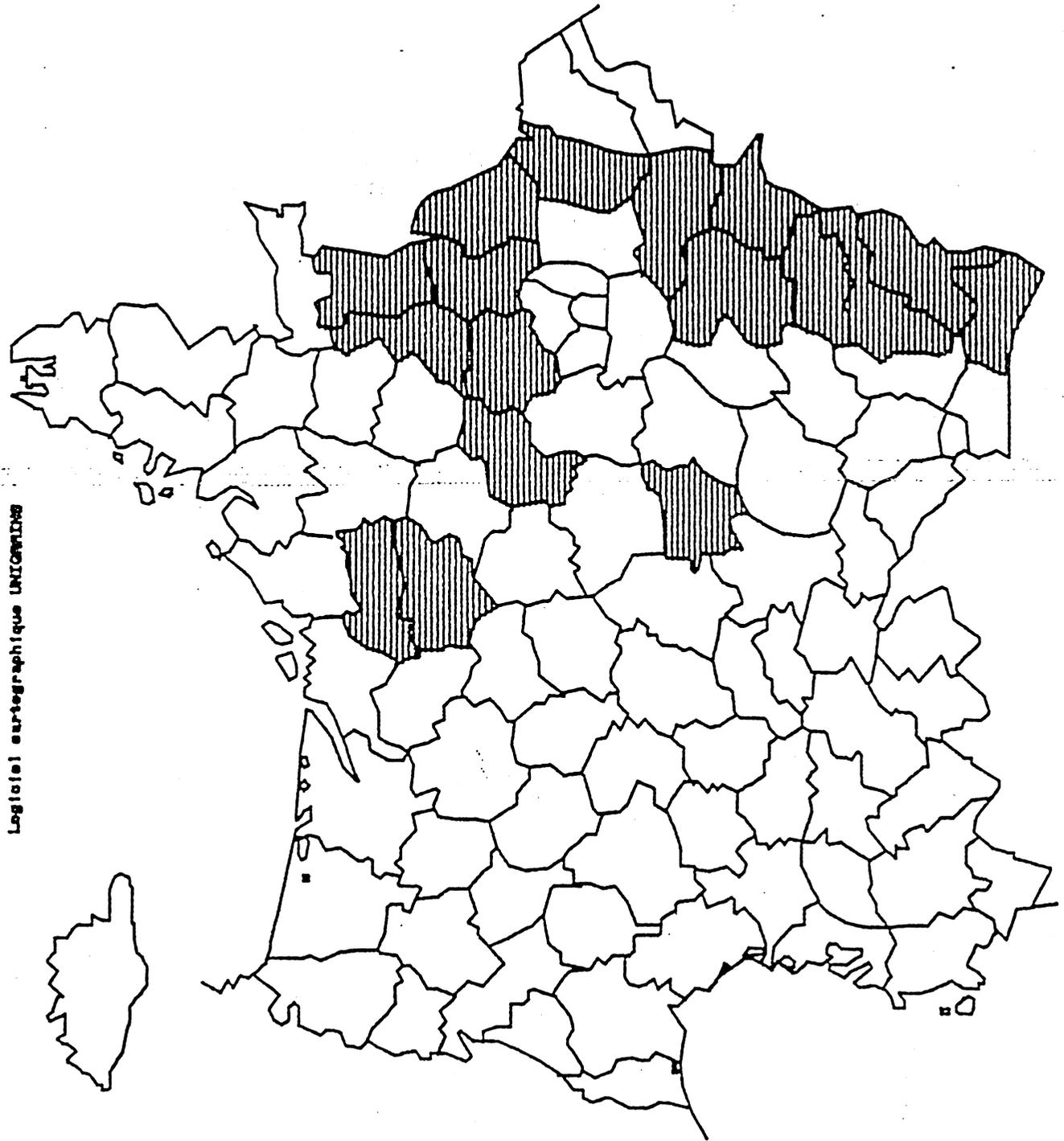
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G. Fulver,
August 20, 1990
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Figure 1

AREAS OF COST OF PRODUCTION SAMPLE

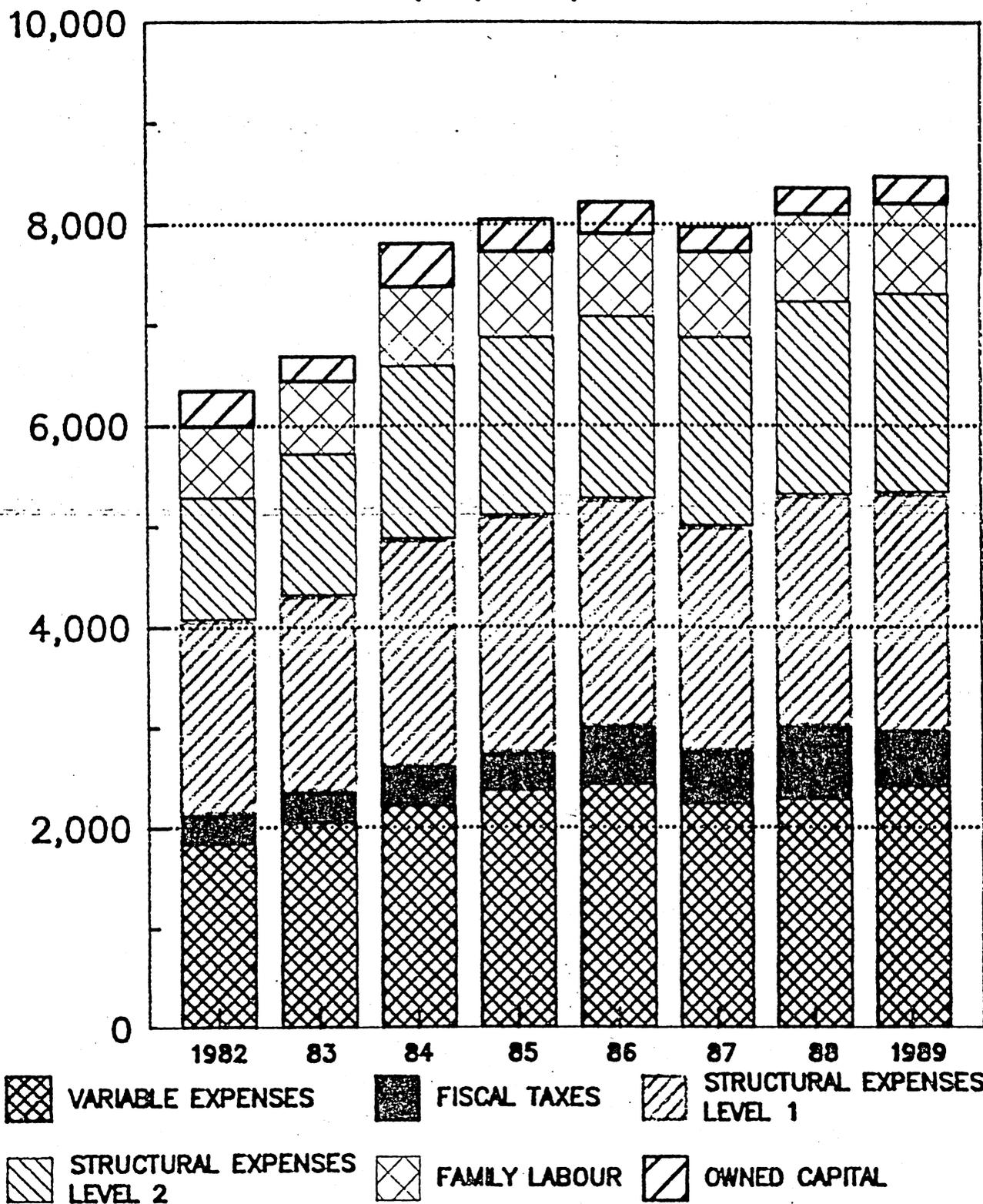


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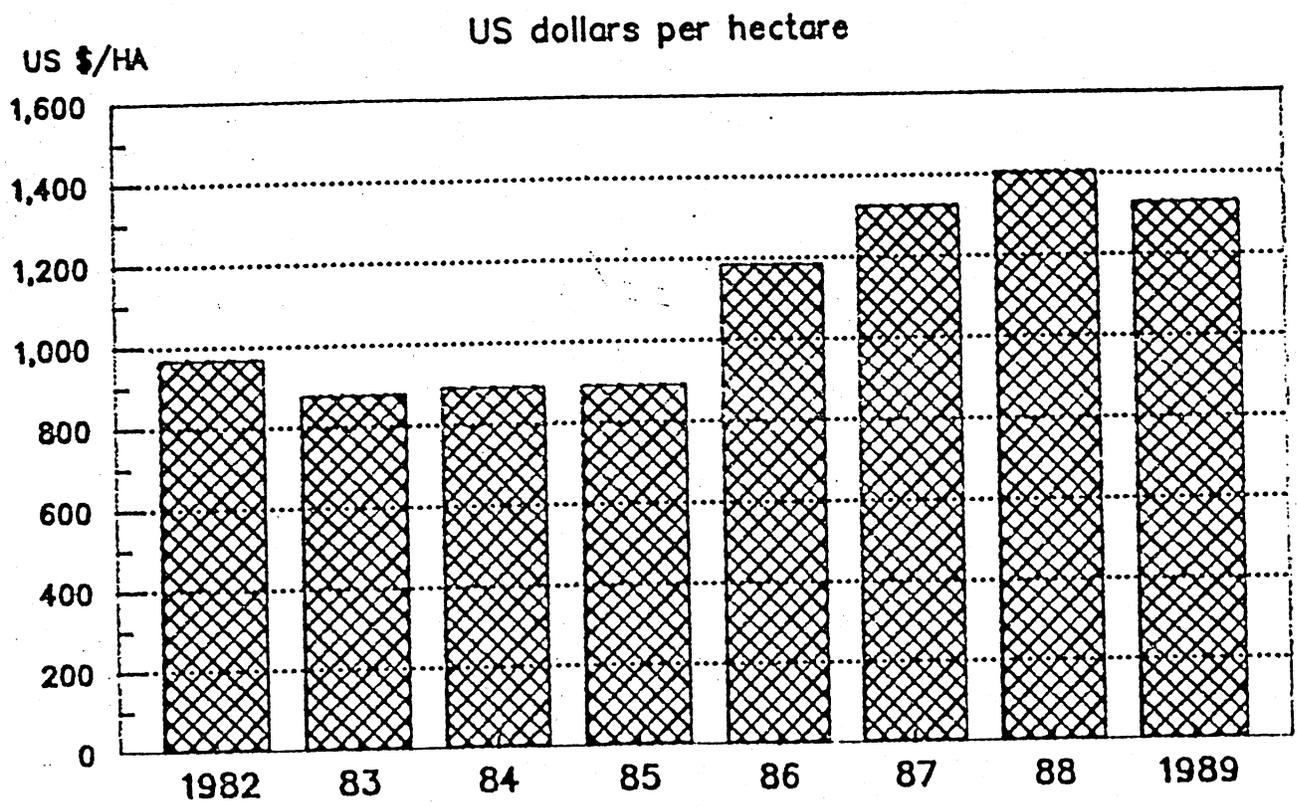
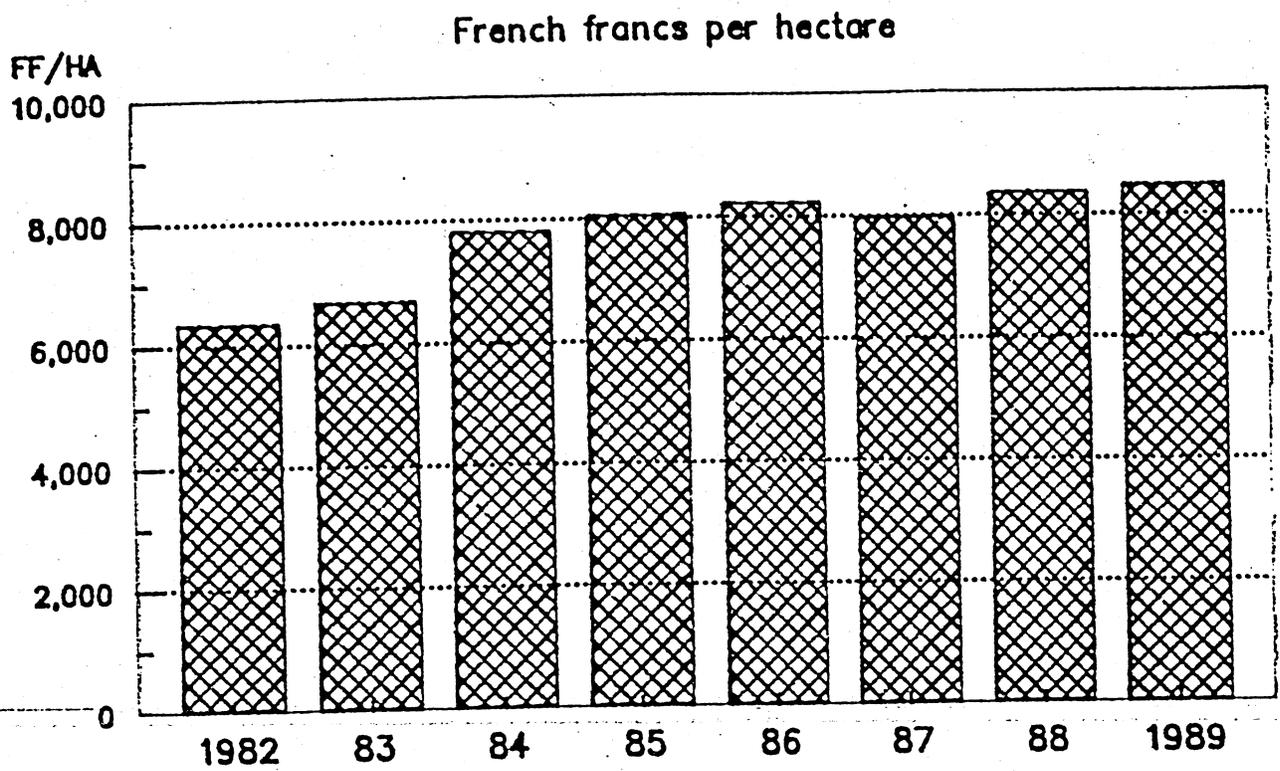
FIGURE 2

COST OF PRODUCTION OF FRENCH WHEAT (FF/HA)



COPFRWH.098031

FIGURE 3
EVOLUTION OF THE COST OF PRODUCTION OF WHEAT



EVOLUTION.098031