

# POSSIBLE FUTURE SCENARIOS FOR SICILIAN CEREAL CROPPING IN THE LIGHT OF CURRENT TRENDS IN AGRICULTURAL POLICY OF THE EUROPEAN UNION

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## **Abstract**

This paper sets out the results of a research project carried out by the University of Palermo and financed by the Sicilian Region, which aims to establish the impact of the Fischler Reform on Sicilian agriculture, and to project future scenarios that take into account some of the changes that the production process may undergo in the Region, following both the application of the Reform itself (now in force) and the eventual application of indications contained in the Health check.

The impacts of the Fischler Reform, and especially the application of the Single Payment scheme to companies, were examined in cereal cropping companies, especially considering the significant amount of durum wheat cultivation in vast areas of the Region's hilly and its strategic importance for many areas where there is a risk of farming being abandoned, with grave consequences for the territory and its farmland, for employment and for the encouragement of food and processing industries.

The chosen means for assessing the effects of the reform was that of direct interviews at a statistically representative sample made up of 400 agricultural companies, determining possible earnings within the current situation, but also in the eventuality of some of the indications in the Health check being applied.

The results indicate that Community aid plays a crucial role in the companies looked at, allowing them to remain on the market. Indeed, the elimination of the aid planned within the framework of the Common Agricultural Policy in the hypothetical scenarios showed a negative impact on earnings for the companies and could cause their exclusion from the market.

**Keywords:** CAP, Future of the CAP, Sicilian agriculture

**JEL Code:** Q10, Q18.

## **Introduction**

This paper sets out some of the results of a research project carried out by the University of Palermo<sup>1</sup> and financed by the Sicilian Region, which aims to establish the impact of the Fischler Reform on Sicilian agriculture, and to project possible future scenarios which take into account some of the changes that the production process may undergo in the Region, both as a result of applying the Reform itself (already in force), and due to the eventual application of some of the indications contained in the Health Check.

The first regulations package adopted by the Council in the area of the Reform took effect right across the whole agricultural support system (Reg.CE 1782/2003), in the first place, bringing in substantial changes to aid schemes for arable crops, live-stock breeding and nut production; it also brought about changes to rural development policy (Reg.CE 1783/2003) and more specifically, affected the policies of sectors of particular interest to Mediterranean agriculture.

This process of simplifying the Common Agricultural Policy included a project for the Organisation of a single market which, since the 1st January 2008 has united 21 common market organisations under a single regulation (Reg. CE 1234/2007), temporarily excluding the wine and horticultural CMOs, which have only recently been reformed.

More recently, carrying out a “Health-check” of the Common Agricultural Policy, the European Commission presented legislative proposals which changed the three main regulations on which CAP is currently based. Regulation CE 1782/03, regarding direct payments, was re-drafted with the aim of making the single payment process more effective and efficient, by: granting flat-rate aid, which can be introduced to member States via two different systems (homogenisation or regionalisation); the decoupling of aid that was still coupled; revision of art.69.

Responding to new opportunities offered by the market, the Commission also intervened in market-based instruments (regulation CE 1234/07), proposing the abolition of milk quotas (progressively over the following few years), of the set-aside (starting from 2009) and of some other aid schemes, amongst which aid for durum wheat producers. Finally, regarding rural development policy (regulation CE 1698/05) new aims were introduced in response to the new challenges of climate change, water resource management, and bioenergy. The aim of the Health Check, then, is to conclude a process which began with the Fischler Reform in 2003, making CAP more adaptable to market changes and focussing more on the second pillar of CAP by using new financial resources.

The proposals contained in the CAP Health Check, under art.69, foresee the continuation of some coupled aid, leaving the member States the discretionary power to choose according to the widest range of aid to distribute. As well as granting aid to farmers

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<sup>1</sup> The Impact of European Union Policy on Sicilian agriculture.

working in the three classic areas listed under art.69 (improving environment, food quality and market conditions), payment may also be made to help farmers who take out insurance policies to protect themselves from risks caused by natural calamities, and who belong to mutual trusts to cover economic losses due to plant or animal diseases; other aid schemes are also planned aiming at reducing the phenomenon where areas characterised by specific disadvantages, and vulnerable sectors (cattle, sheep and goat farming, and rice) are abandoned. Regarding durum wheat in particular, according to the Commission's proposal, from 2010 onwards the quality bonus (whose current value is 40 euros per hectare) and some other aid that is still coupled, will be decoupled and transferred into the single payment process for the period 2005-08.

First, the research team chose to examine the effects of the Fischler Reform, especially the application of the Single Payment scheme (SEPA) to Sicilian cereal cropping companies, for two main reasons: the significant amount of durum wheat cultivation in vast areas of the Region's hilly interior and its strategic importance for many areas where there is a high risk of farming being abandoned, with grave consequences for the territory and its farmland, for employment and for the growth of the food and processing industry; the initial application of the reform being mainly focussed on arable crop-growing and coinciding with the beginning of the research project (2005).

Regarding the first aspect, it should be noted that in Sicily during the three-year period 2005-2007, an average of about 303,000 hectares were committed to durum wheat cultivation (12% less compared to the average figure for the three-year pre-Reform period 2002-2004) representing 21.1% of the national figure. In terms of production, the island has contributed 19% to national production, with 779,000 tonnes over the last three years (5% more than the pre-Reform period).

This is the background, then, of the present study, which assessed the profitability of the farming by direct enquiry at the companies themselves, in order to assess not only the technical-economic aspects, but also how many companies were aware of the real impact of the new CAP and how they intended to respond to the new form community aid.

As well as meeting an important need for information feedback, then, this present study is also intended as a reference point for Regional policy-makers, of further use in applying the CAP Health Check.

### **Adopted method of work**

The procedure adopted to assess the impact of CAP reform on cereal cropping in the Sicilian region was based, as mentioned, on face-to-face interviews, and was carried out in five phases that are illustrated below.

1<sup>st</sup> phase: Structural analysis of the cereal cropping sector on the basis of cyclical and tax-based data provided by ISTAT, this being the only body able to provide information according to town locality.

2nd phase: Establishing key locations to be investigated; it was decided that the greatest attention should be concentrated on areas with high level of specialisation in wheat cultivation. To identify these areas, a specific coefficient was used, known as the *Localization Index* (W. Isard, E. Del Colle, G. F. Esposito), which takes into account the Utilised Agricultural Area (UAA), both as a total and in terms of crop production, based on data from tax assessment, using the following formula:

$$\frac{UAA_{j m}}{UAA_{j r}} - \frac{UAA_{tot m}}{UAA_{tot r}}$$

where “j” refers to type of farming in question, while “m” and “r” indicate respectively the municipality, and the overall Region.

The results show a high level of specialisation in production amongst certain Sicilian provinces, especially those of Palermo (0.82), Enna (0.69), Caltanissetta (0.64), Agrigento (0.55) and Catania (0.53); on the other hand, wheat cultivation is of little significance in terms of the total production of the region, in the province of Messina, where the coefficient takes on a negative value (-0.06), but also in Syracuse (0.12), Ragusa (0.13) and Trapani (0.27) .

Indicators were then established for each of the municipalities of the nine Sicilian provinces, so that it was possible to identify the locations where the importance of wheat farming was higher in relation to the overall Regional data.

3rd phase: Choice of the sample group; once the areas showing high levels of specialisation in wheat production had been identified, there followed the calculation of a sample group of companies to represent the universal whole, which were distributed according to the regional specialisation in the areas that had been identified. The stratified sample consists of 400 companies (a=5%; (1-a)=95%) distributed across the different provinces and municipalities and apportioned on the basis of the number of companies dedicated to durum wheat production (Table 1).

4th phase: Drawing up of a questionnaire to give to interviewees during the *face to face* in order to analyse management and company structure, and the effects of the reform in terms of structural and organisational changes made following its application.

5th phase: Processing collected data. Initially, there was a decision to concentrate this phase on a more limited sample of companies than the 400 that were interviewed – 187 companies located within the three provinces that were most representative of Sicilian cereal cropping (Caltanissetta, Palermo and Enna) according to the data emerging from reading the localisation index. Out of this group, those companies where the GSP of durum wheat contributed more than 50% to the total company GSP were selected, as they were considered

the most affected by European Community aid schemes regulation, but also by the application of new proposals contained in the Health Check; thus the number of companies was reduced to 90.

**Table 1 - Companies & their relative wheat-growing areas in Sicily**

Sicilian province	Company n.	% of total weight	Area (ha)	% of totale weight	Localization Index	Companies in sample
Agrigento	15,510	21.0	49,127.91	14.4	0.551765	84
Caltanissetta	11,401	15.5	52,346.99	15.4	0.640192	62
Catania	8,366	11.3	46,558.30	13.7	0.530073	45
Enna	9,642	13.1	58,522.09	17.2	0.692722	52
Messina	2,212	3.0	3,874.28	1.1	-0.061654	12
Palermo	13,449	18.2	72,696.25	21.4	0.820813	73
Ragusa	3,787	5.1	15,328.11	4.5	0.134215	21
Siracusa	2,469	3.3	14,499.58	4.3	0.121965	13
Trapani	6,940	9.4	27,112.92	8.0	0.272601	38
<b>Sicilia</b>	<b>73,776</b>	<b>100.0</b>	<b>340,066.43</b>	<b>100.0</b>		<b>400</b>

*Source:* Our processing of data from V Censimento generale dell'Agricoltura.

To process the economic figures, the companies were broken down into two sub-groups according to the contribution of gross production (GP)<sup>2</sup> of wheat to the company's total GP, one group representing between 50 and 75%, and the other group more than 75%.

An economic analysis based on information obtained directly from the companies and the processing of the data from the 2006-2007 campaign, allowed the economic results to be examined by establishing the Net Farm Product (NFP)<sup>3</sup>. Based on this, it was possible to effect simulations taking into account variations in the price of durum wheat (average price, maximum price and minimum price at which the product was sold in the two subgroups in question) and hypothesize, in a simulated scenario, the total removal of any form of community aid to the companies.

### **General characteristics of the companies studied**

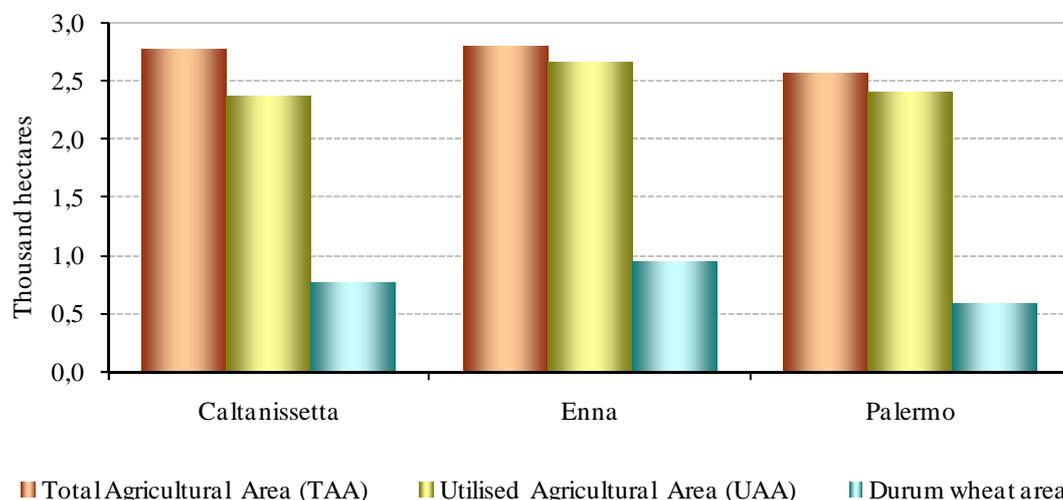
The field study initially involved 187 companies occupying a total area of 8,146.8 hectares, of which 7,441.9 hectares are used for agriculture. Concerning localization, most of the companies studied are located within the province of Palermo, with 73 companies (39% of the sample) occupying 2,563.4 hectares of land (31.5% of total land area); 62 companies are located in the province of Caltanissetta (33.2%) and cover an area of 2,778.6 hectares (34.1%

<sup>2</sup> Gross production (GP): value of crops, livestock and other farm products, including sales, redeployments, own consumption, variations in live stock and stored farm products. To this value is added the amount of subsidies received by each farm; the variable thus obtained measures the effective amount received by the farmer for his products.

<sup>3</sup> Net Farm Product (NFP): equivalent to value added minus depreciation. Represents remuneration of fixed production factors, independently of whether they belong to the family or are from outside the family.

of the total); finally, in the province of Enna, there are 52 companies (27.8%) with a total area of 2,804.8 hectares (34.4% of the sample area) (Figure 1).

**Figure 1 - Distribution of companies interviewed according to company size, area of land used for durum wheat, and province**



In terms of distribution of the studied companies in relation to the importance of durum wheat cultivation, it becomes evident that the most significant province is that of Enna, where durum wheat cultivation represents about 35.5% of UAA; more modest weights of grain come from Caltanissetta (32.0%) and Palermo (24.5%).

The companies that were analysed were medium-large. In all, average land area was 43 hectares, with an average of 39.8 hectares of UAA. There were substantial differences within the provinces, however. The largest average sizes may be found in the province of Enna (53.9 hectares), followed by Caltanissetta (44.8 hectares) and Palermo (35.1 hectares). However, averages are very much influenced by the presence of large-sized companies in the sample taken.

### **Economic analysis and simulations**

The companies examined in the simulation phase were 90 in all; these are farms where durum wheat production is important in terms of total GP (contributing more than 50%). As stated above, the sample group was divided into two sub-groups, the first including companies where the GP of durum wheat represents between 50% and 75% of total GP, and the second group including companies where the contribution to total GP exceeds 75%.

Amongst companies in the first group, the NFP achieved an average value of 97.7 € per hectare of farmed land, with a wide margin of variation in company size and farming techniques (Table 2). The study shows the importance of community aid contributions in terms of average impact on the value of GP, representing 55.7%.

**Table 2 - Net Farm Product (NFP) and main results of simulations (values in €/ha)**

	NFP	Scenario 1		Scenario 2		Scenario 3	
		Mean price (€/100 kg)	NFP	Max. price (€/100 kg)	NFP	Min.price (€/100 kg)	NFP
<i>1st Group</i>	97.7	23.1	96.1	35.3	283.0	17.7	20.5
<i>2nd Group</i>	97.6	25.1	102.8	40.8	418.7	18.0	-20.3

Source: Our processing of directly received data.

Hypothesizing that the grain is sold at the average price calculated for the sample companies during the year of research, the simulations show an almost negligible reduction in NFP. In this scenario, however, removing community aid would cause a swift fall in NFP from a starting point of 96.1 €/ha, down to -203.0 €/ha (Table 3 and Fig.2). In the second scenario, hypothesizing a maximum price of grain sends the NFP sharply up to 283 €/ha, a value which, were community aid to be removed, would decrease dramatically to about -16.1 €/ha. Finally, in the third scenario, applying a minimum price of grain would reduce the NFP to 20.5 €/ha; also in this case, the elimination of any form of community aid would cause a dramatic fall to an earning of -278.7 €/ha.

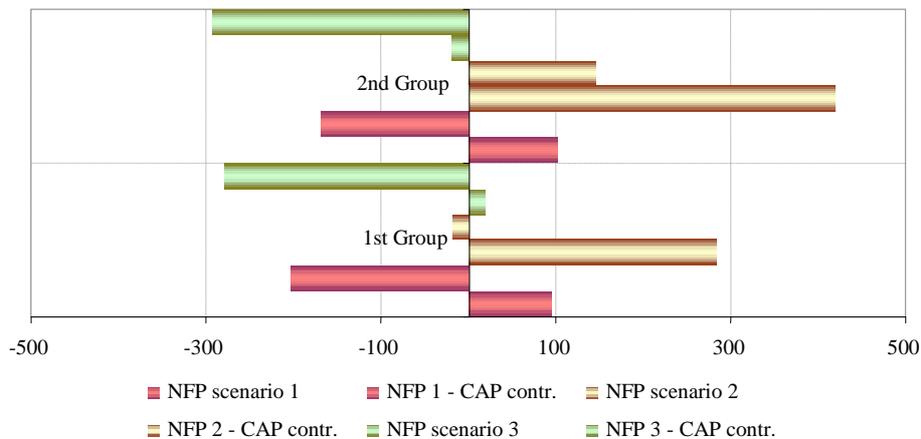
**Table 3 - Main results of simulations where community support is eliminated (values in €/ha)**

	Average CAP aim	Scenario 1		Scenario 2		Scenario 3	
		NFP	NFP minus CAP aim	NFP	NFP minus CAP aim	NFP	NFP minus CAP aim
<i>1st Group</i>	299.1	96.1	-203.0	283.0	-16.1	20.5	-278.7
<i>2nd Group</i>	272.7	102.8	-169.9	418.7	146.1	-20.3	-293.0

Source: Our processing of directly received data.

In the second group of companies, the average NFP per hectare of utilised agricultural area is 97.6 €/ha, a figure that is strongly affected by the company size and farming techniques adopted. Community aid is also an important factor for the companies in this group, representing an average of 52.4% of GP.

**Figure 2 - Effect of eliminating community aid on profitability of the companies studied (values in €/ha)**



In a hypothetical scenario where farmers sell the durum wheat produced by the company at an average price (scenario 1), the NFP would be 102.8 €/ha, showing a slight increase (5%) compared to the initial figure; in this scenario, the removal of community aid would cause a sharp fall in NFP, to -169.9 €/ha. In the second scenario, the NFP is 418.7 €/ha when selling at the higher price, which falls to 146.1 €/ha in the absence of CAP aid, maintaining positive values, however. Finally, in scenario 3, where changes in NFP are simulated with the application of the minimum price for grain it may be seen that the NFP would be -20.3 €/ha, a value which would fall dramatically to -293.0 €/ha if all forms of aid under the CAP were to be removed.

## Conclusions

The conclusions emerging from the research carried out are not in the least comforting; only in the case of selling grain at its maximum price are the companies that were studied able to significantly improve their profitability. The simulations carried out also show how community aid is of fundamental importance to the companies that were studied, allowing them to stay on the market. In the simulated scenarios, the removal of the aid that is planned in the framework of CAP, has clear negative effects on the profitability of the companies interviewed and would probably cause them to drop out of the market.

Further information acquired during the interviews shows the farmers expressing deep perplexity regarding the method used for calculating their assets, which did not reward producers during the three-year period of 2000/2002 for adopting the “good crop rotation”. It also emerges that there is a widening gap between the cost of production, which has increased exponentially over recent years, and the price of the final product.

Furthermore, in view of the real probability of the removal of community aid from 2013 onwards, or a reduction in coupled aid (artt.69 e 72 of Reg.CE 1782/03), more than 50% of the interviewees believed they would not continue to cultivate durum wheat

A certain interest was shown in other types of crops that might be destined for producing biofuels.

Overall, there is a general sense of unease that is affecting the whole world of agriculture. As shown in the simulations, an increase in the price of durum wheat grain is not enough to ensure increased competitiveness (bearing in mind the dramatic fluctuations in prices over recent years) and good cereal cropping practices; on the contrary, significant interventions are required on a structural level, to resolve some of the main difficulties that characterise the sector, including, for example, the poor concentration of services, the lack of production-line agreements and more generally, the low impact of policies that have aimed at raising the profile of the product.

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