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CONVERSION TO ORGANIC FARMING IN MAINLAND PORTUGAL

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Conversion to organic farming in mainland Portugal

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Abstract

The objectives of the research were: i) to assess the in-conversion period as a barrier impeding farms conversion to organic; ii) to assess the potential of conversion-grade markets in removing this barrier; iii) to identify other barriers (drives) along the food chain impeding (easing) farms conversion in mainland Portugal. Results show that the in-conversion period is not the major barrier to conversion nor is a good idea the set-up of conversion grade markets to help Portuguese farms' conversion. Conversion feasibility depends of the organic market premium prices, in intensive farms, and of the CAP organic agri-environmental area payments, in extensive farms.

Key words: organic farming, conversion, conversion grade markets, market premium prices, CAP payments.

JEL Q Agricultural and Natural Resource Economics, Q13 Agricultural markets and marketing

Introduction

In the last decade, the importance of the agricultural sector in Portugal, in what concerns to wealth and employment generated in the economy, has been dramatically reduced. In 1999, the year of the last Farm Census, the agricultural sector contribution to Gross Domestic Product was about 2,8% and its contribution to employment 10% (GPPAA; 2001). However, more than one million people still dwelt in farms (11% of the country's population). Additionally, farms still occupied large portions of the territory. In 1999, 38361 km2 was farmed area (42% of the Portuguese territory; less 3,6% than in 1989; INE 2001) and 415969 farms were still operating (less 30,5% than in 1989; INE 2001).

The dramatic evolution suffered by the agricultural sector in Portugal has several explanatory factors. The Common Agricultural Policy (CAP) is a major factor behind. According to Cunha (2002), Portuguese 'farmers receive on average five times less than their European fellows, in spite of having less than one third of their income'. On the other hand, according to the European Commission 4% of the farmers in Portugal receive almost two thirds of CAP payments arriving to the country. CAP has forced Portuguese farmers to produce North and Central European products in order to receive its payments.[1]

As opposed to the changes described above, in the last decade organic farming has seen significant positive developments. The second pillar of the CAP, and its agri-environmental program, is a major factor behind these developments. In spite of the recent 'boom', organic farming still represents a very small proportion of the total agricultural area and total number of farmers: 763 farms and 47867 ha in

[1] The 2003 CAP midterm review partially decouples CAP first pillar payments to farmers from production keeping, however, an historical criterion in the allocation of these payments across farmers. On the CAP and its reform see Swinbank *et. al.* (2004), *A Bond Scheme for Common Agricultural Policy Reform*.

1999, that is respectively 0.2% and 1.3% of the number of farms and agricultural area reported by the 1999 Farm Census for mainland Portugal.[2]

The European Commission has notified rural development measures, including support for organic farming, as 'green box measures' in the World Trade Organization (WTO) negotiations. According to Commissioner Fischler (1999), organic farming can offer an interesting alternative for many farms. By no means is the market potential for organic products exhausted. Organic farmers will need to build a bridge to consumers by linking up with the processing sector and by intelligent marketing. Recently, the European Union (EU) has developed a European Action Plan for Organic Food and Farming addressing these issues (CEC, 2004).

Organic farming is clearly in the agenda. Michelsen (2001) sees it as post modern agriculture. He supports that the boom of organic farming in the 1990's is neither explained by political support nor by pure market forces. According to Sogaard (2004) support to organic farming and EU certification have accelerated the process of expansion without significantly changing the long-term size of the organic sector. Padel (2001) finds several similarities between the studied organic farmers and early adopters of other innovations, such as opposition in the farming community and isolation. Pugliese (2001) describes four critical values that link organic farming and sustainable rural development: innovation, conservation, participation, and integration. Conner (2004) supports that many mechanisms now exist for consumers to express progressive values in purchasing decisions and demand for such goods has grown. However, these goods remain the purview of small niche markets, due to market failures, entry barriers, and biased policies. Blank and Thompson (2004) show that organic products can become the norm in many American commodity markets. Klonsky (2000) sustains that mainstream agricultural producers, manufacturers, and supermarket chains have entered the organic marketplace. Inevitably, the changes in food products offered and in retail outlets will lead to an organic agriculture that increasingly resembles the conventional food industry. Stagl (2002) concludes that demand for organic food has increased significantly over the past two decades. However, judging from the considerable similarities of organic and non-organic foods in terms of packaging, transport, and timing of usage of these 'green' products such adaptations will not suffice to achieve sustainability. According to the author, many producers and consumers view local groups and initiatives as promising alternatives to an unsustainable globalising agro-industrial food production system.

Presently in Portugal the decision to convert to organic farming is highly dependent on financial incentives (Costa *et al.*, 2002, 2003). This was not the case of early adopters (Mendes *et al.*, 2001). Financial incentives to organic farming are provided either by CAP organic agri-environmental area payments or by market premium prices associated with organic products. Concerning premium prices, the two or three year period of conversion might be a major constraint impeding conversion. During this period, organic additional costs are already incurred by farms (due to declining yields associated with the decline in agro-chemical inputs, lower livestock density, investment in livestock housing, and increased labour over conventional farming). Yet, organic premium prices are not generally realisable for conversion-grade products. The research has three goals: i) to assess the in-conversion period as a

[2] In October 2003, the number of organic operators was more than 1100 and the total corresponding farm area (including conventional, in-conversion, and organic areas) more than 120000 ha (Aleixo *et al.*, 2003).

barrier to conversion; ii) to assess the potential for conversion-grade markets in removing this barrier; iii) to identify other barriers (drives) along the food chain impeding (easing) farms conversion to organic in mainland Portugal.

In the next sections: i) we describe the surveys conducted in the research, designed to collect empirical evidence relevant to the above research questions; ii) we discuss the impact of conversion to organic production on the budget of farms and assess the break-even market premium prices to make conversion worthy; iii) We assess the potential for conversion grade markets helping conversion and describe other barriers (drives) along the food chain impeding (easing) farms conversion in mainland Portugal; and iv) we elicit FCS Portuguese farmers' opinion on how the several results obtained in the research might influence their decisions regarding conversion to organic production, and the extent to which they may still face problems.

Research methodology

The evidence collected was mainly qualitative and produced in six sequential stages. First, a number of farms were studied (Farm Case Study, FCS) in order to collect information on the cost structure and incentives to conversion of different plant and livestock farms. Second, an organic farmer survey (OFS) was implemented to collect, among other, both qualitative and quantitative information on organic and conversion-grade products outlets. Third, a series of interviews were made to key-informants in the wholesaling-retailing sections of the organic food–chain (Retailers' Interviews, RI). Fourth a number of consumers' focus groups (FG) were organized aiming at a better understanding of organic consumer habits and perception concerning organic and conversion-grade products. Fifth, a second survey was conducted with consumers with the major aim of measuring their willingness-to-pay for different premium prices for conversion-grade products (WTP survey). Finally, the farmers from the initial case-studies (FCS farmers) were confronted with the major conclusions of the earlier stages and asked to express their view once more. Further information is given next on the methodology followed in each of the five first steps of information collection (the final interviews with the case-study farmers are referred to with the discussion of results).

Farm Case Study (FCS)

A total of 27 farms were recruited in 2001/2002 as case studies in the FCS survey.[3] Farmers had to meet the following recruitment criteria: shown an interest in conversion to organic farming but had not actually begun conversion; three product sectors (crops, milk, and meat); size (small, medium, and large, established in a regional basis). Data was collected on the farm and the farmer characteristics, on the farmer' personal views on organic farming and on the farm enterprises technical coefficients. Together with secondary sources of information, the latter was used to build budgets and simulate the results of each farm conversion to organic production.[4]

[3] Appendix A yields a description of the FCS farms. The reader may email the authors to obtain all the appendices (A, B, and C) mentioned in the paper.
[4] Appendix B provides the assumptions taken in simulations of FCS farms conversion to organic.

Organic Farmer Survey (OFS)

The OFS was a postal survey conducted in 2002 to 918 of the 968 organic and conversion-grade operators registered at the time. The real rate of response was 32,2% (291 good replies). Data was collected on the type and attitudes towards organic production of OFS operators and on their sale outlets for organic and conversion-grade products.

Retailers' Interviews (RI)

The RI survey targeted 21 firms and institutions operating in the organic sector: distributors, transformers, certifiers, and other institutions[5]. Data was collected in 2002/2003 on the nature of the different markets through which organic and conversion-grade products are marketed, including forms of distribution system, product labelling, etc.

Focus Group (FG) and Willingness To Pay (WTP)

The FG and the WTP surveys were the two dealing with consumers. Both were conducted in 2003. In the FG eight groups of discussion were organized with regular and occasional organic consumers from Lisbon and Porto, the two major cities of the country. Data was collected on their perceptions over the several special modes of production existent in the market, on the drives and barriers to their consumption of organic products, and on their willingness to pay for conversion-grade products. The WTP was a telephone survey conducted to a stratified sample of 300 consumers (not necessarily organic consumers) in mainland Portugal. Data was collected on the type of consumers buying organic products, on the attributes they associate to organic products, and on their willingness to pay for two chosen conversion-grade products: carrots and chickens.

Impact of conversion on the budget of farms and market premium prices

Table 1 shows the FCS farms product sector, size, and intensity (input use), and the organic proposed enterprises. No market premium prices have been considered for conversion-grade products in the simulations. That is, conversion grade products have been assumed to be sold at baseline conventional market prices.[6] CAP organic agri-environmental payments have been considered. Finally, we have not considered the environmental costs for society due to conventional production. That is, the computed FFI are private instead of social.

[5] See Appendix C for a full list of entities interviewed.
[6] The major difference between the in-conversion period scenario and the organic scenario relies only on the market premium prices, considered in the organic scenario but not in the in-conversion period scenario.

Table 1. FCS farms

Farm	Product sector	Proposed organic enterprises	Farm size	Farm intensity
Small wine (1)	Crops	Wine, pepper, potatoes	Small	Intensive
Small olive oil & honey		Honey		Extensive
Greenhouse		GH. Lettuce, GH. Tomato		Intensive
Small horticulture		Pepper, cabbage, maize		Intensive
Medium wine (1)		Wine, sunflower, wheat, barley	Medium	Intensive
Medium olive oil		Olives for olive oil		Extensive
Medium orchard		Apples, pears		Intensive
Medium horticulture		Melon, tomato, watermelon, maize		Intensive
Large wine 1		Wine	Large	Intensive
Large wine 2 (1)		Wine, carob, wheat, maize		Intensive
Large horticulture		Lettuce and herbs, potatoes and beetroot, watercress, miscellaneous		Intensive
Small dairy (2)	Milk & eggs	Pepper, cabbage	Small	Intensive
Medium dairy (2)		GH. Lettuce, GH. Tomato	Medium	Intensive
Medium sheep milk		Sheep milk		Extensive
Large dairy (2)		GH. Lettuce, GH. Tomato	Large	Intensive
Large sheep milk 1		Sheep cheese		Extensive
Large sheep milk 2		Sheep milk		Extensive
Large eggs		Eggs		Intensive
Small beef 1	Meat	Beef	Small	Extensive
Small beef 2		Beef		Extensive
Medium beef		Beef	Medium	Intensive
Medium beef & pork		Beef, pork		Extensive
Medium pork		Piglets		Intensive
Medium lamb		Lamb		Extensive
Medium goat meat		Young goat meat		Extensive
Large pork & beef		Pork , beef	Large	Intensive
Large lamb & beef		Lamb, beef		Extensive

(1) The entire farm is not converted; (2) Conversion implies change of farm size and of product sector from dairy to horticulture.

According to Table 2, market price premia required to make conversion worthy are, in general, well above 30% for intensive (high input) farms and are very small or even negative for extensive (low input) farms. Intensive farms results are mainly dependent of market premium prices while extensive farms results are mainly dependent of CAP organic agri-environmental area payments. Additionally, the falls in production with conversion are higher for intensive farms.

Table 2. Conversion simulations

Farm	Farm intensity	% ΔP (3)
Small wine (1)	Intensive	47,2
Small olive oil & honey	Extensive	549,8
Greenhouse	Intensive	52,2
Small horticulture	Intensive	42,1
Medium wine (1)	Intensive	36,9
Medium olive oil	Extensive	-229,2
Medium orchard	Intensive	44,6
Medium horticulture	Intensive	32,0
Large wine 1	Intensive	59,8
Large wine 2 (1)	Intensive	38,1
Large horticulture	Intensive	53,1
Small dairy (2)	Intensive	0,3
Medium dairy (2)	Intensive	1,5
Medium sheep milk	Extensive	-14,5
Large dairy (2)	Intensive	30,2
Large sheep milk 1	Extensive	-5,1
Large sheep milk 2	Extensive	-18,4
Large eggs	Intensive	-10,8
Small beef 1	Extensive	0,6
Small beef 2	Extensive	-22,5
Medium beef	Intensive	40,0
Medium beef & pork	Extensive	0,3
Medium pork	Intensive	n.a.
Medium lamb	Extensive	-8,9
Medium goat meat	Extensive	-44,0
Large pork & beef	Intensive	50,4
Large lamb & beef	Extensive	1,1

(1) The entire farm is not converted;
(2) Conversion implies change of farm size and of product sector from dairy to horticulture;
(3) It gives the percent change in conventional prices that turns conversion-grade FFI equal to baseline conventional FFI. It is a proxy for minimum desirable market premium prices.

Table 3 and Table 4 show the market price premia declared by OFS respondents respectively for organic and conversion-grade products. The premia (extra values obtained) are computed as extra percentages over equivalent conventional product prices.

Table 3. OFS market price premia obtained for organic products (%)

Product sector	Fruit	Vegetables	Meat	Milk	Eggs	Cereals	Fodder	Processed products
Responses	39	10	7	2	2	7	2	16
Mean	14,3	23,0	10,0	0,0	20,0	42,9	0,0	23,0
Median	0,0	20,0	0,0	0,0	20,0	20,0	0,0	23,0
Mode	0,0	20,0	0,0	0,0	n.a.	20,0	0,0	0,0
Range	[0; 70]	[0; 75]	[0; 50]	[0; 0]	[0; 40]	[0; 100]	[0; 0]	[0; 80]

Table 4. OFS market price premia obtained for conversion-grade products (%)

Product sector	Fruit	Vegetables	Meat	Milk	Eggs	Cereals	Fodder	Processed products
Responses	13	4	2	2	1	4	1	8
Mean	4,6	12,5	10,0	10,0	0,0	10,5	0,0	11,9
Median	0,0	10,0	10,0	10,0	0,0	11,0	0,0	0,0
Mode	0,0	10,0	n.a.	n.a.	n.a.	n.a.	n.a.	0,0
Range	[0; 30]	[0; 30]	[0; 20]	[0; 20]	[0; 0]	[0; 20]	[0; 0]	[0; 45]

Of the 291 respondents to the OFS survey very few reported to have had a price premium for organic products (see Table 3) and even less reported to have had a price premium for conversion-grade products (see Table 4). Some reported a price premium equal to zero (see Table 3 and Table 4). Fruits (mainly olives), on-farm processed products (mainly olive oil), and vegetables operators are the ones that most report to have had price premia. The highest organic and conversion-grade price premia reported are for cereals, for processed products (which are mainly olive oil), and for vegetables (see Table 3 and Table 4). The high organic market price premium for cereals is explained by the lack of organic feeds for organic livestock production. In what concerns to olive oil and vegetables, hig premia are explained by the presence of important export markets.

Not only very few organic and in-conversion market price premia have been reported in the OFS (see Table 3 and Table 4) but also the premia reported are well bellow the required in the FCS simulations to make organic farming financially attractive for intensive farms (see Table 2). This explains why, in Portugal, farms converting to organic are mainly extensive (low in put) farms.

Conversion grade markets and other drives and barriers to conversion

FCS

FCS farmers associate organic farming to a greater income, to a less polluted environment, and to food safety. Technical support is seen as the most important factor for conversion. However, its absence is not mentioned as a barrier. Major barriers mentioned are the fall in yields, difficulties in sourcing factor inputs for organic production, farm management, the added labour requirements, the absence of markets for organic products and the inadequate marketing of these products. FCS farmers, particularly farmers with extensive farms, believe that there are consumers willing to pay for organic products and that the market potential is growing.

OFS

Sales of organic products to the conventional markets are very significant in all product sectors because of a generalised problem of outlet failures for organic products due to (i) the large distance between farms and the main organic outlets, (ii) the absence of organic markets, (iii) the absence of organic buyers willing to pay a premium, (iv) the absence of demand for organic products, (v) the absence of distribution channels, (vi) the absence of transformers/processors of organic foods to whom sell the products and of infrastructures such as controlled slaughterhouses[7], and (vii) the absence of consumer and distributor information on these products.

Very few respondents reported to have had a premium for organic products. Some reported a premium equal to zero. Consequently, premium for in-conversion products are very unlikely for most product categories. Therefore, for most organic producers and products categories, there is very little point in discussion the opportunity and advantages of selling in-conversion products. In fact it was reported that in-conversion markets are currently unavailable for most products except fruits, vegetables, and on-farm processed products. Even for such product categories selling in-conversion, very few respondents reported to have had a premium ever. The few premia reported were for vegetables and processed foods.

Consistently with this picture, lack of available outlets and consumer education are the major problems perceived by respondents dealing with organic and in-conversion sales, who also claim against the uncertainty of the sales arrangements they currently have for organic and in-conversion products.

RI

The policy towards conversion-grade products for most operators, particularly the larger operators, is either to handle them as conventional or not even considering such purchases.

[7] To work organic production in addition to conventional one, slaughterhouses need to accept the control of an organic private certification body.

Retailers also acknowledge as further barriers to conversion the narrowness of the Portuguese organic market, the farmers' lack of information on organic matters, the Government lack of support to the sector, and the scarcity of organic food processors.

The majority of the operators agree that consumers do not know what a conversion-grade product is. Also, they acknowledged that virtually there is no conversion-grade product offered to the market as such.

According to retailers, any attempt to build up in-conversion markets would bring with it several problems. First, it will be very difficult to communicate to consumers such concept, even more difficult than currently making them aware of fully organic products. Thus, it will be very expensive to promote such new market. Second, it will add to consumer confusion, which will be detrimental to the development of the organic market. Third, processors would face logistic problems as to create parallel processing lines to deal with these products as required by the certification schemes. Considering all these problems, interviewees say it will be more effective to compensate farmers with subsidies during the in-conversion period to promote the conversion process than trying to build up premium conversion-grade markets.

Amongst the more sceptical about introducing conversion-grade products were the larger retailers, particularly the supermarket chain representatives who most interviewees recognize as the main outlet for organic products.

Another barrier concerns how retailers expect consumers would position perceptually in-conversion products. The few comments on this issue point out that in less developed organic markets, as the Portuguese one, consumers would perceive in-conversion products as closer to organic ones, while in more developed organic markets, as in Northern and central European countries, consumers would perceive them as closer to conventional ones. Therefore, introducing conversion-grade products in Portugal would cannibalise the small and frail organic market rather than expanding both organic and conversion-grade markets.

FG and WTP

Concerning barriers to the introduction of conversion-grade products into the Portuguese market, the first major barrier identified through the consumer surveys (FG and WTP) is the almost complete consumer unawareness of conversion-grade products. The second major barrier is that such introduction may add to the already inconsistent, incomplete and confuse perception consumers currently have on the different special product designations currently in the market.

Having said the above, certain consumer attitudes were also identified that would be favourable to a successful introduction of conversion-grade products. First, a significant proportion of consumers stated they would be willing to pay a premium for conversion-grade products (conditional on their assumption that such products would come to the market cheaper than organic products). Second,

some consumers said they would be able to extend the proportion of organic plus in-conversion products in their food budget with the availability of (cheaper compared to organic products) conversion-grade products. Third, consumers were ready to perceive conversion-grade products (after the definition was given) as cheaper versions of organic products superior to any non-organic product' designation.

Further results of the Project surveys can be found in Costa *et al.* (2002), FCS, Costa *et al.* (2003), OFS, and Costa *et al.* (2004, 2003), RI.

Feedback from FCS farmers

A postal/telephone survey was conducted to the twenty-seven FCS farmers in February 2004. The twenty-seven FCS farmers (100%) replied. One of the respondents (3,7%) abandoned farming. Ten other (37%) reported significant farm changes since the last FCS survey. Only two (7,4%) were converting the farm to organic.[8]

All FCS farmers were faced with fifteen statements conveying the main results of the Project surveys in mainland Portugal. They were asked to classify in a Likert scale (with scale numbers not visible to respondents) the change in their attitudes towards conversion due to each statement, as illustrated in Table 5. The Likert scale allowed quantifying the attitudinal changes of respondents.[9]

Table 5: Likert Scale and changing attitudes towards conversion

FCS farmers attitudes towards conversion to organic farming						
Change positively			No change	Change negatively		
Very much	A bit	A little		A little	A bit	Very much
1	2	3	4	5	6	7

[8] Both FCS farms in-conversion to organic are located in the southern Alentejo region, presently the leading organic region in the country. One farm (Large horticulture) is large and intensive (high input) and belongs to a British Holding with headquarters in the United Kingdom (UK). This farm produces a wide variety of vegetables, which exports to the UK, and is partially although mostly in conversion. The other farm (Large lamb & beef) is large and extensive (low input) and is almost entirely in conversion to organic production of lamb and beef. Both farm managers are highly educated. The reasons pointed to convert to organic are higher profits and additionally, in the case of the large and extensive farm, the expectation that conversion would be simple, given the nature of the farm as conventional (extensive, low input).

[9] On the Likert scale see Oppenheim (1992).

We got twenty-four valid responses for fourteen of the fifteen statements and twenty-three valid responses for statement eleven (S11). The Kruskal-Wallis test (KW)[10] was used to find differences across groups for the following grouping variables: farm region, size, intensity, product sector and type, and farmer age, education, and off farm income. Figure 1 illustrates the results.

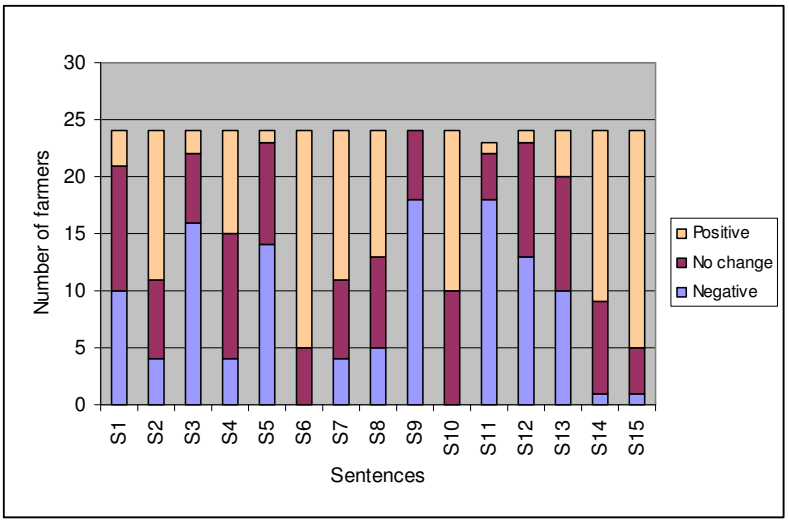

Figure 1. Changing attitudes towards conversion to organic farming

Results are the following for each statement:

a) S1: 'production falls significantly with conversion to organic in intensive farms.'

Eleven farmers (45,8%) had no change in their attitudes due to this statement. Ten farmers (41,7%) changed them negatively, seven (29,2%) negatively a bit. Although no differences across groups were found at the 5% level, farmers from intensive farms change more negatively their attitudes than the other farmers.

b) S2: 'The success of conversion to organic depends mainly of the markets prices, for intensive farms, and of the CAP payments, for extensive farms.'

Thirteen farmers (54,2%) changed their attitudes positively, five positively very much (20,8%). Seven farmers (29,2%) had no change. No differences across groups were found at the 5% level.

c) S3: 'Most of the current organic operators sell their organic products as conventional.'

[10] The Kruskal-Wallis test (KW) is a non-parametric statistical test (Hollander and Wolf, 1973). The test compares mean ranks. For the KW, all the valid responses/cases are given a rank and the test assigns a mean rank to each variable grouping (such as intensity, education, etc.). The higher the mean rank of a given group relative to the rank of the other groups the more negative (or less positive) is the change in attitudes towards conversion of the group relative to the others. This test was preferred to the ANOVA test because the ANOVA test assumes that the answers to the statements follow a normal distribution, which is not true in our case as the distribution is discrete.

Sixteen farmers (66,7%) changed their attitudes negatively, seven (29,2%) negatively a bit. Six farmers (25%) had no change. Differences across groups were found at the 5% level for gender. Female farmers changed more negatively their attitudes towards conversion than male farmers.

d) S4: 'Conversion-grade products are recognized only for certain products as fresh fruits and vegetables.'

Eleven farmers (45,8%) had no change in their attitudes. Nine farmers (37,5%) changed them positively, four (16,7%) positively very much. No differences across groups were found at the 5% level.

e) S5: 'Organic operators market arrangements for organic and conversion-grade products are mostly informal and uncertain.'

Fourteen farmers (58,3%) changed their attitudes negatively, seven (29,2%) negatively a bit. Nine farmers (37,5%) had no change. Differences across groups were found at the 5% level for gender. Female farmers changed their attitudes more negatively than male farmers.

f) S6: 'Organic prices fluctuate considerably less than conventional prices.'

Nineteen farmers (79,2%) changed their attitudes positively, eight (33,3%) positively very much. Five farmers (20,8%) had no change in their attitudes. No differences were found across groups at the 5% level.

g) S7: 'Consumption of organic products in Portugal is very much located in the two major cities of the country: Lisbon and Porto. Organic consumers are urban, middle to upper class, and driven by health issues.'

Thirteen farmers (54,2%) changed their attitudes positively, seven (29,2%) positively a bit. Seven farmers (29,2%) had no change in their attitudes. No differences were found across groups at the 5% level.

h) S8: 'The domestic organic market relies heavily on imports, which are expensive given the country distance to the major European organic markets.'

Eleven farmers (45,8%) changed their attitudes positively, five (20,8%) positively a bit. Eight farmers (33,3%) had no change. No differences were found across groups at the 5% level.

i) S9: 'The low income per capita in Portugal is a barrier for the development of the domestic organic market.'

Eighteen farmers (75%) changed their attitudes negatively, eight (33,3%) negatively a little. Six farmers (25%) had no change. No differences were found across groups at the 5% level.

j) S10: 'There is external demand for Portuguese organic products such as olive oil and fresh vegetables.'

Fourteen farmers (58,3%) changed their attitudes positively, seven (29,2%) positively a bit. Ten farmers (41,7%) had no change. No differences were found across groups at the 5% level.

k) S11: 'Consumers are badly informed of organic products and the current proliferation of products from conventional special modes of production helps to confuse them.'

Eighteen farmers (78,2%) changed their attitudes negatively, ten (43,5%) negatively a little. Four farmers (17,4%) had no change. No differences were found across groups at the 5% level.

l) S12: 'The development of the conversion-grade market could confuse even more consumers and compete with the organic market.'

Thirteen farmers (54,2%) changed their attitudes negatively, seven (29,2%) negatively a little. Ten farmers (41,7%) had no change. No differences were found across groups at the 5% level.

m) S13: 'Once informed, consumers perceived conversion-grade products as cheap versions of organic products.'

Ten farmers (41,7%) changed their attitudes negatively, six (25%) negatively a bit. Ten farmers (41,7%) had no change. No differences were found across groups at the 5% level.

n) S14: 'Consumers value conversion-grade products less than organic products and more than any other conventional special mode of production as, for instance, IPM.'

Fifteen farmers (62,5%) changed their attitudes positively, eight (33,3%) positively a little. Eight (33,3%) had no change. Differences were found across groups at the 5% level for age. Older and younger farmers had changed their attitudes more positively than the other farmers.

o) S15: 'The 'Ministry of Agriculture, Rural Development, and Fisheries' (MADRP) has finished an 'Action Plan for the Development of Organic Agriculture'.'[11]

Nineteen farmers (79,2%) changed their attitudes positively, nine (37,5%) positively very much. Four farmers (16,7%) had no change. No differences were found across groups at the 5% level.

S6: 'Organic prices fluctuate considerably less than conventional prices' and S15: 'The 'Ministry of Agriculture, Rural Development, and Fisheries' (MADRP) has finished an 'Action Plan for the Development of Organic Agriculture'' are the statements that changed more positively the attitudes of FCS farmers towards conversion. Price stability and Government willingness to develop the sector seem to be very important drivers of farmers' conversion to organic farming.

S3: 'Most of the current organic operators sell their organic products as conventional', S9: 'The low income per capita in Portugal is a barrier for the development of the domestic organic market', and S11: 'Consumers are badly informed of organic products and the current proliferation of products from conventional special modes of production helps to confuse them', are the statements that changed more negatively the attitudes of farmers towards conversion. Market barriers seem to be very important barriers hampering farmers' conversion to organic farming.

Therefore, together with current CAP organic agri-environmental area payments, Government policies providing price stability, helping the development of organic processors and outlets, and informing consumers of organic farming would help farmers' conversion to organic farming.

Conclusions

[11] On the Portuguese Government Action Plan for the Development of Organic Agriculture see Aleixo *et al.* (2003).

The organic market is emerging in Portugal. However, a series of botllenecks exist that hamper its development.

Farms in Portugal can be intensive (high input) or extensive (low input). Intensive farms are located in the coastal more populated and developed areas of the country mainland. Extensive farms are located in the low populated interior areas, where the economy is lagging. They are large in area but not so large in volume of production. Domestic organic suplly is mostly from extensive farms and is not sufficient to fulfill demand. Demand is largely fulfilled with imports, which are expensive, given the country peripherical position in what concerns the main European organic markets.

In Portugal, either conversion of extensive farms or conversion of intensive farms come up to public concerns. Although currently barely selling organic, extensive farms occupy territory that otherwise would be abandoned, conserve the environment and the biodiversity, have positive effects on public health, and support cultural heritage landscapes and foods. Thus, extensive farms have a multifunctional role. On the other hand, conversion of intensive farms would allow to meet organic domestic demand needs, would have positive effects on public health, and positive effects on the environment, the latter by reducing water and soil contamination. That is, once organic these farm would also have a multifunctional role. Policy supporting conversion feasibility in Portugal should take into account the farming sector duality (extensive versus intensive farms) and both farms multiofunctional roles.

The FCS simulations and price analysis show that conversion feasibility is very much dependent of the market premium prices, in the case of intensive farms, and of the CAP organic agri-environmental area payments, in the case of extensive farms. Therefore the existent organic market botlenecks obstruct more conversion of the intensive farms than conversion of the extensive ones. If perpetuated, current CAP organic agri-environmental area payments are able to support the multifunctional character of extensive farms that the market fails to support. However, these payments are neither enough for intensive farms to convert nor are the most important policy instrument for conversion of these farms.

Consumers lack of information on organic products, the proliferation of special conventional modes of production, the problems with the labelling of organic products, the excessive VAT of these products, and the low per capita income of the Portuguese population limit the development of the organic domestic demand. However, the organic domestic demand is growing, particularly in the urban areas of Lisbon and Porto, and there is external demand for some of the Portuguese organic products.

At least potentially, consumers value conversion-grade products. Once informed of the concept, consumers perceive conversion-grade products as cheap versions of organic products. However, the absence of conversion-grade markets is not seen as a major barrier to conversion by the Portuguese producers. Additionally, the introduction of such markets could be counterproductive for the development of the organic markets in Portugal, as it could add to consumer confusion and could compete with the organic markets.

Large and extensive farms, located in the poor and low populated interior regions of the country mainland, far away from demand, are the ones converting to organic farming. The small volumes of production, the lack of local transformers/processors/controlled slaugtherhouses, the costs of packing and transporting the products to Lisboa and Porto, the price they are able to get for their high quality products in the conventional (cultural heritage) market,[12] explain why these organic farms sell their products mostly as conventional. However, they still convert to organic, because the changes they need to be organic are relatively small and because the CAP organic agri-environmental area payments more than compensates them.

Intensive farms are much more dependent of the market than of the CAP agri-environmental area payments and thus they suffer more the botlenecks of the market. On the other hand, when compared to extensive farms, the required changes to become organic are bigger, the falls in production are higher, the dependence of external inputs for organic production and of their sourcing is larger, and farm management is more complex and needed of tecnhical support. In all these areas we found botlenecks. These botlenecks affect more intensive farms than extensive farms. Both market and technical botlenecks explain why these farms are not converting to organic in Portugal. Policies addressing these botlenecks are more important for conversion of these farms than CAP organic agri-environmental area payments.

Feedback from FCS farmers tells us that, together with the current CAP organic agri-environmental area payments, Government policies providing price stability, helping the development of organic processors and outlets, and informing consumers of organic farming would help farmers' conversion to organic farming. Some of these topics are addressed by the European Action Plan for Organic Food and Farming (CEC, 2004).

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[12] Consumers that look for products with a local origin are not the same ones that look for organic products. On this see Costa *et al.* (2003, 2004).

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