Challenge to SME to Survive in Food Dynamic Markets: Innovation and Efficient Networks

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Paper prepared for presentation at the 1st International European Forum on Innovation and System Dynamics in Food Networks
Officially endorsed by the European Association of Agricultural Economists (EAAE), Innsbruck-Igls, Austria
February 15-17, 2007

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1. Introduction

The EU food entrepreneurs are facing dramatic changes in the competition arena. Globalization and liberalization processes are offering cheaper food products in international markets, either from countries with better comparative advantages or with more efficient marketing strategies. At the same time, food markets are in a process of continuous segmentation and changes. Consumers are located in different niches, according to socio-demographic variables, cultures and traditions. Some of them respond to price changes while others are more concerned with quality control and food safety. It is on this segment where typical products, traceability and denominations of origin have significant values.
SME (Small and Medium Enterprises) have to survive on this competitive scenario using several strategies: focusing their attention on specific consumer segments (aged people, gourmets or ethnic groups), products (typical, denomination of origin) or with more personal attention. Their flexibility to adapt the production process should compensate the lack of economic and human resources and specialization activities.
In the 21st century they may survive through adequate strategies, most of them based on several pillars: innovation, tradition and adequate network.

2. The EU Food Industry: the case of Spain

Food Industry has a major socioeconomic importance in the European Union. It is the most important branch of activity within the manufacturing industry in terms of production value and one of the most important in terms of added value. (Strak J. 1989).
The Spanish Food Industry ranks fourth among the European Union (15 members-Europe) in terms of production, after France, Germany and United Kingdom. It also occupies the fifth place in terms of turnover (FIAB 2004). The Spanish production in this sector in 2003 was 9.1% of the EU production. (De Carlos P. 2005). The main feature that explains the Food Industry's structure is atomization: 33,275 companies compose the sectors' framework, of which 99.21 % of them are small and medium companies. These firms employ 437,975 people, an average of 13 people per enterprise. However, to illustrate the figures, it is effective to compare them with the total of the European Union. In terms of numbers of firms, the Spanish Food Industry stands for nearly a 12%. In terms of number of employees, we accomplish the 15.4% of the employees from the whole European food sector. (FIAB 2004).

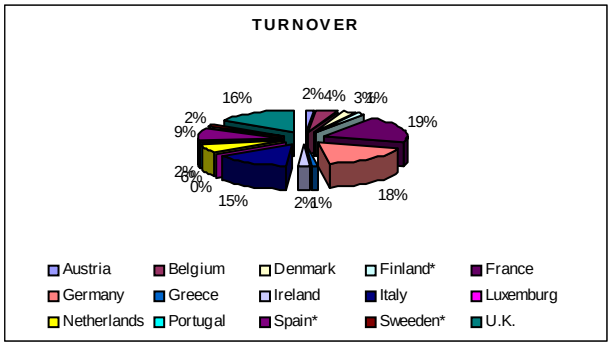

Figure 1. Turnover of the EU Food Sector (2003)
Source: FIAB (2004) *Production data

Spanish SME Food Industry has as a marketing strategy the achievement of quality. Whereas in the decade of 60 and 70, the basis of the quality policies was the control of the product before arriving at the consumer, the aim of the current policies consists in applying consumer's requirements. Today, the consumers demand products of higher quality, related to aspects such as product development, convenience aspects, knowledge of origin of production, health and safety issues. (De Carlos P. 2005).

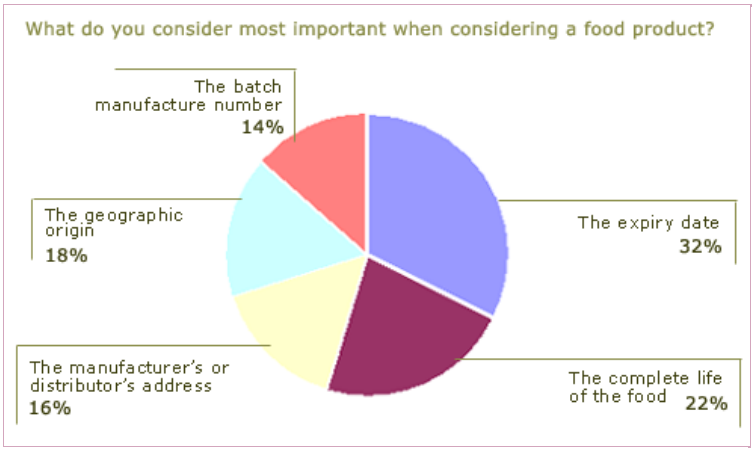

Figure 2. Consumer considerations on food products
Source (OCU, 2004)

The question is the meaning of quality for the consumer. According to a research carried out by the Spanish consumer association (OCU) in 2003, 32% of the consumers consider 'the expiry date' the most important factor when considering a food product. Around, 22% put 'the complete life of the product' in second place, followed by the 'geographic origin' considered by the 18% (De Carlos. P. 2005).
In relation to the consumer's food concerns, their greatest worries are about food safety issues, price, nutritional value and hedonic aspects (Fig 3).

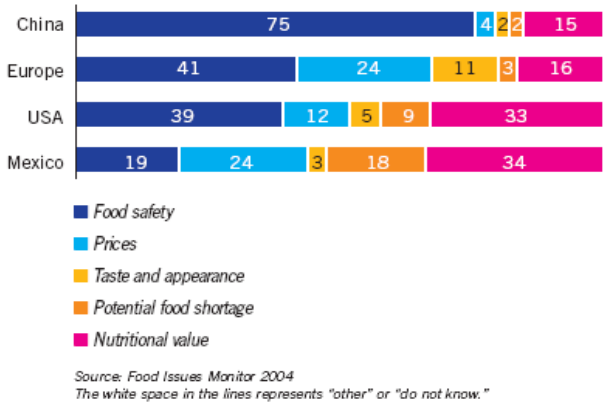

Figure 3. Greatest consumers concern about food in different countries
Source (CIAA, 2004)

As mentioned before, the marketing strategy in food companies is to produce high quality products, and thereby the challenge for managers is to implement systems to achieve high quality levels. Thus, the currently priority areas for the Spanish Food Industry are those related to the achievement of higher quality products.

3. Basic instruments for SME to compete in EU Food markets

3.1 Innovation in food and drink industry

Technological innovation in the F&DI is mainly technology-based rather than science-based, consequently innovative performance is poorly related to R&D intensity.

Empirical research has stressed the important contribution by upstream industries to the F&DI's technological development (Rama, 1996; Christensen *et al*., 1996), showing how some industrial sectors, like the F&DI, benefit from the impact of technological progress in core sectors of high technological opportunity (i.e. biotechnology, microelectronics, computer technology, etc.) through a well-developed network of inter-industry purchases and sales of equipment and materials. For Spain F&DI, empirical evidence shows the important contribution of national and foreign suppliers of machinery and equipment to the Spanish F&DI's technological level where the purchase of equipment emerged as the main source of technology acquisition as opposed to information gathering procedures (Garcia Martinez & Burns, 1999).

While own labels represent the main competitive threat for many branded manufacturers, markets dominated by product differentiation (i.e. strong brands, unique product lines) could act as a deterrent to own label developments due to high cost of entry and supplier's coercive source of power. Retailers will be more dependants on well-known manufacturers whose products would unlikely are de-listed, and thereby negotiation balance will be maintained. (Garcia M. 1999).
In the case of product-oriented innovation, the research distinguishes three types of activities of which two are considered as innovations, '*major product innovation'* and '*incremental product innovation'*, while the third, '*product differentiation'* is not an innovation according to the Oslo Manual (OECD, 1992). The Spanish innovating F&D firms notably concentrate their product-oriented innovations towards product differentiation or incremental innovation. As pointed out, arguments based on demand constraints and consumers' conservative attitude towards food

choices have been put forward to explain the incremental nature of food product innovations (Galizzi & Venturini, 1994).
However, results from the survey administrated by the Spanish Business Association (Circulo de Empresarios, 1995) for the F&D sample, pointed out incremental innovation as the main activity followed by radical innovation while product differentiation was relevant for a small percentage of respondents. These results could be explained by the fact that answers came from 41 F&D companies with the highest turnover in the Spanish F&DI, and probably more dependent on 'true' product innovation activities to maintain their leading positions in their respective markets.
The SAST report (Tsipouri *et al.,* 1994) on technological change in the food industry in Less Favourable Regions (LFRs), argues that since the bulk of food processing companies are SMEs, and thereby unable to profit directly from major technological change, the role of technology concentrates more on the product differentiation than on the scale of production. Investments in equipment and marketing are seen to play a more important role than technology generation.
The barriers to innovation were grouped under two headings: economic factors, such as '*excessive perceived risks*' and '*innovation expenditure too high*', and factors related to the firm's innovation potential, like '*lack of skilled personnel'* and '*lack of information on technology*'

The Spanish Food Industry is facing serious problems to adapt the situation in a competitive market. In some cases, inefficiency is a consequence of inadequate structure organization, with a great segment of SME. The interface of the main actors (University – Entrepreneurs) in technology adoption is at a very initial stage. Meanwhile the innovation through New Communication and Information Technologies(NICT) is far behind other European Countries.

We may identify several scenarios to improve the performance in the coming future: financing, technical formation in human resources, investment in R+D, better coordination among EU , national and regional programs, better integration in the food chain with balance in the countervailing power, and more attention to non-traditional innovation activities (formation, marketing, design, nutrition). Looking at the future, we may identify some critical points in the Spanish Food Industry

- Preference for strategies at a short run, which means immediate benefits and not in favour of the innovation and technologies necessary at a long run.
- A very low proportion of entrepreneurs look at innovation as a source of competitiveness. However, the Food Industry has done a special effort to incorporate techniques of quality control (ISO 9000) during the last decade.
- The interface of the main actors (University – Research Centres – Enterprises) is very limited. Therefore, the analysis of the current problems and the collaboration for increasing innovation are not in the agenda. Many efforts and resources (human and economic) are wasted through un-useful programs.
- The adoption of New Innovation and Communication Technologies (NICT) is at very low level. Spain is far behind other State Members of the EU, and Food Sector is facing special difficulties. Therefore, special attention should be given on this area.
- In the financial scenario, there is a lack of seed capital to invest in R+D. The negative attitude towards risk in the Spanish entrepreneurs is a serious limitation to technological improvement. There is clear need of an "entrepreneurial environment" opened to new trends, where risk may be shared by different stakeholders in the food chain. In this way, the integration in food net through sectorial chains is important issue.

- Highly qualified human resources is another weakness in Spanish Food Industry. It has been a great step forward in the number of graduates and the adaptation of the academic programs to the new demand. However, the knowledge level of the majority of workers is still low. Professional courses have to be organized in new fields such as NTIC, with attention to the interaction R+D and competition.
- Regional and National R+D programs should be coordinated with the EU programs (such as the VI Framework Programme), with more participation of enterprises. Thus, priority has to be focused in applying research where University and Research Centres have to join efforts with food firms.

As a general rule, innovation in the Spanish Food Industry (similarly in other developed countries) should be oriented towards products with a high value added (cheese, meat products, wines, olive oil), either transformed products or just fresh products. The main reason is the difficulty to compete with products coming from International markets. Countries in developing areas (Latin and Central America, Asia or Africa compete at a lower cost level and the trend is towards a progressive market liberalization.

3.2 Strategies to apply in typical products: Innovation and Tradition

A basic tool to assess quality in the food sector is known as Denominations of Origin, which identifies quality with the origin, geographical zone and production system of the food products.

Spain was a pioneer in the concept of Denominations of Origin with the creation in 1932 of the Wine Statute. In addition, in 1992, the European Union created systems known as PDO (Protected Designation of Origin), PGI (Protected Geographical Indication) and TSG (Traditional Speciality Guaranteed).

The main aims of the creation of these European denominations are: To encourage diversification in agricultural production, to protect product names from misuse and imitation and to help consumers by giving them information concerning the specific character of the products.

Some areas where SME may get some advantages in the food market are Origin Denomination, Quality Labels and Geographic Denomination. On these cases, there are specific market segments where consumers appreciate the attributes of those products. There are even some debates at the World Trade Organization negotiation about the rights to maintain those regulations in the EU. Now there is an opportunity for many SME to have some chances in the high food competitive market. Spain and other Mediterranean countries (Italy, France, and Greece) are very dynamic on those fields. Regional development sponsored by CAP and specific programs (LEADER, and others) are efficient instruments to orientate firms towards typical products, quality oriented with traceability and control systems. Although Innovation an Typical products (I + T) are considered recommended strategies for surviving in the increasingly competitive food markets, entrepreneurs, and specially SME have to overcome several barriers.

Retailing has the key for the success of new and typical products. They have a direct contact with buyers and design adequate strategies. They have to supply consumer's segments and get the adequate added value. The nature of the food product is a significant factor for the marketing channel. New products enter at the market through the "gourmet departments" of hypermarkets at higher prices and later, are taken by traditional retailer when prices are coming down.

That was the case of kiwi fruit in many EU markets. Typical and specific products with Denomination of Origin are often sold in specific shops (for regional products, high quality and delicatessen). This is a barrier for expanding the market.

Although the retail sector has advantages over the production and the food industry, with higher bargaining power, the existing competition among retailers is very strong. There are structural changes due to overcapacity, where traditional retailers and convenience stores try to get their niche market against super and hypermarkets.

At the EU, TYPIC (www.typic.org) is a research projects which tries to match the more significant attributes that define typical food products with consumer's preferences. Others analyze the situation along the food chain (Briz, J. 2004).

Traditionally, R + D have been developed only by Public Institutions and big enterprises. However SME are trying to get organized and begin some activities.
Innovation and food quality improvement are some of the main goals of the programs LEADER and PRODER in Spain.

The LEADER program had different scenario in 2005: 6 Projects focused in the improvement of local varieties and livestock, 4 Projects on handmade and traditional products, 3 Projects on cooked and precooked meals, 2 Projects to increase quality, 6 Projects on organic food, 4 Projects to improve research and technology, innovation, and 2 Projects to training of human resources.

SME should try to capture some consumer's segments related to special flavours, tastes and qualities, witch are difficult to produce at great scale due to the restriction of primary products. Another area of interest is to recuperate "old recipes and traditional meals" almost forgotten with the fast food and globalization of consumer habits. Almost in every region in Spain there are initiatives to "rediscover" old tastes. From "special flour" in Asturias to "morteruelo" in Cuenca, olive oil in Catalonia and "serrano ham" in Andalusia, where small groups of farmers get in new involvements to promote their traditional products.

Quality control and traceability is another item to consider in the activities of the traditional and new products. Producers under the LEADER Program are initiating projects in quality control and assessment with laboratories in different regions.

Traceability may be either a barrier or an opportunity for SME, depending of the consumer's perception (De Carlos et al., 2006). In many cases it can be a challenge that many entrepreneurs find difficult to overcome. They may be pushed to a concentration process.

A new technology for traceability with microchips in beef is being tested in Aragon. Since 2000 a new legislation in Spain tries to establish regulatory measures and incentives for farmer associations in the fruit and vegetable sector (Orden APA/1726/2006, May, BOE June 2, 2006).
In order to get the consumer confidence, quality control has to be performed by independent and acreditated firms or institutions. Besides that, rules and messages are confused in a dynamic market, and managers have to decide which is the best way, either the model ISO 9001, the proposed by big retailers (EUREP-GAP, BRC, SQF 2000) or just the certification of the product. In Spain certification is usually given by private institutions (AENOR, INTERNA-CERTICAR, Veritas and others).

Typical products have to be protected by several ways (Denomination of Origin, Geographic Indication protection), with a trade mark. Markets should clearly identify all the attributes and characteristics of those products. Promotion and other marketing strategies have to be designed specifically in order to get, sometimes, small and specific market segments. As a general view, we identify the more significant Denomination of Origin and Geographic Indication Protection in Spain (December 2004).

Product	D.O.	G. I. P.	TOTAL
Wine	64	43	107
Cheese and butter	25	2	27
Olive oil	20	-	20
Fresh meat	-	15	15
Fruits	9	5	14
Others	15	44	59
TOTAL	133	109	242

Source: Calidad y Seguridad Alimentaria (2005) LEADER.

Last but not least is the marketing barrier all food products have to overcome. SME face special difficulties due to the lack of experience and the lower volume of business.
The idea is to show quality-nature-tradition-health-environmental protection and culture in one packed: typical products.

3.3 Adequate Food Chain Management

SME are very dependent on an adequate FCM in order to survive in a competitive market. Quite often they have few marketing channels oriented to local markets.

We consider that "management systems are related to enterprises and their commercial relationships, integrated in food chains and networks. Today competition is focused on chains, not just on single firms. To be more competitive in the EU food market, entrepreneurs need to pay attention to several factors. (ETP. Food for Life 2006): Capacity to integrate small producers intro complex networks, food market stability, adequate coordination between macro and micro policies, risk management in food nets and finally flexibility and speed reaction in food network.

- SME should have the capacity to get integrated in complex network. Farmers, transformers and retailers face the challenge to get economies of scale, in order to lower costs and have a sustainable supply to the market. There are different ways of integration from cooperatives, permanent or temporal association. They should be able to share responsibilities, market and product information and adoption of ICT. Integration may facilitate quality and safety control and comply the standards imposed by retailers. Special attention should be paid to Total Quality Management (TQM) Methods.
- Food Market Stability is a necessary condition to stimulate investment and confidence in the entrepreneurs. Thus CAP and other commercial political measures should have start at a long run horizon, avoiding radical changes.
- An adequate coordination between macro and micro policies and strategies should be applied along the food chain. EU food market is very heterogeneous with a large number of inefficiencies, quite often there are contradictory measures, what is misleading to the entrepreneurs and create discriminatory situations.

- To diminish risk management in food chains and networks is a main issue. There is a great variety of failures along the food chains that increase the risk to stakeholders. There are failures in food quality, food safety, food security market access, environmental protection and so on. Therefore, the steps should be to eliminate the causes of the failures and control the emerging and potential failures. There are weather condition, logistic problems, innovation rejection by consumers, etc. They create a risk situation and have a high cost to eliminate them. SME are more sensible to risk, due to the inadequate quality and safety control system, in equipment and human resources. Improvement in control reliability and reorganization of chain infrastructure are some of the measures to be taken.
- Flexibility and speed reaction in food network.

The EU food market has been traditionally segmented at national and regional levels due to commercial policies and consumer preferences. Many food chains are national, and do not cover European market. They are more horizontal orientated than vertical. As a result, EU food market is fragmented with losses on added value.

Consumer's need are not transmitted on right time to the others chain links. The WG Food Chain Management recommends some specific actions:

- Design integrated chain information and communication systems.
- Demand oriented logistics chain and cross-chain optimization
- Design of chains with lowest ecological load.
- Design and testing of chain-wide quality management systems
- Connective Governance structures that support cost-effective flows in food chains.

The F&D Industry structure is characterized by the predominance of SME, that makes it very sensitive to the external competition and it is also a serious handicap for the CIT. Therefore especial effort should be done by the Administration and private sector in this field.

In general, marketing in the F&D Industry SME is one of its traditional weakness, especially in the foreign trade sector. One of the tools to provide high quality products are the creation of Denominations of Origin. Spain have 92 Protected Designation of Origin and Protected Geographical Indication food products, whose total economic value accounts 542,6 million euros. Regarding Research and Development activities, it is remarkable the increase of investments done in this issue, although it is considered that private companies should increment their participation in terms of research in the future.

4. Conclusions

The case study related to Spanish Food and Drink Industry gave us some of the following conclusions:

- Firms undertake innovation activities mostly to improve production processes, and thereby to reduce production cost through process innovation, or/and to develop new products or enhance existing products.
- 'Improve customers' satisfaction' and 'maintain/extent market share' it are suggested as the key objectives for innovative effort in the Spanish F&DI.
- Product differentiation followed by increasing product innovation and radical innovation are 'defensive/imitative' strategies.
- Market penetration is mostly confined to 'new domestic target groups'.

- The low internationalisation of the Spanish F&D companies has been highlighted as one of the main weaknesses of the industry.
- A supply of ethnic product to a growing new segment of immigrants is a new challenge.
- Exchange experience with new consumption habits from tourist population.
- Uncertainty over the length of the innovation process' and customer's not reaction to new products and processes are some of the main barriers.
- Tradition in consumers habit and regional meals, are some of the most important factors of competition in Spanish firms, facing globalization and international trends.
- The dynamic in typical products rooted on local and regional areas should be pushed forward by public and private institutions.

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