Cut-Flowers Supply Chain and Logistics. The Case of Greece

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Abstract
The purpose of this paper is to identify, describe and evaluate the cut-flowers distribution channels in the content of supply chain and in view of the changing global distribution structure of the floriculture industry. The interest in this field has risen considerably more recently, as derived from the literature review taxonomy analysis carried out in this study. Moreover, a survey research is conducted in Greece with florists, as the dominating and critical to consumer-driven value creation retail channel. The survey's results have drawn useful insights into the integration of the cut-flowers’ supply chain, based on the establishment of Logistics-hub centers. These will enhance collaborative actions, in both growers and retailers level, as a countervailing force to the trend of unbalanced power share in the chain in favour of wholesalers and supermarkets. This study revealed also that florists are increasingly aware of the social and environmental issues, and in this direction in many developed countries have already started to adopt standards in order to compete with supermarkets.

This paper highlights the need to investigate further an integrated cut-flowers supply chain framework, supported by the effective cooperative action at both ends of the chain (growers and florists) and broader strategic re-adjustments for attaining sustainable development.

Keywords

I. Introduction
Floriculture is a dynamic, global, fast-growing industry characterised by important changes in the distribution network, while keeping corporate social responsibility (CSR) requirements [1]. The changing global flowers production structure along with the rapid technological progress have increased the role of the distribution structure, the organization strategy and the processes to maximize synergy effects, in view of the exceptionally short life of the cut-flowers [2, 3].

The cut-flowers distribution structure in the European market is complex and has invited increasing work by academics. It is related with the phenomenon of globalization and the contribution of the supply chain management (SCM) for the adjustment to the new and irreversible market, economic, social and physical environment. However, it has more recently pointed out that organizations seldom achieve the competitive advantage offered by SCM [4]. Moreover, several aspects of empirical research in industrial sectors including construction, retail, and agriculture are still not sufficiently examined, are very scanty in developing countries and the majority of research papers are written at firm level only [5].

The purpose of this paper is to identify the cut-flowers distribution channels in the framework of integrated supply chain and more particularly in the floriculture industry of Greece. In response to the need for enhancing the understanding of the cut-flowers distribution channels, the following key questions are set out in a way of a research agenda:

- Which are the specific scientific interests of the academics, as identified in the cut-flowers value chain literature so far?
- What are the main features of the changing global cut-flowers’ market and distribution structure?
- Which are the main current distribution channels in the particular case of the cut-flowers market in Greece?
- What is the degree of awareness of the Greek florists concerning quality and sustainability issues and the prospects of a central market-Logistics hub establishment in south Greece?

The structure of this paper is presented in fig. 1. Starting with a taxonomy analysis of the cut-flowers literature review, the paper then presents the various cut-flowers distribution channels with emphasis in the EU countries, followed by the Logistics and quality issues concerning the highly perishable flowers and the unprecedented changes in the global cut-flowers market. Next section outlines the Greek floriculture market and distribution channels, while further on a survey study is conducted with cut-flowers florists in Thessaloniki, the second largest Greek city in northern Greece. Greece is an interesting case to study, in view of the broader importance for countries where small cut-flowers florists (SMEs) dominate the marketplace and that lack of a well organized retail supply chain network. Moreover, it is a country where there is a positive trend of development of the floriculture industry, at a time of a negative trend of the total food industry. The survey results are discussed along with the main issues derived from the previous sections and finally the paper’s main conclusions are drawn, revealing the guidelines and direction of future research.

Fig.1 : Paper’s structure
II. Cut-flowers literature Taxonomy

Taxonomy is a tool for systematic storage and efficient recall of knowledge, which reveals the ways for its expansion and building. The taxonomy analysis is especially useful in SCM as it confluences many disciplines and a variety of management interactive behaviour [6]. The need for integration of different inbound and outbound entities operating at various stages of the supply chain is sometimes referred to as a value chain, extended enterprise, etc. [7, 8]. Particular attention has been attributed so far notably to decision making in searching this framework [9], [10], the issue of “best solutions” in strategic choices [11, 12], the methodologies [13, 14], SCM performance [15], modelling approaches for sustainable supply chain management [16], etc.

In this paper, the literature review of cut-flowers market and supply chain included 146 articles collected for the period 1974-2013. They address various aspects of the floriculture industry and are included in scientific journals, working papers, theses and reviews mainly in the English language. Reports that focus on statistical analysis of the market by institutions such as CBI, Fairtrade, etc., as well as papers on the horticultural industry are excluded, except for a few studies with significant relevance to flowers.

Fig. 2 presents the considerable rising research attention in this sector. More specifically, during the period 2005-2013 the relevant papers are 70% more from those in the period 1995-2004.

Concerning the interpretation of the taxonomy results (fig. 3), it is noticed that the first in number articles (29% of total) have indicated greatest interest to social responsibility. This seems that it does not entirely coincide to the past literature review concerning the CSR [17] and the SCM that understate the role of social factors. However, it is largely attributed to the increased share of developing countries (Kenya, Colombia, Ethiopia, etc.) in the global production of flowers and certain response to pressures for the code of the human rights of the United Nations. In any way, there is consensus that the conceptualization of the CSR has strong cultural and social values dimension and extensions to legislation within modern mixed economy. Moreover, in view of that the majority of these articles has been conducted by native researchers, may raise questions referring to the consistency, among others, with the role of the flowers as symbol of the western civilization, the value system, culture and ethics.

### Table 1: Classification of the taxonomy subject areas

<table>
<thead>
<tr>
<th>SUBJECT AREA</th>
<th>Addressed issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Social Responsibility</td>
<td>Gender and ethical trade, Codes of labour practice, Working conditions, Culture, etc.</td>
</tr>
</tbody>
</table>
This paper addresses issues concerning supply chain and distribution channels, namely the second most popular area, representing 25% of total articles reviewed in the above-mentioned research.

III. Cut-flowers Distribution Channels
Cost constraints, product availability, shortening of the time in delivering cut-flowers and the flexibility requested by suppliers are pushing the global value chain of cut-flowers for fewer intermediaries before reaching the final retailer. The auctions heavily influence global trade and serve as a price-setting institute for a large part of the flower market in Europe, where they have an estimated 30 to 40% market share in cut-flowers. Historically, the Dutch auctions have played a central role in the European flower and plant trade, both as a market place and a distribution hub for flowers imported from developing countries [18]. Although the international cut-flowers distribution structure is still dominated by the Dutch auction system, there are strong undergoing changes that promote other distribution channels which bypass the auction system, as shown in routes 3, 4 and 5 of fig. 4.

In the United Kingdom in particular, today around 65 % of cut flower sales is through large size supermarket chains while only 24 % is sold through florists [19]. In other EU countries though the role of supermarkets is weaker, their share is increased at the expense of local independent florists. Supermarkets usually source flowers through dedicated importers (wholesalers) rather than through the auction system. As is more broadly the case with fresh fruit and vegetables, supermarket sourcing practices have reshaped the supply chain and have created new demands on the flowers value chain.

Traditional florists still dominate the retail distribution of flowers in the EU countries. An important trend is the increasing number of florists that team up to take advantage of joint-purchasing and joint-marketing.

A very significant phenomenon, that characterizes the agricultural and floriculture sector in many countries, impairing sustainable development, is the chain power concentration from wholesalers and supermarkets, which are currently moving strategically towards fully integrated channels on their favor and at the expense of numerous SMEs florists and producers. Thus, there is an obvious need for the development of integrated chain models, mainly in conditions of SMEs domination.

The distribution structural changes foster the development of vertically integrated governance forms and includes fewer intermediaries [20, 21, 22]. According the international experience, integration is realized though the establishment of central market-Logistics hubs which allow both all players of the supply chain (growers and florists) to interact effectively and attain important improvements derived from synergies and collective action. Netherlands have achieved holding up an effective cut-flowers and plants hub network based on impressive Logistics and information system infrastructure to assimilate most of the increase in imports from developing countries [3].

The adjustment to the changing distribution channels structure has been aligned with innovative Logistics concepts in the Floriculture Sector [23], together with the increased role of quality certifications. The research attention therefore concerning the anticipated future challenges can shed light to new ideas and values, towards resilient supply chains [24].

Many authors have pointed out different issues Logistics and quality within the changing floriculture distribution network, while particular attention on the sustainability practices and indicators has been paid in agro-food Logistics by many researchers [25], [26]. It is worth mentioning that during the prolonged world financial/debt economic since 2007, many African and Latin American growers have started to reconsider their certificates, while a vast majority of European flower and plant growers participate in one or more certification schemes [1].

Next sections present the case of Greece that lacks of a well organized retail supply chain network, in view of the broader importance for countries where small cut-flowers florists represent the most important retail distribution channel.

IV. Distribution Structure in Greece
The floriculture has been emerged in Greece since 1940. With dominant form of small size family firms, progressive development and opening of markets have been since 1950ies. The flowers production in Greece includes today chiefly roses, carnations, and chrysanthemums, though the local climate conditions are favourable for great variety of flowers. The imports of flowers, mainly from Netherlands, are carried out by trucks, while the exports represent just 8% of the imports and concern mostly
flowerpots. It is noticeable that 68% of Greek exports to EU countries are directed to Germany and France. Although the proportion of the floriculture production in Greece is kept below 1% of the EU throughout the period 2001-2011, the average growth rate in Greece during the same period (8.1%) is 3.24 times higher than that of the EU total (2.5%). Moreover, the consumption of flowers in Greece has increased by almost 55% between 2001 and 2008 [19]. Anyhow, the floriculture industry in Greece seems to offer promising prospects for future development which can be considered as an intermediate situation between the western countries of high technology and productivity and the developing countries in Africa, East Asia and Latin America with relatively low labour cost and foreign exchange rates [27]. The distribution structure of the cut-flowers market in Greece is superimposed by the distribution channels operating in the two major Greek cities, the capital Athens and the Thessaloniki, the second in size city area in the northern Greece, located about 500 kilometres from Athens (fig. 5). Largely, from Athens and Thessaloniki distribution areas (central markets, transshipment areas), the cut-flowers are distributed to Greek provincial local warehouses and florists.

More specifically, the organized cut-flowers’ markets in Greece are met in two locations within the broader Athens area: the Amegdaleza and the Prombona central markets (fig. 5). These are managed by the “Cooperative Consortium of Greece” and the “Farm Flower Attica Cooperative” respectively and serve together about 3,000 floristries in Athens and the rest of the country. The transport of the cut-flowers to the distribution centres is largely carried out by the growers themselves, who, therefore, play a triple role of producers, transporters, and sellers. The selling is alternatively carried out in certain cases by representatives of the growers, basically due to the long distances between the production and the cut-flowers markets. The 70% of the Amegdaleza central market space is used by growers, while the rest by importers, wholesalers, and growers’ representatives. At Prombona market only inland flowers are sold.

In Thessaloniki, the second largest Greek city, there is lack of organized cut-flowers market whatsoever. The transshipment of flowers takes place by wholesalers’ trucks at a parking area next to the city’s peripheral road. The 15 wholesalers-importers who operate, serve 370 floristries, while the distribution needs in other provincial towns are served by 1-2 wholesalers, depending on the city’s size. The distribution of cut-flowers to retailers is mainly carried out by wholesalers’ owned trucks, while, occasionally, retailers use their own vehicles (from wholesalers’ warehouses). There are some cases where the retailers import directly flowers from abroad, regarding big supplies, and similarly, inland growers deliver rarely directly to retailers. As in many other EU member countries, traditional florists still dominate the retail distribution of flowers in Greece, while supermarkets represent a very small proportion of the cut-flowers’ sales. The imported flowers include either exotic ones (not produced in Greece) or flowers that are produced in Greece, but they are preferred than the domestic ones because of lower prices, as well as seasonality, high occasional demand peaks, harms of local production due to weather conditions, etc.

The location of Greece in East Mediterranean area and with mild climate conditions favour a big variety of wild flowers that are used for production of natural perfumes, colours and pharmacies, with long historical tradition going back to ancient Greece. However, the current Greek floriculture industry faces important structural impediments attributed in part to the dominance of new chemicals, synthetics, transmute technology and in part to lacking of organized efficient cut-flowers distribution market. Thus, there are high distribution costs, big margins between production and retail prices, relative small amount of exports, etc. In addition, fuel cost represents 35% of the variable cost and 25% of the total cost, whereas fertilizers and other inputs reach to 50-60% of the variable costs, burdening even more the dominating small size flower growers [27].
V. Survey research

A. Methodology
A survey research, organized by the Harokopio University of Athens, Greece, was conducted with cut-flowers florists in Thessaloniki, northern Greece. Its importance is associated with some addition to the product research on competitive strategies within the greater food retailing in Greece [11], [25], [28], [29]. More specifically, this survey lasted six months, from January to June 2011. 104 questionnaires have been finally collected out of the total 370, namely a response rate of 28.1%, considered as quite satisfactory for mailed questionnaires [30], [31].

Main research goals concerned the identification of the following issues:
• the current situation in terms of means of distribution and sources of procurement and wholesalers services performance
• the prospects of the establishment of a central flower market - hub in Thessaloniki and the development of florists’ cooperatives
• the potential role of the supermarkets in the cut-flower competitive environment
• florists’ awareness about certification and sustainability issues

The collected data were analysed using descriptive statistics for calculating the means and standard deviations of continuous variables and the frequencies and percentages of categorical variables. Descriptive analysis revealed the possibilities of grouping the florists into clusters according to particular variables. This statistical procedure is based on the criterion that the members of the group are most alike in terms of their underlying characteristics. The statistical analysis was performed with SPSS/PC version 16.0 statistical software.

B. Main Results
The survey’s main results are outlined in the following:

Means of distribution
Regarding the transportation means used for the distribution of cut-flowers, 66% of the florists are supplied by wholesalers trucks, while 40% of the florists use a carrier to deliver to customers and 35% use exclusively their own transport means (fig. 6).

Sources of procurement
86% of the florists trust imported rather than domestic flowers, while 81% of them believe that domestic production is not adequate, in terms of quality and quantity, to meet Greek market needs.

Evaluation of current elements of distribution performance
A noticeable finding of this survey study is that 60% of the respondents enunciated that are not satisfied (at all or very little) from the level of services provided by the wholesalers. It is noticeable that 39% of the respondents declared moderately or enough satisfied and only 1% of them indicated that they were “very satisfied”, as shown in fig. 7.

Fig.6 : Means of cut-flowers distribution
The poor satisfaction level declared by the respondents was further analysed in fig. 8. Thus, the main reason has been the high prices, followed by quality, in-time delivery and product variety.

<table>
<thead>
<tr>
<th>Element</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>price</td>
<td>85%</td>
<td>13%</td>
<td>2%</td>
</tr>
<tr>
<td>quality</td>
<td>53%</td>
<td>35%</td>
<td>12%</td>
</tr>
<tr>
<td>in-time delivery</td>
<td>48%</td>
<td>35%</td>
<td>17%</td>
</tr>
<tr>
<td>products' variety</td>
<td>45%</td>
<td>43%</td>
<td>12%</td>
</tr>
</tbody>
</table>

1 not/ very little satisfied  
2 moderately/ enough satisfied  
3 very satisfied

Potential benefits from the establishment of a central flower market-hub in Northern Greece

49% of the respondents believe that only growers (producers) and retailers will benefit, while 39% maintain that all involved in the industry will benefit (fig. 9a). Most of the respondents (63%) expect that there will be improvement in all elements (price, quality, availability, lead time, and products’ variety) (fig. 9b). To the question if the new central market in Northern Greece is considered as promising for the floricultural industry in general, 64% of the respondents answer positively, while 36% couldn’t make any prediction for future impacts.

It is noticeable, that 94% from the respondents that answered positively, are not or very little satisfied with the current wholesalers’ prices, which indicates that the benefits from the central market will derive mainly from procurements cost reduction and consequent profit increase.

C. Survey cluster analysis

The Cluster Analysis is particularly helpful for identifying homogenous groups of objects called clusters. The history of industrial clusters, introduced in the beginning of nineties, though the presence of this phenomenon can be traced back in history [33]. The varying nature of interdependencies among the companies leads to different potential business formations in relation to underlying factors [34], [35]. More specifically, the agri-business cluster approach can be especially useful versus the traditional sectoral approach. There are particular advantages of clustering for the trade and distribution of perishables in a value chain, particularly in the case of perishable products and differentiated production and demand [36, 37].

Clustering can therefore be formulated as a multi-objective optimization problem. The appropriate clustering algorithm and parameter settings (including values such as the distance function to use, a density threshold or the number of expected clusters) depend on the individual data set and intended use of the results.

Cluster analysis was conducted to identify different groups of florists, who participated in the survey study. To determine the number of clusters, the hierarchical approach was used [38]. The estimated Cronbach’s α coefficient for internal consistency reliability for the Likert-type scales of the questionnaire was 0.65. Finally, all the statistical analyses were performed with SPSS/PC version 16.0 statistical software.
Fig. 9: Expected Benefits from a central cut-flowers market in Northern Greece

The basis for the categorization was the differentiation on scoring the following variables:
- Level of satisfaction of current situation (pricing, quality and in-time deliveries)
- Use of own fleet for delivering to customers
- Potential benefits from a central market’s establishment and florists association foundation
- Awareness of certified social and environmental practices

Cluster Analysis came out with three clusters presented in Table 2. More specifically:

Table 2: Clustering of florists

<table>
<thead>
<tr>
<th>Section</th>
<th>VARIABLE</th>
<th>Responses</th>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>n=30 (%)</td>
<td>n=45 (%)</td>
<td>n=29 (%)</td>
</tr>
<tr>
<td>Current situation</td>
<td>Level of satisfaction in terms of pricing</td>
<td>Moderate/High</td>
<td>0%</td>
<td>13%</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small</td>
<td>100%</td>
<td>87%</td>
<td>67%</td>
</tr>
<tr>
<td></td>
<td>Level of satisfaction in terms of quality</td>
<td>Moderate/High</td>
<td>22%</td>
<td>52%</td>
<td>65%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small</td>
<td>78%</td>
<td>48%</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>Level of satisfaction in terms of in-time deliveries</td>
<td>Moderate/High</td>
<td>37%</td>
<td>55%</td>
<td>62%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small</td>
<td>63%</td>
<td>45%</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>Use of own fleet only in delivering to customers</td>
<td>Yes</td>
<td>59%</td>
<td>30%</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>41%</td>
<td>70%</td>
<td>82%</td>
</tr>
<tr>
<td>Awareness of Central market establishment &amp; Sustainability Issues</td>
<td>Who will benefit from a central market</td>
<td>Producers and Retailers</td>
<td>37%</td>
<td>58%</td>
<td>48%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other or all</td>
<td>63%</td>
<td>42%</td>
<td>52%</td>
</tr>
<tr>
<td></td>
<td>Positive to central market's establishment</td>
<td>Yes</td>
<td>92%</td>
<td>63%</td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>8%</td>
<td>37%</td>
<td>63%</td>
</tr>
<tr>
<td></td>
<td>Positive in florists association foundation</td>
<td>Yes</td>
<td>67%</td>
<td>47%</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>33%</td>
<td>53%</td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td>Aware of certification on social/environmental issues</td>
<td>Moderate/High</td>
<td>51%</td>
<td>27%</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small</td>
<td>49%</td>
<td>73%</td>
<td>88%</td>
</tr>
</tbody>
</table>
Cluster 1: Florists supporting strongly the central market establishment (strongly unsatisfied from the current situation) – aware of sustainability

A total of 30 florists (29%) belong to cluster 1. These florists are entirely unsatisfied in terms of current pricing and very unsatisfied regarding quality and in time deliveries. Most florists use their own fleet for delivering flowers to their customers. Most of the florists in this cluster are very positive to the establishment of a central flowers’ market and state that all participants in the chain will gain from it. In addition the majority believes that a florists’ association would contribute in attaining joint-purchasing and marketing benefits. Finally, almost half of the respondents are aware of social and environmental issues.

Cluster 2: Florists supporting moderately the central market establishment (moderately satisfied from the current situation) – not aware of sustainability

A total of 45 florists (43%) belong to cluster 2. These florists are in general unsatisfied in terms of current pricing, while they are moderately or highly satisfied regarding quality and in time deliveries. Most florists included in this cluster use carriers or their own fleet for delivering flowers to their customers. The majority of the respondents is positive to the establishment of a central flowers’ market, stating that mainly producers and retailers will gain from it. However, their percentages are lower than the percentages of the first group (Table 2). Less than half support a florists’ association foundation, while less than one third are aware of social and environmental issues.

Cluster 3: Florists supporting weakly the central market establishment (moderately satisfied from the current situation) – not aware of sustainability

A total of 29 florists (28%) belong to cluster 3. One third of these florists are satisfied in terms of current pricing, while the majority of them are moderately or highly satisfied regarding quality and in time deliveries (more than the florists of cluster 2). Most florists included in this cluster use carriers for delivering flowers to their customers. The majority of the respondents of this cluster are not positive to the establishment of a central flowers’ market (Table 2). Moreover, they are strongly against the foundation of a florists’ association and are hardly aware of sustainability.

VI. Discussion

The issues raised and the results drawn in this paper can be more elucidated by a short discussion referring to the following highlights:

The results of this cut-flowers research concerning the distribution structure in Greece and a survey study with the cut-flowers retailers, in relation to the issue of value-chain, are briefly identified by two highlights: high concentration of the distribution structure at wholesale level and sufficient awareness of the small independent retailers about expected benefits from a central distribution market and value chain network. These highlights in combination refer to a clearly challenging situation which, however, can be transformed to opportunities of value creating sustainability potential. An important finding of the survey study conducted is that the majority of the florists (mainly these from clusters 1 and 2) are not sufficiently served by the wholesalers, with regard to prices and quality.

In order to respond to the increasing requirements for adding value to the chain, some wholesalers have started undertaking greater attention to monitoring quality and coordination of supply Logistics, in order to strengthen their position and role in the supply chain.

The cut-flowers distribution structure in Greece – as part of the broader distribution structure of the food industry - lacks of integrated modern value-chain. It is briefly reflected in exceptionally high mark-ups by two to three times retail prices compared with the prices at the doorstep of the farmers. Such situations harm both ends of the value chain, namely the cut-flowers growers and the consumers, besides the broader impacts on productivity, employment, economic growth and social welfare. In particular, with the distribution structure of cut-flowers in Greece and more particularly the absence of a central distribution structure in Thessaloniki have often forced florists to travel by own means over 500kms for direct sourcing from Athens central distribution market, to attain wider variety, higher quality and lower prices. The recent increase in petrol price though, besides the economic downturn, has limited such a practice.

It is pointed out that there is also great potential to applying modern technological tools in the existing cut-flowers distribution structure in Athens and become Logistics and trade hubs, including ICT communication system, information sharing, transparency and operational efficiency. This, together with reorganization and integrated processes can create significant synergy effects, particularly in view of the exceptionally short life cycle of the cut-flowers and hardening competitive environment. In such a context, reference [20] highlights that well organized logistic hub centers of cut-flowers can contribute to development of directs channels with foreign suppliers, to reduce high costs of transport, wastes, and ensure lead-times, high quality standards, etc.

A hub that operates both Logistics and trade functions can improve flowers and information flow, connecting all members of the chain, as the entire sector of flowers is built on an intricate set of connections between its agents, producers, traders and consumers all over the world. The expected benefits to derive by an ‘open’ central market have been recognised by the florists-respondents of clusters 1 and 2, realizing that both the growers and they are going to gain from a modern value-chain. In addition, it could support cut-flowers exports policies through penetration to emerging new markets in the Balkans, Eastern Europe and Middle East, in view of geographical and long historical cultural proximity.

More broadly, the florists have shown high awareness of the real sustainability problem, though they have acknowledged lack of adequate knowledge and experience on how to proceed collectively to a modern integrated value-chain. Therefore, the cooperation based on available knowhow can contribute in innovating transforming challenges to synergic opportunities. It is noticeable in this respect the successful experience case of active partnership of SMEs food retailers in the major Thessaloniki area in the past [39]. In this direction, planned cooperation among SMEs cut-flowers growers and florists can achieve sustainable competitive advantage, on equity cooperative terms, for the benefit of producers and value adding consumers’ satisfaction. This is acknowledged strongly by the florists of cluster 1, indicating the feasibility of trustful collaboration in a synergic value adding initiative. It is noticeable in this respect that shops franchises and joint-purchasing/marketing florists’ chains compete with supermarkets in France, Norway, Germany, etc., by combining low prices with convenience, personal service quality and a clear and appealing format.

Collective benefits can be accrued to both SMEs growers and retailers [40, 41, 42], through special cooperative associations.
success associations can adopt the following goals: increase in scale of economies in production and reduction of costs in relation to certification and labels. Examples of such organisational forms are documented in several countries [2], [46].

As far as the social/environmental issues of flowers concern, florists in Greece are partly aware of (mainly these of clusters 1 and 2), while florists in other countries, have already started to adopt standards in order to compete with supermarkets [32].

It is noted, moreover, that the majority of the interviewed florists trust more the imported rather than domestic flowers. This agrees with reference [47], that maintain that Italian districts (Italy has the same favourable Mediterranean climate conditions with Greece), belong to a very weak national innovation system and are now strongly dependent on the leading Dutch system (characterised by unfavourable climate, high labour and energy costs).

VII. Main Conclusions

This paper focused on cut-flowers distribution channels, the second most popular research area according to the cut-flowers literature review taxonomy results. In the framework of the supply chain, it provided useful insights for performing implementation of a holistic strategy, founded on collaborative advanced planning initiative for building-up a re-engineering process, more particularly in the floriculture industry of Greece.

Main conclusions came out from this paper are outlined in the following:

Middlemen intermediaries, such as the wholesalers, are justified with the criterion whether they perform the relevant functions more efficiently and effectively than the other actual or potential market participants [48]. However, cost constraints and shortening of time has led major supermarkets to source flowers directly from big growers rather than through the auction system and other intermediaries [49]. The cut-flowers retailers play a critical role in the market, since they contribute in uncovering hidden consumer preferences, perspectives and satisfaction, as source of value-adding and performance of the overall value chain. In many countries in Europe, including Greece, despite the increasing supermarkets’ power, traditional florists represent the dominating retailers’ channel.

The findings of a survey conducted with florists in Thessaloniki (SMEs in northern Greece) point out their high awareness of the cut-flowers sustainability challenge, in view of central market potential benefits, derived from the effective interaction of all collaborating agents in the supply chain. The identification and evaluation of the current situation revealed positive future possibilities and prospects for the Greek cut-flowers market, provided briefly by the development of:

- Logistics-hub centers that will allow all players in the chain to interact effectively, in terms of cost, quality and speed.
- strong collaborative actions, in both growers and retailers level for the balanced power share in the supply chain, since high wholesalers’ chain power concentration turns up to be the most significant barrier for cut-flowers market sustainability. Thus, the “collective capabilities” and synergy effects maximization of growers and retailers can act as a countervailing force to the trend of markets concentration. This paper highlights the need for studying further an integrative retail value chain framework, for attaining the collective action of both ends of the supply chain (growers and florists); because, wholesalers and supermarkets are currently moving strategically towards fully integrated channels on their favor and at the expense of numerous SMEs florists and producers. This phenomenon of power concentration, that characterizes the agricultural sector in Greece and other countries, impairs obviously sustainable development. Moreover, literature review of supply chain management has shown various constrains and difficulties for SMEs, such as the lack of ‘economies of scale’, ‘collective capabilities’ and ‘synergy effects’, towards an ‘holistic value chain strategy’, as a source of value creation and competitive advantage. The development of integrated value chain models must be based on a realistic cost/benefit analysis, as a practical business means for operationalising sustainability, mainly in conditions of SMEs domination.

In retrospect, conclusions drawn contribute in tracing out the direction of future research. Thus, future research can enlighten the opportunities for collaborative synergetic action and exploitation of knowhow for mobilization of all the available towards recovery and sustainability. Furthermore, in extension of the results of this study, flowers can strengthen, as symbols of culture, an integrated local agricultural chain network, including horizontal patterns (form of cooperatives), vertical close relationships, along with synergies with other sectors such as alternative quality tourism. Therefore synchronisation, the most sophisticated and highest level of designed collaboration, may become critical objective of future research, as in cases where all collaborative fundamentals are combined at a maximum level [50]. This, in the case of Greece, may be facilitated by awareness of high quality of Greek produce floriculture products and special flavor with favorable Mediterranean climate conditions along with possible use of renewable energy sources (photovoltaic and wind), towards implementation of sustainable production practices.

A limitation of this paper is that it concerns florists of the second largest city of Greece, where a central market is absent and wholesalers control exclusively the retail chain. Future research could evaluate current situation in the greater area of Athens, where florists already use the alternative distribution channels through the two existing central markets. Moreover, it is noticeable that despite the fact that the survey was conducted in Greece, the results can have a broader importance for countries where SMEs cut-flowers florists dominate the marketplace and lack of a well organized retail value chain network.

References


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