

# Consumers of flowers and ornamental plants: an exploratory survey in the Italian «Mezzogiorno» regions

EMANUELE SCHIMMENTI\*, ANTONIO ASCIUTO\*,  
ANTONINO GALATI\*, MARCO VALENTI\*

Jel classification: Q110

## 1. Foreword

Nursery gardening is an economic activity of the agricultural sector characterised by many-sided peculiarities under cultivation and socio-economic perspectives. The former is strongly related to the individual pedo-climatic requirements of the numerous species concerned and to the considerable variability of production processes. The second aspect is due to the various uses of flowers and ornamentals products – including cut flowers and ornamental foliage, propagation material, outdoor and indoor potted plants, garden plants and trees – for which market trends are quite different.

In developed countries, consumption of flowers and ornamental plants is characterised by trends partly correlated to the economic development of society. Plants are nowadays considered as goods with complex characteristics of consumption, related to lifestyles (gardening,

## Abstract

This paper aims to provide further knowledge of purchase and consumption behaviours with regard to flowers and ornamental plants in the regions of Italian «Mezzogiorno», as an acknowledgement of the centrality of final demand in the chain process. The knowledge of consumption process is fundamental either to the firm – in order to improve commercial strategies – or to competition authorities – with the purpose of implementing more effective policies. From the analysis carried out it emerges that flowers and ornamental plants consumption in the «Mezzogiorno» regions is characterised by a high penetration index and – just with regard to some commodities – by a low purchase frequency. Purchase – mainly in specialized flower shops – is made both to satisfy personal requirements and as a present for special occasions. With the only exception of flowers, consumption is not tied to specific occasions. In the «Mezzogiorno» regions this sector is actually showing a good growth potential in both productive and consumption terms. It is of primary importance to carry out actions consisting in an improvement of information and awareness among consumers about flowers and ornamentals, and a more diversified supply of products in order to get into the modern distribution chains.

## Résumé

*Cette étude vise à offrir une connaissance plus approfondie des comportements d'achat et de consommation de fleurs et de plantes ornementales dans les régions du « Mezzogiorno » d'Italie, en reconnaissant l'importance de la demande tout au long de la filière. La compréhension du processus de consommation a une très grande importance soit pour les entreprises, afin d'améliorer leurs stratégies commerciales, soit pour les autorités qui gèrent la concurrence, pour la mise en place de politiques plus efficaces.*

*L'analyse empirique montre que, dans les régions du « Mezzogiorno » d'Italie, la consommation de fleurs et de plantes a un taux élevé de pénétration mais, pour certains produits, une faible fréquence d'achat. En particulier, l'achat, réalisé surtout dans les magasins spécialisés dans la vente de fleurs et de plantes, vise à satisfaire, d'une côté, les besoins des consommateurs, et, de l'autre, les besoins d'achat des cadeaux dans des circonstances spécifiques. Dans les régions étudiées, le secteur des fleurs et des plantes montre des potentialités de développement de plus en plus croissant sur le plan productif mais aussi en termes de consommation. Dans ce scénario, il serait souhaitable de mettre en place des actions et des outils pour améliorer l'information et la sensibilisation des consommateurs sur les caractéristiques des produits concernés, mais aussi, de diversifier l'offre, de façon à pouvoir accéder aux nouvelles chaînes de la distribution.*

furnishing of flats, balconies, terraces, courtyards, etc.), although recurrent purchases (habits, local traditions, etc.) are also observable.

Nursery gardening has recently suffered the effects of a market opening process, a sudden technological progress and the rise of new factors able to affect market dynamics and therefore consumption style.

In particular, globalisation has implied a competition worsening due to the entrance of new competitors into the market, particularly among the developing countries, which enjoy apparent competitive advantages related to their favourable climatic conditions, to the abundance of natural resources and to the availability of low-cost labour.

On the other hand, distribution is mainly managed by big sales companies, able to strongly invest in logistics, marketing, quality and information systems.

In this competitive scenario, both firms and competition authorities need to comprehend motivations behind consumption and end-product use: the former with the aims to identify consumers' needs, improve their communications capacity and efficiently plan commercial strategies, the latter in order to implement more effective policies (East, Vanhuele, Wright, 2009).

The knowledge of aspects such as multiplicity of needs, buying ways and motives, often starting from conflicting

<sup>1</sup> Dipartimento di Economia dei Sistemi Agro-Forestali (E.S.A.F.), Università degli Studi di Palermo, Italy. The paper arises from a joint effort of the Authors. Nevertheless, E. Schimmenti has coordinated research and drafted sections 1, 4 and 6.5.; A. Asciuto has written sections 3, 6.2. and 6.4.; A. Galati has drafted sections 2, 5 and 6.3.; M. Valenti, who has dealt with data analysis, has also written sections 6.1. and 7. Section 8, concerning "Concluding remarks", is the result of the joint effort of the Authors, who also wish to acknowledge dr. Lauricella (ISMEA), for providing valuable data on flowers and ornamentals consumption.

impulses, enables to set out marketing strategies able to steer commercial policies towards the best market opportunities (Trevisani, 2008).

In the national context, «*Mezzogiorno*» regions represent an important catchment area with regard both to production and consumption of flowers and ornamentals, due to the extremely favourable climatic conditions and to some productive areas endowed with a strong *know-how* where firms are able to supply some typologies of product demanded both in domestic and foreign market.

The present research, after outlining the economic scenario of the sector, intends to understand purchase and consumption behaviours concerning flowers and ornamental plants in the Italian «*Mezzogiorno*» regions (Calabria, Basilicata, Puglia, Campania, Molise, Abruzzo, Sardegna, Sicilia), through a telephone survey of these consumers, acknowledging the centrality of the end demand in the whole chain process, with the aim to outline the profile of «*Mezzogiorno*» consumers by means of an analysis of their attitudes, motivations and stated preferences.

## 2. Theoretical aspects

The analysis of consumer's behaviour has been taking place since the end of the sixties, initially through a Utilitarian approach by which consumer was considered as «*a sovereign and atomized actor, free from any social conditioning, who makes purchase choices seeking utility maximization*» (Lori, Volpi, 2007).

The changes occurred in our society in the last decades have brought about deep switches in consumption styles, proving the limited explanatory capacity of the Utilitarian school approaches – which adopt income as an explanatory variable – with reference to preferences and tastes driving consumption choices. In fact consumer through purchase choices generates a combination of relationships as an individual but also as an integrated decision-maker in a complex environment constituted by cultural, social and family relations, hiding the distinctive aspects of his personality and lifestyle, under the research of utility and of the advantages resulting from the good utilization (Dalli, Romani, 2009). It derives that it is necessary to observe consumer's behaviour in a multidisciplinary perspective, taking into account some variables – regarded as latent and non observable, as related to social, cultural and psychological factors, hardly measurable (Zanoli, Naspetti, 2004).

Traditionally, the study of consumer's behaviour follows two different approaches: the cognitive and the behaviourist ones.

The former, widely acknowledged in literature, assumes that individual actions are the outcome of an intra-personal process of elaboration (Dalli, Romani, op.cit.) It means that

individuals acquire and process information from the environment, modifying their behaviour according to their goals.

On the other hand, the behaviourist approach does not take into consideration the role that self-awareness and cognitive aspects play in purchase and consumption choices, stating that they are thoroughly unfathomable, while environment is the only measurable factor capable of affecting consumers' behaviour.

According to the «*experience*» approach, appeared in the late eighties, consumers are driven by their own emotional states, which are the motivational basis of the purchase and consumption process (Solomon, 2004).

The focus is now on the value that individuals recognize to products rather than on the purchase act, particularly on their capability of giving birth to emotions, sensations and feelings contributing to the construction of their own identity both as individuals and as members of a determined social group.

The traditional cognitive approach only partially explains the purchase behaviour of flowers and ornamental plants consumers. If, on one hand, these goods have tangible features, for which a cognitive vision keeps its validity, on the other hand their purchase is more and more affected by a variety of factors, such as ethic values, hedonistic aspects, affiliation to a determined social group, emotional states, subjective welfare and a greater attention to socio-environmental variables.

Models oriented to the comprehension of consumers' decision-making process are supposed to acquire information regarding consumers' perception of the product features and their capability of satisfying specific needs.

In the economic literature two kinds of analytic approaches can be found: the former based upon quantitative measurement techniques and the latter of a qualitative, non numerical, type.

Quantitative<sup>2</sup> methods of analysis are generally based upon face-to-face or telephone interviews, led on samples of a probabilistic type and using questionnaires set on this specific purpose and which are useful tools to gather basic data. A main limit of these methods is frequently given by the shortness of the questionnaires (due to the necessity both of lowering the research costs and of speeding up data gathering), and by a predominance of «*yes/no questions*», which reduce feedback and the possibility of probing (Zanoli, Naspetti, op.cit.).

In literature, quantitative analysis is considered as a reductionist and marginalist approach, and consequently it just partially allows to carry out a detailed analysis of the decision-making process. Qualitative analyses<sup>3</sup> are quite effective to explore psychological aspects, the social and emotional value of a product and the way it is perceived by consumers (Trevisani, op.cit.), are usually less expensive than large sample quantitative surveys and particularly appropriate to investigate complex and changeable phenomena. These characteristics make them suitable to be adopted as preparatory to the following quantitative analyses. On the other hand, they are

<sup>2</sup> Caccetta, Platania, 2006; AA.VV., 2003; Chinnici, D'Amico, Pecorino, 2003; Asciuto, Fiandaca, 2004.

<sup>3</sup> Reynolds, Gutman, 1988; Begalli, Agnoli, Codurri, 2009; Grunert, Grunert, 1995; Naspetti, Zanoli, 2005; Mora, Menozzi, 2006.

little rigorous and based upon theories difficult to validate empirically (Zanoli, Naspetti, op.cit.).

### 3. Survey design

The lack of studies concerning this sector and the acknowledgement of the importance of purchase behaviour to firm decision-making, have suggested to carry out a quantitative analysis targeted to the acquisition of basic elements and information utilizable to outline the average profile of the flowers' and ornamentals' consumer in the Italian «*Mezzogiorno*» regions.

Budget and time constraints have not allowed us to draw a statistically representative sample of consumers; therefore the present survey has no claims to exhaustively describe the investigated topics.

The consumer survey was carried out from March 2008 to January 2009 through the telephonic administration of a specific questionnaire to a sample of 585 adults<sup>4</sup> aged at least 18, resident in the «*Mezzogiorno*» regions.

The sample was randomly selected from the chief towns of the 43 provinces of the «*Mezzogiorno*» regions and quotas of interviewees were set in proportion to the number of inhabitants for each town<sup>5</sup>.

Households were randomly selected for interviews from the telephone directories<sup>6</sup> of each investigated province, by drawing from a poll a little ball containing an alphabetic letter; then, starting from that letter, the first telephone number on each page in the directory<sup>7</sup> was used, taking as many numbers as necessary to reach the established quota.

The telephone calls were made daily – including holidays – and in a time between 5 and 8 p.m.

The survey questionnaire, which contains 25 closed-end questions<sup>8</sup>, is composed of two sections and data collection is organized in order to analyze the two market segments of

cut flowers and potted plants (flowering and foliage). Within the second category, few more questions were made focusing on ornamental citrus.

The first section of the questionnaire concerns the following aspects: purchase penetration; product typology and frequency of purchase; motivations for purchase and non-purchase; purchase occasions; average expense for each purchase; places of purchase.

The second section aims to describe the social and demographic characteristics of the interviewees, such as sex, age, family size, educational qualifications, occupational and professional status.

### 4. Nursery gardening background

From the socio-economic standpoint, nursery gardening represents one of the most important productive agricultural sectors of some Italian areas, and particularly of some «*Mezzogiorno*» regions, where it plays a strategic role in terms of employment and profitability for the workers of the primary sector in the areas involved by the cultivation and for those involved in the numerous linked activities.

Moreover in some southern areas, flowers and ornamental plants sector, besides currently showing some strong firms, offers considerable expansion opportunities in the areas of new and old irrigation.

Such a development opportunity is confirmed, on one hand, by the growth perspectives of some market segments – particularly of ornamentals – expressed by national and European markets, and on the other hand by the need of widening the range of economic and employment activities in the «*Mezzogiorno*» regions, marked by low pro-capita incomes and by high unemployment rates, particularly with regard to youth unemployment.

In this direction, the increase of flowers and ornamentals cultivations might contribute to the economic development of some particularly suitable land of Italian «*Mezzogiorno*» area. The sector requires a high degree of labour for area unit, produces capital and labour incomes far higher than the other sectors of agriculture and needs a specialist and innovative training, more suitable to take up entrepreneurship and youth labour (Schimmenti, ed., 2009).

In the Italian «*Mezzogiorno*» area, the nursery gardening sector, according to the V General Census of Agriculture (2000), is represented by 10,666 flowers and ornamentals firms (32.1% of overall number of firms) which operate on a total area of 8,840 hectares (5,431 hectares devoted to nursery gardening activities and 3,409 hectares destined to flowers and ornamental plants). The average size of flower firms is 0.63 hectares per unit, whereas nursery gardening firms are slightly larger (size is on average 0.94 hectares), in both cases average farm size is slightly growing when compared to the 1990 General Agricultural Census.

There is still quite a high number of small and extremely small firms, only partially balanced by medium-sized productive units and at all balanced by some large firms.

<sup>4</sup> The response rate of telephone interviews was just over 34%, since 1,700 phone calls were necessary to obtain 585 valid questionnaires.

<sup>5</sup> In particular, the number of interviews carried out in the 43 towns is reported as follows. SICILIA: 6 Agrigento, 6 Caltanissetta, 31 Catania, 3 Enna, 25 Messina, 69 Palermo, 7 Ragusa, 12 Siracusa, 7 Trapani. CALABRIA: 9 Catanzaro, 7 Cosenza, 6 Crotona, 18 Reggio Calabria, 17 Vibo Valentia. BASILICATA: 6 Matera, 7 Potenza. PUGLIA: 10 Andria, 32 Bari, 9 Barletta, 9 Brindisi, 15 Foggia, 8 Lecce, 20 Taranto, 5 Trani. CAMPANIA: 5 Avellino, 6 Benevento, 7 Caserta, 100 Napoli, 14 Salerno. MOLISE: 5 Campobasso, 2 Isernia. ABRUZZO: 7 L'Aquila, 5 Chieti, 12 Pescara, 5 Teramo. SARDEGNA: 16 Cagliari, 13 Carbonia Iglesias, 13 Medio Campidano, 4 Nuoro, 6 Ogliastra, 6 Olbia Tempio, 3 Oristano, 12 Sassari.

<sup>6</sup> Telephone directories have recently lost part of their former function, that is to represent the reference population from which statistical sample is to be drawn. The reasons of this phenomenon are ascribable both to the strong growth of mobile telephony and to the provisions on the right of privacy, which allows users not to give their consent to be publicly present in the directory.

<sup>7</sup> In each case of unsuccessful phone call (absence of the telephone subscriber or refuse to undertake the interview), the selection process of the sample went on by choosing the second, the third phone number on the page and so on.

<sup>8</sup> Dichotomous questions contemplate just one answer between two indicated modes, polichotomous questions allow one answer among three or more options, multiple choice questions contemplate the possibility to express one or more preferences among those provided to the interviewee.

This firm structure is thought to negatively affect competitive capacity of the whole system and to represent one of the major obstacles to the introduction of technological innovation in the firms.

The phenomenon of firm restructuring is however present even if not widespread, and in these cases structural organization and productive specialisation are partially modified. It is noteworthy to observe that some medium-large sized farms have been established in nearly all the production areas, oriented to production and trade (in Italy but also abroad) of flowers and ornamental plants. These farms play a guidance role for the small ones both at both commercial and structural level.

As to supply, in the period 2004-05 the overall southern annual average production derived from the cultivations of flowering, leaves and foliage plants is just less than 2.7 billion of pieces (2.1 billion of which in protected cultivation), obtained on a 3,970 hectares cultivation area. Cut flowers represent 91.1% of total production, followed by foliage (4.5%) and by leaves (4.4%).

The output (production) of potted plants amounted to approximately to 143.3 million (111.0 million in protected cultivation), mainly constituted by flower (45.6% of total) and foliage (28.0%) plants. As regards the segment of cut products, a slight increase of the production compared with the early nineties, whereas ornamental plants production increased significantly, due to the high absorption capacity expressed by national and foreign markets.

In terms of current values, in the biennium 2007-2008 the flowers and ornamental plants production at basic prices («flowers and potted plants» and «ornamentals nurseries») of Italian «*Mezzogiorno*» amounted approximately to 770.5 million euro (25.7% out of total value and 4.6% of the production at basic prices concerning southern agriculture), almost exclusively gained by Sicily (269.1 million euro), Campania (240.7 million euro) and Puglia (193.1 million euro).

In 2007-2008 the trade balance of flowers and ornamental plants of «*Mezzogiorno*» regions recorded a deficit of 21.2 million euro (deriving from an export value of 64.2 million euro and an import value of 85.4 million euro), representing however an improvement compared with the period 2000-2001 – normalised trade balance recovered from -38.2% to -14.2% – and showing consequently a more developed autonomy in terms of trade at territorial level.

<sup>9</sup> The sample is stratified on the ground of social, demographic and geographic variables. As to social and demographic aspects, sample is balanced taking into account family size, age, sex, educational qualifications, working activity, town typology. From a geographical viewpoint, sample is drawn from 450 Italian municipalities of the 4 main territorial areas (North-West, North-East, Centre + Sardinia, South and Islands). The expenditure concerning purchase of flowers, foliage and flowering plants is estimated by taking into account the total number of buyers and the average expense stated by the interviewees. The survey does not investigate the “institutional demand”, represented by public buyers - municipalities, public offices, town public parks and residences - private buyers - shops, private offices - and by professional operators, such as people who carry out green maintenance and design activities.

## 5. The development of flowers and ornamental plants consumptions

Flowers and ornamental plants consumption in the last years has undergone radical changes due, on one hand, to the phenomenon of market globalisation and, on the other hand, to the economic development of societies.

Consumer profile has been deeply changing, particularly in Western Countries, where demand is made of recurrent purchases partly due to habits and traditions and partly to satisfy broader needs, related to recreation, embellishment of the environment and, more generally speaking, to all positive values deriving from a plant or a flower (ISMEA, 2005).

The analysis of flowers and ornamental plants consumption reported below describes the results of a survey carried out by AC – Nielsen CRA on account of ISMEA – following a collection methodology based on the telematic administration of a structured questionnaire – aimed at monitoring size and seasonality of consumption of 2,000 Italian families (representative of an overall population of 47,431,775 people), with interviews to adults aged 18 or more (4,350 cases)<sup>9</sup>.

In current values, in 2008 plants and flowers consumptions of families in Italy amount to 2.34 billion euro (ISMEA data) – pointing out an increase of 15.1% compared to 2005 – of which 1.38 billion euro expended for the purchase of flowers (58.9% out of the total value) and 0.96 billion euros for plants (41.1%).

In the four-year period 2005-2008 the expense for the purchase of flowers has increased at a higher rate (+18.8%) than the one for plants (+10.1%) (Tab.1).

Market penetration index as regard final buyers, given by the ratio between the overall number of flowers and potted plants buyers and the overall population, in 2008 was 55.7%, compared with the 45.3% of 2005, due to a significant increase in the number of buyers (+23.0%).

The survey points out that buyers growth has concerned in particular the flowers segment, where buyers passed from 16.3 million of 2005 to 20.3 million of 2008 – a +24.2% increase rate –, and to a lesser extent the potted plants segment, which has showed a +17.4% increase (from 14.3 million of 2005 to 16.8 million of 2008).

Table 1 – Overall family expenditure with regard to flowers and plants - 2005-2008 period (.000€).

	Italy			IV Nielsen Area		
	Flowers	Plants	Total	Flowers	Plants	Total
2005	1,159,914	872,530	2,032,444	357,602	201,992	559,594
2008	1,378,390	960,284	2,338,674	497,572	208,427	705,999
Fluctuation 2008/05 (%)	18.8	10.1	15.1	39.1	3.2	26.2
Source: Our elaboration on ISMEA data.						

The pro-capita consumption in monetary terms, calculated on the overall number of people belonging to the reference population (families which have people at least 18

years of age), was 49.0 euro, 28.9 euro of which devoted to flowers and 20.1 euro to potted plants. More in detail, in the period 2005-2008 the growth of the average pro-capita purchase (+5.4 euro) is more attributable to flower purchases (+3.7 euro) than to potted plants (+ 1.7 euro).

The allocation of total expenditure among the commercial channels highlights the major importance of flower shop, which represents the main sales channel for flowers and potted plants with a 50.1% of the overall estimated expenditure of 2008, earning 4 percentage points compared with 2005. After the florist shop, «*garden center*» and nursery catch a 16.9% share (showing a 2.0% decrease rate) each, whereas street kiosk reaches 16.0%, showing a 0.7% increase rate. The other sales channels play a minor role, with a share which ranges from 7.2% (corner market) to 2.8% (other sales channels<sup>10</sup>), passing through supermarkets and hypermarkets (7.0%).

The analysis carried out for each market segment points out that the flower shop is the main sales channel for flowers (57.8%), followed by the kiosks (22.6%); potted plants are mainly bought at the traditional flower shops (39.0%), and less frequently in the «*garden center*» and nurseries (31.0%).

The plants consumptions trend indicates a deep change in the Italian consumer profile, who gives prominence to the role played by nature in the daily living.

The 2008 ISMEA survey highlights a gradual growth of plants purchases, with regard either to specific recurrences or to house and environment embellishment.

Among the main typologies of green plants, cactus and aromatic plants are the most purchased, whereas among the flowering plants, cyclamens, geraniums and Poinsettia are the most cited by the interviewees.

With regard to cut flowers segment, more regular ways of consumptions are predominant, especially of those related to specific occasions and recurrences (Mother's Day, Women's Day, St Valentine's Day, etc.). Among cut flowers, roses are the most frequently mentioned by the interviewees (40.9% of total buyers), followed by Chrysanthemum and various flower bouquet.

In 2008 in the IV Nielsen area (including Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria e Sicilia) the overall expenditure was estimated in around 706.0 million euro, corresponding to 30.2% of the national total, showing a 26.2% increase rate compared to the amount of 2005.

The major part of the above expenditure is destined to flowers purchase (497.6 million euro, + 39.1% compared to 2005), whereas potted plants expense is limited (208.4 million euro, +3.2% compared to 2005).

In 2008 penetration index was equal to 46.7%, showing a growth compared to 2005 (+5.4%), mainly due to the remarkable growth of plants buyers rather than to that concerning the segment of cut flowers.

In the IV Nielsen area the allocation of total expenditure among sales channels points out the main importance of the florist shop, with a 60.8% share of the overall expenditure, followed at a distance by the street kiosk, which has a 20.4% share. More in detail, with regard to flowers products purchases occur more frequently at florist shops (64.2%) and in the kiosks (24.2%): in both cases, the share held by the two sales channels increased in comparison to that of 2005 (respectively, +5.2% and 5.8%). Also as to plants, florist shop plays a relevant role (52.7%) among the sales channels, in progressive growth since 2005 (+12.7%), followed by «*garden center*» and nurseries (16.3%) and by kiosks (11.1%), the share of which show, on the contrary, a significant worsening in the examined period.

## 6. Summary of survey results

### 6.1. Socio-economic characteristics of the sample

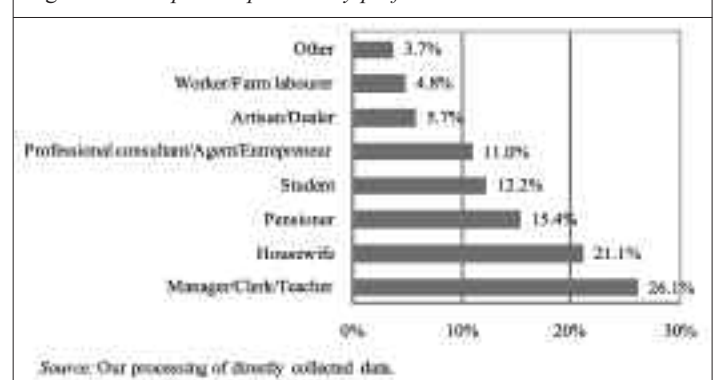
The 585 consumers interviewed in the survey are mainly females (54.9%) and to a smaller extent males (45.1%) aged 18 or more.

With regard to age, people between 30 and 65 years represent in absolute terms the most numerous group in the sample (63.9% of total number), whereas people up to 30 years of age and those aged over 65 are fewer, respectively accounting for 21.9% and 14.2% of overall sample.

As regard to occupational status, 46.4% of interviewees are engaged in a working activity, 40.3% are unemployed (students, housewives, retired people, etc.), 9.7% are seeking their first employment, whereas the remaining 3.6% are out of a job.

With the exclusion of the last ones from the analysis, managers, employees and teachers make up altogether 26.1%, whereas housewives 21.1% of buyers in professional condition. Both the categories express a stronger interest in flower and ornamental products, the latter due to a special sensitivity to products aimed at the embellishment of houses and environment, the former due to superior means (Figure 1).

Figure 1 – Sample composition by professional status.



With regard to educational qualifications of sample consumers, people who hold senior secondary school qualifi-

<sup>10</sup> Internet, mail-order catalogues, *brico center* and Do-It-Yourself (DIY).

cations (49.0%) are predominant among the buyers, followed by those who have primary school or junior secondary school qualification (26.3%) and by consumers who hold a degree (24.7%).

Families are mostly composed of 3 or 4 people (60.8% of total sample), whereas families of 1, 2, 5 or more people are less numerous (respectively 6.7%, 16.6%, 15.9% of the total sample). Families are on a whole composed of 1,975 people.

Just over 48.2% of interviewees stated to usually and personally deal with purchase of flowers and ornamentals products.

## 6.2. Characteristics and motivations of flowers and ornamental plants consumption

Consumption of flower and ornamental products in the «Mezzogiorno» regions is characterized by a high penetration index<sup>11</sup>: from the survey it turns up that 74.7% of the overall sample, correspondent to 437 consumers, buys the above products, while the remaining part, equal to 25.3%, states not to purchase them (Table 2).

Both segments of potted plants (flowering and green) and flowers are widely purchased by sample's consumers (64.1% plants and 62.6% flowers), whereas ornamental Citrus market is still little developed (buyers represent just 14.0% of total sample).

	N°	%
Just flowers	62	10.6
Just plants	71	12.1
Both flowers and plants	304	52.0
<b>Total buyers</b>	<b>437</b>	<b>74.7</b>
Flowers	366	62.6
Plants	375	64.1
Ornamental Citrus	82	14.0
<b>Total non-buyers</b>	<b>148</b>	<b>25.3</b>
<b>Total</b>	<b>585</b>	<b>100.0</b>

Source: Our processing of directly collected data.

To this end, an interesting fact emerging from the survey is the apparent overlap between different typologies of products purchased: 52.0% of interviewees buy without distinction either flowers or plants, denoting a marked sensitivity to substitution phenomenon. Consumers who purchase in an exclusive way cut flowers or plants represent, respectively, 10.6% and 12.1% of the whole sample.

Choices between the two segments by consumers is basically related to various factors, such as season, price, product presentation (packaging), etc., elements that can bring about different purchase attitudes (ISMEA, 2003).

<sup>11</sup> Penetration index was calculated by including also the buyers who stated to purchase both types of products (flowers and potted plants).

<sup>12</sup> One or more than once a week: weekly; from one to three times a month: monthly; from one to six times a year: yearly.

The results of the purchase frequency analysis<sup>12</sup> show that consumers who buy annually represent a significant part of the sample; interviewees who state to purchase monthly flowers and plants are far more numerous than people who buy them weekly.

The analysis by segment of product highlights substantial differences. With regard to cut flowers, percentage frequencies between consumers who buy them from 1 to 6 times a year (70.0%) and those who purchase them from 1 to 3 times a month (27.3%), although being pronounced, are less strong than those concerning potted plants, where there is a larger gap between consumers who buy annually (87.0%) and those who purchase monthly (11.7%) (Figure 2). In both segments weekly purchases are infrequent.

In the segment of potted plants, ornamental Citrus are bought just with annual frequency by «occasional consumers».

Figure 2 – Frequency of purchase.

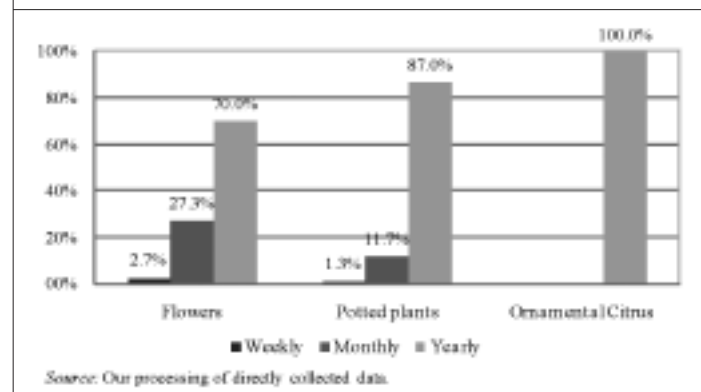


Table 3 – Flowers and plants purchase and non-purchase motivations.

	N°	%
<b>Purchase motivations (closed answer)</b>		
Personal use	78	17.8
Present (gift)	93	21.3
Both	266	60.9
<b>Total buyers</b>	<b>437</b>	<b>100.0</b>
<b>Non-purchase motivations (multiple choice)</b>		
High price	37	25.0
Personal taste	52	35.1
Difficulties in finding	4	2.7
Difficulties in caring	48	32.4
Other	26	17.6
<b>Total</b>	<b>167</b>	
<b>Total number of non-buyers</b>	<b>148</b>	

Source: Our processing of directly collected data.

The survey of purchase and non-purchase motivations allows pointing out some consumption peculiarities. People who buy both for personal use (pleasure, house and environment embellishment) and in order to make a present represent most of sample (60.9% of interviewees), unlike those who state to purchase these products for personal use only (17.8%) or to make a present (21.3%) (Table 3). In the latter, the

analysis shows that flower and ornamental products are at times (sometimes) matched with other typologies of goods (gifts). With regard to cut flowers, they are offered in matching with other goods by 39.1% of sample consumers, quota which decreases to 29.3% in the case of potted plants, whereas it is very low when concerning ornamental Citrus (6.1%).

In the questionnaire interviewees were asked to indicate, in order of preference, gift typologies which they usually choose when giving a present (Fig. 3).

About the above-mentioned question, it turned out that flower and ornamental plants are a good alternative (option) compared to technological goods, gifts and jewellery, being preferred to them as a second and third choice and, compared to gifts and jewellery, as a fourth grade.

More seldom, on the contrary, flowers and ornamental plants are chosen as a first grade, since they are outclassed by gifts and however outsold by technological goods and jewellery.

Looking at the single flower species it turns out that roses represent the main typology of cut flower, making up 61.5% of the expressed preferences, followed by tulips (19.1%), by Liliium (17.7%) and by carnations (17.2%). Orchids and flower bouquet (purchased by young consumers in special occasions such as dinner invitations, recurrences and anniversaries) are chosen by 16.7% of the interviewees.

Other flowers are mentioned by sample consumers with a lower frequency, between 10.0% and 14.0%, such as gladiolus, daisies, mimosas and chrysanthemums (the last ones are almost exclusively bought in the occasion of «All Souls Day»). A restricted number of species is mentioned by less than 10% of the interviewees.

From the answers given in the questionnaire<sup>13</sup> with regard to purchase occasions, we observe a considerable use of cut flowers in special occasions (65.6% of the consumers); festivities (40.4% of sample), cemeterial use (39.9%) and All Souls Day (30.3%) are also important occasions for flowers purchase.

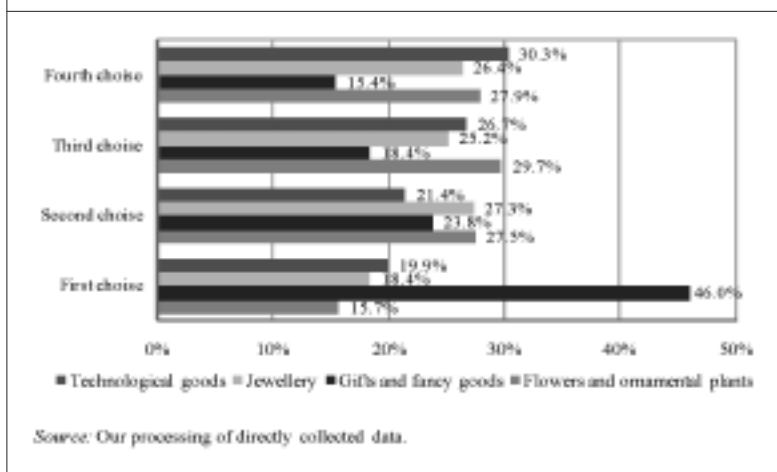
From the survey it comes out that flower consumption is still linked to traditionally important occasions; purchase for personal use is, indeed, rather limited (27.0% of the buyers) (Tab. 4).

Another relevant aspect deducible from the results of the survey is the share of consumers who give flowers as a present (62.9% of the interviewees), in comparison to those who purchase them for personal use (12.9%) or for both motives (24.2%) (Fig. 4).

The privileged place for flowers purchase is the traditional florist shop, which was cited by 56.0% of consumers surveyed, followed by the flower stall (48.9% of total buyers). Motivations driving consumers to choose these sales channels instead of other ones such as «garden center», street traders, supermarkets and hypermarkets, are to be searched in the high professionalism resulting from experience,

in the attractiveness, meant as quality and range of products on offer, as well as in the services built in the product and, finally, in the possibility of minimizing purchase time, making it more effective.

Figure 3 – Preference rank among various products when giving a present.



Source: Our processing of directly collected data.

With regard to the motivations of non-consumption expressed by the interviewees, consumers who do not appreciate this category of products (35.1% of sample consumers), or come across (run into difficulties) troubles in looking after them (32.4%), or finally consider market price too high (25.0%), represent significant shares of the overall sample. Non-consumption due to flower allergy and/or to lack of habit (17.6%), difficulty of finding these products (2.7%) is irrelevant.

### 6.3 Cut flowers consumption

From the survey it turned out that 62.6% of interviewees buy cut flowers (despite exclusive buyers of flowers represent just 10.6% of the sample) with an annual frequency (70.0%), although consumers who purchase from 1 to 3 times a month represent more than 27.3% of total sample.

Table 4 – Purchase occasions concerning flower and ornamental products.

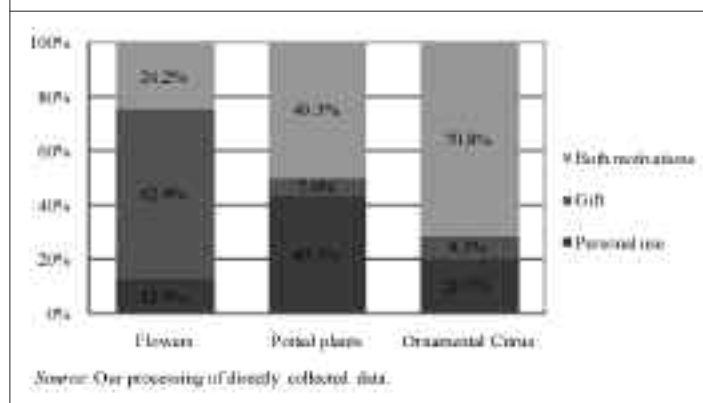
	Flowers		Potted plants		Orn.Citrus	
	N°	%	N°	%	N°	%
Special occasions (various anniversaries, birthdays, invitations, etc.)	240	65.6	148	39.5	21	25.6
All Souls Day	111	30.3	36	9.6	1	1.2
Personal use/house embellishment	99	27.0	292	77.9	64	78.0
Festivities (St.Valentine, mother's holidays, women's holidays, Christmas, Easter)	148	40.4	70	18.7	13	15.9
Cemeterial use	146	39.9	26	6.9	0	0.0
<b>Total number of buyers</b>	<b>366</b>	-	<b>375</b>	-	<b>82</b>	-

Source: Our processing of directly collected data.

Nursery represents, however, a significant option to the first two sales channels, even if it has never chosen as a first option (Tab. 5).

<sup>13</sup> In this case questions were presented in a multiple choice format.

Figure 4 – Purchase motivation by single segment.



frequency of purchase: 87.0% of total buyers make purchases just from 1 to 6 times a year.

From the answers given by the interviewees, it turns out that there is quite a high number (92) of potted plants typologies being purchased, with a consequent marked dispersion of the answers.

Among the main potted plants typologies, cactus plants play a significant role (they have been mentioned by 37.3% of sample consumers), followed by geranium (23.5%), and by potted roses (14.1%). Other flower species, which collected shares of purchase between 5.0% and 13.0%, are here reported in decreasing order: pansies, cyclamens, azaleas, poinsettia, jasmines, aromatic plants, primroses, gardenias, photos, hydrangeas and hibiscus. The remaining species<sup>14</sup> (recorded in a significant number), were indicated by the interviewees with percentages between 0.3% and 4.0%.

Purchase of potted plants, unlike the one of cut flowers, is predominantly aimed at the embellishment of house and environment (77.9% of the respondents), whereas specific recurrences such as special occasions (39.5% of the sample) and festivities (18.7%) are less commonly mentioned by sample's consumers; finally, All Souls Day (9.6%) and cemeterial use (6.9%) represent marginal purchase occasions.

Among the purchase motivations it turns out that plants are bought for personal use in 43.7% of the sample, and both as a present and for personal use in 49.3% of the sample.

Nursery is actually the most used place according to consumers' answers (49.3%), followed by the florist shop (43.7%) and street kiosk (36.5%). Other sales channels are less mentioned by the interviewees, such as supermarkets and hypermarkets (14.4%) and «garden center» (8.0%).

The average expense in potted plants for the sample consumers is slightly bigger than that concerning cut flowers. In particular, frequency of buyers spending up to 5 euro is quite low (1.3%), whereas consumers who spend more than 30 euro are more numerous (7.2%) than those regarding cut flowers.

On a whole, 75.2% of the interviewees spend more than 10 euro for a single purchase (+6.4% compared with cut flowers), whereas 24.8% of them destine less than 10 euro.

## 6.5 Consumption of ornamental Citrus

Within the potted plants segment, in the last twenty years a rising commercial interest towards ornamental Citrus (Schimmenti, op. cit.) was recorded. These plants have been rapidly spreading in vegetable gardens and in proper gardens, till they have recently reached town flats, thanks to their evergreen foliage, and to their fruits, aesthetically appreciated by consumers for their shapes and colours.

Although they have been given a growing attention in the last few years, ornamental Citrus still represent a market niche. Their penetration index in the investigated sample is, in fact, only 14.0% when considering the whole number of

Table 5 – Buyers of flowers and ornamental plants by purchase channel.

	Flowers		Potted plants		Ornamental Citrus	
	N°	%	N°	%	N°	%
Flower shop	205	56.0	164	43.7	25	30.5
Flower stall	179	48.9	137	36.5	5	6.1
Street trader	64	17.5	44	11.7	1	1.2
Supermarket and hypermarket	23	6.3	54	14.4	2	2.4
Garden center	28	7.7	30	8.0	8	9.8
Nursery	105	28.7	185	49.3	71	86.6
<b>Total number of buyers</b>	<b>366</b>	-	<b>375</b>	-	<b>82</b>	-

Source: Our processing of directly collected data.

Consumers were asked to indicate the average cost per single purchase of flowers, choosing among five proposed options, representing different classes of expense. 45.9% of surveyed consumers stated to spend on average between 10.01 and 20.00 euro. Buyers who spend amount of money included in the intervals 5.01-10.00 euro and 20.01-30.00 euro represent respectively 28.4% and 20.2% of the sample. Average expenses lower than 5.00 euro and over 30.00 euro are quite uncommon, being indicated just by 2.7% of the sample consumers (Tab. 6).

Table 6 – Average expense purchase of flower and ornamental plants products.

	Flowers		Potted plants		Ornamental Citrus	
	N°	%	N°	%	N°	%
Flower shop	205	56.0	164	43.7	25	30.5
Flower stall	179	48.9	137	36.5	5	6.1
Street trader	64	17.5	44	11.7	1	1.2
Supermarket and hypermarket	23	6.3	54	14.4	2	2.4
Garden center	28	7.7	30	8.0	8	9.8
Nursery	105	28.7	185	49.3	71	86.6
<b>Total number of buyers</b>	<b>366</b>	-	<b>375</b>	-	<b>82</b>	-

Source: Our processing of directly collected data.

## 6.4 Consumption of potted plants

Potted plants segment has the highest number of surveyed buyers, and in the period under observation it shows a penetration index equal to 64.1%, matched, though, by a low

<sup>14</sup> Periwinkles, Rhododendrons, Yucca, climbing and potted Ivies, Dahlias, Spathiphillum, Dieffenbachia, Ruscus, Magnolias, Lilacs, etc.,.



the interviewees, while it goes up to 21.9% if calculated just on the potted plants buyers.

The low purchase frequency, amounting to 1-2 times a year, may be attributed partly to the longevity of the species partly to a market price higher than that one recorded for other flower and ornamental products.

Lemon is the citrus for which the surveyed consumers have expressed the highest number of preferences (78.0%) without a shadow of doubt. Mandarin and orange are mentioned by a large part of the sample (respectively 34.1% and 21.9%), whereas kumquat, citron and bergamot were bought by a percentage of consumers between 6% and 10%. Other Citrus species, such as Clementine, Chinotto, Lime and Grapefruit, obtained very low shares of purchase statements<sup>15</sup>.

As observed for potted plants, purchase of ornamental Citrus is not related to specific recurrences but to the house and environment embellishment (78.0% of the Citrus buyers). Purchases for special occasions and for festivities concern, in fact, 25.6% and 15.9% of surveyed buyers.

Among the purchase motivations, personal use and present consumption are prevalent (70.8% of overall interviewees); exclusive personal use (20.7%) or present (8.5%) are motivations less expressed by sample consumers.

With regard to sales channels, nursery is the preferred place of purchase for nearly the entirety of buyers (86.6%), followed, by the florist shop with 30.5% of consumers.

As to the average expense, a significant number of sample consumers (40.3%) spend for purchasing ornamental Citrus a sum between 20.01 euro and 30.00 euro; 34.1% of ornamental Citrus buyers destine on average up to 20 euro for a single purchase, whereas the remaining 25.6% spend more than 30 euro.

## 7. A comparative geographical analysis

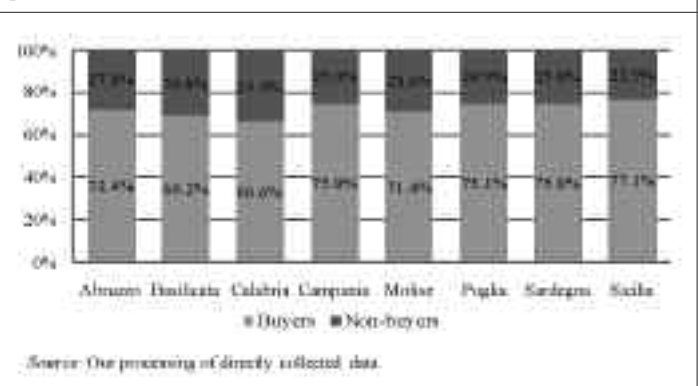
In this section of the paper, consumption behaviours and characteristics of the interviewees are here analysed by region in order to highlight both common and distinctive characters.

Penetration index of flowers and plants does not show high variability, ranging from 66.6% of Calabria to 77.1% of Sicilia (Fig. 5).

The analysis by segment points out that the consumers from Puglia, Campania and Sicilia are the most inclined to purchase cut flowers (respectively 67.9%, 64.4% and 63.8% of the overall regional sub-samples).

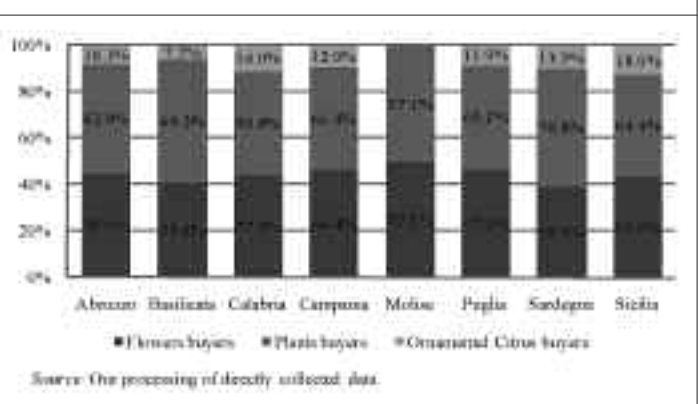
With respect to potted plants, the highest penetration index is obtained by Sardegna, where 70.8% of interviewees state to purchase. Basilicata, Puglia and Sicilia follow Sardegna with percentages of potted plants purchases between 69.2%

Figure 5 – Purchase penetration of flowers and plants by geographical area.



and 64.4%. Sicily has the leading role with regard to ornamental Citrus (18.0% of interviewees stated to purchase them), whereas Abruzzo and Basilicata<sup>16</sup> play a marginal role having penetration indexes between 10.3% and 7.7% (Fig. 6).

Figure 6 – Purchase penetration by single segment and geographical area.



The answers to the «Consumption frequency» question indicate that most interviewees buy the three product typologies (cut flowers, potted plants and ornamental Citrus) from 1 to 6 times a year. High percentages are recorded among consumers from Sardegna (90.2%) and Campania (88.9%) with regard to potted plants, and among consumers from Calabria (78.8%) and Sicilia (75.5%) as to cut flowers. Abruzzo and Puglia are the regions where there is the highest frequency of monthly purchase concerning cut flowers (41.2% and 35.1%). The former is also the region where it is recorded the highest frequency of monthly purchase (22.2%). Weekly purchases, finally, are infrequent and, in some regions, absent. Among «Mezzogiorno» regions, nevertheless, Sicilia stands out either for cut flowers (7.5%) and for potted plants (2.8%).

In the «Mezzogiorno» regions, the purchases of flowers and potted plants are linked either to personal use or to give them as a present.

From the regional analysis it comes out that in Calabria there is the highest percentage of consumers buying for

<sup>15</sup> Percentage rates are calculated as ratios between the number of purchase statements for each typology of ornamental Citrus and the overall number of ornamental Citrus buyers.

<sup>16</sup> In Molise the penetration index values are null, due to the limited number of interviews.

both reasons (71.1% of total preferences), whereas Molise is the region with the highest frequency of purchases for personal use only (40.0%) (Tab.7).

Table 7 – Purchase and non-purchase motivations of flowers and plants by geographical area.

	Abruzzo	Basilicata	Calabria	Campania	Molise	Puglia	Sardegna	Sicilia
<b>Purchase motivations</b>								
Personal use	18.3%	33.4%	10.9%	19.2%	40.0%	16.9%	18.3%	17.2%
Gift	20.4%	22.2%	18.4%	19.2%	20.0%	23.7%	20.4%	22.6%
both (motivations)	61.3%	44.4%	71.1%	61.6%	40.0%	61.4%	61.3%	60.2%
<b>Non-purchase motivations</b>								
High price	25.0%	25.0%	10.9%	33.3%	50.0%	30.8%	27.8%	18.4%
Personal taste	25.0%	0.0%	42.1%	36.4%	50.0%	19.2%	50.0%	36.8%
Difficulties in finding	0.0%	0.0%	5.3%	0.0%	0.0%	7.7%	0.0%	2.6%
Difficulties on caring	0.0%	0.0%	36.8%	21.2%	50.0%	42.3%	27.8%	39.2%
Other	50.0%	75.0%	15.8%	18.2%	0.0%	11.9%	11.1%	13.1%

Source: Our processing of directly collected data.

Among the non-purchase motivations (with the exclusion of Molise due to the limited number of questionnaires filled out), the most ticked options are high price (in particular in Campania and Puglia), personal tastes (Sardegna and Calabria) and difficulties in looking after these products (Puglia and Sicilia).

The answers provided to the question around flower and ornamental plants products are quite similar in the eight investigated regions. In particular, potted plants and ornamental Citrus are not purchased for particular recurrences, whereas with regard to cut flowers there is a certain habit in making purchases.

Also in the choice of purchase channel, differences among consumers of the «*Mezzogiorno*» regions are very limited. Potted plants and ornamental plants are frequently bought in the nurseries, even if the specialised shops and the street kiosks represent options often indicated by the interviewees during the survey. The most utilised distribution channels as to cut flowers are the florist shop and the street kiosks. Street hawkers, hypermarkets, supermarkets and «*garden center*» are sales channel little utilized.

Regarding the average expense per single purchase, it turns out that the differences among the «*Mezzogiorno*» regions are not relevant.

## 8. Concluding remarks

Recent consumption trends of flowers and ornamentals products indicate that the sector is now in the maturity stage. The economic development of society, the higher level of available per capita income and a growing sensibility towards environmental aspects have brought about deep changes in purchase behaviours.

Flowers and ornamental plants, initially considered as goods to be bought just in traditionally important occasions, today tend to satisfy broader needs and therefore consumptions are more distributed during the year.

As it turns out from the present survey, the consumption of flowers and ornamental plant is characterised by a high penetration index both for plants and for cut flowers, in spite of the stated difficulties in treating them and – sometimes – of the low liking towards them.

Ornamental Citrus are – on the contrary – exchanged in a niche market, characterised by a limited number of buyers, mainly concentrated in Sicilia, by a low frequency of purchase, and by an average expense which is far higher than the one surveyed in the other market segments (cut flowers and potted plants).

Cut flowers and ornamental plants are purchased both for a personal use and as gifts in special occasions; in the latter situation they – especially potted plants – are sometimes bought in combination to other goods. Consumers consider them as excellent options when compared to technological goods, gifts and jewellery, presumably due to their ease of finding them and to their high flexibility of use (invitations, anniversaries, festivities, etc.).

Whereas consumptions of potted plants and ornamental Citrus seem not to be connected to specific purchase occasions, cut flowers are in fact bought in relation to specific situations.

Product typologies which interviewees mainly state to purchase are roses, liliun and tulips among cut flowers, whereas cactus plants and geraniums play a relevant role among potted plants.

Specialised florist shop, privileged purchase channel for cut flowers sales, here loses part of its importance in the purchase of potted plants and, mainly, of ornamental Citrus, where nursery is the most widely utilised sales channel.

In the «*Mezzogiorno*» regions, the flowers and potted plant sector shows strong possibilities of development, either on the supply side – thanks to the favourable climatic conditions and to the high professionalism of entrepreneurs – or on the demand side (despite the substantial differences among the various typologies of product), when considering the growth potential of market penetration.

In such a context it would be desirable to offer new services to consumers, such as the opening of flowers and ornamentals outlets inside the shopping centres and provide the packaging of these products with additional information on cultivation requirements of plants and flowers.

On the supply side, firms could carry out some technological innovations, such as the production of goods at high added value, or the supply widening through the development of market segments today still little expanded, operating through distribution channels such as large scale and specialised retailers, today just marginally utilised both for ornamental plants and for cut flowers.

At the same time, the production of flower and ornamental crops through organic techniques might represent one of the possible ways to gain new markets. This choice could contribute, on one hand, to satisfy a growing demand for organic flower and ornamental goods, expressed by a category of buyers particularly sensitive to environmental and ethic issues, on the other hand organic flower production could reduce the environmental damages caused by the use of chemicals in the agricultural process (Schimmenti, Galati, Carapezza, 2009).

These actions altogether would contribute to find a solution for one of the main critical issues in the sector, the low

frequency of purchases – noticed in a prevalent way in the potted plant segment – trying at the same time to free flowers and ornamental plants consumptions from traditional recurrences.

## References

AA.VV. (2003). *Consumer Attitudes to Food Safety in Ireland*. Food Safety Authority of Ireland.

Asciuto A., Carapezza R., Galati A., Schimmenti E. (2008). *The competitiveness of the Italian flower and ornamental plant sector*. New Medit, n.1.

Asciuto A., Fiandaca F. (2004). *An ordered probit model for the analysis of Overall Customer Satisfaction (OCS) regarding organic-food consumption*. In (G. Baourakis editor) *Marketing Trends for Organic Food in the 21st Century*, Series on Computers and Operations Research, vol. 3, World Scientific Publishing Co., pp. 321-336, March 2004.

Begalli D., Agnoli L., Codurri S. (2009). *Preferenze dei consumatori per i vini a denominazione di origine: un'analisi qualitativa nella realtà del Veneto*. In *Economia & Diritto Agroalimentare*. XIV, n. 2.

Caccetta A., Platania M. (2006). *Il consumatore di prodotti di IV gamma. Una indagine esplorativa*. Rivista di *Economia Agro-Alimentare*. Anno X. N.3.

Chinnici G., D'Amico M., Pecorino B. (2003). *Nuove tendenze di consumo in Sicilia: i prodotti orticoli biologici fuori stagione*. In *Nuove tipologie di impresa nell'agricoltura italiana*. Atti del XXXIX Convegno di studi della Società Italiana di Economia Agraria. Firenze, 12-14 settembre 2002. Centro Stampa 2P. Firenze.

Dalli D. (2004). *La ricerca sul comportamento del consumatore: lo stato dell'arte in Italia e all'estero*. In *Mercati e Competitività*. Rivista della Società Italiana di Marketing. Franco Angeli. Milano.

Dalli D., Romani S. (2009). *Il comportamento del consumatore*. Acquisti e consumi in una prospettiva di marketing. Franco Angeli. Milano.

East R., Vanhuele M., Wright M. (2009). *Comportamento del consumatore*. Applicazioni per il marketing. Edizioni Apogeo. Milano.

Ferretti R. (2006). *Mercato florovivaistico: una fotografia del settore nel 2005*. Lineaverde. EPE edizioni. Maggio/giugno.

Ferretti R. (2009). *L'evoluzione del mercato del florovivaismo*. Lineaverde. EPE edizioni. Maggio/giugno.

Grunert K.G., Grunert S.C. (1995). *Measuring subjective meaning structures by the laddering method: theoretical considerations and methodological problems*. *International Journal of Research in Marketing*. N.12.

ISMEA (2003). *La distribuzione, il consumo e il posizionamento delle piante da interno e da esterno sui mercati esteri*. Quaderni di filiera. n.6.

ISMEA (2005). *Fiori e piante in vaso*. Report economico finanziario.

ISMEA (2008). *Filiera fiori e piante*. In *Outlook dell'agroalimentare italiano – Rapporto annuale 2008*. Imago Media S.r.l. Dragoni (CE).

Kotler K. L. (1991). *Marketing management*. Isedi. Milano.

Lauricella P. (vari anni). *Il mercato dei prodotti florovivaistici*. ISMEA.

Lori M., Volpi F. (2007). *Scegliere il «bene». Indagine sul consumo responsabile*. Franco Angeli. Milano.

Mora C., Menozzi D. (2006). *Analisi esplorativa delle motivazioni all'acquisto della carne bovina*. Rivista di *economia agraria*. LXI, n.2, giugno.

Naspetti S., Zanolì R. (2005). *L'analisi mezzi-fini: un'applicazione allo studio del comportamento del consumatore dei prodotti biologici*. Rivista di *economia agraria*. LX, n.1, marzo.

Nicosia F. (1966). *Consumer decision process: marketing and advertising implications*. Englewood Cliffs. Prentice Hall.

Reynolds T. J., Gutman L.E. (1988). *Laddering theory, method, analysis, and interpretation*. *Journal of advertising Research*. February/March.

Schimmenti E. (a cura di) (2009). *Aspetti economici del florovivaismo del Mezzogiorno d'Italia*. Dipartimento E.S.A.F. Qanat Editoria & Arti visive. Palermo.

Schimmenti E., Asciuto A., Galati A., Carapezza R. (2009). *La competitività del comparto florovivaistico del Mezzogiorno d'Italia sul mercato internazionale*. Rivista di *Economia agro-alimentare*, n.2-2009. Franco Angeli. Milano.

Schimmenti E., Galati A., Carapezza R. (2009). *Il vivaismo ornamentale biologico in Sicilia. Il caso delle piante aromatiche*. In *atti del IV Workshop GRAB-IT «Agricoltura Biologica: sistemi produttivi e modelli di commercializzazione e di consumo»*. Dipartimento di Economia dei Sistemi Agro-Forestali. Artigrafiche Campo. Alcamo.

Solomon M. R. (2004). *Consumer behavior, buying, having, and being*. 6° ed. Pearson. Prentice Hall. New Jersey.

Trevisani D. (2008). *Psicologia di marketing e comunicazione*. Franco Angeli. Milano.

Zanolì R., Naspetti S. (2004). *I metodi qualitativi nello studio del consumatore agroalimentare: una nota metodologica*. In *Marketing agroalimentare. Specificità e temi di analisi* (Antonelli G., a cura di). Franco Angeli. Milano.