

Between local and global competitiveness: commercial floriculture in the State of Mexico

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Abstract: This study has the aim to show that the renewed impulse to the production of cut flowers in the State of Mexico, Mexico, has modelled a new type of external economy which characterizes the fortification of the relations with the international market, the artificial improvement of the time's economy in the places of the production, as well as the systematization of the flower offer and the commercialization process.

The factors of the new economic model have changed towards the outside, but on the inside of the production areas the advantage of the basic resources favors technological change and the interests from some companies that have increased their individual and corporative productivity in the national and international market.

Key words: commercial floriculture, local competitiveness, global competitiveness.

Resumen: Este estudio tiene la intención de mostrar que el impulso renovado a la producción de la flor de corte en el Estado de México, México, ha modelado un nuevo tipo de economía externa, que caracteriza el fortalecimiento de las relaciones con el mercado internacional, la mejora artificial de la economía del tiempo en los lugares de la producción, así como la sistematización de la oferta de flor y el proceso de comercialización. Los factores del nuevo modelo económico han cambiado hacia el exterior, pero hacia el interior de las áreas de producción el aprovechamiento de los recursos básicos favorece el cambio tecnológico y los intereses de algunas empresas que han aumentado su productividad individual y corporativa en el mercado nacional e internacional.

Palabras clave: floricultura comercial, competitividad local, competitividad global.

Introduction

The interest in analyzing the relation between global and local phenomena has led us to research on the role production areas, small commercial producers and exporting companies from the State of Mexico¹ have in the cut flower global market strategy.

The work's central position states the recent floriculture impulse in the State of Mexico has strengthened a new model of external economy, which is conditioned by the synergy between local and global competitiveness. One starts from the fact that the model of competitive advantages adopted by the exporting floricultural sector does not eliminate the importance of local factors (soil, water and cheap workforce), but technological innovation as social process and main component of the new model is interwoven with the locational components, to formulate a renewed and flexible notion of local-global competitiveness in the new times.

Commercial competitiveness is not only supported in the intensification of the work process by means of technology, but it is a process of greater dimensions, defined from the systematization of the offer, where the governmental logistical and economic support, the utilization of basic resources, the incorporation of technology, as well as the promotion of the product and the commercialization channels to access national and international market.

Supplying the international market implies the articulation of the production places. These are edified in artificial economies where it is not important to preserve territorial conditions. What is fundamental is to improve time's economy in the place —*time diminution and productivity improvement*—, in order to reach cost advantages in the international market. These places have the function of supplying the necessary improvements to time's economy that global competence requires (Altwater, 2002: 177).

Local competitiveness is defined by both the natural properties of the production places and the technical and human efforts to produce the different flower varieties. These characteristics differentiate the State's

¹ The State of Mexico is one of the federative states of the Mexican Republic

production, in respect to other places' production. Nonetheless, once the production accesses national and international market it becomes an analog product with a unitary price. "In the United States economic revenue from selling flower is estimated over 19 thousand million dollars. Flowers are mainly distributed in Florida, Texas, New York and California" (Bancomext, 2004). The strategy is to push toward international market as many suppliers as possible so as to secure the buyers' supply.

The new models states that the localization of new economies of flower production will be determined by demand factors (FD), offer factors (FO) and agglomeration factors (FA) (table 1).

Hence, the competitiveness of the production places will be conditioned less frequently by natural factors availability and more often by the international environment (prices formation and international requisites), which echoes in the possibility of accessing to markets or maintaining in them.

The conjugation of the different factors is synthesized in the social capital ——*monetary capital and the network of social factors which take part in enterprises' competitiveness*—, this is the main factor in the strategy of private accumulation. It is, the greater the work's productivity (understood, not only as workforce, but the addition of efforts to increase productivity and the product's quality), the lesser importance of the place's natural resources, then, greater importance of the artificial organization of the economies of production.

Commercial trajectories of the floricultural sector

Floriculture in Mexico spreads between 1980 and 1990: cultivated surface grew from 3000 to 13000 hectares, the efforts headed to the consolidation of the exporting platform. In these years the value of production was significant for the States of Mexico and Morelos (Chauvet and Massieu, 1996: 11). In the period 1980-1990 the exportation flower production represented 10 percent of the 8,416 hectares of flower and plants grew in the country and generated an average income of 20.3 million dollars annually (García *et al.*, 1999: 2-3) (table 2). In said period, the flowers with the most volume contribution were gladiola, carnation and chrysanthemum maximum.

Later rose, chrysanthemum and several ornate flowers were added. This situation is associated with a process of production intensification through the increment of surface in greenhouse cultivation.

The positive result of the balance of trade of the period 1999-2002 expressed favorable commercial conditions; nonetheless, the exportations' tendency to volume and production value loss persisted. Oscillations showed a loss in the commercial positioning of the floricultural exporting sector, which is attributed to a demand's reduction in the main destination markets, among them the United States, Canada and some counties in Europe (table 3).

In spite the flower-cultivated surface has sustained its participation in the national agricultural surface (0.5% or 13,851 hectares) and its contribution to agricultural value has been increasing (Grammont, 1999: xii), the upturn is unnoticeable before the notorious increment of the fruit and vegetable sector's economic contribution (35.4 percent) and the increment in the cereals' economic participation (Sagarpa, 2003)(figure 1).

Exporting floricultural sector's commercial trajectories are inherent to the general behavior of the national agricultural sector. For instance, in the year 2003, there were importations worth 2680 million dollars; exportations were 2762.5 million dollars worth, the agricultural sector's balance of trade account was positive. In 2004, exportations provided 3143.3 million dollars, the balance of trade account was negative in 131.6 million dollars (Bancomext, 2004: 1024). Despite the participation of the agricultural sector in GDP has remained at 4 percent, the negative account of the balance of trade indicates, on the one side, the country's economic and commercial deceleration, and on the other, the strengthening of social sectors that have advantages to produce fresh products, among them, vegetables and flowers.

In an attempt to recover the commercial position it is intended to diversify the exportation flower offer (Secofi, 2005). It is notable the group of flowers with the most demand (rose, carnation, bird of paradise, dahlia, daisy and orchids) and the group of varied flowers (gladiola, gypsophila, alstroemeria, aster, calla, chrysanthemum, delphinium, frisia, gerbera, iris, liatris, lilies, lishiantus, tulip, statice limonium and chamaedorea palm).

The variation in the external market prices is conditioned by season

and specific dates. The best season for exportation is winter (from November to February in some United States' zones and from November to March in Canada), this is due to the scarcity of products in the buyer countries. In summer the offer of flowers increases in the United States and Canada, then the international price lowers and it is more attractive for the national producers to sell in the domestic market.

The frailty of the cut flower external market is due, on the one side, to the fact that the United States triangulates the commercialization for it works as a large concentrator and intermediary, and on the other side, to the conjunctural competitiveness of the national production, which is determined by prices, seasonality, and demand of flowers.

In the domestic market the Central de Abastos Market in Mexico City is the main concentrator of floricultural production from the States of Mexico, Morelos and Puebla (table 4). Only twenty-five whole-sellers are distinguishable. The average monthly price shows the best valued flowers are the ones with greater competence: large gladiola, medium gladiola, greenhouse rose, sort and large stem rose (Orozco *et al.*, 2000: 33).

Recently the State of Mexico become the first place in large and medium gladiola production (it has the highest value of the flower set) above Puebla and Michoacán. This last State begins to value the production of bird of paradise, whereas the State of Mexico is not competing; the same occurs in the case of greenhouse rose, where the primacy is for the State of Morelos.

Both in the external and domestic markets, the prices rationalize the fluctuations in market rates. For instance, in the markets of Chicago, Boston, Seattle, Miami and San Francisco, the prices of the most requested plants in 1999 and 2002 (carnation, dahlia and rose) were three times as much below the national prices. The broad suppliers' database the United States' market has grants them the capacity to choose the best quality and price of products.

Even if low international prices cause a depressing effect in the exportation floricultural production, in other interpretations, the integration of several activities or the capacity to diversify production modifies profitability's notion. Previously, each cultivated lot had to be profitable; nowadays the set of activities defines the enterprise's average profitability.

Even an inferior profitability can be accepted (it can be negative), so as to remain in the market along the year (Grammont, 1999: 21).

In the national market of flowers —it holds 85 percent of the total population—, variation of prices is a constant because of certain factors that modify the relation between offer and demand. In the demand the individual preferences and selling season are distinguishable, as well as the competence with plastic products and other ornate flower varieties.

In the offer, the flowers' perishable nature is noteworthy; their life cycle can be affected by the distances between the places of production and consumption. This aspect has been resolved by means of transport, however, to the extent it is simple or sophisticated the price rises. Variations in offer and demand show that in brief cycles the costs of production increase and so does the price to national consumer.

International requirements

With the beginning of NAFTA there was advancement in commercial regulation of flower importation and exportation; nevertheless, some disadvantages in interchange terms have been stressed. Our country did not established importation duties for United States and Canada's flowers, whereas these countries stipulated a gradual diminution for Mexican flowers' duties. Ten years now from NAFTA, the exportation of flowers is concentrated in some companies; while most of the producers face serious limitations to participate in the external market. The greatest limitation is the ignorance of the market and phytosanitary regulations in the destination countries, as well as the far-fetched possibility to incorporate new technologies that improve the floricultural products' quality.

In July 2000, a commercial agreement between Mexico and the European Union began, this economic bloc also established decreasing duties' conditions; for instance, gladiola became duty-free, trees would become duty-free in July 2003, and other plants until 2008 and roses would be dependent on revision and capacities.

Despite restrictions, commercial opportunities with Europe are once again powered by geographical factors, weather conditions, soil qualities,

light intensity, among other (Agriflor, 2004). The policy to take advantage of the commercial opportunities is centered on increasing the competitiveness of a reduced number of exporting agro-enterprises, positioning the image of the floricultural sector through international expositions and informing the exporting sector on the external markets' basic regulations. Besides, a strategy, based on the identification of needs and the rediscovery of dates that have to do with traditions and customs of the immigrants in the United States, has been developed.

In the expositions, the product is presented to the importer, as it will be imported — *packed, qualified and with the prices previously approved by the market*—. This includes the conditions of presentation and preservation, besides fulfilling the requirements demanded by the client, the calendar of estimated dates of production and timely shipment.

It is fundamental that the processes of production and exportation are integrated in a single organization in order to avoid conflicts in decisions on the product's gathering, commercialization and promotion.

The necessary series of efforts to fulfill the exporting requirements, are established in the *Guide of sectorial exportation, flowers and plants (Guía de exportación sectorial. Flores y plantas)* (Bancomext, 2001). Among the most important we can distinguish: to guarantee the product's uniform quality and have a longer useful life, applying specific forms of stem cut and incorporating nutritive solutions; presentation is done as wholesale or by piece (bunches, nosegays and individual stems); the packing in accordance with the flower species (fiber plate, silk paper, preservative solutions).

The *Hecho in México (made in Mexico)* logo in tags is an indispensable demand of the external buyers. Environmental regulations and eco-tags are technical barriers for commerce, their use is optional yet they are on the rise as marketing element; the phytosanitary certificate grants the product left the country in healthy conditions; the exporter of cut flowers is obliged to fulfill the voluntary or obligatory practices the importing country imposes in customs and duties' issues.

Phytosanitary rules' fulfillment is one of the most difficult aspects to fulfill for the national producers. In the United States the importations are

inspected by the States' Department of Agriculture; in Canada the measures are more restrictive, its phytosanitary regulations prohibits the importation of plants in soil, they only receive rooted plants cultivated in artificial strata. All in all, the requisites in favor of the main external buyers have structured restricted commercialization channels for Mexican flowers.

Exporting floricultural platform

In the national sphere there are 55 flower exporting companies, they are located in 15 States. The exporting capacity is found in important cities and rural communities. In the central region one finds: Mexico City (6 companies); in the State of Morelos, in Cuernavaca (2 companies) and in Emiliano Zapata (2 companies); in the State of Querétaro, in San Juan del Rio (1 company), Tequisquiapan (1 company) and Ezequiel Montes (1 company); in the State of Puebla, in Atlixco (3 companies) and Tehuacán (1 company). In the State of Mexico there are five companies in Villa Guerrero, and one in each of the following municipalities Zumpahuacán, Tenancingo, Coatepec Harinas and Metepec, respectively. The economic power of these companies is evident in the hired personnel and the average of external sales (table 5).

In the whole of exporting companies, 11 are noticeable because of their 1,000,000 dollar sales; 8 with 2,500,000; one with 5,500,000; 2 with 10,000,000; and one with 20,000,000. it is worth pointing out there is not an identified direct relation between the number of hired personnel and the average international sales (table 6). Two of the enterprises with the highest annual sales are located in the municipality of Villa Guerrero, State of Mexico, these are Visaflor and Multivia Corp.

As for the State of Mexico, the flower exporting capacity is supported on nine companies, which are located in different places in the municipalities of Coatepec Harinas, Zumpahuacán, Tenancingo and Villa Guerrero (table 7).

In the set of exporting companies once again are noticeable Visaflor and Multivía with more than fifty hectares of cultivated flower under the greenhouse system. They export alstroemeria, fresh flowers, gerbera, limonium, and fresh roses, and import fertilizers, plastic materials, plastic containers and tubs. Their representation abroad is under the name of

Multivía of California Inc., and the main destination markets are in Germany, Canada, the United States, Western Europe, Italy, Japan, France, Holland and Switzerland.

The production areas of Visaflor and Multivía are located in the locality of San Felipe, Villa Guerrero. In this place floriculture in small production units is carried out, whose system of cultivation has been evolving toward the adoption of the greenhouse system. The production in these units is largely sent to national market; nonetheless, some small producers have succeeded in sending their products into the United States' market. In this commercial relation, and that which the large exporting companies establish, the articulation of the local floricultural economy with the global economy is seen.

When comparing the companies registered in the directory of exporters (Bancomext, 2004) to the companies or people registered as natural flower producers in the State of Mexico (*Yellow Pages*, 2004), there are twenty companies where one can find nine exporting companies (table 8).

Within the group of producers the Association of Flower Growers from Villa Guerrero (Asflorvi Civil Association) (*Asociación de Floricultores de Villa Guerrero*), whose function is to support producers with technical advice, supplies' sale, commercialization services, storage, transport and information on prices and markets, etcetera.

Corporative organization of cut flower's commercialization

The most representative cases of corporative organization in the national, State and regional sphere are Visaflor Limited Liability Co. and Multivía Corp. Both companies appear from the Cosmoflor project started in the second half of the 1990's decade. In the project some branches and companies associated with Visaflor group: Visaflor, Selected Flowers from Mexico (*Flores Selectas de México*), Technified Greenhouses (*Invernaderos Tecnificados (Invertec)*), Mexican Packing Plant of Flowers (*Empacadora Mexicana de Flores*), Florcalli, Multivía, Transamerica Floral, Hulco Blumen and Flowers of Gold (*Flores de Oro*). The project where the interest of the exporting sector came together responded at the time to the need of diversifying the international market of cut flower toward Europe and Japan (Chauvet and

Massiu, 1996).

In 1995, Visaflor, Multivía and Cosmoflor exported cut flower. The first company had 243 hired personnel and exported limonium; the second, whose headquarters were in Peñón de los Baños neighborhood in Mexico City, only had 12 employees and exported Casa Blanca and alstroemeria; the third had 330 employees and exported roses and aloe vera. This last company currently exists; yet in the most recent exporters' listing from the Mexican Bank of Foreign Commerce (*Banco Mexicano de Comercio Exterior*) it does not appear as an exporting company.

In a ten years' time an international floricultural corporative was consolidated, it is integrated by Visaflor, Cosmoflor Growers and Monarch Floral, whose vertical and horizontal integration favors the efficiency of the intertwining of the three companies. They work individually and complement each other in some of the commercialization core phases by means of Multivía California Inc.

Visaflor, Limited Liability Co.

It started in 1981 and is the oldest company of the group. The headquarters are located on the road Zacango-Villa Guerrero, at a forty-minute drive from the city of Toluca. It has more than 60 hectares (150 acres) of greenhouse-flower cultivated surface; the base of its participation in the corporative is supported on six production units: San Felipe Unit, Los Arroyos Unit, Santa Ana Unit, Zumpahuacán Unit, Manzanilla Unit, Monte de Pozo Unit. The systematization of the commercial offer starts with the introduction of new varieties and species in accordance with the market's tendencies. It grows rose, alstroemeria, gerbera, mini gerbera, limonium, goldenrod, lisianthus, hypericum, snap dragon, aster, sunflower and statice. In order to complete its offer variety, it establishes production agreements with other regional producers (hired agriculture), which allows it to offer different products as gladiola, nard, bird of paradise, lily of the Nile, calla lilies, carnation, ginger, eucalyptus, and a wide variety of foliage.

The packing of the product is made by species and package. Different sorts of packing are used: full, tobacco, choice and table, wet pack, aqua box, mini wet pack (buckets). The number of stems per package is variable

according to the species, for instance, rose (25), alstroemeria (10), gerbera (10), mini gerbera (10), hypericum (10), sunflower (5), snap dragon (10), lisianthus (5) and lilies (10). Gerbera is also packed in trays with 6, 12 and 72 stems.

The commercialization system via internet is based on a catalog in which flowers such as the following are offered: red roses (11 varieties), colored roses (47 varieties), alstroemeria (22), gerbera (6), mini gerbera (3), aster (3), goldenrod (1), limonium (2), yellow sunflower (1), other hypericum and snap dragon. Besides, it offers 13 fresh-flower bouquet designs.

Its national coverage is defined by 16 local offices: Tijuana, Ensenada, Mexicali, La Paz, Hermosillo, Culiacán, León, Monterrey, Torreón, Reynosa, Nuevo Laredo, Orizaba, Jalapa, México, Distrito Federal, Matamoros and Guadalajara; it is through these offices that it serves the flower shops and wholesalers in the region. In the international market it dispatches to Canada and the United States in refrigerated trailers of its property. The system of freight and home delivery, supported on the distribution network, grants the delivery of fresh products in containers with water and at a carefully controlled temperature.

Cosmoflor

It starts as part of the Cosmoflor project in Mexico (1991). The company starts with 10 hectares in production; nowadays it has more than 50 hectares with a highly diversified production of fresh cut flowers (rose, hypericum stem, lily, gerbera, and alstroemeria, among others).

The company's headquarters are located at the 64.5 kilometer on the federal highway Toluca-Ixtapan de la Sal, in Villa Guerrero, state of Mexico. The commercialization's strategy is based on six distribution offices in the Mexican Republic: Ciudad Juárez, Chihuahua; Tijuana, Baja California; Chihuahua, Chihuahua; Mérida, Yucatán; Cancún, Quintana Roo; Monterrey, Nuevo León; Villahermosa, Tabasco; Ciudad Madero, Tamaulipas, as well as a clients' network in Mexico and abroad.

It has a wide variety of products for the floricultural sector, from cut flowers and foliage to accessories (ribbon, baskets, bouquets, centerpieces) and flowers in flowerpots. These last require special permission, thus the

company does not export them. In relation to foliage not all are produced in the company, however, they are imported in order to satisfy their clients' needs (foliages: Israelite Ruscus, available all year; and Buplerum, available from December to May).

The flowers that are available throughout the year are: 34 rose varieties, three of eastern liliium, 13 Asiatic liliium, 27 of alstroemeria, 23 of mini gerbera, 33 of gerbera, seven filler design (limonium, aster, statice, goldenrod) and diverse flowers (snap dragon, hypericum, sunflower, bouvardia, larkspur [all the year], freesia [December - May]).

The systematization of the offer starts in the production areas, whose technology and care are measured in the quality of the product. Nonetheless, the best of fresh products can lose its peculiarities within hours when traveling, hence the system of distribution and logistics is essential. The chain of cold is the most important factor to offer the best transportation conditions. This chain's conservation is the greatest worry in the packing process; refrigerated units are used on land and first-class logistics in air freights. Flowers are prepared before sending them out, the product is handed in the early morning to prevent it from being too exposed to day temperature.

The company covers two distribution routes in Mexico: toward southwest (Villa Hermosa, Mérida and Cancún) and other northwards (Chihuahua-Monterrey-Ciudad Juárez). Deliveries are made into the different branches once a week and trailers with refrigeration systems are used, terrestrial transportation allows a complete control on temperature inside the unit, besides it allows the sending of products in tubs with water (*wet pack*), better known as "proconas" TM. Moreover, there are specialized air services that preserve the product's adequate temperature. There are air dispatches from Mexico City's airport to any destination in the United States. In the commercialization system the company takes care of the documentation and routing of the products to exportation (product's exportation steps).

There are several transportation routes toward the United States (San Francisco, Rhode Island, Texas and Chicago). The re-distribution center in San Antonio, Texas, allows the company to connect specialized companies to transport the flowers to Miami and the west coast, from here connections are made with local flights to make deliveries everyday and at specific times.

There are direct deliveries in Toronto, Montreal and Vancouver, among other cities. Exportations to Europe (France, Spain, Italy, Austria) and Japan depend on the transportation system, connections where the airline guarantees the service of cold-chamber are used in transit flights.

The most recent in the commercialization system of Visaflor Group is to take special orders which are made at the last minute or because of failures in the supplying chain with other suppliers. Multivía express service (MSE) is an option to avoid this sort of failures.

It is a supplier unit, whose main characteristic are service and fast response in orders' confirmation; it has personnel experienced in floral production and logistics; MSE's personnel confirms the options and range of available products, as well as the forms of pricing. What is more, it offers a suppliers' chain and a wide range of transportation options at the clients' service, all this exclusively for Visaflor's braches. As a closure for the commercial circle, this group has direct links with one of the most important companies in the United States (Monarch Flowers), this company offers on a catalog and on the internet the immediate delivery of floral arrangements, fresh flowers and gardening supplies. It also has a flower shop chain distributed in different places in the country.

The vertical and horizontal integration of the production and commercialization of cut flower has allowed these companies to be positioned in the first places in the national market and maintain in the international market. Since flowers are fresh products the companies have incorporated new cultivation forms —state-of-the-art technology— as a necessary factor to preserve their permanence in the market; nevertheless, the determinant factor of the economic process in the efficiency of the commercialization system, which starts with the packing of the product, continues with specialized transportation until the product arrives just in time to the client.

Territorial configuration of the floral production *locus*

In the rural district of Coatepec Harinas the floral productive and exporting force of the State is located. It has 9772.2 cultivated hectares, contributes with 88 percent of the total cultivated surface of ornamental plants and

provides 84 percent of the State's floricultural production value. The second and third places of the cultivated surface correspond to Toluca and Texcoco, and the value of production is inverted (figure 2).

Coatepec district is composed by the municipalities of Villa Guerrero, Coatepec Harinas, Tenancingo, Zumpahuacán, Ixtapan de la Sal, Tonicato, Malinalco, Ocuilan, Texcaltitlán, Almoloya de Alquisiras, Sultepec and Zacualpan. The municipal area constitutes 12 percent of the State's surface, it has 344,179 inhabitants or 2.62 percent of the State's population (INEGI, 2000). Men account for 48.63 percent of the population while women do it for 51.63 percent, being the municipalities of Tenancingo and Villa Guerrero the most populated (figure 3).

Territorial structure: The region has 548 localities and only Tenancingo and Ixtapan de la Sal are urban communities with 29,800 and 15,856 inhabitants, respectively. Sixteen communities have some urban characteristics; twelve hold 11.30 percent of the population, four 8.34 percent and the largest two hold 15000 inhabitants, 13.26 percent (total 33 percent). It is, 67 percent of the regional population is distributed between 530 rural communities (table 9).

Means of communication are a locating factor of the activities and actions around flowers' commercialization and cultivation. The access road is a 65-kilometer-long federal highway which crosses the region north to south. Other roads are the toll paved road Ixtapan de la Sal-Toluca and a State's road network of 250 kilometers that connects the municipalities. Lastly, one finds the unpaved roads with a total length of 300 kilometers and the communal roads with 420 kilometers. An instance of the strategic role of the roads is seen in the location of the place where the New Mexican Market of Flowers and Plants will be built. The Place is located on the Toluca-Tenango road at 18th kilometer, in the field called Rancho Sanabria, it is constituted by 30 hectares and offers the country's flower-growers a strategic location, since it is close to the network of roads to Mexico City and the west and north of the country (CMF, 2004: 04/28/2004).

Soil use and land tenancy: agricultural use takes 76.2 percent of the region's surface, livestock takes 22.53 percent, forestal use takes 0.50 percent and 0.69 percent of the surface does not have vegetation (table 10).

In the region private property comprehends 56.55 percent of the total surface, communal and cooperative tenancies participate with 21.33 and 21.59 percent, respectively. There are not neighborhoods and public property is unnoticeable. In the floricultural municipalities private property prevails with the exception of Tenancingo, where cooperative land is distinguished (figure 4).

In an in-field sampling performed on 24 communal lands in Coatepec Harinas, it was identified that agricultural strength was in the wet and mixed surface, as well as the diversity of cultivations, being noticeable maize, flowed by barley, bean, sorghum, pea, alfalfa and forages. Due to the cost of vegetables and flowers very few communal land holders take the risk to cultivate them inside or outside the communal land (Villa Guerrero and Chiltepec) (Velásquez and Noriega, 2001: 129).

The communal land holders of the region are identified as a social sector with entrepreneur initiative which does not only produce the family sustenance, but also to sell. Before the attacks of a market adverse to commercial holders, they tend to organize in cooperatives and communal land associations; said associations are instruments for negotiation and permanence in the sector. The other face of the sector is constituted by the most of the holders; this social faction adopts strategies in order to survive (migratory work, peonage, and other activities). Cooperative agricultural way of life's deterioration has its counterpart on the region's agricultural-commercial potential, which is currently used by diverse social actors.

In another sampling carried out in 50 private production units in the communities of San Felipe and Buenavista, Villa Guerrero, floriculture is identified as the predominant activity in private property lots, most of the fields where flower is cultivated have an extension of less than a hectare, there the production of irrigated and seasonal cultivated surface is similar. In this respect it is pointed out that the land's juridical condition influences the development of flower growth, yet the determining factor is investment capacity (Mendoza, 2003: 95).

Population's occupation: the population of 12 years of age and older constitutes 63.0 percent (217,141) of the regional population, 43 percent (93,432) is economically active population and 99 percent of this population

is employed (92,507). People are mainly employed in the primary and tertiary sectors, the participation of employees and workers, self employed population, day laborers and peons is distinguishable (figure 5).

It is significant these last and unpaid relatives (32 percent) in agricultural activities. Patrons and self employed people comprehend the performance of activities related to production and commercialization of the general agricultural production and in particular that of the floriculture.

As for agricultural occupation (93,197 employed people) in rural production units (28,962), workforce is similarly distributed in both communal land and private property's units (figure 6).

The municipalities Coatepec Harinas, Tenancingo and Villa Guerrero contribute with 49.29 percent of rural employment. The participation of familial unpaid workforce is significant (62.56 percent) in the three municipalities and the seasonal paid workforce prevails on the permanent one. There is still gender work division although masculine personnel predominates (table 11).

Population's income: 14.5 percent of the employed population does not receive an income, whereas the population who does (79118), 17.69 percent earns less than the minimum wage, the most numerous sector of the population earns from one to two minimum wages. This is to say, 62 percent of the salaried population does not earn more than 110 MXP a day (table 12).

The reduced sector that receives more than two wages and up to ten, shows the fragmentation of the income and its reduced repercussion on households' economy. This confirms that the fundamental condition for the development of domestic activities in the region is supported by cheap workforce.

Despite the reduced impact of the salaries on familial economy, the region has a migratory rate of 4 percent, i.e., out of a hundred people living in the region only four have left. The destinations are other States and several municipalities in the State. 89 percent of the population living in the municipalities is a native of the State, 4 percent was born in other State, 0,1 percent was born in another country and the rest is not specified (INEGI, 2000); the balance between in and out population gives as a result a stable

migratory rate. Nonetheless, population's absolute growth from 1990 to 2000, changing from 219805 to 344179 inhabitants, indicates inter-municipal and State immigration is important.

Floral production: flower cultivated surface participates with 6.53 percent of the total cultivated surface in the region and contributes with 75 percent of the total agricultural production (table 13).

Spring-summer cycle: 30.48 percent of the total annual surface of ornamental cultivations is sowed; it produces 29.49 and 27.32 percent of the total volume and value of the floral production, respectively. Cultivation with the highest economic contribution are chrysanthemum, lily and several flowers.

Autumn-winter cycle: 44.62 percent of the surface is cultivated and it provides 22.27 percent of the total production and 38.60 percent of the production value (table 14).

The greatest economic contribution of the cyclic cultivations is obtained from irrigated and mixed surfaces. The cultivation distinguishable in the three indicators is chrysanthemum, followed by lily, other flowers, gladiola, nube, statice, velvet flower, marigold and sunflower.

Perennial: these cultivations are only sowed in irrigated and mixed surfaces. They participate with 24.89 percent of the cultivated surface, 48.22 of the production volume and 34 percent of the regional value (table 15).

Carnation and rose contribute with 42 and 46.76 percent of the production value of the perennial cultivations, respectively (88.76 percent). Rose and carnation have a life cycle from two to four years; attention is paid throughout the year —weeding and cut in rosebushes—. They require mild weather conditions, well-drained deep soils and rich in organic matter. Different natural conditions state limitations for the conventional maize agriculture, however, the most favorable soils are used for flower and vegetables production, whose adequate growth and development depends on watering and agrochemicals use.

Commercial plantations are located in the valleys' deep fertile soils (permeable and with high contents of organic matter). This establishes a first natural differentiation in the cultivation systems, since in the landscape's configuration highlands, such as sierras, plateaus and mountainsides, prevail.

Climates present contrasting temperatures along the year (highest, 35C in summer; and lowest, 2C in winter) and the precipitation levels do not go beyond 1300 mm annual average, rain levels are slightly surpassed by the annual evaporation average (1400 mm). Adverse weather conditions are overcome in the cultivations by means of greenhouse technology, with this, soil evaporation, frost (October to March) and hailstorms (May to September) are controlled.

The most important advantage of the ornamental location is the presence of permanent water currents (rivers: Atoyac, Meyuca, Almoloya, Ixtayotla, San Martín, Aguatlán), brooks and springs. On water use there is a network of irrigation channels and small reservoirs that satisfy the requirements of controlled humidity of the cultivated flowers.

Agricultural technology is used in soils improvement to guarantee production quality (fertilization, organic manure, nitrogenous, phosphorous, potassium, insecticide and pest control). Nevertheless, in water use, even if ways of avoiding waste are implemented, there is still the need for a technology to preserve its quality. For instance, deficient information and knowledge on technological packages necessary for each flower cultivation tends to deteriorate soil and water quality.

The Institute of Agricultural, Aquacultural and Forestal Research and Training of the State of Mexico, ICAMEX (*Instituto de Investigación y Capacitación Agropecuaria, Acuícola y Forestal del Estado de México*) and the Association of Floriculturists from Villa Guerrero, Asflorvi (Asociación de Floricultores de Villa Guerrero) have proposed the project of reusing floricultural wastes in the municipality of Villa Guerrero, with the aim to process about two monthly tons of empty agricultural packs and 270 tons of greenhouse plastic film. By means of these actions it is intended to replace wooden stakes for plastic ones, to contribute in reducing the chopping down of threes and lowering production costs. However, serious investments in special equipment to compact and grind the rejects are required. These aspects have prevented the project from starting.

Differences in flower production systems come from the geographic conditions, techniques and socioeconomic conditions which make it possible that only some precisely located areas compete in the internal and external

market. Local factors (natural resources, cheap and familial workforce) are still the base of production and commercialization of small economic units; whereas the advanced factors (infrastructure, specialized human resources, science and technology support) due to their high cost can only be incorporated by some exporting companies, this is reflected on low levels of technological adoption (Orozco and Mendoza, 2003: 29-30).

The difference in capacity to access technology becomes tangible in two cultivation systems, these are open air and protected. In between the two ends, there are different systems adaptable to reduced spaces or to larger extensions. The open one is characterized by a deficient handling of production, yet the importance of traditional floriculture for internal market is recognized, as well as its role in the generation of employment and income (Canabal *et al.*, 1992: 91).

Even if it is in this system cultivation is carried out in precarious conditions, it requires a basic investment for the cuttings (reproductive unit) and the scions for sowing, which implies a heavy expenditure for the small producer. The protected system or greenhouse has as end to obtain quality products that meet the requirements of the national and international market. It implies a greater investment for the settling of the infrastructure, buying cuttings, scions and rootstocks, the latter are imported. In the care of cultivations natural and agrochemical manures are used, as well as good quality water and permanent watering.

Differences in the investment's amounts in technological innovation (genetic material obtained through biotechnology and greenhouse infrastructure) and in salaries are considerable, both in intensive and traditional floriculture. The aforementioned does not imply a diminution in workforce, since it generates new and specific activities for product's preparation, besides those of cutting and harvesting. Even when workforce's density lowers with intensive greenhouse production, this is still very high compared to other agricultural activities (Chauvet and Massieu, 1996: 14).

The conditions in the cultivation systems model a fragmented floricultural sector, where systems with deficient phytosanitary control, scarce technology use, low quality production and deficient commercialization are abundant. The aforementioned aspects differ from

the productive model of the cut flower largest importers (Holland, France and Israel). These countries success factors are the use of technology (greenhouse production and automation) and a strict quality control of the productive process. The Colombian model is based on the favorable climate conditions and cheap workforce (*basic factors*) and foreign investment (*global factors*). Governmental support is traduced into subsidies to acquire supplies and into the reduction of taxation to null importation (*institutional factors*). In the process of production, regulations of production and high-quality transformation, state-of-the-art production and post-harvest technology and workforce training are incorporated (*technological factors*). The process of production is closed with the development of the commercialization channels in the objective markets (Ascolflores, 2004).

Flower producers' social profile

In the context of the place of floral production, social dynamics is defined by agricultural production for national and international market. The social structure in these places is articulated by several actors who model social and productive relations; these are derived from the institutions and norms which regulate social organization and power. Each of the social subjects taking part in the achievement of floriculture will have different rationalities. Their motivations and individual interests will define the strategies to solve situations of conflict, both social and productive.

In order to outline the social structure where flower producers are, let us retake the Mexican Council of Flower (*Consejo Mexicano de la Flor, CMF*) member portfolio. Said council differences its regular members (founding) and honorary (recent), both devoted to cut flower cultivation and commercialization. Among the former, the Association of Floriculturists from Villa Guerrero (Asflorvi), Producers of Ornamental from Morelos (cooperative lands' holders), Association of Producers of Mexican Flowers (mid-sized enterprise).

The first two companies are exclusively devoted to provide representation and services to associates' membership; the last, besides fulfilling its role as producers' association, is devoted to cut flower production and supplies national market with rose, gerbera, lilium, gladiola, foliages and

chrysanthemum. In the three aforementioned organizations there is not a report on the number of associates; however, in accordance with the attendance to the meetings, it is estimated that they have more than 350 associates.

To perform the approaching to the producers' profile, it is considered as a sample 35 out of the 40 honorary associates. Five companies which do not belong to the region are omitted (Patricia Flowers (*Flores Patricia*), Valle de Bravo; Giesemann Piglhein Jorge J, Tapachula, Chiapas; La Era Ranch located in Coyoacán, Mexico City; Flower Producers los Morales, Toluca; San Martín Ranch; San Antonio la Isla). Forty percent of the sample's associates is located in the municipality of Villa Guerrero and the rest are distributed in the municipalities of Tenancingo, Coatepec Harinas, Zumpahuacán and Ixtapan de la Sal.

Productive organizations are defined according to their establishments' legal regime, individuals are identified, cooperative companies, corporations and limited liability companies.²

Even if in the sample the production units of less than five hectares are majority (65 percent), mid-sized production units (7 to 12 hectares) a large production units (20 to 30 hectares) can be spotted; this is the case of Floristar Group (limited liability company), The Santo Tomás Ranch, Flowers from Chiltepec Corporation, Mexflowers Premium Corporation, whose production is basically made in greenhouses. In other fields the surface varies from 500 to 1000 squared meters, sowing is made outdoors and in tunnel

² Society, in technical juridical sense, is an entity crated by a voluntary collective act of the people interested, pursuing a common interest so as to obtain earnings or a lucrative end. Societies in collective name; it is that which exists under a trade name and where all of the associates respond in a subsidiary manner, unlimitedly and in solidarity, to the social obligations (25th article of the General Law of Mercantile Societies (*Ley General de Sociedades Mercantiles, LGSM*)). Corporations (*anonymous societies*); it is a society, of capitalists or capital, which exists under a social denomination and is exclusively formed by associates whose obligation is limited to their shares' payment (87th art. *LGSM*). Limited Liability Company; it is that which is constituted between associates who are solely obliged to their contributions' payments, and the social parts cannot be represented by negotiable or portable titles, being only transferable in the cases and with the requirements established by the law (58th art. *LGSM*) (Gutiérrez and Rodea, 2005).

—Los Hóyameles Ranch and Xcaret Greenhouses— (table 16).

The most important differences are derived from the production conditions and technology applied. In 45.71 percent of the productive units cultivation is done in greenhouse (16), in 20 percent in tunnel (7), in 8.75 percent in greenhouse and tunnel (3), in 11.42 percent, outdoors and greenhouse and only in 14.28 percent cultivation is done outdoors. This is to say that in slightly more than 74.28 percent of the productive units some sort of technology is settled in order to protect the cultivations from meteorological phenomena (frost and hailstorms).

It is worth mentioning that the greenhouse and tunnel systems become variations of the protected cultivation systems, the most significant differences are in the size, as well as the type and quality of the material used (plastics and bars); the nurseries represent higher settling costs and have the capacity to hold more than five thousand plants.

First group: seven companies with the common characteristic of sending their production to national and international markets are distinguishable. Among them three communal land companies are noteworthy, namely Coxflor (30 hectares in greenhouse), Flowers from San Francisco (19 hectares outdoors and in greenhouse), Los Pilares Ranch (3 hectares in greenhouse) in Villa Guerrero and Zumpahuacán. They grow rose, liliun, gerbera, carnation, alstroemeria, tulip, gladiola, Asiatic and oriental lilies, iris, limonium, liatris, bird of paradise and floral specialties. They have as a common characteristic the sending of their production to national market and exportation. These companies are not cooperatives, since their ends, similarly to those of corporations and companies with limited liability, are lucrative.

This organization mode is growing in diffusion in other communal lands in the State with promising results. For instance, in the municipalities of Atlacomulco and Ixtlahuaca, the State's government through SEDAGRO provides the funding for the construction of greenhouses. The expansion of commercial floriculture is slowly done and in a very localized manner, yet it allows identifying a reduced sector of communal land holders who have become small entrepreneurs.

Second group: it is shaped by an individual (5 hectares in greenhouse),

Flowers from Chiltepec (large company with 20 hectares in greenhouse), Floristar Group (mid-sized company with 12 hectares in greenhouse) and Santo Tomás Ranch (mid-sized company with 7 hectares in greenhouse). They specialize in growing rose, gerbera, oriental lilies, iris, anthurium, phalaenopsis, bromeliad, and anthurium plants.

Third group: nine or 32.14 percent of the production units are communal land, in seven units surface varies from 500 to 1000 squared meters and cultivation is done outdoors and in tunnels. They produce rose, chrysanthemum, daisies and yellow chrysanthemum. Parts of the group are Los Hóyameles Ranch (oriental and Asian liliun, rose, gerbera, alstroemeria, iris, mini rose) and Xcaret Greenhouses (limonium, aster, matsumoto), they have six hectares cultivated in greenhouse, respectively.

Fourth group: in this group are identified small producers (10), small traditional (5), mid-sized companies (3) and a large company (1).

In the small private producers the cultivated surface is also varied, from less of tow hectares to five. The predominant cultivation system is that of tunnel and greenhouse, they produce alstroemeria, aster, goldenrod, tropical plants, chrysanthemum, rose and daisies. Small traditional producers have a cultivated surface not larger than two hectares under greenhouse system; they produce lilies, rose, gerbera, oriental rose, tulip for the national and regional markets.

Among the mid-sized companies Neder mex Group Corporation, Agricultural Producer Las Américas Corp. and Los Nogales Ranch are notable. They cultivate from five to ten hectares in greenhouse and outdoors: rose, bird of paradise, alstroemeria, limonium, goldenrod, gerbera, calla, gladiola, liatris, lily of the Nile, aster, Asian, hybrid and oriental lilies. As large company with 30 hectares in greenhouse one finds Mexflowers Premium Corp. it produces rose, bird of paradise, alstroemeria, limonium, goldenrod and lily of the Nile. In any case, the best manner to control the products' economic process of those sent to national and regional market is to have own means of transport.

All in all, either it is small, mid-sized and large producers the pattern and offer of production is defined by the national market's tendencies. Exporters cultivate rose , lilium, gerbera, alstroemeria, tulip, gladiola, Asian and oriental lilies, iris, limonium, liatris, bird of paradise and offer floral

specialties. The producers who do not imitate this cultivation pattern and given the sowing and organization's conditions, 80 percent (28) of the productive units of the honorary associates destines production to national and regional markets.

The nature of diverse activities of production, management and commercialization the producers, of any size, have, allows defining them as entrepreneurs. On the process' management, administration and direction depends the optimization of the resources and their position in social structure.

In the local sphere, economic profitability, defined as the positive difference between the investment and revenues, is the factor which rationalizes and justifies flower cultivation.

In the execution of agricultural activities the role of hired workforce is important, its low cost becomes a strength for production at any scale and a noticeable economic disadvantage for workers. Most of the workforce does not measure its remuneration in function of its work efficiency, but in function of what can be called opportunity wage, i.e., the differential between the income opportunities in their place of origin and that of the producer zones. This old mechanism is still the best contention lever of the workforce cost (Grammont, 1999: 20).

Flower cultivation and floral companies' role in training workforce become helpers of the dynamics of the local and regional labor market; nonetheless, this has not become a long term alternative and low payments do not favor the improvement of working class' life conditions.³

³ In the decree published by the Congress of the Mexican United States on April 29th, 2005, there are additions to the Law of Social Security, articles and fractions order the employers to pay attention to the needs of social security of the seasonal farm laborers. In fraction XIX added to article 5-A, the activities this sort of worker performs are defined; however, the most important part is the establishment of a 27-week limit per employer along a year. In the case the seasonal personnel surpasses said period they will be considered as permanent workers. In the following articles 237-A, 237-B, 237-C, 237D, the obligation of providing seasonal workers with social security is established, if they do not do it the subsidies, supports or benefits from the Budget of Expenditures of the Federation will be halted for employers who do not fulfill dispositions in social security issues established in this law (CNA, 2005: 1).

Nevertheless, in the individual interests' sphere, it can be pointed out small producers of flower carry out important physical and economic efforts. Along the year and in accordance with season, they wake up early in the morning, organize the activities of cut and packing, manage the product's sale and conveyance; moreover, they face intermediaries and wholesalers in the Central de Abasto and in the Mercado de Jamaica.

Within the philosophy of the egalitarian development, the fact that most of the social actors who take part in the production of flowers have less opportunities, before a reduced minority of actors who command the local and regional economy is still present.

Reconstruction of the exporting model of the State of Mexico

The development of the national importation of flower is linked in its recent history and geographical localization to the most important region of the State of Mexico. The municipality of Villa Guerrero contributes with more than 70 percent of the cut flower's production for exportation.

The reconstruction of the adopted floricultural models recapitulates on the experience gathered in flower growth. This activity starts in the 1950's as a secondary farming activity in Villa Guerrero. In this historical conjuncture basic factors had a determinant role in the localization and establishment and development of this activity. In the 1980's the formalization of the exporting companies takes place (Lara, 1999: 288). The appearance of new manner of doing and managing flower production did not eliminate the rural production model (table 17).

In both models it is important the basic resources of the place, as well as the role performed by political conjuncture and the conjugation of public and private interests to formalize and organize the exporting companies. Ten years later, there are two new components of the exporting floricultural model, the determinant role of the market's international economic conjuncture and the restructuring of the workers' organization forms.

The economic determinations of the international market forced the companies to restructure their working practices; the former did not do it based on the incorporation of new technologies, but in their workers' reorganization. Labor organization was supported upon social and sexual

division of the laborers, feminine workforce was oriented toward the most delicate labors of flower cutting and packaging; while men were in charge of the tasks proper to cultivation. In any case labor's retribution was settled as day labor.

In twenty years (1980-1990) boosting internal and external factors which have contributed to exporting activity, have been, on the one side, governmental support policies, the use of natural resources and cheap workforce; and on the other, the favorable conditions of the fresh flower international market. As a background the domestic production of flower was sustained.

In 1994, floriculture starts its expansion to different parts of the State, the tendency responded, at the time, to the policy of rationalization of cultivations of the National Program of Countryside Modernization (*Programa Nacional de Modernización del Campo, Pronamoca*). Ornamental agriculture was visualized as an alternative of viable and profitable business activity for rural development.

In this framework new ways of floricultural extension are identified, among them the production of flower in flowerpots, this is the case of the Free Association of Rural Producers (*Asociación Libre de Productores Rurales, ALPR*) San Lorenzo Tlacotepec, Atlacomulco. This association is established in 1997 in order to produce ornate plants (they used plastic pots, diverse substrata and local workforce); the political conjuncture helped them through the Program of Emergent Employment of FONAES and the Alliance for Countryside. The results are expressed in sales worth 1.5 MXP. Success factors have been expertise in the activity, organization, as well as economic solvency.

In a second course of action, social development programs retake the diffusion of vegetables, aromatic, medicinal and ornamental flowers in spaces smaller than 50 squared meters, located nearby the house and in fields no larger than 2000 squared meters in the outskirts of the towns. Advancement, in this sense, profiled a certain sort of urban agriculture, whose objective was to complement the income of farmer and urban families with low income. Nevertheless, these activities had scarce or null economic revenue.

New floricultural impulse, 2000-2005

The new boost to floral production in the State of Mexico was shaped in the project of fomentation to production and commercialization of flowers, which was part of the fifteen integral projects to foment the development of productive systems and strengthen regional development (Sedagro, 2002). The initial stage was estimated in 2652 flower-cultivated hectares; 80 percent corresponded to the outdoor production system and 20 percent to greenhouse system. The future stage was designed to increase the surface cultivated with flowers 50 percent, e.g., 3000 hectares with a budget of 21,973,881USD (table 18).

The municipalities with floricultural tradition were favored: Villa Guerrero, Coatepec Harinas, Zumpahuacán, Tenancingo and Malinalco, as well as new diffusion centers: Metepec, Oztolotepec, Texcoco, Tlatlaya, Tejupilco, Atlacomulco, Donato Guerra, Valle de Bravo, and the coordination of the public, private and social spheres was established as a strategy (public universities, the Visaflor Group, Mexican Council of Flower and other flower-producer associations).

According to the data reported for this period, the State of Mexico contributed with 5 percent of the agricultural gross domestic product (Pibagro), so it is not considered as part of the producer States, among them Jalisco, Sinaloa, Michoacán and Veracruz. This group contributed with 30.2 percent of the Pibagro. The competitive paradox is that the State of Mexico was positioned as one of the main agro-industrial producers; it contributed with 14.8 percent of the Agro-industrial Gross Domestic Product (Pibagroin) and altogether with Jalisco and Federal District contributed with 44.1 percent (Sagarpa, 2003: 14). The significant participation of the State of Mexico in Pibagroin was due, to a large extent, to the upturn of the commercial floral sector.

Flower production's spatial distribution in the territory of the State of Mexico in the agricultural years of 2001, 2002, 2003 (Sagarpa, 2004) provides elements to evaluate the outreach of the project of fomentation to production and production of flowers, which was identified as the formal instrument of the new impulse to State's floriculture (figure 7).

In the considered agricultural years, the average cultivated surface in the State was 1,830,474.613 hectares and the participation of the flower-cultivated surface was 11,000 hectares or 0.6 percent of the total surface. The average economic contribution of the floricultural sector was 22 percent, in respect to the total average value of the State's production (20, 195, 209, 216 MXP). It is, the flower-cultivated surface increased at least four times in the period 2000-2003 changing from 2652 to 11000 hectares, this aspect strengthened the importance of floriculture for the State's economy.

Heeding additional information reported for these years, flower cultivation is performed along the year (spring-summer {SS} and autumn winter {AW}). This allows meeting the demand at any time and overcome the seasonality of the production of cyclic flowers cultivated in irrigated and mixed surface (irrigated-mixed) (table 19).

Despite climate conditions have their own determinants along the year, the low fatal accidents rate in the sowed and harvested surface of the cyclic and perennial cultivations (1.6 percent and 0.41 percent respectively) it allows stating there is a clear favorable tendency toward the production systems in protected conditions.

The most important cyclic flowers from the point of view of their contribution to production value are chrysanthemum and gladiola, these are cultivated in the three surface modalities (seasonal, irrigated and mixed). This sort of flowers is not part of the ornamental group required by international market; however, gladiola is one of the best priced items and chrysanthemum one of the most demanded by national market (table 20).

Among the perennial cultivation one finds the flowers required by international market. Carnation and rose are noteworthy for they take up 51.56 and 30 percent of the irrigated surface, respectively; they contribute with 26.2 and 16.2 of the total production volume and 22.1 and 53 percent of the total production value.

To sum up, the new exporting model has been shaped based on the factors of global competitiveness (COGLO) and the factors of local competitiveness (COLO). In this relation the interface factors (FAI) have had a central role to link and preserve the synergies of competitiveness in the State's floricultural sector.

Global competitiveness is defined by demand factors (DF) and by the conditioning demand factors (CDF). Local competitiveness has become complex and is defined by the factors of offer (OF), among them agglomeration factors (FAGLO), basic factors (BF) and factors which power the possibilities of floricultural activities' take off (PF) are distinguished (table 21).

Some of the regularities observed in the floricultural exporting take-off and in the new impulse to exporting activity (2000-2005) are the presence of government's funding and logistical support, as determinant ingredients of the activity's development in the region. This is expressed in the recent technological change in performance, intensity and productivity of the floricultural exporting activity. New species have been adopted and the cultivation of the most demanded plants has been improved.

The incorporation of new determinants of the floricultural activity does not eliminate the old ones; even some remain as a necessary condition for the sector's development. This is the case of the government's actions to set infrastructure and technical advice, as well as in the former "protected" economy; State's participation has allowed consolidating the introduction of technology into the production processes of rose, chrysanthemum, gladiola, carnation, gerbera and foliage, whose cultivated surface constitutes 36 percent (3964 hectares) of the total of the surface destined to flower cultivation in the State of Mexico.

Inter-institutional organization

The success of the new impulse to floricultural activity has its foundation on organizational tradition, which dates back from the end of the 1980's decade with the creation of the Association of Floriculturists from Villa Guerrero (Asflorvi). This organization joined nearly a hundred of flower producers. In the year 1991, with the support of municipal authorities, it organized the first floral exposition, and in October 2004 it organized the XII ExpoFlor. The floral exposition in its different editions has had expositors from all the country (producers, suppliers of materials and services, and people interested in floriculture).

The implications of flower exportation has been the foundation of flower

expositions, which are usually held in the municipality of Villa Guerrero, said expositions have become the platform to promote the product's commercialization in the national and international markets. The Mexican Council of the Flower informed that in 2005 the ExpoFlor became international, so that it would be held in Mexico City's World Trade Center in April.

In Villa Guerrero more than 10000 floriculturists are reported, yet not all of them are associated to Asflorvi. The producers who are in the organization (large and small) have the possibility of obtaining a governmental and private credit; in this sense, the Secretariat of Agricultural Development of the State of Mexico (*Secretaría de Desarrollo Agropecuario del Estado de México, Sedagro*) is the main funding source.

The influence of this information is such that the unassociated producers do not only lack the opportunity of support, but also ignore the market and prices; because of that, in order to commercialize they draw to the producer-intermediary-wholesaler-retailer-consumer system.

The period when Asflorvi appears coincides with the inclusion of the private sector in the highest sphere of governmental decisions and the creation of the National Agricultural Council (*Consejo Nacional Agropecuario, CNA*) (1984-1990). The appearance of CAN corresponds to the new organization model system-product and as a private organizational initiative to face crisis. This fact denotes a readjustment in the political relation between more dynamic country enterprisers and the State —total support to the new neoliberal policies— (Grammont, 1996: 31).

The Association of Floriculturists from Villa Guerrero is an example of the inclusion of the productive vision of the traditional corporative diagram of the farming organizations. The new conception is defined by the appropriation of the phases of the productive process, comprehending commercialization and transportation (Román, 1992: 9).

From the Asflorvi's effort, the core of the country's floricultural organization was formed, integrated by the Mexican Council of Flower and the Enterprising Floricultural Association, whose offices are in Mexico City and Villa Guerrero. Currently, both organizations are part of CAN's executive commission.

The Enterprising Floricultural Association and the Mexican Council of Flower (CMF) become civil associations at national level; they comprehend the interests of the social sectors devoted to flower's production and transformation. In the case of CMF the affiliation is voluntary; it is integrated by second level organizations such as regional organizations and groups of flower and plant producers of the Mexican Republic, as well as companies from the national floricultural sector. Its main function is representing, defending and fostering floral activity.

CMF's goals are summarized in continuing with the organization of yearly floral expositions, as well as incorporating the diversity of floral cultivations of the southern region of the State of Mexico to the market, besides it positions the Mexican producers from Villa Guerrero in the international sphere. There is an interest in incorporating the tropical floriculturists from the State of Veracruz, Tabasco and Chiapas, among other, as well as producers not only of cut flower, but of pot flowers, flower for cut and vegetative material.

Given the economic importance of the State's floricultural activity the Council of Flower of the State of Mexico is established, as well as regional councils in Coatepec Harinas, Villa Guerrero and Tenancingo; at the time, the feasibility study of the World-Class Flower Market Project is concluded, which was stated as a boosting factor of the State and National floriculturist cluster. The center of Transference of Floral Technology is established in Villa Guerrero, whose function will be to provide specialized technical advice, promote more profitable species, and increase the cultivated surface in high-potential zones (CMF, 04/28/2004).

The CMF's actions on the creation of the Mexican Market of Flowers and Plants Corp. are remarkable, it has become an anonymous society by actions; partners have made economic contributions to buy the field where said market will be built (CMF, 04/07/ 2004).

As part of the actions to strengthen the sector, in October 2004, five State committees of the ornamental-plant product-system chain are integrated. A national representative front was integrated to design the project of strengthening the productive chain: State of Mexico committee, State of Morelos committee, State of Puebla committee, State of Jalisco

committee, Federal District Committee. The representation of the System-Product National Committee is ratified, being under control of the Mexican Council of Flower. This time Tecnológico de Monterrey also took part as national compiler and as supporter for the development of the Directing Plan, which had to be approved by the members of the Ornamental Product System National Committee (CM, 14/09/2004).

In January 2005, nearly 400 members from different municipalities and States attended the II Ordinary General Assembly of the Mexican Market of Flowers and Plants (*Mercado Mexicano de Flores y Plantas, MMFyP*), so as to recognize the acquired land to build the market. This time the process of evaluation to select the company which will fulfill the basic-conceptual phases and the elaboration of the business plans of the company was stressed; the company GUTSA and Galván Duque Consultores were benefited to develop both (CMF, 02/02/2005). It is also notable the link with the directors of the auction of VBA Flowers of the City of Alsmeer (Netherlands), they were interested in the new market of flowers. The interest of the directors in participating with their experience and technology (project's know-how), as they have done in the Markets in China and Brazil. (CMF, 05/02/2005).

Final comments

From the composition of the demanded flowers in Central de Abastos, it is inferred the recent and evident diversification process produced in the State's floral offer (aster, montecasino, dollar, large gerbera, iris, Asian liliun, limonium, mini carnation and large chrysanthemum). Each new introduced variety requires a specific technologic package and new production ways. The reorientation of rose, sunflower and bird of paradise production toward external market is also remarkable.

The exporting success of the State of Mexico is supported by an average cultivated surface of slightly more than eleven thousand hectares; this surface represents 0.6 percent of the total surface of the State's agricultural surface and 86 percent of the national total floricultural surface. It contributes with 80 percent of the flowers the country exports, and flower commercialization represents 5995 million of Mexican Pesos yearly (617 million of Mexican

Pesos only in the Day of the Dead season), revenues which represent more than a quarter of the revenues the State of Mexico's farmland produces (30 percent). Flower cultivation provides direct and indirect employment for 225000 people (*Proceso*, 2004). In these conditions floriculture has acquired a proper personality and become one of the most important economic sectors in the country and the State.

The productive vision of the floricultural sector is defined by the producers' organization to take over the different phases of the productive process, including commercialization and conveyance. In this process State promotion is still fundamental for organization, gradually this is assumed upwards as a necessity of the sector.

In this context economic and social dynamics generated by floral activity transcends the local and establishes links with the international market, by means of small and large companies which have successfully place production in the foreign market.

Commercial attributions of cut flower change from one place to another, both in regions and countries; however, once the product is placed in international market differences in prices have to do with the product's quality, which is made of the addition of technical and human efforts in the localization and fulfillment of time and space standards set by the leader economies. Nonetheless, enterprising rationality diffused by exporting companies and the advantage of having cheap workforce and natural resources in the places of production support the technologic change of floriculture and the social and territorial expansion of the activity.

The possibility to meet the commercial demand all year and the enterprising character of the floral production are two important components to participate in national and international market. Small production units face a market with diverse tastes, yet, the most significant is perhaps that the control of commercialization is achieved the variations in the prices of national market are in favor of the producer and against consumer; this supports the known profitability of flowers. On the other side, one finds the small producers who do not control the products commercialization (transport and sale), around them an intermediaries' network who take part in the commercialization of the product appears, this aspect negatively influences the producer and final consumer.

The results of the systematization process of flower offer of some companies, among them Visaflor and Multivía place the State of Mexico as one of the main producers of cut flower in both national and international spheres.

Vertical and horizontal integration of the flower exporting corporations favors the coordination of production and commercialization activities throughout the different seasons of the year. The efficacy and interrelation of productive activities of each one of the companies complement and support each other in order to constitute an economic bloc.

Despite the production places are articulated to the new global commercial processes by means of *modern* organizational, production and commercialization procedures and the permanent adaptation of the product to market trends; production locus —natural and social places— does not disappear, but global economy uses them to configure a network of strategic points to guarantee international offer.

The empowering of new locations of floral production and the increment of cultivated surface will not grant on their own their access to international market; for the recent history of the floricultural sector shows that large exporting enterprises have been the result of interests and political conjunctures which have not helped every producer. We are before a new model of external economy whose outwards determinants have changed, however inwards, the use of low-cost natural and human resources favor technologic change in exporting floriculture and the interests of a handful of companies.

This study shows that the competitiveness —understood as the capacity to be ever present in the international market— of the exporting companies has been sustained, in recent years, due to the coverage they have achieved in the internal market (wholesalers and flower shops specialized in the country).

Synergy between local competitiveness —understood as the addition of natural resources, technologic and enterprising efforts to systematize the exporting offer— and the global one is conjunctural, whose main determinants are to be found in the variation of the international demand factors (prices, quality requirements, preferences and seasons) and in the consolidation of efficient commercialization systems.

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Table 1
Global competitiveness model

Demand factors	Offer factors	Agglomeration factors
Market's closeness	Human capital, science and technology availability	Productive process intensity
	Conditioning factors	
	International economic environment	
	Political ability	

Source: elaborated based on Altvater and Mahnkopf (2002:181)

Table 2
Flower balance of trade (Thousand USD)

Mexico-US	1990	1991	1992	1993	1994	1995	1996	1997	1998
Exportations	8,350	8,584	8,824	9,071	9,253	12,253	10,269	9,378	9,640
Importations	242	248	251	256	261	266	222	225	247
Total	8,108	8,336	6,573	8,815	8,992	11,987	10,047	9,153	9,393
Mexico-Canada	1990	1991	1992	1993	1994	1995	1996	1997	1998
Exportations	266	429	863	743	824	1,567	1,458	2,624.4	4,723
Importations	0	0	0	0	0	0	0	0	0
Total	266	429	863	743	824	1,567	1,458	2,624.4	4,723

Source: García, Hernández and Martínez, 1999

Table 3
Cut flower's commercial balance of trade, 1999-2002

	1999		2000	
	Value (USD)	Volume Kg	Value (USD)	Volume Kg
Exportations	9,308,614	7,425,500	7,263,814	8,236,872
Importations	2,326,176	248,130	3,268,702	290,643
Balance	+6,982,438	+7,400,670	+3,995,112	+7,946,229
	2001		2002 (January - March)	
	Value (USD)	Volume Kg	Value (USD.)	Volume Kg
Exportations	7,038,395	5,946,609	3,565,037	2, 201,428
Importations	3,579,702	489,518	703,981	89,368
Balance	+3,458,693	+5,457,091	+2,861,056	+2,112,060

Source: Bancomext (2002), *Total importations and exportations*. Consulted on August 22nd, 2002

Table 4
National market's average prices of cut flower (MXP), 1999-2004.
Mexico City's Central de Abastos

Flower species	State of origin	Unit of measurement (*)	Average prices in August 1999 (MXP)	Average prices in Jan 2000 (MXP)	Average prices in August 2004 (MXP)	Average prices in September 2004 (MXP)
Wallflower	Mexico	Bunch		33.66	-	-
Large bird of paradise	Mexico	Bunch		29.19	-	-
Large carnation	Mexico	Gruesa	30.40	42.75	64.50	74.63
Greenhouse chrysanthemum	Mexico	Dozen	20.20	24.15	29.65	28.45
Large gladiola	Mexico-Michoacán-Puebla	Gruesa	121.00	199.50	212.00	262.00
Medium gladiola	Mexico-Michoacán-Puebla	Gruesa	89.50	160.00	155.50	210.38
Daisy	Mexico	Hundred	22.40	31.00	-	-
Nube	Mexico	Roll	26.13	15.90	23.00	22.39
Large nard	Mexico	Roll	51.00	116.0	71.00	133.88
Large chrysanthemum	Morelos	Dozen	7.70	7.15	9.80	10.25
Pompom	Mexico	Dozen	7.90	7.15	9.35	10.13
Short stem rose	Morelos	Gruesa	23.15	111.50	25.75	30.94
Long stem rose	Morelos	Gruesa	49.75	255.00	50.00	63.00
Greenhouse rose	Mexico-Morelos	Handful	29.65	67.50	33.25	36.56
Short stem Creole rose	Puebla	Gruesa	47.00	500.00	49.75	63.13
Long stem Creole rose	Puebla	Gruesa	109.50	200.00	116.00	138.13
Medium anthurium	Michoacán	Piece	-	-	26.75	27.78
Monte casino Aster	Mexico	Bunch	-	-	9.10	8.69
Dollar	Mexico	Bunch	-	-	10.35	11.63
Large gerbera	Mexico	Dozen	-	-	29.75	29.06
Iris	Mexico	Dozen	-	-	60.50	71.31
Asian liliun	Mexico	Dozen	-	-	71.50	68.44
Limonium	Mexico	Handful	-	-	32.25	30.50
Mini-carnation	Mexico	Dozen	-	-	7.30	8.39
Large chrysanthemum	Mexico	Dozen	-	-	9.80	10.25
Large bird of paradise	Michoacán	Dozen	-	-	-	16.55

Own elaboration (*) Bunch= 12 to 15 pcs, / handful= 25 pcs / Gruesa= 144 pcs / Roll= not specified

Table 5
Number of companies according to average international sales and hired personnel

Total staff	Number of companies	International sales ranges (USD)	Companies size according to hired personnel range						
			1	2	3	4	5	6	7
Range 1 25 or less	24	50,000 or less	8	4	1		1		
Range 2 26 – 50	12	Up to 250,000	11	2		2			
Range 3 51 – 100	3	Up to 1,000,000	5	4	1	1			
Range 4 101- 250	7	Up to 2,500,000		2	1	3	2		
Range 5 251 – 500	5	Up to 5,500,000					1		
Range 6 5001 – 1000	1	Up to 10,000,000				1	1		
Range 7 Above 1000	1	Up to 20,000,000						1	1

Source Bancomext (2003), *Exporters' directory*

NB: in the table there are only 53 registered companies. The ones called Procesadora de Productos Agrícolas, S.A de C.V. located in Ezequiel Montes, Querétaro and Vivero Internacional, S.A. de C.V. registered in Cuernavaca, Morelos, the hired personal and sales are referred as part of the Null company, located in Uruapan, Michoacán

Table 6
Companies with high sales of exporting flower production

Annual sales for up to 1,000,000 USD			
Baja California	State of Mexico	Michoacán	Jalisco
Rancho Daisys, S.A. de C.V.	Rancho Los Pilares / Francisco Javier Migoya Von Bertab	Invernaderos de Zitácuaro S. de R. L.	Camflor, S.A. de C.V.
La Rosalera, S.A. de C.V.		Dieter Vermehren Boker / Floraplant, S.A. de C.V.	Flores Preservadas de México
Colima	Federal District	Yucatán	Puebla
Follajes Tropicales de Colima, S. P. R. de R. L. de C.V.	Grossmann Exportadores, S.A. de C.V.	Colatínco, S. P. R. de R. L. de C.V.	Unión de Productores de Flor El Edén, S.A. de C.V.
Exporting companies with the highest annual sales (USD)			
Up to 5, 500,000	Up to 10,000, 000	Up to 20,000,000	
Chiapas	Federal District	State of Mexico	
S. P. R. de R. I. Grupo COVA	Navi-Plastic, S.A. de C.V.	Visaflor, S.A. de C.V.	Multivía, S.A. de C.V.

Source: Bancomext (2003), *Exporters' directory*

Table 7
State of Mexico

State of Mexico	Location	Total staff	Sales (USD.)
Flores de Chiltepec, S.A. de C.V.	Coatepec Harinas/Chiltepec	51 to 100	Up to 2,500,000
Internacional de Flores, S. de R. L. de C.V.	Meteppec/Cedros	26 to 50	Up to 250,000
Rancho Los Pilares / Francisco Javier Migoya Von Bertab	Zumpahuacán/Sta. Cruz los Pilares	26 to 50	Up to 1,000,000
Tomás Polo Basurto	Tenancingo/Ejido los Morales	101 to 250	Up to 250,000
Visaflor, S.A. de C.V.	Villa Guerrero/Rancho San Felipe	501 to 1 000	Up to 20,000,000
Flores Lucitania S. de R. L. de C.V.	Villa Guerrero/Buenavista	25 or less	Up to 250,000
Multivía, S.A. de C.V.	Villa Guerrero/San Felipe	More than 1,000	Above 20,000,000
Serviflora S. de P. R. de R. L. de C.V.	Villa Guerrero/La Joya	25 or less	Up to 250,000
Víctor Bernal Guadarrama and/or Flores Los Reyes	Villa Guerrero/San Lucas	51 to 100	50,000 or less

Source: Bancomext (2003), *exporters' directory*

Table 8
Natural flower producers: state of Mexico

Trademark	City	Production units
Flores de Chiltepec, S.A. de C.V.	Coatepec Harinas	2
Internacional de Flores, S. de R. L. de C.V.	Coatepec Harinas	1
Multivía, S.A. de C.V.	Villa Guerrero	2
Visaflor, S.A. de C.V.	Villa Guerrero - Tenancingo	4
Flores Lucitania S. de R. L. de C.V.	Villa Guerrero/Buenavista	1
Serviflora S. de P.R. de R. L. de C.V.	Villa Guerrero/La Joya	1
Polo Basurto Tomás	Tenancingo	1
Víctor Bernal Guadarrama y/o Flores Los Reyes	Villa Guerrero/San Lucas	1
Rancho Los Pilares / Francisco Javier Migoya Von Bertab	Zumpahuacán	1
Cosmoflor S.A.	Villa Guerrero	3
Asflorvi A.C.	Villa Guerrero	2
Dirmex	Toluca	1
Continental Floral Greens S.A. C.V.	Villa Guerrero	1
Floravic S. de P.R. de R.L.	Villa Guerrero	1
Flores de Santo Tomás S.A.	Tenancingo/Toluca	2
La Flor de Catemaco S. de P.R. de R.L.	Villa Guerrero	1
Mexflowers S.A. DE C.V.	Tenancingo-Zumpahuacán	1
Rancho Flornemex	Villa Guerrero	1
Saldívar Garza Manuel	Villa Guerrero	1
Rodríguez Gómez José de Jesús	Villa Guerrero	1
20		28

Source: <www.secciónamarilla.com> and <www.Bancomext.com>

Table 9
Localities by population rank

1-49	50-99	100-499	500-999	1000-1999	2000-2499	2500-4499	5000-9999	10000-14999	15000-19999	20000-49999	Total
48	48	287	88	50	9	12	4	0	1	1	548

Source: INEGI (2000), XIII General Census of Population and Housing

Table 10
Soil use in rural production units

District	Total surface (has)	Work surface	Grassland, mount or drying surface	Forest or rain forest surface	No vegetation
Coatepec Harinas	85,441.21	65,159.76	19,253.31	430.18	597.96
State of Mexico	992,532.96	732,731.88	204,114.28	36,549.53	19,137.27

Source: INEGI (1994), *State of Mexico. Definitive results of the VII Agricultural, livestock and cooperative land Census*, Mexico

Table 11
Hired workforce in rural production units

	Total of production units	Rural units	Total workforce	Unpaid workforce				Paid workforce	
				Relatives	Non relatives	Hired		Temporary	
						Men	Women	Men	Women
Coatepec Harinas	3,582	3,576	13,303	7,957	474	632	92	3,854	294
Villa Guerrero	4,271	4,258	13,870	9,139	330	1,060	269	2,636	436
Tenancingo	3,524	3,486	12,297	7,600	234	359	5	4,047	52
	11,377	11,320	39,470	24,696	1,038	2,051	366	10,537	782

Source: INEGI (1994), *State of Mexico. Definitive results of the VII Agricultural, livestock and cooperative land Census*, Mexico.

Table 12
Employed population income structure

Employed population	Does not receive income	Perceives income
92,507	14.5 %	85.5 %
Perceives income	Up to 50% min wage	Above 50% and less 1 mw
79,118	5.43 %	12.26 %
	1 min wage	More than 1 up to 2 mw
	0.00	44.47 %
	More than 2 and up to 3 min wage	From 3 to 5 min wage
	14.37 %	10.66 %
	More than 5 up to 10	More than 10 min wage
	3.99	1.44 %
	Unspecified	
	7.35 %	

Source: INEGI (2000), (2000), *XIII General Census of Population and Housing*

Table 13
DDR Coatepec Harinas

	Cultivated surface (ha)	Harvested surface (ha)	Production (ton)	Production value (USD)
Spring-summer	2,978.8	2,978.8	14,038,379.86	1,401,499,995.6
Autumn-winter	4,360.4	4,360.4	10,603,544.5	1,979,887,843
Perennial	2,433	2,433	22,950,308.34	1,746,914,571
Regional ornaments	9,772.2	9,772.2	47,592,232.7	5,128,302,409
District total	149,541.2	149,225.1	nd	6,844,916,766
State ornaments	11,044.7	11,044.7	83,045,248.86	5,996,205,928

Source: <www.sagarpa.gob.mx>. Data from SIAP

Table 14
Percentage of chrysanthemum and gladiola participation in the set of ornaments

Flower	Seasonal			Irrigated			Irrigated-seasonal		
	Surface %	Production %	Value %	Surface %	Production %	Value %	Surface %	Production %	Value %
Chrysanthemum	2.0	2.21	1.66	30.18	33.53	33.72	32.27	35.75	35.39
Gladiola	3.2	0.66	0.97	10.36	2.28	3.6	13.56	2.95	4.58
Subtotal	5.2	2.87	2.63	40.54	35.81	37.32	45.83	38.7	39.97
Other flowers	1.2	1.15	0.26	3.0	10.16	9.78	4.17	11.3	10.03
Total	6.4	4.02	2.89	43.54	45.97	47.1	50.0	50.0	50.0

Source: <www.sagarpa.gob.mx>. Data from SIAP

Table 15
Coatepec Harinas: perennial cultivations' participation

Perennial	Cultivated surface(ha)	Production (ton)	Production value (USD)	Cultivated surface (ha)	Production (ton)	Production value (USD)
	irrigated	irrigated	irrigated	irrigated-seasonal	irrigated-seasonal	irrigated-seasonal
Camation (gruesa)	709.5	8509102.48	367593227.1	709.5	8509102.48	367593227.1
Rose Gruesa	330.5	2363703.87	408448028.7	330.5	2363703.87	408448028.7
Dollar (bunch)	58	29000	2296800	58	29000	2296800
Agapanthus	28	228004	32832576	28	228004	32832576
Bird of paradise (gruesa)	26	30820.47	6435314.14	26	30820.47	6435314.14
Gerbera (gruesa)	29.5	265523.35	51617739.24	29.5	265523.35	51617739.24
Nard (gruesa)	35	49000	4233600	35	49000	4233600
Total	118.5	11475154.17	873457285.3	12048501.99	11475154.17	873457285.3

Source: <www.sagarpa.gob.mx>. Data from SIAP

Table 16
Cultivated surface in CMF honorary members' productions units

500 m2	1000 m2	1.3-1.8	2.0 has	3.0 has	5.0 has
8.57 %	25.71 %	11.42 %	5.71 %	2.85 %	11.42 %
6.0 has	7-9.5 has	10-12 has	19 has	30 has	20 has
8.57 %	11.0 %	2.85 %	2.85 %	5.71 %	2.85 %

Source: CMF (2004), affiliates' directory

Table 17
Floricultural productive models 1950-1990

	Basic factors	Determining factors
Farming model,1950	Weather conditions + hydrologic conditions + empiric qualification of human capital	Population's initiative
Exporting model, 1980	Weather conditions + hydrologic conditions + empirical qualification of human capital	Economic policy + governmental and private interest + public investment + new cultivations' adoption
Exporting model, 1990	Weather conditions + hydrologic conditions + empirical qualification of the human capital	Economic policy + governmental and private interest + public investment + new cultivations' adoption
	Restructuring of the workers' organizational forms	International economic conjuncture (market)

Source: own elaboration based on Lara (1999:288)

Table 18
Goal to impulse floral sector in the State of Mexico

Surface (ha)	Production (gruesas)	Benefited (Num)
3,000	16,000,000.00	2,000

Source: GEM / Sedagro, 2002

Table 19
**State of Mexico: summary of the ornamental sector in 2003
 (agricultural year)**

S-S and A-W cycles	Cultivated surface (ha)	Harvested surface (ha)	Production (ton)	Production value (USD)
Seasonal	628	570.85	1425555	54129585
Irrigated	3084	3084	11384927	1007884435
Irrigated temporary	3712	3650.65	12810482	1062014020
Subtotal	7424	7305.5	25, 620,964	2,124,028,040
Perennial				
Irrigated	1396.25	1396.25	19420909	921790740
Seasonal	5	5	21143	471450
Irrigated seasonal	1453	1441.25	19441952	1022262190
Subtotal	2854.25	2842.5	38,884,004	1,944,524,380
Total estatal	10,278.25	10,148	64,504,968	4,068,552,420

Source: <www.sagarpa.gob.mx>. Data from SIAP

Table 20
**Percentage of participation of chrysanthemum and gladiola's
 participation in the set of ornaments, 2003**

Flower	Seasonal			irrigated			Irrigated seasonal		
	Surface %	Production %	Value %	Surface %	Production %	Value %	Surface %	Production %	Value %
Gladiola	38	19	57	17.3	5.3	7.1	21	7	10
Chrysanthemum	5.0	9	19	75	90	89.3	63.2	80.6	86
Total	43	28	76	92.3	95.3	96.4	84.2	87.6	96

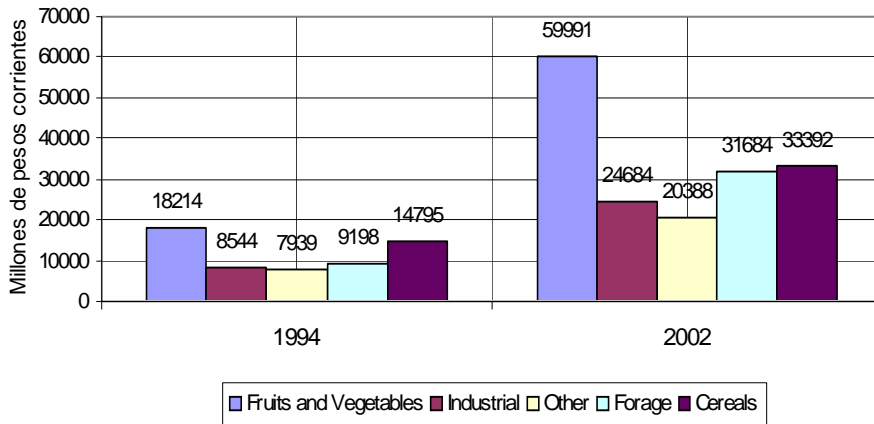
Source: <www.sagarpa.gob.mx>. Data from SIAP

Table 21
Exporting floricultural model 2000-2005

Factor of global competitiveness		
Demand factors	Demand's conditioning factors	
Restricted commercialization channels + exporting requisites + preferences + quality + price	International economic conjuncture in the market + competence + management + political ability	
	Interface factors	
	Economic policy+ inter-institutional organization + promotion + commercialization systems	
Basic factors	Empowering factors	Agglomeration factors
Hydrologic and edaphologic conditions + cheap workforce+ seasonality of production	Broadening of cultivated surface + new species' introduction + technology incorporation + new productions' localization + public and private investment	Work intensity increment + increment of companies productivity (social capital) + national market +
Local competitiveness factors (offer factors)		

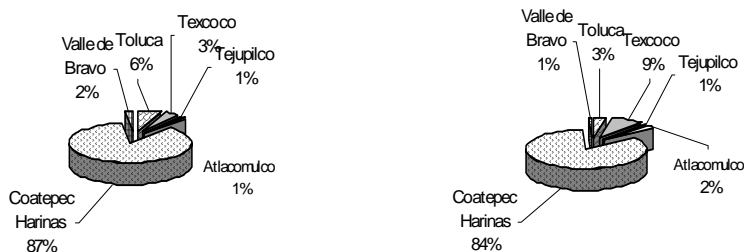
Source: own elaboration

Figure 1
National agricultural production value (Million MXP)



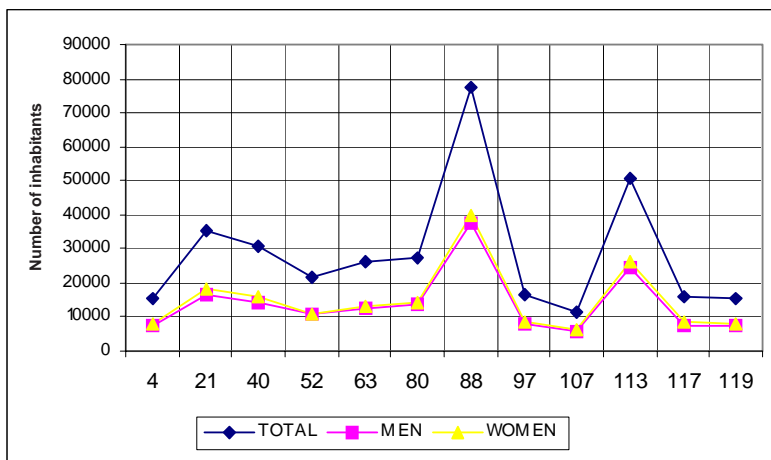
Source: <www.sagarpa.gob.mx>. Data from SIAP

Figure 2
Mexico: participation of cultivated surface and production value by DDR



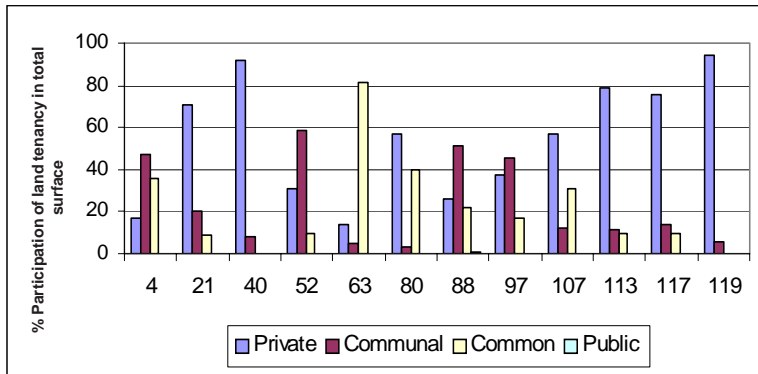
Source: Sagarpa (1999-2002), *Statistical Yearbook of Agricultural Production*

Figure 3
Municipal population distribution



Source: INEGI (2000), *XIII General Census of Population and Housing*
 004 Almoloya de Alquisiras, 021 Coatepec Harinas, 040 Ixtapan de la Sal, 052 Malinalco, 063 Ocuilan, 080 Sultepec, 088 Tenancingo, 097 Texcaltitlán, 107 Tonicato, 113 Villa Guerrero, 117 Zacualpan, 119 Zumpahuacán.

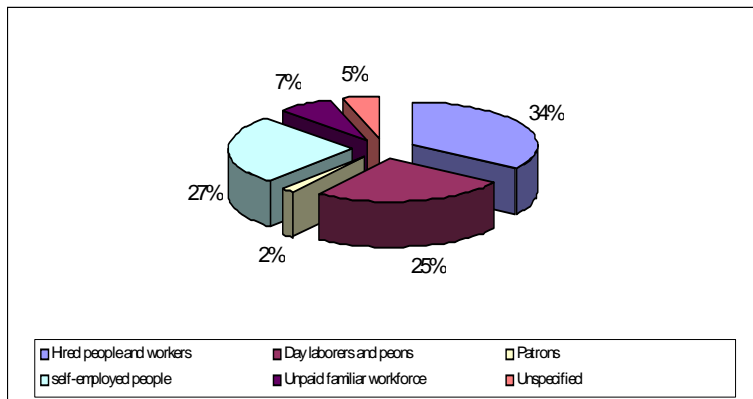
Figure 4
Distribution of land tenancy by municipality



Source: INEGI (1994), *State of Mexico. Definitive results of the VII Agricultural, livestock and cooperative land Census, Mexico.*

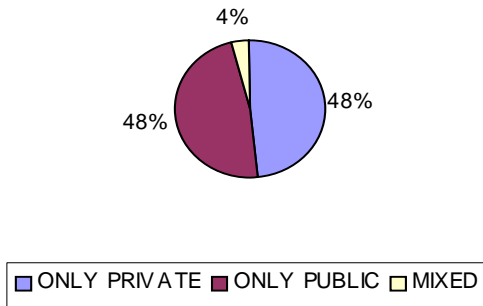
004 Almoloya de Alquisiras, 021 Coatepec Harinas, 040 Ixtapan de la Sal, 052 Malinalco, 063 Ocuilán, 080 Sultepec, 088 Tenancingo, 097 Texcaltitlán, 107 Tonicato, 113 Villa Guerrero, 117 Zacualpan, 119 Zumpahuacán.

Figure 5
Work position of the employed population



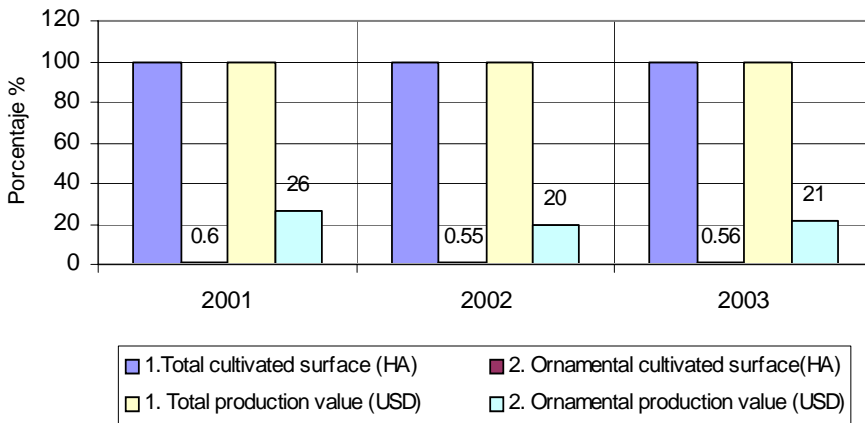
Source: INEGI (2000), *XIII General Census of Population and Housing*

Figure 6
Workforce hired in rural production units



Source: INEGI (1994), *State of Mexico. Definitive results of the VII Agricultural, livestock and cooperative land Census, Mexico.*

Figure 7
State of Mexico: ornamental sector's participation



Source: <www.sagarpa.gob.mx>. Data from SIAP