



The Development and Expansion Strategy for Taiwan's Floriculture Industry

Hwang-Jaw Lee
Board Director, Taiwan Flowers Development Association

Preface

Floriculture growing in Taiwan has been a long history, only since 1970s, floriculture growing has become a developing industry. In 1971, Taiwan Floriculture Development Association (TFDA) was organized to promote and develop floriculture industry. TFDA surveyed and identified there were 234 hectares of floriculture growing, estimated at 5.3 million NTD worth of production in 1971. During 1973, based on the cut flowers planting locations, administrative established dedicated production zones for rose and chrysanthemum in the central area of Taiwan; this establishment was to support floriculture export business. In 1975, agricultural agencies also developed plan 'Acceleration of Floriculture Industry Development' to intensify the development of chrysanthemum, roses, gladiolus, ground cover plants, woody plants, and bulbs. This plan focused on the development of core floriculture farmers, promoted floriculture farmers' market and stimulated spending on flowers. These establishments built a solid foundation for future floriculture industry development. The reason floriculture industry was able to accelerate to a matured state, was because Taiwan was on the fast track of economic development during the 70s, and with the improved economy, consumers' desire for flowers were increased. 1978, the floriculture production area increased to 1,241 hectares, floriculture production worth of 300 million NTD, and 100 million NTD was from export. This year, floriculture production data was officially recorded as agricultural statistics yearbook of Taiwan.

With the expansion of land to grow flowers, subjects of marketing, sales, logistics, transportation, and transparent pricing mechanism became the critical factors for the floriculture farmers and consumers. To build a sound trading system, and promote cooperative marketing and transportation, with the assistance from agricultural agencies, Taipei Floriculture Auction (wholesale) Market was established in 1988. All floriculture trading transactions in the wholesale market adopted computerized clock system, which achieved a trading system that was open, fair and transparent. This was another major milestone of floriculture industry. Few years later, in the effort to expand the marketing channels, bidding process was automated; and additional floriculture wholesale markets were added in several major locations, ground cover plants and woody plants were included in Taipei pot plant auction business.

Gradually, cut flower production became stabilized; however, categories of cut flower had structure adjustments due to the change from outside world, especially the change from export market. Orchid, as an example, due to the combination of orchid farmer's diligence, investment from public sector, new breed development, and the advancement of technical skills has moved Taiwan's orchid into international market; this accomplishment escalated floriculture industry to the next level, Phalenopsis has become a major floriculture production and a key export item for Taiwan.

Floriculture is an industry with competitive edge for Taiwan. The focus of this article is to introduce the core elements of floriculture industry development and its associated strategies which have been instrumental to Taiwan's floriculture industry.

Floriculture Production

As a whole, among all the floriculture categories, nursery has the most hectares, next is the cut and potted flowers. 2012 as an example, the total hectares of floriculture farming has reached to 12,486 hectares, nursery occupied 7,547 hectares which was 60.4%; cut flower occupied 3,401 hectares, 27.2%; potted flower occupied 866 hectares, 6.9%; and rest if for other category, 672 hectares, 5.4%; within the 672 hectares, 645 hectares were dedicated for orchid production. Looking at the production data for the past 5 years, production for orchid and potted flower has increased, but production of cut flower has decreased; nursery production has been stabilized. Table 1 below shows the production hectares, value and the trend of floriculture production. The notable 2006 increase of other category was due to the inclusion of orchid production.

In the past 3 decades, the value of floriculture production has been increased significantly. 1981, the value was 600 million NTD; 10 years later, the value increased to 4 billion NTD; another 10 years, the value increased to 11.746 billion NTD and in the past few years, the value was between 12 to 13 billion NTD. During the 20th century, cut flower has produced the most value, nursery second; but, the production value of orchid has been increased significantly and surpassed nursery production value. For 2006, the total production value was 12.521 billion NTD, cut flower produced 5.7 billion NTD, 45%; nursery produced 2.9 billion NTD, 23%; potted flower produced 1.2 billion NTD, 10%; and the other category, mainly orchid, produced 2.4 billion NTD, 19%. Comparing 2006 and 2012, the total production value for 2012 was 16.2 billion NTD; cut flower, nursery and other categories have significant increase, potted flower has decreased.

Establishment of floriculture production zone in Taiwan is based on the nature condition (land, climate), farmers' growing habit and technical conditions. They are tightly connected, therefore, it is rare for production zones to change flowers/plants category within the zones and the operation have been quite stable. Production of cut flowers, potted flowers and nursery are mainly in the central part of Taiwan; the temperature in southern part of Taiwan is quite high where tropical flowers are the key production; ground cover plants and potted plants are based in the northern part of Taiwan. Phalenopsis are produced in the modernized greenhouse facility, it is spread widely in the country, but south has the most production hectares.

Table1. Planted Area and Value of Ornamental Plants in Taiwan

Year	Planted Area (Hectares)					Production Value (NTD mil)				
	Total	Cut Flower	Nursery	Potted Flowers	Other	Total	Cut Flower	Nursery	Potted Flower	Other
1981	1,672	1,119	453	63	37	602	435	121	34	12
1986	3,521	2,130	1,202	130	59	1,652	1,030	500	98	24
1991	6,784	3,410	2,965	254	41	3,906	2,249	1,467	166	24
1996	9,968	4,777	4,673	461	57	8,420	5,969	1,980	458	13
2001	10,882	4,652	5,037	733	17	11,746	5,722	2,316	1,010	3
2006	13,375	4,265	7,695	824	591	12,521	5,648	2,863	1,231	2,379
2010	13,181	3,707	8,048	775	651	13,284	6,409	2,669	950	3,256
2011	12,673	3,748	7,454	821	650	15,736	7,028	3,140	985	4,583
2012	12,486	3,401	7,547	866	672	16,160	7,180	3,217	1,000	4,763

Source: Agricultural Statistics Yearbook , Council of Agriculture

Marketing for Floriculture Industry

Regarding the floriculture products in Taiwan, other than phalenopsis, majority of cut flowers, potted flowers and nursery products are for domestic markets, quantities for export of these floriculture products have been low. Marketing channels are vastly different based on the type of floriculture products. The main marketing channel in wholesale market for cut flowers is through public auction system; potted flowers are traded through wholesale public auction, showroom sales and private negotiation at the production sites; nursery products are traded through negotiation at distributed markets.

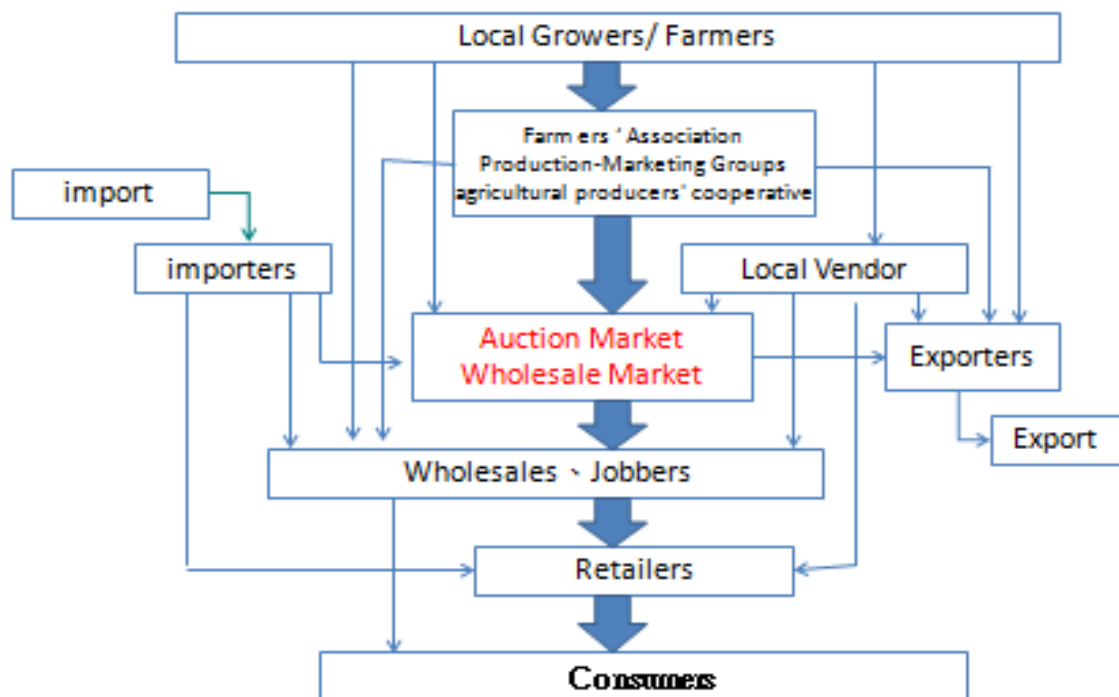
Taipei Flowers Auction Co. LTD was established in 1988 which commenced the public auction for cut flowers; this was not only a milestone for floriculture trading development, but also an important advancement for floriculture industry. Creation of floriculture market and establishment of systems have influenced floriculture industry in a profound way.

Subsequently, floriculture wholesale markets were established in the southern cities in 1994, central city in 1995, in 2003, city of Kaoshiung established Kaoshiung International Floriculture Company, and a new market was added in Taipei to drive auctions for potted plants. All six wholesales markets have been supporting cut flowers and potted plants floriculture wholesales business; they are responsible for the sales and logistics of floriculture production whether it is centralized, equilibrated and distributed, wholesale markets play a key role in floriculture pricing as well; It was estimated that 80% of cut flowers have been traded through wholesale markets in Taiwan.

In the past, the most common floriculture retail sales channel in Taiwan was floriculture shops. Ornamental flowers were sold through floriculture shops, stands in the traditional markets, or city holiday floriculture farmers' markets. Recently, large retailers (Hyper-market, Costco, Home Depot etc.) have carried merchandise of flowers and plants; with the development of e-commerce, flowers or potted plants can be purchased through internet which is very popular with younger consumers for the holidays and special days. In general, the number of floriculture shops in Taiwan is high, and the sizes are small; they bring fresh flowers on daily basis, they focus on quality and customer loyalty. In the past decade, diversification became the focus for the small flower shops, but the development speed has been slow. Retail pricing for these flower shops tend to be high, which is a key negative factor for consumers, in many cases, consumers' willingness to buy flowers and frequencies to buy are determined by pricing. Diversification of floriculture retail business, floriculture categories, and the pricing are the key aspects for the further development and the scalability of domestic floriculture retail market.

Marketing channels of ornamental flowers and plants in Taiwan are shown in Fig. 1.

Fig. 1. Marketing Channel of Ornamental Flowers and Plants in Taiwan



Floriculture Wholesale Market – Cut Flower Trades

During the 2001, the total trading quantity for cut flowers from 4 wholesale markets was 77.1 million bunches, it increased to 79.7 million bunches in 2002 which was the highest quantity historically. The quantity dropped in subsequent years, the additional establishment of Kaoshiung Floriculture Market in 2003 provided no incremental value for the cut flower business. Global recession in 2009, the demand of floriculture products decreased, the total quantity dropped to 67.7 million bunches which was the lowest point of cut flower trading quantity in the past decade. The trading quantity has increased in the past two years; it has reached to 75 million bunches in 2011.

Before the Kaoshiung Floriculture Wholesale Market was established, cut flowers were traded in 4 wholesale markets, the 2001 trading quantities of the 4 wholesale markets were: Taipei 41%, Changhua 28%, Tainan 20% and Taichung 11%. In 2003, cut flowers were traded through 5 wholesales markets, their traded quantities were: Taipei 40.2%, Changhua 20.3%, Kaoshiung 16.4%, Tainan 13.8% and Taichung 9.3%; Kaoshiung's existence impacted the trading quantities of Changhua and Tainan (all in the southern part of Taiwan). After years of competitions, the quantity of domestic cut flower wholesale has been stabilized, in 2011, the trading quantities of the 5 wholesales markets were: Taipei 40.3%, Chunghua 16.2%, Kaoshiung 14.7%, Tainan 17.7% and Taichung 11.1%. Chart below shows the changes of trading quantity of cut flowers in the 5 wholesale markets.

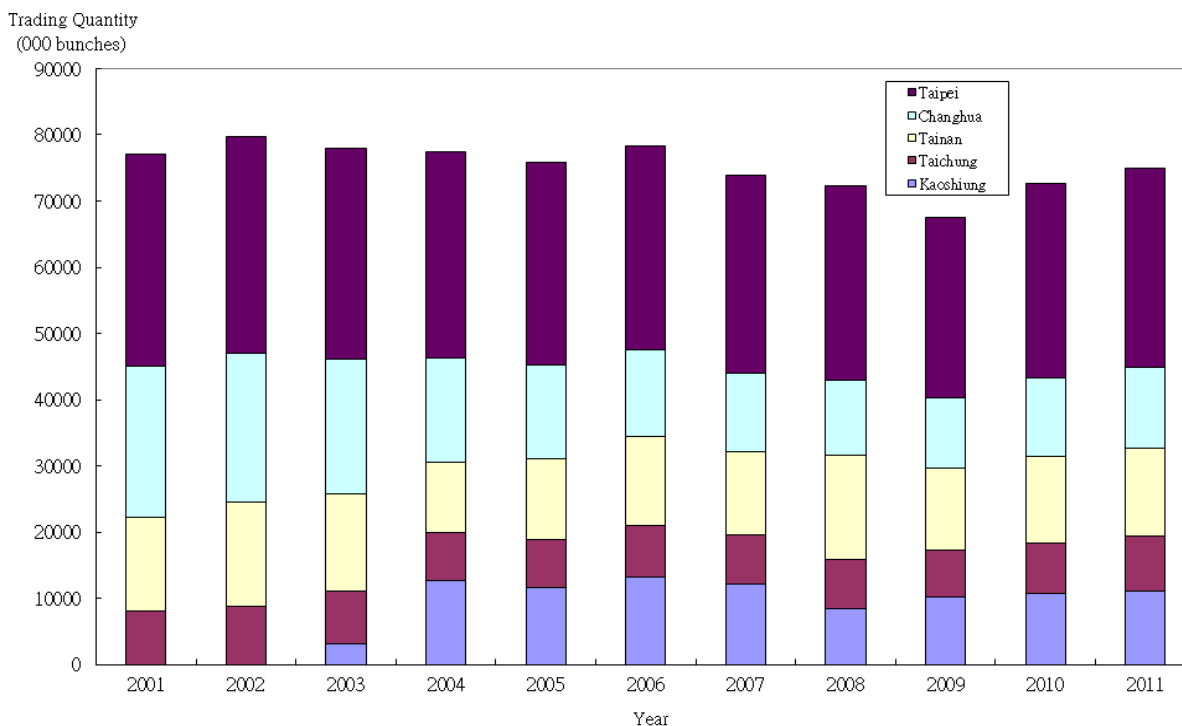


Fig. 2. Trading Quantity of Floriculture Wholesale Market

As a whole, in the past 11 years, the trading quantity of wholesale for cut flower has been increased gradually, and the trend was consistent. The amount of wholesale for cut flowers in 2001 was 3.2 billion NTD, 3.9 billion NTD in 2005 which was the highest point of cut flower trading. In the past few years, the amount remained in 3.5 to 3.7 billion NTD; however, in 2011, the amount increased to 3.9 billion NTD, which was a major increase relative to the years before. The demand was different for every wholesale market, so were the products, quality and pricing. The trading amount for 5 wholesales markets were: Taipei 43.6%, Tainan 16.5%, Kaoshiung 15.4%, Changhua 15.3% and Taichung 9.2%. See table below for the trading amount of 5 wholesale markets.

Table 2 . Trading Amount of Floriculture in Wholesale Markets between 2001 and 2011

Year	Unit: Million NT\$					Total
	Taipei	Changhua	Tainan	Taichung	Kaoshiung	
2001	1,481	945	531	276	—	3,238
2002	1,447	874	545	287	—	3,153
2003	1,486	828	517	274	142	3,248
2004	1,541	684	404	261	570	3,460
2005	1,706	689	556	310	604	3,866
2006	1,582	570	517	292	606	3,567
2007	1,670	571	553	307	632	3,732

2008	1,581	528	692	305	462	3,568
2009	1,540	533	584	302	549	3,515
2010	1,627	576	626	325	579	3,732
2011	1,684	590	637	354	593	3,858

Source: Trading Statistics of Taiwan Floriculture Wholesale Market

Floriculture Consumption

Floriculture consumption can be used as an indicator of the level of civilization of a country, as well as an indicator of economic success of a country. For a country, the spending on floriculture consumption has a tight relation to the development of its economy, national income, social culture, floriculture industry, and consumers' habit. There is no official floriculture consumption data per person, per year in Taiwan for reference. To estimate floriculture spending per person and market potential, starting from 1991, author leverages data from floriculture industry and marketing margin of various channel stages and developed a formula of calculating spending per person, per year for cut and potted flowers. Formula is simplified as (total production value of cut and potted flower + imported value – exported value) / (number of population of mid-year). Table 3 below shows the floriculture spending between 2001 and 2010 in Taiwan, relative to the international level.

Table 3. Estimated Annual Floriculture Spending Per Person between 2001 and 2011

Year	Domestic Production Value (000 USD)	Imported Value (000 USD)	Exported (000 USD)	Domestic Consumption Value (000 USD) _a	Avg. Consumption Per Person		Avg. GNP Per Person (USD) _b
					NTD	USD	
2001	347,400	14,101	54,793	613,414	928	27.46	13,401
2002	313,298	13,911	59,765	534,888	823	23.81	13,716
2003	324,799	13,744	66,166	544,754	831	24.14	14,197
2004	374,696	15,169	64,488	650,752	961	28.73	15,503
2005	367,573	17,251	71,673	626,302	887	27.55	16,449
2006	384,908	17,736	77,890	649,509	926	28.46	16,911
2007	376,494	18,264	106,272	576,972	827	25.18	17,596
2008	375,086	19,315	107,771	573,261	786	24.93	17,833
2009	370,272	17,084	110,699	553,314	793	23.98	16,901
2010	419,716	22,165	149,512	584,738	800	25.27	19,175

a/ Estimated Domestic Consumption = (Domestic Production Value + Imported Value – Exported Value) * 2

b/ GNP has been calculated based on UN standards since November 2005

Sources: Council of Agriculture; Directorate-General of Budget, Accounting and Statistics

Floriculture Exportation

To expand floriculture exportation, Agricultural Agencies has developed policies to support the expansion, developed export markets and provided guidance to floriculture farmers to improve floriculture products, imported new breeds, improved technical skills, managed diseases and insects. With the dedicated efforts from all parties involved, the amount of floriculture export was increased significantly. The exported floriculture categories were: cut flowers, bulbs, foliage, live plants, flower seedlings and seeds. Among these categories, live plants leads with most quantity and value; cut flowers and flower seedlings next in the quantity and value. Flower seedlings has significant growth in export in the past decade, but in the past two year, live plants has increased dramatically; cut flowers had a slower growth in comparison to live plants and flower seedlings.

1. The Trend of Value Change for Floriculture Exportation

Table 4 below shows the floriculture exportation in Taiwan for the past decade. In 2001, the quantity of export was 47,499 tonnes, 94% was live plants, cut flowers shared 4%. With the decline of exportation, in 2006, the export quantity was dropped to 38,315 tonnes which include live plants 33,554 tonnes, cut flowers 3234 tonnes, flower seedlings 1,207 tonnes and other for 220 tonnes. In the past three years, exportation has increased some, in 2011, the total exportation was 42,354 tonnes which live plants was 36,364 tonnes 86%, 4,241 tonnes of cut flowers which was 10%, flower seedling was 1,616 tonnes 4% and others for 132 tonnes.

Table 4. Quantities of Floriculture Exportation between 2001 and 2011

Year	Total	Flower			
		Cut Flowers	Seedling	Live Plants	Others
2001	47,499	2,094	582	44,576	248
2002	44,240	3,011	793	39,704	732
2003	42,568	3,804	1,206	37,028	530
2004	40,664	3,676	826	35,693	469
2005	38,815	3,968	1,477	33,130	240
2006	38,215	3,234	1,207	33,554	220
2007	42,009	3,049	1,868	36,929	163
2008	34,886	3,662	2,203	28,864	157
2009	33,586	2,991	2,114	28,353	128
2010	36,756	3,859	1,533	31,256	108
2011	42,354	4,241	1,616	36,364	132

Source: 2011 Agricultural Trade Statistics of the Republic of China

The unit price of exported floriculture categories has been vastly different due to the weight difference among the exported floriculture categories. Examining the exportation value instead of exportation weight provides better understanding of exportation changes. In the past decade, the exportation weight has been fluctuating, but the exportation value has been steadily increased, especially the past two years. The key reason was because of the increase of exportation value of cut flowers (Eustoma and Flamingo) and live plants (Phalenposisi). 2001 floriculture exportation value in Taiwan was 55 million USD, cut flowers was 8 million USD, 14%; flower seedling was 3 million, USD 6.2%; live plants was 41 million, USD 75.7% and others for 2 million USD, 4.3%.

In 2006, floriculture exportation value increased to 78 million USD, it was a 42% increase in 5 years; among the 5 year increase, cut flowers increased by 66%, 13 million USD; flower seedling increased by 12 million which was 250% increase, live plants increased by 25%, 52 million USD. To 2011, the total value increase to 176 million USD. From 2001 to 2011, within 10 years, the total value of floriculture exportation has increased more than double. There was significant change of floriculture categories for exportation; in 2011, the exportation value of cut flowers was 25 million USD, 20%; flower seedling was 29 million USD, 16%; live plants was 111 million USD, 63% and others for 1 million USD, less than 1%. Figure 3 shows the changes and categories of floriculture exportation of Taiwan.

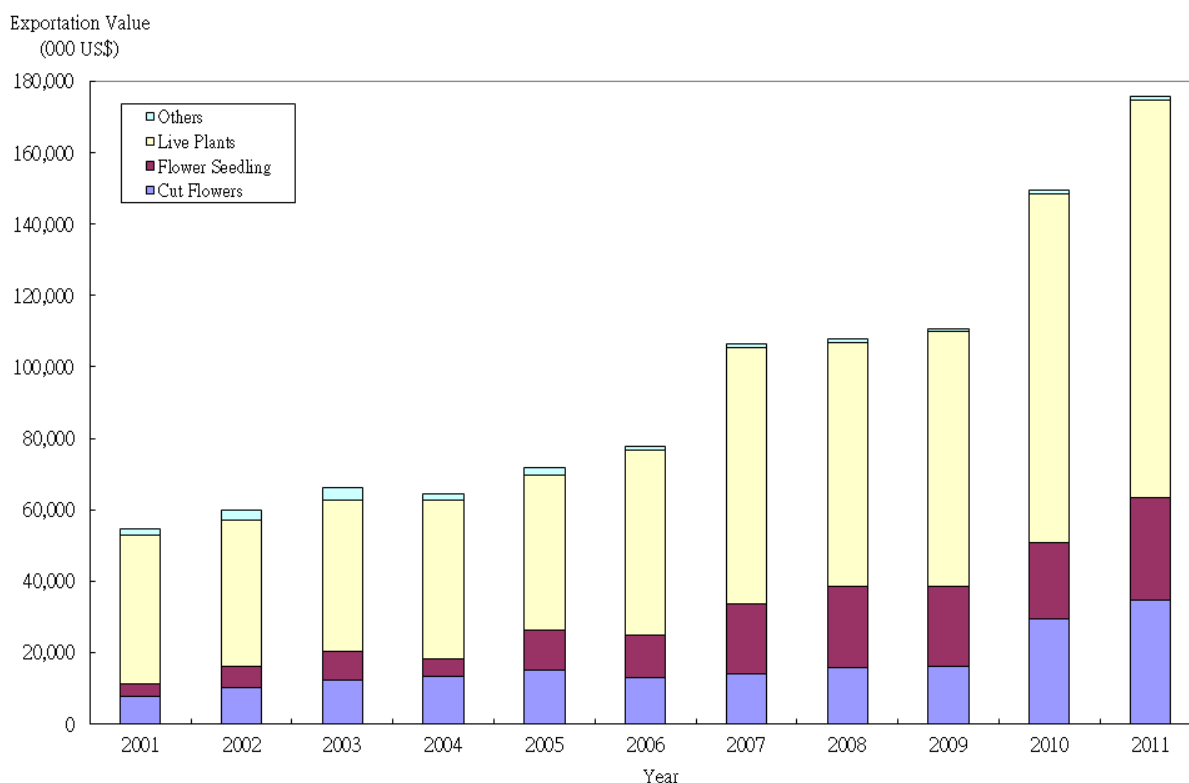


Fig. 3. Changes of Floriculture Exportation Value and Categories

2. Exportation of Cut Flowers Categories

Table 5 below captures the statistics of the main categories for cut flowers export in the past 10 years. Before the nineties, the main categories of export were chrysanthemum and gladiolus; in the past 10 years, new products have become key export floriculture merchandise, such as: oncidium, phalenposis, anthurium, and lisianthus. During 2001, the total amount of cut flower was 7.9 million USD, with chrysanthemum of 1.7 million USD, 21%; gladiolus half million, 6%; oncidium 4 million USD, 52%; and anthurium 0.9 million USD, 11%. The combined value of these 4 categories was 91% of total export value.

During 2005, the total value of cut flower for export business was 15 million USD, oncidium was the key product which was 45%, 6.7 million USD; anthurium was next, 20%, 3 million USD; third place was chrysanthemum with 15%, 2.19 million USD; lisianthus was 5%, 0.73 million USD; phalenposisi was 4%, 0.4 million USD; the rest was 5 million, 33%. Judging the changes, it is obvious that chrysanthemum and gladiolus have decreased significantly, oncidium and anthurium have moved to the second place, and the export value of lisianthus and phalenposis have increased rapidly.

Move along to 2011, the structure of total export value of cut flowers has steadily changed. The value of chrysanthemum decreased from 2.19 million USD to 2.15 and gladiolus was 0.45 million, the percent of total value were 6.3% and 1.3% respectively; it is obvious that their value in export business have become insignificant. Oncidium was 41%, 14.3 million USD, it was the leading floriculture product in cut flower category, but has also decreased in value; both anthurium and lisianthus have increased significantly in cut flower category; they were 5.8 million USD, 17% and 5 million, 14% respectively. Phalenposis was 2.2 million USD, 14% and others were 6.4 million USD, 4%. Lately, there are new products showing in the cut flower category, likely, they will become the key floriculture merchandise in the export business.

Table 5. Exportation Value of Cut Flowers Categories between 2001 and 2011
Unit : 000 USD

Year	Chryssan- themum	Gladiolus	Oncidium	Anthurium	Lisianthu s	Orchid	Others
2001	1,675	502	4,113	871	5	7	689
2002	1,686	703	4,709	1,925	5	59	1,131
2003	1,747	653	5,009	3,086	19	145	1,544
2004	2,525	648	6,185	2,439	434	105	963
2005	2,187	772	6,694	2,974	728	395	1,194
2006	1,730	515	6,077	2,892	722	303	849
2007	662	482	7,019	3,041	805	679	1,220
2008	1,069	311	6,606	3,661	1,582	1,305	1,327
2009	769	263	6,394	3,952	1,636	2,201	769
2010	1,858	479	13,452	6,002	3,107	2,345	2,179
2011	2,145	450	14,321	5,786	4,974	2,895	3,991

Source: 2011 Agriculture Trade Statistics and Inquiry System

3. Floriculture Exportation Countries

This list of main export countries for Taiwan's floriculture products in 2011 is shown in table 6. Based on quantity, China is on top of the list which purchased floriculture products from Taiwan, next Japan, USA, Korea and Holland. Based on the value of export, Japan leads other countries, next USA, Korea and Holland. This suggests that different country imported different floriculture products from Taiwan and the unit prices were vastly different. The main export market of cut flowers has been Japan, the amount of cut flower to Japan was 19 million USD, 86%; Korea and Singapore were 5.8% and 2.5% respectfully. Holland and USA were the key importers of flower seedling and their combined value reached two thirds of the total export value of flower seedlings; Holland imported 12 million USD, 42%; USA imported 7 million USD, 23%. Top four countries imported live plants: USA 35 million USD, 32%; Japan 26 million USD, 23%; Korea 13 million USD, 12% and Holland 9 million USD, 8%.

From the data shown in table 6, we can easily find out that the cut flower export markets have been highly concentrated, flower seedling export markets have been concentrated as well; live plants export markets have been scattered, and less concentrated. The higher concentration, the higher potential impact exists when the concentrated markets are at risk. For example: the 321 earthquake in Japan, cut flower export was impacted by it deeply.

Table 6. Statistics of Taiwan Floriculture Export Countries in2011

Unit: Tonne, 000USD

Country	Cut Flower		Nursery		Plants		Other		Total	
	Weight	Value	Weight	Value	Weight	Value	Weight	Value	Weight	Value
Japan	3,483	29,766	55	1,001	2,724	26,103	68	648	6,330	57,518
USA	13	672	659	6,596	4,867	35,274	12	74	5,551	42,616
Korea	149	2,017	91	1,495	2,325	12,832	1	1	2,566	16,345
Hong Kong	105	448	10	83	1,982	2,326	12	87	2,109	2,944
Holland	2	27	329	11,956	2,182	8,675	2	76	2,515	20,734
China	9	70	101	231	18,228	4,497	11	3	18,349	4,801
Singapore	292	879	6	59	974	1,752	3	10	1,275	2,700
Vietnam	0	14	157	1,469	1,338	1,761	0	2	1,495	3,246
Others	179	1,028	338	5,953	2,297	7,506	16	188	2,830	14,675
Total	4,241	34,561	1,616	28,797	36,364	111,485	133	1055	42,354	175,898

Source: 2011 Agricultural Trade Statistics of the Republic of China

Future Strategies for Floriculture Industry

It is a twofold effort to expand floriculture industry in Taiwan: domestic and export businesses. For domestic business: 1) increase the desire of having floriculture products, and 2) willing to spend money to buy floriculture products are critical factors to expand the

floriculture business domestically; for export business: 1) increase of volume and floriculture category, and 2) promote premium floriculture and unit price are the focus for floriculture exportation. It is critical to sustain the floriculture industry, as well to proactively expanding export markets.

1. Domestic Market Development

a. Establish Specialized Floriculture Marketing Organization

Expansion of floriculture consumers is a long term endeavor, the goal is to drive the sales of floriculture and its related products, the purpose is not to promote individual brand or increase profit of a specific entity; it is to expand the floriculture industry as a whole. Create a holistic floriculture consumer marketing plan to drive the required change, enable the consumer market expansion, and increase floriculture farmer's income. To promote the sustainability of floriculture industry, Taiwan should have dedicated floriculture marketing organization, which is responsible for marketing and sales expansion activities domestically and internationally; this organization should be non-profit and collaborate with floriculture production organizations. Its sole responsibility is the development of market expansion, one key task is to leverage organized consolidated marketing proposal to communicate with consumers about the attributes of floriculture products, to influence potential consumers' spending desire by providing floriculture product information, and to increase consumption through promotions.

b. Promote Retail Consumption through Knowledge

Different floriculture organizations and groups should leverage integrated marketing communications, be purposeful, target specific consumer groups, especially the high earning group, provide floriculture knowledge and information, enable their understanding and entice their willingness to purchase floriculture products. To achieve the desired outcome of increasing retail consumption, it will require an integrated marketing plan which should be established and focus on the market demand, select consumers, design the content of communication and effectively deliver the designed communication.

c. Promote and Realize the Green City

To solve the bottleneck of floriculture product retail consumption, administrative should assist the development of floriculture industry and demand expansion of domestic markets. Also coordinate governmental agencies to drive the Green City development and become low carbon economy (LCE) and sustainable environment. To become a Green Country should be one of the top priorities.

2. Export Market Expansion for Domestic Floriculture Products

Currently there are key floriculture product providers in the global floriculture industry, such as Holland, Columbia and Kenya; they all have dedicated organization to design strategies and conduct long term planning to develop international markets, collect global floriculture trade information and country specific information systematically, and obtain real time marketing and sales movements; they process these information and provide the processed information to floriculture industry, to do so, the industry has adequate information to make adjustments to their operations, respond to the markets and be prepared when facing challenges. In Taiwan, the administrative and floriculture industry have been working hard to expand the export markets, the results have been obvious; but compare to the global leaders, Taiwan needs to put more efforts in long term planning, information collection, and build the mechanisms to feed information to industry. Budget provision were made by administrative, but lack evaluation of cost effectiveness. There are rooms for improvement on the effectiveness and benefits.

a. *Resources Consolidation to Drive Floriculture Export*

To enhance the expansion of export markets for domestic floriculture products, Taiwan needs to consolidate its resources from industry, government and academic RD. Develop proposals and plans, to define specific and achievable goals, such as: Double Export Value by 2020. To satisfy the defined goals, there are two key tasks: increase floriculture products with improved quality for export and develop new markets with premium brand image. The specific focal points are:

- i. Establish database to capture information of targeted export markets, in order to understand the market requirements and forecast domestic production, data collection needs to focus not only on the critical floriculture industry information (products, production, sales etc.), but also collect consumption market information.
- ii. Establish supply chain systems for new products, new breeds and high value export products. Develop technical and management knowledge for production. Develop capability to produce premium, high quality floriculture products and stability of export product production.
- iii. Establish total quality management system (TQMS), drive and promote TQMS for export floriculture products
- vi. Develop marketing and sales strategies to expand export market for domestic floriculture products. Conduct integrated marketing communications at the targeted markets.

b. *Establish Quality Management and Certification System*

To establish Taiwan's total quality management for floriculture products, it has to start from the breed selection, pest control on seedlings, field growing management, insect prevention and temperature control after harvesting. The process for export products, from disinfection, quarantine, goods collection, load, and transport, all need to be done with proper storage and quality management in order to ensure the quality and to satisfy the quarantine requirements from the exported countries.

Total quality management system needs to function to ensure the competitiveness of our domestic floriculture products.

Certification system should be used, one to confirm top quality floriculture product producers, two to promote premium brand image internationally. Design a system with different classes to encourage producers to improve their product quality. Certification system should be integrated at the international level and assist top quality producers to achieve certification at the international level.

REFERENCES:

- Council of Agriculture, Executive Yuan, Agricultural Statistics Yearbook, various year editions.
- Council of Agriculture, Executive Yuan, Basic Agricultural Statistics, various year editions.
- Council of Agriculture, Executive Yuan, Agricultural Trade Statistics of The Republic of China, various year editions
- Directorate-General of Budget, Accounting and Statistics, Executive Yuan, Summary of National Income of Republic of China, various years
- Taipei Flower Production & Marketing Company, Transaction Data of Flower Wholesale Markets in Taiwan (Computerized Files)
- Hwang-Jaw Lee, 2004, "Strategies for Consumption Expansion in Domestic Flowers and Plants", Taiwan Flower Industry, Vol. 200, pp. 120~132
- Hwang-Jaw Lee, 2012, "Expansion Strategies for Domestic Market and Exportation of Taiwan Flowers and Plants", Taiwan Flower Industry, Vol. 300, pp. 38~46
- Inquire System of Agricultural Trade Statistics (<http://agrapp.coa.gov.tw/>)
- International Association of Horticultural Producers (AIPH), International Statistics Flowers and Plants, 2010

Date submitted: Nov. 18, 2014

Reviewed, edited and uploaded: Nov. 20, 2014