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SITUATION AND OUTLOOK OF FLORICULTURAL SECTOR

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Key words: floriculture, cut/potted flower, greenhouse, rose, chrysanthemum, lily, orchid

ABSTRACT

The purpose of this study is (1) to provide trends and prospects of floricultural production for farms, (2) to provide the flower farmers with strategies of management improvement and the government officers with policy support direction in order to overcome current difficulties.

The Korean floricultural industry with a high income-elasticity has been growing along with national income increase. However real floricultural production in 2001 is expected to decrease due to depressed consumption expectation as a result of the recent economic slowdown. Among this situations, flower exports has increased due to rising exchange rates, developing new sales channels due to sluggish domestic demand.

Korea's floricultural exports is primarily targeted to Japan. Meanwhile China's floricultural industry is growing rapidly as the Chinese government is fostering the industry. Therefore, china is expected to rise as a competitor in the Japanese market.

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I. INTRODUCTION

The Korean floricultural industry with a high income-elasticity has been growing along with national income increase. Floricultural products have become a high value-added item relative to other agricultural products in that floricultural production.

Also propelled by the government's active policy to promote the utilization of greenhouses subsequent to the conclusion of the Uruguay Round of multilateral trade negotiations, the floricultural industry has secured its role as a high-tech industry.

However, flower farms have faced difficulties recently the financial crisis. The production cost increased due to the devaluation of Korean currency and flower consumption decreased because of fall in income level.

Among this situations, flower exports has increased due to rising exchange rates, developing new sales channels due to sluggish domestic demand. Therefore it is necessary that the floricultural industry is brought up as export items.

The purpose of this study is to provide trends and prospects of floricultural production for farms, to provide the flower farmers with strategies of management improvement and the government officers with policy support direction in order to overcome current difficulties.

II. Trends and Prospects of Floricultural Production

1. Floricultural Production

1.1. Annual Floricultural Production

The relative importance of floricultural production in Korea has grown continuously throughout the years, increasing from 0.6% of total agriculture and forestry production in 1985 to 1.8% in 1999. Floricultural products have become a high value-added item relative to other agricultural products in that floricultural

TABLE 1. Trends of Floricultural Production

Unit: billion won

	Agriculture and forestry total production (A)	Floricultural production(B)	B / A (%)
1985	13,003	75	0.6
1990	17,244	239	1.3
1995	26,736	509	1.9
1999	32,843	597	1.8

Source: MAF, *Situation of Floricultural Cultivation*, various years.

production, as a percentage of the total agricultural and forestry, have surpassed the ratio of its cultivation area.

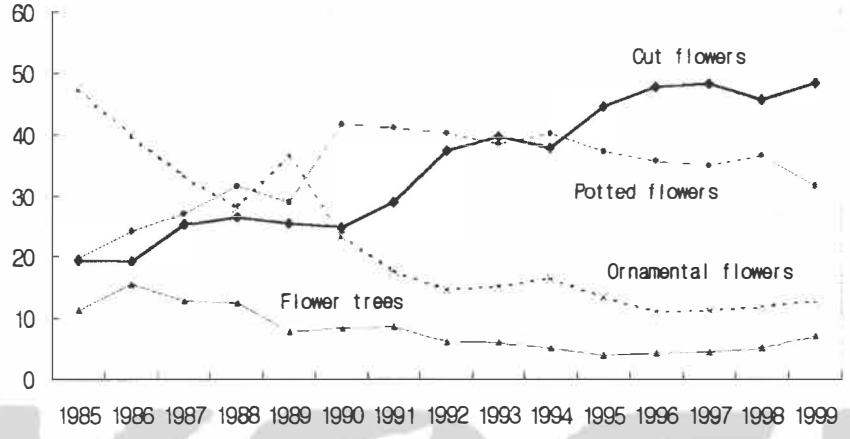
The value of floricultural production in 1999 has reached 596.6 billion won from 74.6 billion won in 1985, an annual average increase of 16.0%, compared to 6.8% in the aggregate agricultural sector. In particular, as a result of the government's greenhouse policy in the early 1990's, the floricultural industry has secured its role as a high-tech industry.

1.2. Changes in the Structure of Floricultural Production

The structure of floricultural production has shifted from ornamental flowers in the 1980's to potted flowers in the early 1990's and cut flowers since the mid-1990's(The share of cut flower production was 48.1% in 1999). Such increase in the share of cut and potted flowers reflects the fact that floricultural cultivation is shifting to a greenhouse-oriented production, as opposed to land utilization of the past. At the same time, it implies the change in floricultural production and consumption toward a structure adpoted by industrialized countries.

FIGURE 1. Changes in the structure of floricultrual production

Unit: %



Source: MAF, *Situation of Floricultural Cultivation*, various years.

1.3. Changes in the Greenhouse Cultivation Area

Propelled by the government's active policy to promote the utilization of greenhouses subsequent to the conclusion of the Uruguay Round of multilateral trade negotiations, the share of greenhouse cultivation, as a percentage of the total floricultural cultivation area reached 56.5% in 1999. However, while such increase in greenhouse cultivation increases production through an all-year production system, it may erode the profitability of greenhouse households due to cost increase related to winter heating.

Estimating the effects of oil price increase on the income greenhouse households, using Rural Development Administration's standard income data(1999), income decreases by 13.6% for cucumber production households and 10.8% for households producing roses when the price of tax-free oil(diesel) is 420 won/liter. Moreover, if the same price of oil rises to 500 won/liter, income decreases by 20.3% and 18.6%, respectively.

TABLE 2. Changes on the Income Greenhouse Households as the Price of Oil

Unit: 1,000 won/10a

	1999 Standard Income			Sinario increasing the price of tax-free oil					
				380won/ ℓ		420won/ ℓ		500won/ ℓ	
	Gross Income	Cost	Income	Cost	Income	Cost	Income	Cost	Income
Cucumber	14,163	6,707	7,455	7,477	6,686	7,725	6,438	8,221	5,942
Roses	21,095	11,322	9,773	11,993	9,102	12,377	8,719	13,143	7,952

Note: Cost and income changes were calculated using cost is constant except for the price increasement of tax-free oil.

Such cost burden due to rise in oil prices, coupled with depressed consumption as a result of economic slowdown, floricultural households have become reluctant to invest in additional greenhouse facilities. Consequently, the share of greenhouse cultivation area is expected to decrease in 2001.

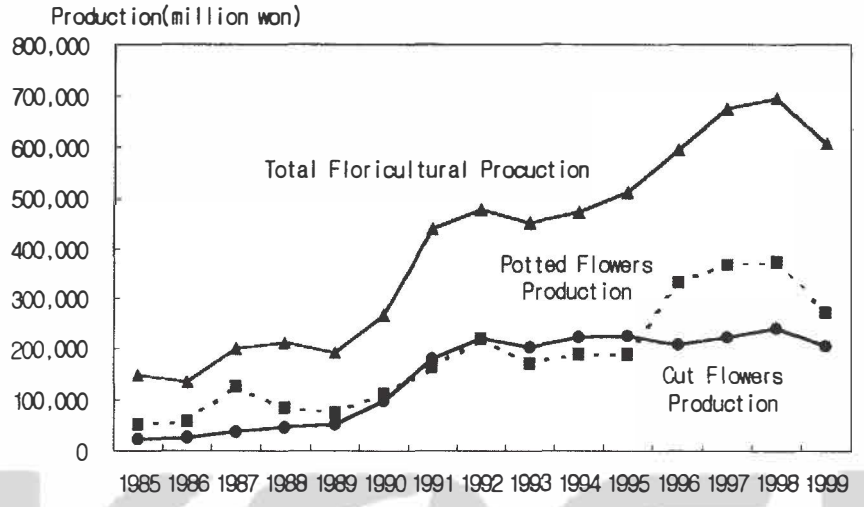
2. Trends and Prospects of Floricultural Production by Item

Backed by the active support by the government and high margins relative to other agricultural products, the cultivation area of floricultural products have steadily increased, in addition to the real floricultural production[1]. Real floricultural production increased rapidly up until 1992 and decreased in 1993 due to the fall in the production of cut and potted flowers.

While real floricultural production have increased since 1994 as a result of the pick up in production, floricultural households are expected to cut production due to depressed consumption expectation as a result of the recent economic slowdown. In turn, real floricultural production in 2001 is expected to decrease.

[1] Real floricultural production was calculated by dividing nominal floricultural production, released by the Fruits and Flowers Division of the Ministry of Agriculture and Forestry, by the floriculture price index. The floriculture price index was calculated using the Laspeyres index with 1995 production by item as its base quantity.

FIGURE 2. Trends of Real Production for Cut and Potted Flowers



Note: Total floricultural productions were deflated by total floricultural price index(1995=100), cut and potted flowers were deflated by cut and potted flowers price index(1995=100).
Source: MAF, 「Situation of floricultural cultivation」, various years.

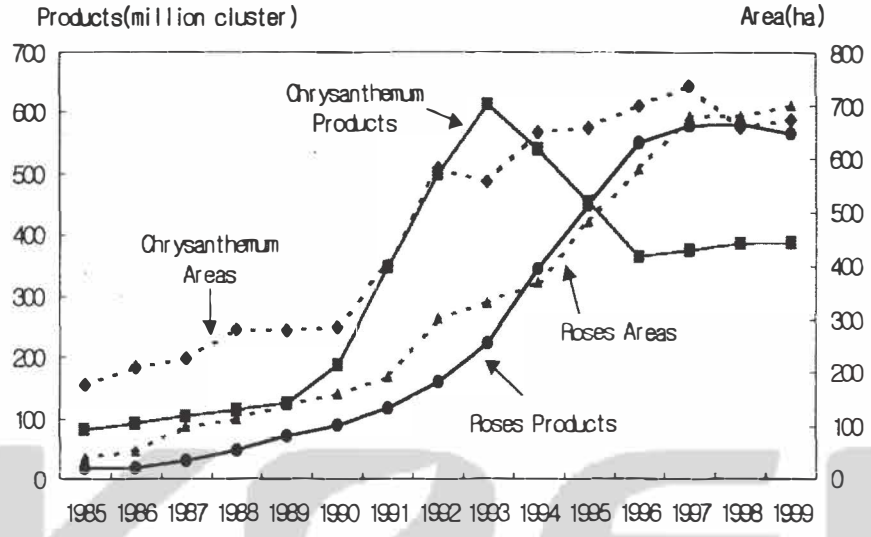
Production of cut flowers have increased as both cultivation area and yield per area have increased due to rising demand. However, real production of seasonal flowers is expected to stall in 2001 as the increase in its cultivation area and yield per area have slowed recently.

In the case of potted flowers, the growth of its cultivation area has stalled since the early 1990's due to sluggish demand. However, while real production has picked up since 1996 as the amount of production has increased due to the rise in yield per area, it has started to fall from 1999. Such trend is expected to continue into the near future unless new demand emerges.

3. Trends and Prospects of Floricultural Production by Species

There are over 20 cut flowers included in Korea's statistical data, with roses, chrysanthemum and lilies as its main products. Its share of production has increased from 51.4% of the total

FIGURE 3. Production Trends of Roses and Chrysanthemum (3 years moving average)



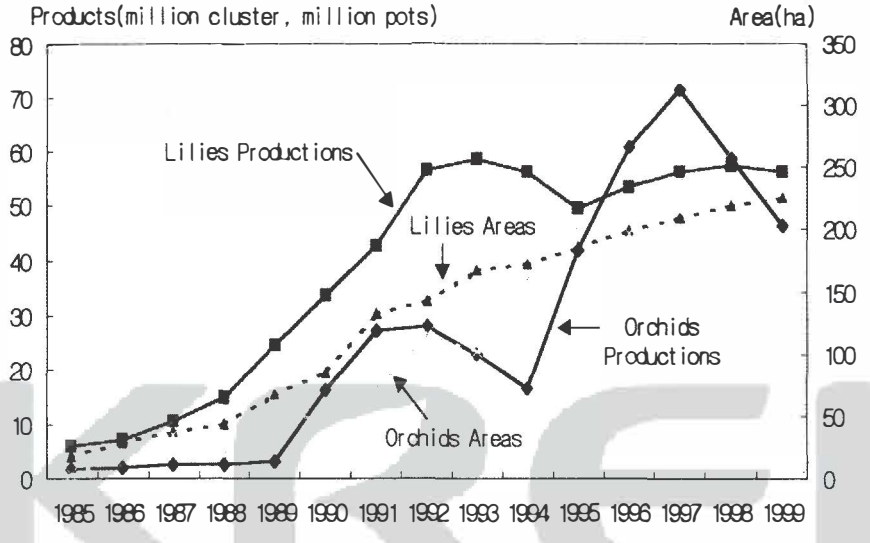
Source: MAF, *Situation of Floricultural Cultivation*, various years.

production of cut flowers in 1990 to 68.6% in 1999.

Despite a slight decrease in the production of roses subsequent to the financial crisis due to contraction of demand, production is expected to pick up in 2001 as a result of increasing exports and high consumer demand recently. However, diversification of the production of floricultural items and stimulation of consumption is needed as potential risk of price falls exists due to excessive production as a result of the high conversion of households to roses.

The share of chrysanthemum of the total cut flower production was over 25% until the early 1990's. That share has fallen to 18.6% in 1999. Such downward trend is expected to continue for the time being as chrysanthemum is traditionally thought to be used for ceremonial purposes such as funerals. However, production of small and spray chrysanthemum is expected to increase as consumption has increased recently.

FIGURE 4. Production Trends of Lilies and Orchids(3 years moving average)



Source: MAF, *Situation of Floricultural Cultivation*, various years.

The cultivation area and production of lilies has steadily increased relative to other products but has begin to stall subsequent to 1993. The demand for lilies are affected greatly by the economic condition since it is primarily consumed as an assortment. In this light, the production of lilies in 2001 is expected to decrease as the prospects for the Korean economy are not favorable.

The annual production of orchids has varied severely as shipment can be adjusted according to market prices. In particular, in cases of depressed consumption due to economic slowdown, production falls. Accordingly, orchid production in 2001 is expected to decrease somewhat as a result of unfavorable economic conditions.

III. Trends and Prospect of Price and Consumption of Floricultural Products

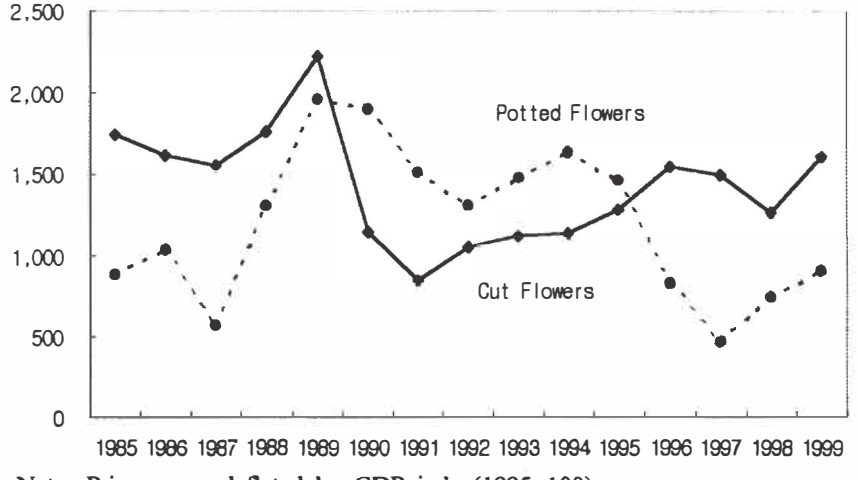
1. Trends and Prospect of Price of Floricultural Products

The real price of cut flowers has risen until 1989. However, due to expansion of its cultivation area and yield of area increase (increasing 66% relative to the 1989 levels) as a result of technological advancement and the diffusion of greenhouses, prices have fallen since 1990 as shipment has increased rapidly. Consequently, real prices in 1991 have fallen 61.9%, relative to the 1989 levels.

Since 1992, prices have been on the rise through shipment adjustments maintained by high quality production system. However, real prices have decreased as a direct effect of the 1998 financial crisis. While real prices of cut flowers rose in 1999 due to the recovery of the economy, it is expected to fall in 2001 as the economy slows down.

FIGURE 5. Trends of Real Price for Cut and Potted Flowers

Unit: won/10cluster, won/pot



Note: Prices were deflated by GDP index(1995=100).
Source: MAF, *Situation of Floricultural Cultivation*, various years.

The cultivation area and yield of area of potted flowers have remained unchanged in the recent 10 years. However, its price has fallen since the 1990's due to changes in the consumption pattern as a result of decrease in consumption of potted flowers. The rise in real prices of potted flowers in 1998 and 1999 can be attributed to the decrease in the production. Such cut back in production is expected to continue into 2001, leading to slight increase or stagnation of real prices.

2. Prospect of Wholesale Price of Major Items

2.1. Price Forecast of Major Items

Demand for floricultural products have traditionally been sensitive to the business cycle. With the recent slowdown of the economy, coupled with unfavorable forecast for 2001, floricultural prices overall is expected to fall compared to the previous year. In fact, January prices of roses at the Yangjae-dong Flower Market fell substantially vis-a-vis last year. Such trend is expected to continue into 2001, leading to 20～30% price falls.

The price of chrysanthemums is expected to fall substantially this year as it is the most affected by the economic slowdown because of its consumption mainly for ceremonial uses such as funerals. In January, the bid price for chrysanthemums at the Yangjae-dong Flower Market over 50% compared to last year.

In the case of asiatic lilies, while prices are expected to fall 10～20% due to the contraction of consumption domestically, increased exports are expected to constrain oriental lilies price falls to a minimum as the supply into the wholesale market decreases.

Meanwhile, the cultivation area of orchids increased as demands have picked up recently in spite of the decrease in the total cultivation area of potted flowers. However, since orchids are generally thought of as an expensive item, prices are expected to fall due to the slowing economy. In particular, price falls are expected to be larger in its main consumption season of spring.

TABLE 3. Recently Wholesale Price of Major Flower Items

	Unit	Items	2000.1.6~1.17	2001.1.4~1.17	Increase ratio(%)
Roses	won/ 20cluster	Sandra	3,964	2,644	△ 33.3
		Cardinal	3,982	2,851	△ 28.4
		Little Marble	4,071	1,916	△ 52.9
chrysanth -emums	won/ 20cluster	Sul-pung	6,016	2,886	△ 52.0
		Subangryuk	6,249	1,856	△ 70.3
Lilies	won/ 20cluster	Jojia	4,689	4,111	△ 12.3
		Novasent	2,221	1,841	△ 17.1
Orchids	won/ pot	Phalaenopsis	3,347	2,617	△ 21.8
		Cymbidium	19,440	14,722	△ 24.3

주: 1) Wholesale prices were average price Yangjae-dong flower market in days.
2) Palaenopsis and cymbidium prices were based on whiteredlip(6), lapinhat(5).
자료: www.kati.net.

2.2. Price Change Elements of Floricultural Products

Unlike general agricultural products which are primarily consumed as foods, a characteristic of floricultural products is that its price is highly sensitive to the changes in the economic conditions as can be seen in the price falls subsequent to the financial crisis.

Prices in January and February of 1998, when the economic recession was at its peak due to the crisis, prices of apples and pears fell only 1~5% compared to 16~48% for floricultural products.

Prices of flowers are also greatly affected by policy elements such as the government's consumption restraining policies. In June 1999, subsequent to the government's announcement of the "10 Guidelines for Public Officials" that prohibited both the giving and acceptance of ceremonial wreaths, prices plummeted upto 30~50%.

TABLE 4. Comparison of Price Depreciation Ratio as the Financial Crisis

Unit: won

	1997		1998		Decrease Ratio (%)	
	January	February	January	February	January	February
Apples	15,622	15,749	14,985	14,935	△ 4.1	△ 5.2
Pears	27,661	28,370	27,262	27,039	△ 1.4	△ 4.7
Roses	3,616	4,443	2,339	3,715	△35.3	△16.4
Lilies	3,596	3,136	1,881	2,025	△47.7	△35.4

Source: MAF, Handbook of Agriculture and Forestry, various years., www.kati.net.

TABLE 5. Depreciation of Roses Price Such as the Consumption Restraining Policies

Unit: won/20cluster

		1999. 6. 11.	1999. 6. 18.	1999. 6. 24.
Roses	Sandra	3,460	2,280	810
	Cardinal	1,830	1,000	410

Source: Farm newspaper.

Therefore, the government needs to avoid policies that constrains flower consumption and establish policy measures to overcome the effects of the economic recession so as to allow for the continuous development of the floricultural industry and the stabilization of the operation of farming households.

3. Consumption Prospect of Floricultural Products

Real per capita consumption expenditure for flowers in 1999 has grown 3.1 times compared to 1985 due to the increase in the increase in the national per capita income. However, real expenditure on flowers in 1998 declined 6% as income decreased due to the financial crisis. While expenditure in 1999 recovered to the previous levels in line with the economic turnaround, real expenditure is expected to fall in 2001 as economic conditions are yet unclear.

The general public's preference for flowers is mainly concentrated on roses(highest preference of 91.3%), chrysanthemums (2nd highest preference of 30.4%) and carnations(third highest preference of 14.7%). Despite the growing preference for spray chrysanthemums among the younger generation recently, the overwhelming preference for roses is expected to continue into the future.

To date, while flowers have been mainly consumed for special events(special events 60%, office decoration 30%, personal use 10% according to a 1990 survey by the Ministry of Agriculture and Forestry), the share of consumption for personal use has increased recently.

Consequently, personal consumption of cut flowers, such as for presents(59.6%) and for home decoration(25.3%), has increased. In the case of potted flowers, home decoration uses make up 56.2% while 36.8% were consumed for presents. With respect to color, consumers showed a preference toward red(42.6%), yellow(17.8%), pink(14.9%) and white(11.9%). However, despite the development and increased consumption of a diverse range of flower colors, the high preference for red is expected to continue as Korean consumers have traditionally favored it.

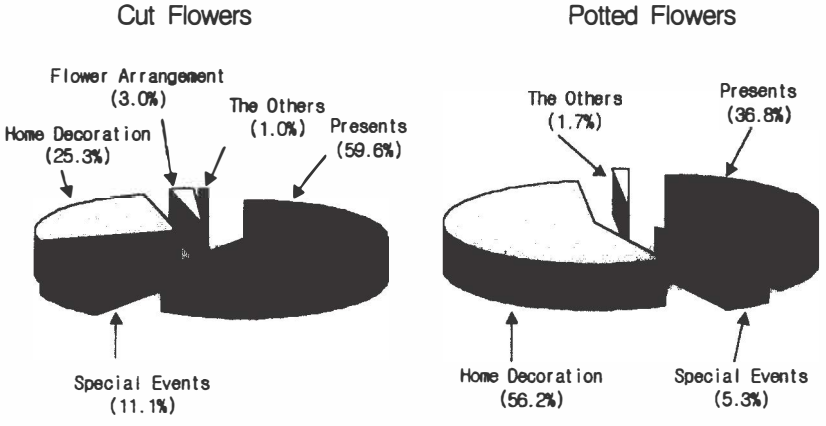
TABLE 6. Flowers Preference of Consumers

Unit: %

	Roses	Lilies	chrysanth-emums	Carnations	Gypsophila	Freesia	Tulips	Others	Sum
1th	91.3	1.0	1.9	-	-	1.9	1.0	3.0	100.0
2nd	4.9	10.8	30.4	14.7	14.7	3.9	9.8	10.9	100.0

Source: KREI, Survey of consumption conducts for flowers, 1999.

FIGURE 6. Consumption Uses of Flowers



Source: KREI, Survey of consumption conducts for flowers, 1999.

IV. Trends and Prospects of Flowers Exports and Imports

1. Exports and Imports Flowers by Item

Floricultural exports has increased 7.9 times for 2.48 million dollars in 1990 to 10.97 million dollars in 1999. However, floricultural products have been a chronic trade deficit item in which imports have exceeded exports in the past. In 1999, a surplus in floricultural trade was recorded for the first time due to rising exchange rates.

Exports up to the mid-1980 were primarily focused on cut leaves, but have shifted to seedlings since 1988 and seasonal flowers subsequent to 1998. Up until the early 1990s, exports of cut flowers were under 100 thousand dollars. However, it has started to surge subsequent to 1994.

Recently, exports of roses have increased rapidly, with lilies, chrysanthemums and orchids leading the exports. The

TABLE 7. Trends of Flowers Experts and Imports

Unit: 1,000 dollars

	1990	1995	1996	1997	1998	1999
Export(A)	2,485	6,363	4,473	5,252	12,220	19,751
Import(B)	10,286	26,728	30,123	30,308	13,204	17,255
A / B(%)	24.2	23.8	14.8	17.3	92.5	114.5

Source: MAF, 「Situation of floricultural cultivation」, various years.

TABLE 8. Flower Exports by Items

Unit: 1,000 dollars, %

	1993		1995		1997		1998		1999	
Lilies	821	20.1	2,318	36.4	2,054	39.1	3,388	27.7	3,061	15.5
Roses	-	-	47	0.7	48	0.9	3,419	28.0	6,624	33.5
chrysanthemums	-	-	152	2.4	28	0.5	272	2.2	2,101	10.6
Cactus	2,474	60.4	3,312	52.1	2,459	46.8	2,266	18.5	2,942	14.9
Orchids	44	1.1	216	3.4	358	6.8	660	5.4	1,673	8.5
Others	754	18.4	318	5.0	305	5.8	2,215	18.1	3,350	17.0
Sum	4,093	100.0	6,363	100.0	5,252	100.0	12,220	100.0	19,751	100.0

Source: MAF, *Situation of Floricultural Cultivation*, various years.

increase in the exports of cut flowers including roses can be attributed to the increase in farm households focusing on exports as a means to developing new sales channels due to sluggish domestic demand.

2. Exports and Imports by Country

Korea's floricultural exports is primarily targeted to Japan, the Netherlands and the U.S. While, the share of the 3 countries has decrease somewhat form 83.4% in 1990 to 70.8% in 1999, the dependence is still high. In particular, exports are concentrate

TABLE 9. Flowers Exports by Country

Unit: 1,000 dollars, %

	1990		1995		1997		1998		1999	
Japan	959	28.6	2,861	45.0	2,268	43.2	7,953	65.1	12,365	62.6
Netherlands	650	26.2	1,560	24.5	927	17.7	1,244	10.2	974	4.9
Hongkong	15	0.6	35	0.6	471	9.0	905	7.4	2,784	14.1
U.S.A	462	18.6	965	15.2	636	12.1	839	6.9	644	3.3
Canada	75	3.0	451	7.1	272	5.2	328	2.7	289	1.5
China	-	-	965	15.2	9	0.2	270	2.2	2,291	11.6
Taiwan	51	2.1	171	2.7	92	1.8	108	0.9	186	0.9
Others	293	11.8	319	5.0	567	10.8	573	4.7	218	1.1
Sum	2,485	100.0	6,363	100.0	5,252	100.0	12,220	100.0	19,751	100.0

Source: MAF, *Situation of Floricultural Cultivation*, various years.

towards Japan with the share of Japan in Korea's exports increasing from 38.6% in 1990 to 62.6% in 1999.

The structural imbalance of Korea's floricultural exports toward a particular country is expected to continue which implies the need to understand the structure of Japan's floricultural market in order to expand exports.

Meanwhile, China's floricultural industry is growing rapidly as the Chinese government is actively fostering the industry through the introduction of foreign capital and technology. While the level of Chinese cultivation technology lags behind that of Korea, China is expected to rise as a competitor in the Japanese market based on its cheap labor costs.

V. Conclusions

The relative importance of floricultural production in Korea has grown continuously throughout the years. As a result of the government's greenhouse policy, the floricultural industry has secured its role as a high-tech industry. Backed by the active

support by the government and high margins relative to other agricultural products, floricultural production have steadily increased

However real floricultural production in 2001 is expected to decrease due to depressed consumption expectation as a result of the recent economic slowdown. Real production of cut flowers is expected to stall in 2001 as the increase in its cultivation area and yield of area have slowed recently. In the case of potted flowers are expected to continue into the near future unless new demand emerges.

Demand for floricultural products have been sensitive to the business cycle. With the recent slowdown of the economy, floricultural prices overall is expected to fall compared to the previous year.

Floricultural exports has increased due to rising exchange rates. The increase in the exports of flowers can be attributed to the increase in farm households focusing on exports as a means to developing new sales channels due to sluggish domestic demand.

Korea's floricultural exports is primarily targeted to Japan, the structural imbalance of Korea's floricultural exports toward a particular country is expected to continue. Meanwhile, China's floricultural industry is growing rapidly as the Chinese government is fostering the industry through the introduction of foreign capital and technology. Therefore, china is expected to rise as a competitor in the Japanese market.

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