



Assessment of Programs and Operation for Consumer Horticultural Education at Agricultural Extension Service Centers in Korea

Hye Won Han, Seung Won Han*, Ji sung Kim, and Kwang jin Kim

National Institute of Horticultural & Herbal Science, RDA, Wanju 55365, South Korea

ABSTRACT

The Purpose of this study is investigated to education program and organization in Korea agricultural extension service center. In most cases, the program has steadily operated from 2014 to 2016 in metropolitan cities, specially, In Busan, the greatest education program has been set up twenty one classes during 2014~2016. This study surveyed 114 departments of 3 Agricultural Research & Extension Services and 75 Agricultural Technology Centers in 8 metropolitan cities, 9 provinces and 67 cities and counties, which implemented the consumer horticultural education programs in 2016. Twenty one agricultural extension service centers has started the consumer horticulture program undertaking for the first time in 2016. Experienced education program had been conducted to the facilities for the consumer horticulture programs in the agricultural extension service centers and training in the educational farm. Specially The Seoul Metropolitan Government had the largest educational training center in 53.136 m², with the largest educational farm in Gangwon-do province and the most popular crops were fruit. The research suggested that the consumer horticultural of educational practice and the short & long term of improvement efforts of latent educational curriculum. Agricultural Technology Centers had lands and facilities for exiting agricultural education and the environment to use nearby farms as education farms by establishing a network. Furthermore reconsidering is needed to improve the content, a systematic study of educational practice reformation plan to improve the quality of educational practice.

Keywords: educational farm plan experiment facilities, field laboratory, practical program

Introduction

Horticultural activities are the general activities of humans that develop social, educational, psychological and physical adaptability and pursue physical rehabilitation and mental recovery by doing a range of activities using plants (Jeong et al., 2014). With regards to the activities. Korean Horticultural Therapy Research Society was founded in November 1997 and the horticultural therapist license was issued for the first time in South Korea in 2000. Since the first issuance, 67 Koreans obtained the Horticultural Therapist Registered-Grade I and 719 Koreans earned the Horticultural Therapist Registered-Grade II as of February 2008 (Park, 2008). Six Koreans were certified as the Welfare Horticultural Therapist

This work was carried out with the support of "Cooperative Research Program for Agriculture Science & Technology Development (Project No. PJ0118922017)" Rural Development Administration, Republic of Korea.

Received: September 30, 2017, **Revised:** October 8, 2017, **Accepted:** October 18, 2017

*Corresponding author: hansgarden@korea.kr



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Supervisors, three Koreans earned the Welfare Horticultural Therapist Registered-Grade I, 220 Koreans acquired the Welfare Horticultural Therapist Registered-Grade II and 46 Koreans earned the Welfare Horticultural Therapist Registered-Grade III in February 2017. In August 2017, two Koreans were certified as the Welfare Horticultural Therapist Supervisors, four Koreans obtained the Welfare Horticultural Therapist Registered-Grade I, 156 Koreans earned the Welfare Horticultural Therapist Registered-Grade II and 41 Koreans received the Welfare Horticultural Therapist Registered-Grade III. Under the institution of the supervision system, the license grade system was reformed into Welfare Horticultural Therapist Supervisor, Welfare Horticultural Therapist Registered-Grade I, Welfare Horticultural Therapist Registered-Grade II and Welfare Horticultural Therapist Registered-Grade III in 2014. Every year, there are an increasing number of facilities adopting horticultural therapy in South Korea.

Since horticultural activities use five senses, they are much used in education as well as therapy. Some of the studies found that horticultural therapy and forest therapy for elderly with dementia, people with intellectual disabilities and infants and children started to be mainly researched from 2007 rather than living horticulture targeting adults or office workers (Baik and Eom, 2015; Kweon and Kwon, 2014). Since 2007, there have been studies on urban agriculture targeting communities in schools, public lands and apartment complexes in the form of school farm or community garden (Oh and Kim, 2014; Jang, 2013) and on therapeutic agriculture for all age groups including children, adolescents and adults (Kang and Kim, 2017).

To give farmers equal opportunities, 165 nationwide rural development agencies (provincial Agricultural Research & Extension Services and municipal and county Agricultural Technology Centers) have 4,320 agricultural extension workers. Among the agencies, 78 municipal and county agencies are enlightening people about agriculture and implementing the consumer horticultural education programs to expand the target for education into urban consumers and adolescents beyond farmers for popularization and universalization of agricultural technologies. Starting from the education about living horticulture in 2004, various educational programs have been operating ranging from horticultural therapy, urban agriculture and lately therapeutic agriculture. Each city and county is providing a wide variety of specialist courses about horticulture including farmer school, indoor and outdoor kitchen gardener, master gardener, urban agriculture professional and urban agriculture manager.

This study is aimed to be used as a basic resource for developing effective operation guidelines of educational programs by researching the educational courses related to consumer horticulture that have been operated by nationwide municipal and county agricultural technology centers and comparing the specialized programs and educational facilities of each region.

Research Methods

This study surveyed 114 departments of 3 Agricultural Research & Extension Services and 75 Agricultural Technology Centers in 8 metropolitan cities, 9 provinces and 67 cities and counties, which implemented the consumer horticultural education programs in 2016 (Fig. 1).

The questionnaire was composed of four categories of organization, education, program and facilities and 14 elements of department unit, number of press office, person in charge, finances, educational expenses, number of subject, period, number of curriculum, practice hours, number, form and scale of facility, number of persons to be admitted and annual use personnel. Based on this questionnaire, this study figured out the educational operation of the consumer horticultural education programs in metropolitan cities, cities and counties (Table 1).

The study analyzed the changes of the professional courses by year and region based on the operation of the consumer

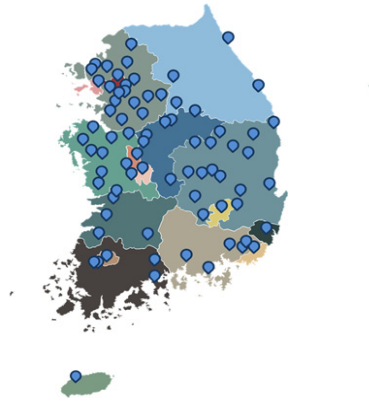


Figure 1. Research on the Korea Agricultural extension service for promoting consumer horticultural education.

Table 1. Consumer horticultural education survey component.

Diagnosis	Content
Organization	Department unit, No. of press office, in charge
Education	Finances, Educational expenses, No. of subject
Program	Period, No. of curriculum, Practice hours
Facilities	Facility No., Form, Scale, No. of persons to be admitted, Annual use personnel

horticultural education programs, practical training areas and budget changes of the Agricultural Technology Centers for three years between 2014 and 2016. It investigated the scale of practical training areas rather than education centers because the educational effects of gardening will double with practical training in addition to theory education.

Results and Consideration

Overview of Consumer Horticultural Education Programs by Region

The study analyzed the programs operated in the Agricultural Technology Centers and Agricultural Research & Extension Services in cities and counties across the country for about three years between 2014 and 2016.

The programs were steadily operated in most of the metropolitan cities during the period. In particular, Busan opened the largest number of educational programs including two programs in 2014, 11 in 2015 and 15 in 2016. In addition, 21 municipal and county Agricultural Technology Centers including Sokcho, Suwon and Chungju began to provide the consumer horticultural education programs for the first time in 2016.

In 2014, most of the educational programs were about living horticulture and urban agriculture in the form of agricultural universities. In 2015, the master gardener education programs were mainly provided as well as the professional courses including play garner license, urban farmer and urban agricultural leader, and the programs related to therapeutic agriculture were operated in the Gyeongbuk area. In 2016, the professional courses had been steadily operated from 2014 and 2015, mostly including the horticultural therapy courses for institutionalized children, people with intellectual disabilities and people with atopic dermatitis and the horticultural activities and school farm programs for elementary and middle school students (Table 2).

Aside from the Agricultural Technology Centers, any farms designated by Rural Development Administration across

Table 2. The local programs operating to the Agricultural extension service from 2016 to 2014.

Local	Period of years	Program	
Metropolitan city	Seoul	2014~2016	Home gardening (A), Urban farmer school (A)
		2014	Urban healing farm (A), Consumer horticulture (A)
		2015	Urban farmer beginner level (A), Home gardening (A), Gardening beginner course (A), Horticulture therapy program (A), Urban agriculture (A)
	Busan	2016	Urban agriculture (A), Gardening school I(A), Gardening in middle and high school (S), Children's garden (S), Kitchen garden (S), Agriculture job training for teachers (A), Urban gardening program (A), Urban farmer school (A) Return to rural class (A)
		2014~2016	Urban agriculture expert (A)
		2015~2016	Play gardening beginner course (A), Farming program (A), Master Gardener (A)
	Daejeon	2014~2016	Urban farmer school (A), Fruit trees bonsai (A), Urban consumer horticulture (A)
		2016	Gardening for improving learning ability (S)
		2014	Urban flower Gardening (A)
		2014~2015	Horticulture therapy program (A)
		2015~2016	Urban agriculture (A)
	Daegu	2014~2016	Urban agriculture expert (A), Experience of urban agriculture (A), Donation for education program (A)
		2016	Urban gardening program (A), Urban farmer school (A), Agriculture job training for teachers (A)
		2014	Urban farmer (A)
	Ulsan	2014~2016	Expert of chrysanthemum bonsai (A)
		2015~2016	Urban agriculture professional course (A), Urban agriculture tips (A)
		2014	Experience of school farmer (S)
	Gwangju	2015	Door to door gardening class (A)
		2015~2016	Master Gardener (A)
		2016	Urban farmer school (A), Agriculture job training for teachers (A)
	2014~2015	Urban agriculture beginner course (A), Integrated horticulture program (A)	
Incheon	2014~2016	Urban agriculture expert (A)	
	2016	Urban consumer horticulture (A), Agriculture job training for teachers (A)	
	2014	Experience of home gardening (A), Return to rural class (A)	
Sejong	2015~2016	Urban farmer class (A)	
	2016	Return to Rural class (A), Gardening for improving learning ability (S)	
Gangwon	Main center	2014~2016	Gardening for kids (S)
	Wonju	2014~2016	Horticulture therapy (A), Agricultural experiential activity (A)
	Sokcho	2014~	Weekend farming course (A)
	Samcheok	2016~	Urban agriculture (A)
	Hoengseong	2014~	Home gardening (A)

Table 2. The local programs operating to the Agricultural extension service from 2016 to 2014 (Continued).

Local	Period of years	Program	
Gyeonggi	2014~	Master Gardener (A)	
	2015	Master Gardener making Kimchi Project (A)	
	2016~	School farm program (S)	
	Suwon	2016~	Gardening for improving learning ability (S), Multiple cultures in farm (F), Vegetable garden (A), Urban agriculture (A), Home gardening & farm (A)
	Seongnam	2016~	Home gardening technical education (A), Urban farmer school (A)
	Goyang	2014~	Master Gardener (A), Environment-friendly of urban farming (A)
		2014~	Urban agriculture professional course (A), School farm (S)
	Yongin	2014~	Urban farmer school (A)
		2014	School farm program (A)
		2015	Home gardening in balcony (A), Urban gardening (A), City garden & gardening (A)
		2016~	Door to door horticulture class (A)
	Ansan	2014	Consumer horticulture & urban gardening (A)
		2015~	Master Gardener & urban gardening (A)
		2015	Wild flower & urban gardening (A)
		2016~	Apiculture & urban gardening (A)
	Anyang	2016~	Urban farmer school (A)
	Namyangju	2016~	Master Gardener (A), Urban agriculture (A)
	Uijeongbu	2016~	Door to door horticulture class (A), Master gardener (A), Master class of bonsai · horticulture therapist · florist (A)
	Pyeongtek	2014	Experience of urban school farm (S)
		2015~	School farming (S)
2015		Urban agriculture expert course (A)	
2016~		Therapeutic gardening in disability school (A), School gardening for teacher (A)	
Hwaseong	2014~	Urban farmer school (A), Community garden school (A), School gardening (S)	
	2014	Vegetable garden for senior (A), School farm (S)	
	2015	Elderly and children's gardening (A)	
	2016	Agro-healing for senior (A)	
Paju	2014	Urban agriculture (A)	
	2015	Pressed flower program (A)	
	2016~	Urban agriculture (A)	
Icheon	2016~	Curriculum for horticulture therapist (A), Horticulture therapy (A), Integrated operation for horticulture therapy program (A), Horticulture therapy in senior welfare service center (A), Horticulture therapy for resource room teacher (A)	
Anseong	2016~	Experience of children's farming (S), Experience of green thumb (S), Rural kids garden (S), Experience gardening for teenager (S), Horticultural therapy for positive discrimination Requiring protection kids, North korea refugee student, Intellectual disability kids, Three generation gardening (F), Therapeutic horticulture in group home (A), Community garden for main streaming education (S), Environmental material DIY (A)	

Table 2. The local programs operating to the Agricultural extension service from 2016 to 2014 (Continued).

Local	Period of years	Program	
Gyeonggi	2014	Home gardening (A), Curriculum for beginner of vegetable garden (A), Urban agriculture leaders (A)	
	Pocheon	2015~	Vegetable garden program (A), Master Gardener (A)
		2015	Home gardening (A)
	Yeoju	2016~	Urban agriculture (A), Door to door gardening class (S), Chrysanthemum bonsai (A)
		2014~2015	Urban agriculture (A)
	Gwacheon	2016~	Consumer horticulture (A)
		2014	Urban farmer leader class (A)
	Cheongju	2015~	Urban agriculture professional course (A)
		2014~2015	Urban agriculture (A)
		2015~	Urban agriculture professional course (A)
2016~		Urban agriculture (A), Home gardening (A)	
Chungbuk	2014	Gardening & green life (A)	
	2015~	Gardening activity (A)	
	Okcheon	2014~	Gardening activity (A)
	Yeongdong	2014~	Team project in garden (A)
		2015~	Item by item garden society (A)
	Jincheon	2016~	Consumer horticulture course (A)
		2016~	Chrysanthemum research society (A)
	Eumseong	2015~	Urban agriculture (A)
	Chungnam	2014	Urban agriculture (A), Vegetable Garden (A), Cultivation of flower (A)
		Cheonan	2015~
2015			Urban horticulture (A), Home gardening (A), vegetable garden (A)
Gongju		2016~	Children's plant observation experience (S), Urban horticulture (A), Consumer horticulture courses (A)
		2014	Experience of nature for citizen (A)
Boryeong		2016~	Agro-healing tourism (A)
		2014	Urban agriculture (A)
Seosan		2015~	Indoor gardening (A)
		2014	Home gardening (A), Urban agriculture (A)
Gyeryong		2014~2016	Hints on plant management (A)
	2016~	Urban farmer school (A), Ginseng potting cultivation in veranda (A)	
Dangjin	2014~2016	chrysanthemum growing (A), Wild flower growing (A)	
	2014	Urban agriculture (A), Consumers agriculture class (A), Life gardening experience education (A)	
	2016~	Rural vocational education for elementary and secondary teachers (A)	

Table 2. The local programs operating to the Agricultural extension service from 2016 to 2014 (Continued).

Local	Period of years	Program	
Chungnam	2014~2016	Chrysanthemum growing (A)	
	Buyeo	2015	Pressed flower program (A)
		2015~	Home gardening (A)
	Seocheon	2016~	School farm (S)
		2014	Horticulture activities (A), Agro-healing (A), chrysanthemum growing (A), Landscaping trees growing (A), School farm (A)
	Hongseong	2015	Bonsai education (A), Urban residents gardening (A)
		2016~	Agro-healing (A), gardening (A), School farm (S), Pressed flower program (A), Wild flower growing (A), Horticulture therapy program (A)
		2014~2015	Chrysanthemum bonsai (A), Wild flower (A)
	Yesan	2014	Flower arrangement (A), Home gardening (A)
		2016~	Chrysanthemum bonsai (A), Urban agriculture (A)
Gyeongbuk	2014~2016	An exhibition of wildflower in Pohang (A)	
	Pohang	2014	Home gardening (A), Agro-healing training (A)
		2014~2015	Urban agriculture (A)
		2016~	Return to Rural class (A)
	Gimcheon	2015	Agro-healing activity (A)
	Andong	2014	Curriculum for Horticulture therapist (A)
		2015	Chrysanthemum growing (A)
		2014	Home gardening (A)
	Yeongju	2015~	Agro-healing activity for children (S)
		2015	Agro-healing activity (A)
		2016~	Home Gardening for improve learning ability (S), Course experience report of middle school 2016 (S)
	Yeongcheon	2014	Home gardening (A)
	Sangju	2015~	Master Gardener (A)
	Gyeongsan	2014~	Home Gardening (A)
	Gunwi	2014	Home Gardening (A)
		2015	Agro-healing activity (A)
	Cheongsong	2014	Home Gardening (A)
		2015	Agro-healing education and tour (A)
	Yeongyang	2015	Agro-healing activity (A)
		2016~	Flower technical training (A)
Goryeong	2015	Home gardening (A)	
Seongju	2014~	Bonsai education (A)	
	2014, 2016~	Flower cultivation program (A)	

Table 2. The local programs operating to the Agricultural extension service from 2016 to 2014 (Continued).

Local	Period of years	Program	
Gyeongbuk	2014~	Horticulture therapy for disabled person (A)	
	2014	Horticulture therapy for multi-cultural family (F)	
	Chilgok	2014, 2016~	Horticulture therapy for schoolchild (S)
		2015~	Vegetable garden for senior (A)
	2015	A Horticulture therapy for multi-cultural (F), Horticulture therapy (A)	
	2016	Horticulture therapy (A), School farm (S)	
	Yecheon	2014~2015	Chrysanthemum and wild flower growing (A)
		2015~	Wild flower (A)
	Uljin	2014	Home gardening (A)
		2014~2015	Benchmark a gardening course (A)
		2015	Chrysanthemum growing (A), Gyeongsangbuk-do flower exposition tour and education (A)
		2014, 2016~	Gyeongsangbuk-do flower exposition education (A)
	Agriculture Research Service	2016~	Horticulture therapy Univ. (S)
	Changwon	2014~2015	Urban farmer school (A)
Tongyeong	2014	Urban horticulture (A)	
	2015	Urban farmer school (A)	
Sacheon	2014	Urban farmer school (A), Gardening (A)	
	2016~	Urban agriculture	
Gyeongnam	2014~	A gardening class with parents (F), A gardening class for multi-cultural kids (S), Urban agriculture professional course (A), Urban farmer (A)	
	2014	Urban agriculture professional course (A)	
	Gimhae	2014~2015	Home gardening (A)
		2015	Child garden (S), School farm (S)
		2015~	Master Gardener (A)
	2016	Vegetable garden in kindergarten (S)	
	Yangsan	2014~	Urban farmer school (A)
		2016~	Gardening for kids (S)
	Jeonju	2016~	Gardening for improve learning ability (S), Urban agriculture professional course (A)
	Jeonbuk	Iksan	2016~
Jeongeup		2014	Medicinal crops class (A)
		2015~	Wild plants class (A)
Namwon		2016~	Chrysanthemum bonsai (A)
Gochang		2016~	Agro-healing course (A)

Table 2. The local programs operating to the Agricultural extension service from 2016 to 2014 (Continued).

Local	Period of years	Program	
Jeonnam	Agriculture Research Service	2015~ Urban agriculture professional course (A)	
		2014~2016 Home gardening (A), Gardening for silver generation (A)	
	Yeosu	2014	Family gardening activities in summer (F)
		2015~	A gardening class with parents (F)
	Suncheon	2014	Urban farmer school (A), Urban agriculture professional course (A), Children's natural school (S)
		2015	ecological school of agriculture (S)
		2016~	Master Gardener (A), Urban agriculture professional course (A), Farmer school for children (S)
Naju	2016~	A garden box (A)	
	2014~2016	Urban agriculture (A)	
	2014~2015	Master Gardener (A)	
Jeju	2016~	School farm (S)	

(A) A curriculum for adult (S) A curriculum for student (F) A curriculum for family

the country can participate in the education programs in operation with various crops and themes. Approximately 16 times more agricultural educational farms were distributed in cities and counties than in metropolitan cities.

Total 557 educational farms were distributed on 12 crops including food, fruit trees, vegetables, flowers, mushrooms and herbs and insects. Among them, Gangwon Province had 70 educational farms, which was the highest number, followed by Gyeongnam with 69 farms, Gyeongbuk with 63 farms and Chungnam with 62 farms.

The most popular crops in 557 farms were fruit trees, which were mainly grown in 105 farms, followed by vegetables in 76 farms and flowers in 64 farms.

According to the review of the number and operation time of the consumer horticultural education programs by year in cities and counties nationwide for about three years between 2014 and 2016, the number and operation hour almost doubled in 2016 from 2015. Busan metropolitan city expanded its consumer horticultural programs compared to other cities and counties as agricultural education in the city increased by 2.2 times in 2015 from 2014. Gwangju had continued to increase the number of programs since 2014 and Jeju had provided the consumer horticultural educational programs from 2015 (Fig. 2). The number of the consumer horticultural education programs had steadily increased in eleven regions including Busan, Pyeongtaek and Chilgok. Gyeonggi Province, where new projects were launched in eight cities including Suwon and Seongnam in 2016, provided 3.6 times more educational programs for 2.7 times more hours, which turned out to be the biggest change (Fig. 3). The Gangwon area with less population than other cities and counties had been actively operating the consumer horticultural education programs based on Wonju, in which the provincial government was located. Samcheok had been steadily operating the educational programs in the Agricultural Research & Extension Services and four regions under its newly launched project in 2016 (Fig. 4). The Jeolla area provided a lower number of educational courses related to the consumer horticultural education programs than other regions with only 3 programs in 2014, but was quickly expanding the programs by starting new projects in four regions including the Agricultural Research & Extension Services in 2015 and additional five regions in 2016 (Fig. 5). The Chungcheong area had operated

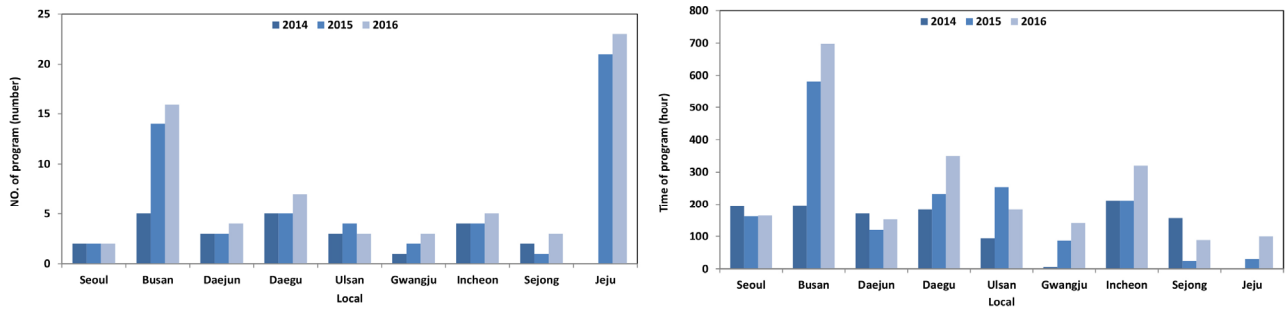


Figure 2. The number and time of consumer horticultural education programs in Metropolitan cities from 2014 to 2016.

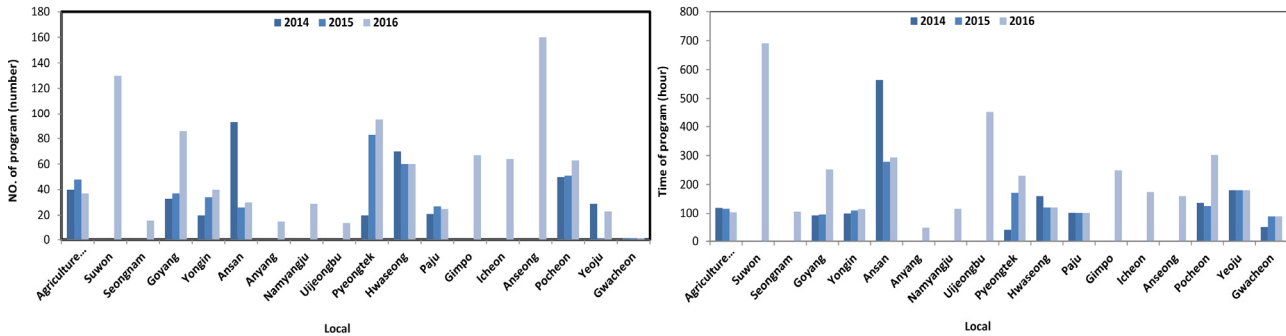


Figure 3. The number and time of consumer horticultural education programs in Gyeonggi from 2014 to 2016.

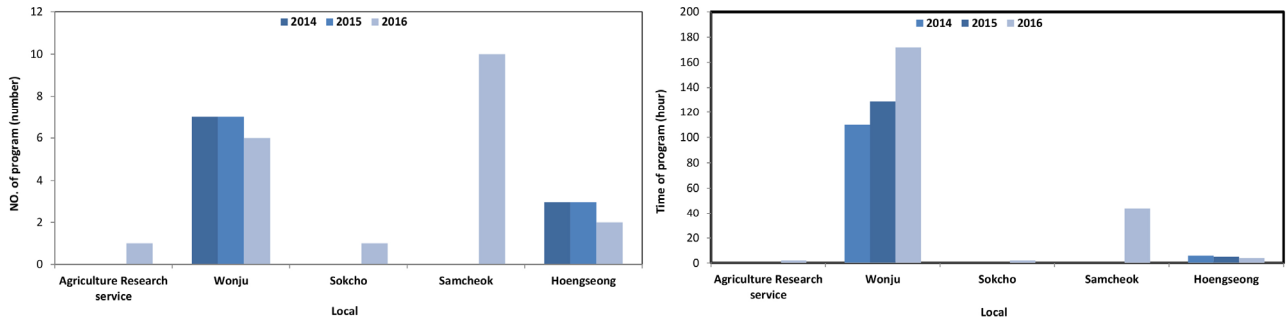


Figure 4. The number and time of consumer horticultural education programs in Gangwon from 2014 to 2016.

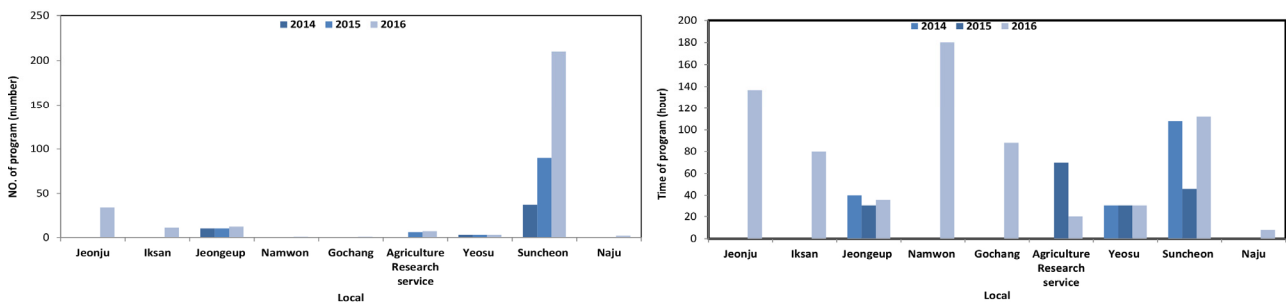


Figure 5. The number and time of consumer horticultural education programs in Jeolla 2014 to 2016.

the consumer horticultural education programs based on Cheongju. Three regions including Chungju started the new projects in 2016 and the programs were fast expanding to Gongju and Yesan, which experienced the movement of population due to the relocation of the Chungnam provincial government building (Fig. 6). Gyeongsang Province had increased support for the programs in three areas including Yeongju and the number of the consumer horticultural

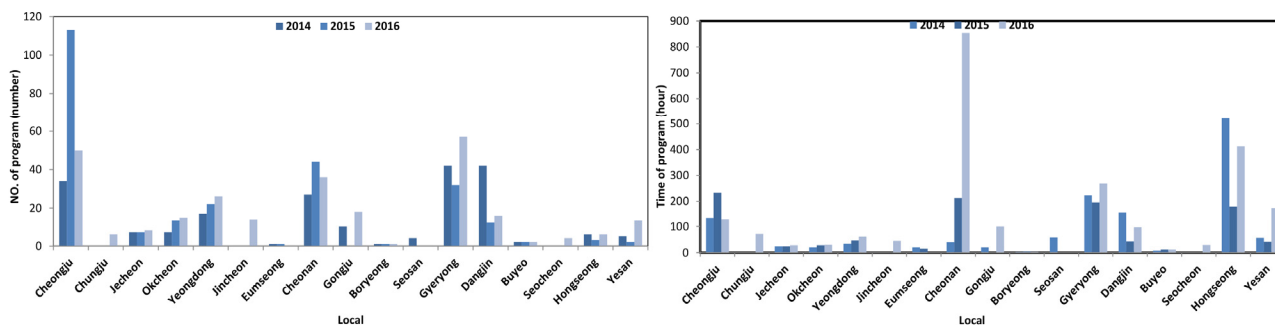


Figure 6. The number and time of consumer horticultural education programs in Chungcheong from 2014 to 2016.

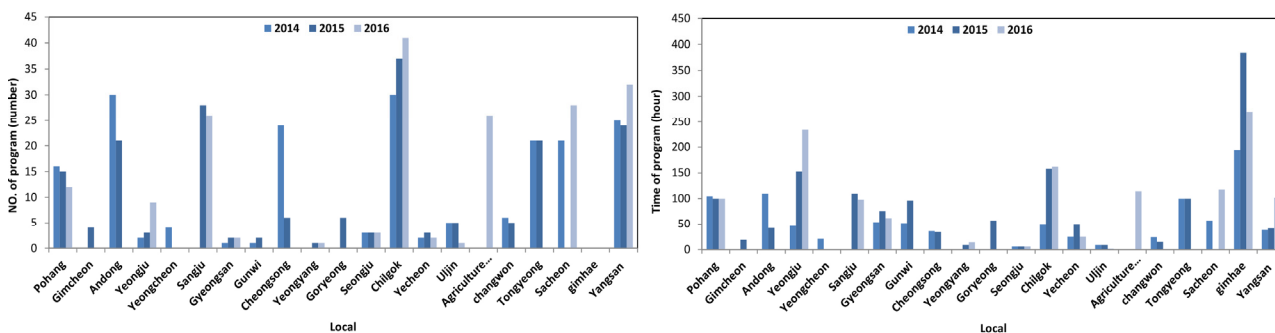


Figure 7. The number and time of consumer horticultural education programs in Gyeongsang from 2014 to 2016.

education programs had been on the decline in six regions with a decreasing population. Gyeongnam Agricultural Research & Extension Services in Changwon started a large scale new program in 2016 (Fig. 7).

Overview of the Organization and Facility of the Consumer Horticultural Education Programs by Region

The following is the organization and overview of the consumer horticultural education programs in Agricultural Technology Centers in metropolitan cities, cities and counties across the country in 2016. The programs were operated by 134 workers in 114 departments of 78 Agricultural Technology Centers (Table 3).

The educational effects can double when practical education is provided along with theory education in the consumer horticultural education programs. As an example of work-oriented education, learning on plants is not enough by only observing the plants but can be completed with first-hand experiences of students. It is possible to increase the awareness of students of the learning content through work-oriented education such as seeding and fertilizing plants, keeps body healthy, learn the preciousness of life by cultivating the plants with affection that students personally planted and provide

Table 3. The numbers of departments and specialists to operate the consumer horticultural programs at agricultural extension service centers in cities or provinces.

	Seoul	Busan	Daejeon	Daegu	Ulsan	Gwangju	Incheon	Sejong	
The No. of department	2	2	1	2	1	1	1	1	
Head count	9	10	1	4	3	3	3	1.5	
	Gangwon	Gyeonggi	Chungbuk	Chungnam	Gyeongbuk	Gyeongnam	Jeonbuk	Jeonnam	Jeju
The No. of department	4	28	11	11	19	17	5	5	3
Head count	1.7	39.5	8	17	14.4	4.8	5	6.1	3

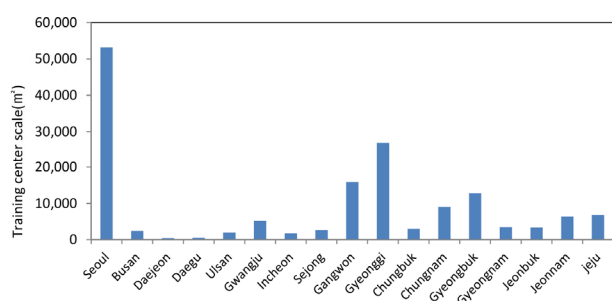


Figure 8. The national educational training center scale

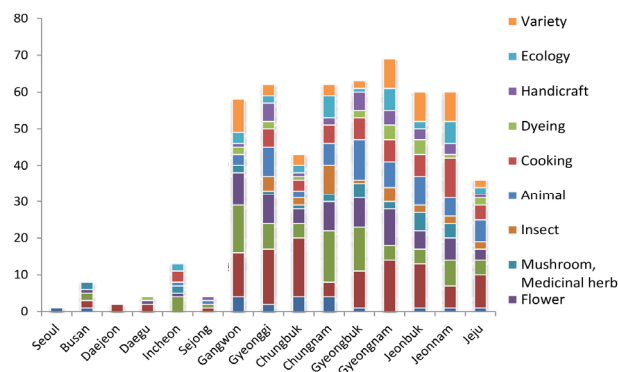


Figure 9. Classification of curriculum by thematic education farms

an opportunity to take interests in the nature, all of which help students's holistic development (Park, 2002).

Municipal and county Agricultural Technology Centers had an advantage over private centers as they had experimental fields and management facilities. The analysis results of the scale of the practical training areas were as shown in Fig. 8 and the overview of the farms designated by Rural Development Administration where various educational programs were provided was indicated in Fig. 9.

In terms of the scale, Seoul Agricultural Technology Center with the highest number of consumers had five practical training areas sized 53,136 m² in total including the nature exploration area, followed by Gyeonggi (56,888 m²), Gangwon (15,884 m²) and Gyeongbuk (12,781 m²). Among the regions with more than five practical training areas, Dangjin had the largest number of practical training areas, which was seven, but in a smaller size of 4,584 m², followed by Yeongju with six training areas, Yangsan with five areas and Suwon, Yeosu and Suncheon with four areas. Each practical training area was in different sizes but the average size was 1,306 m² per training area. By considering the number of allowed students at a time, it is identified that the educational effects can be improved by expanding the size of the practical training areas to 1,000 m² depending on the themes (Fig. 8).

Approximately 16 times more agricultural education farms were distributed in cities and counties than metropolitan cities. All over the nation, 557 education farms were distributed for 12 crops including food, fruit trees, vegetables, flowers, mushrooms and herbs and insects. Among them, Gangwon Province had the highest number of education farms, which was 70, followed by Gyeongnam with 69 farms, Gyeongbuk with 63 farms and Chungnam with 62 farms. The most popular crops in 557 education farms were fruit trees. The number of fruit tree farms was 105, followed by 76 vegetable farms and 64 flower farms (Fig. 9).

Conclusion

The analysis results of the overview of the consumer horticultural education programs in operation for the urban residents by each municipal and county Agricultural Technology Center are as follows:

There was the biggest change in the programs in 2016 compared to 2014 as 33 cities and counties started new projects. The education targets were diversified with the programs for developing the personality of elementary and middle school students in 2015 and 2016 from the lifelong education programs for adults in 2014, mostly in metropolitan cities.

In terms of the educational facilities, practical education was provided in the in-house facilities of nationwide Agricultural Technology Centers and nearby education farms. Seoul metropolitan city had the largest scale of practical

training areas in the center sized 53.136 m² in total and Gangwon Province had the highest number of education farms of 70. The crops with the highest educational availability were fruit trees.

The agricultural extension services, which was started in 1962 to provide lifelong education for farmers, was fast expanding into the consumer horticultural education programs in each regional Agricultural Technology Centers under the specialized programs by region as the society entered the local government system in the 1990s. Agricultural Technology Centers had lands and facilities for exiting agricultural education and the environment to use nearby farms as education farms by establishing a network. Based on the environment, they can be the hub of setting up the culture to connect farmers and urban residents through work-oriented education that not only provides agricultural knowledge to consumers but also develop their personality and sociality. It is considered that various specialized educational programs by region will be developed and used as key resources to improve the quality of education.

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