2014 FFTC-RDA
International Seminar on
Enhanced Entry of Young Generation
into Farming

Jeonju, Korea
October 21-23, 2014

Food and Fertilizer Technology Center
for the Asian and Pacific Region
Rural Development Administration
Mr. Yang-Ho Lee, Administrator of RDA, officers and staff of RDA, seminar participants from various countries of Asia and the Pacific, colleagues, friends, ladies and gentlemen, a pleasant good morning to all of you.

Last year, when we were planning our activities for 2014, we were certainly sure that we wanted to tackle the entry of our young generation into farming in our list of topics for the year. We’ve always held the belief that we may have the right technologies, the appropriate market and the right formula to improve productivity in crop or animal production—but if we don’t have enough young generation of farmers to carry out all these activities, then agriculture will just be an empty and hallow void.

In the world of global food production, the issue of ageing farmers is often less talked about. So much so that this has become a serious demographic challenge. Aging populations of over 65 years old are in farming and increasing all over the world. This leads to a decrease in agricultural productivity especially since fewer younger people prefer to stay and work in the urban areas. This international seminar hopes to discuss the issues and try to find comprehensive ways to enhance the entry of our young generation into farming especially in this era of free trade.

We have therefore invited experts from different countries to shed light on this topic, in the hope that the papers written and presented would raise new ideas, contribute to the buildup of knowledge and inspire and motivate policymakers to address the bottlenecks that hinder our young generation to shift into farming.

In this international seminar, we expect to propose viable programs and policies to enhance the entry of young generation into farming under the pressure of Free Trade Agreements. At the same time, we are also expecting the development of a common
networking platform for sharing and exchanging relevant strategies and policy on enhancing the entry of our young generation into farming.

On behalf of the staff and management of FFTC, I would therefore like to formally open this international seminar and welcome all of you. I’d also like to thank our FFTC agri-economist, Dr. Chan-Ik Chun, for organizing this seminar. At the same time, I’d also like to sincerely thank our friends and partners from RDA, who through the years, have always supported us in our activities and projects.

I wish you all a fruitful, productive and successful seminar and may we all enjoy our brief visit to Korea!
Welcome Address

Yang-Ho Lee  
Administrator, RDA

Dr. Yu-Tsai Huang, Honorable Director of the Food and Fertilizer Technology Center for the Asian and Pacific Region (FFTC/ASPAC) and our distinguished keynote speakers, ladies and gentlemen! A pleasant day to all of you!

On behalf of all the officers and staff of the Rural Development Administration (RDA), I warmly welcome all of you to the international seminar on "Enhanced Entry of Young Generation into Farming" which is jointly hosted by the FFTC and RDA.

Since 1972, RDA and FFTC have held many seminars and workshops for agricultural development in the Asian and Pacific regions. Notably, FFTC has greatly contributed to spreading advanced agricultural technology to farms in various fields aiming for agricultural productivity and rural development in the Asian and Pacific region.

The current number of farms in Korea is approximately 2.85 million, which accounts only for 5.7% and on a steady decline every year. This is due to aging population and retirement of farmers, young generation’s unfavorable perception of agriculture. The farmers of 60 or over account for about 48% of the whole farming labor force. As a result, farm succession by the next generation has become a critical issue in Korean agriculture sector.

In addition, in this era of open markets with more FTAs, we need to reinvigorate the agriculture by securing the young labor force who is professionally educated in order to overcome the external force and wave height and further industrialize agriculture.
I am aware that the same caveat applies to many countries in Asia Pacific whose representatives are attending this seminar. In light of this critical issue that we share, this international seminar is very timely and significant for co-prosperity and further development of agriculture in the countries of Asia Pacific.

I hope this seminar will serve as a venue for us to closely examine the current status in the participating countries and come up with wise counter measures through profound discussion.

Although the seminar will last only for three days, I hope that this will be an opportune time for us to share and learn from each country’s experiences and build a firm network with one another.

Finally, I’d like to express my sincere appreciation to FFTC and RDA staff for their efforts in preparing for this very important activity.

Distinguished guests and keynote speakers, let me welcome you once again and I wish you a pleasant and fruitful stay here in Korea.

Thank you very much!
Program

2014 FFTC-RDA International Seminar on “Enhanced Entry of Young Generation into Farming”
to be held in RDA, Jeonju, Republic of Korea, 21-23 October 2014.

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</tr>
<tr>
<td>Stay at Best Western Gunsan Hotel (Tel: +82-63-469-1234, <a href="http://www.gunsanhotel.co.kr/eng">http://www.gunsanhotel.co.kr/eng</a>)</td>
</tr>
<tr>
<td>(435 Saemangeumbuk-ro, Gunsan-si, Jeollabuk-do 573-540, Korea)</td>
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<td><strong>Introduction of Participants &amp; Group Photograph</strong></td>
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<td>Dr. Onanong Tapanapuntitkul, Dean, Kasetsart University, Thailand</td>
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<td><strong>16:40-17:20</strong></td>
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<td>Dr. Jeong-Im HWANG, Researcher, RDA, Korea</td>
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<td><strong>18:00-20:00</strong></td>
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October 22, 2014 (Wednesday)

Session II-1  Country Papers  Moderator: Dr. Onanong Tapanapunnitikul

09:30-10:10  Attracting the Young Generation to Engage in Agriculture  
Dr. Sri Hery SUSILOWATI, Deputy Director of ICASEPS, Ministry of Agriculture, Indonesia

10:10-10:50  Development of Young Agropreneur in Malaysia  
Dr. Mohamad Kamal ABDUL KADIR, Deputy Director of MARDI, Malaysia

10:50-11:10  Tea/Coffee Break

Session II-2  Country Papers  Moderator: Dr. Bui Quang Dang

11:10-11:50  Building Farmers’ Assets and Investing in the Out-of-School Youths (OSY) for Rural Development  
Dr. Asterio P. SALIOT, Director of Agricultural Training Institute, Dept. of Agriculture, Philippines

11:50-13:00  Lunch Break

13:00-13:40  How to Encourage Young Generation to Engage in Farming : Korea’s Case  
Dr. Sang-jin MA, Research Fellow of Korea Rural Economic Institute

13:40-14:20  One-stop Service for Young Farmer in Taiwan  
Mr. Kun-Fong Kuo, Senior Specialist and Chief, COA, Taiwan ROC

Session II-3  General Discussion  Moderator: Mr. Jong-Seok Seo and Dr. Shunsuke Yanagimura

14:20-15:20  Wrap-up of the Seminar and Recommendations

15:20-15:35  Introduction of RDA

15:35-15:45  Introduction of FFTC

15:45-16:05  Introduction of AP Project of FFTC

16:15-17:00  Travel to Jeonju downtown

17:00-18:00  Visit Jeonju Hanok Village

18:00-20:00  Appreciation Dinner hosted by Dr. Yu-Tsai Huang, Director of FFTC

October 23, 2014 (Thursday) - Field Trip

07:40-08:40  Visit Saemanguem (World largest reclaimed land)

08:40-12:00  Travel to Suwon near Seoul

12:00-13:00  Lunch

13:00-14:00  Visit to Korea National College of Agriculture and Fisheries (KNCAF)

14:00-14:30  Travel to Farm

14:30-15:30  Farm visit to an agricultural successor who graduated from KNCAF

15:30-16:00  Return to Seoul

16:00-18:00  Shopping

18:30-20:30  Dinner  
Stay at Vabien Suites II (25-10 Uijuro 1-ga, Jung-gu, Seoul 100-141, Korea)  
http://www.vabien2.com/, Tel: +82-2-6399-0113~4, Fax: +82-2-6399-1000

October 24, 2014 (Friday)

Departure of Overseas Participants
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Recent Trends in Young People's Entry into Farming in Japan: An International Perspective

Dr. Tomohiro UCHIYAMA*1

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1 Associate Professor, Graduate School of Bioresources
Mie University, Tsu, Mie 514-8507, Japan
Tel: +81-59-2319640
Email: uchiyama@bio.mie-u.ac.jp
Recent Trends in Young People’s Entry into Farming in Japan: 
An International Perspective

Abstract
Agriculture industry in Japan has shrunk for a long time. This paper examines the recent trend of the agriculture sector, latest statistics on farm entry and succession, unique characteristics of farm succession process, and policy measures to encourage young people into farming in Japan. The paper also shows the international comparison of farm succession patterns and interesting programs between the UK and USA. The paper confirms that the ageing of the farmers and the decline of young people are commonly observed among developed countries.

Keywords: New entry, farm succession, new employees, policy measures

1. Introduction
The characteristics of agriculture in Japan are perhaps more unusual than most other countries in the developed world. To understand the trends in Japanese farming, therefore, requires a degree of contextual background detail. Three key influences have been responsible for shaping contemporary farming in Japan - industrial development (competition for labor), changing domestic diets (reduction in demand for domestic food supplies) and an increasingly ageing population.

This paper provides the basic information of agriculture, and recent trends of farm succession and new entry into farming in Japan, with the comparative viewpoints of other developed countries, such as the UK and the USA. The details can be found at Uchiyama and Whitehead 2013.

2. Agricultural Shrinkage in Japan
From 1960 to 2010, the area farmed declined by 24 percent, the number of farm households decreased by 58 percent and the share of the population in farm households also declined to 5.4 percent of the population (Table 1). As mentioned above, farms have sought off-farm income, with the share of full time farm households dropping from 34 to 17 percent. If a husband farms on a full-time basis and his wife is employed outside the farm, the farm household would be classified as a ‘part-time farm’ as the household income comes not only from farming but also from non-farm job. In addition to this, the size of the agricultural labour market has shrunk from 14 million in 1960 to 2.6 million in 2010.
Table 1. Trends in agriculture in Japan (1960-2010)

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<tr>
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<tbody>
<tr>
<td>Total population (million)</td>
<td>94</td>
<td>105</td>
<td>117</td>
<td>124</td>
<td>127</td>
<td>128</td>
</tr>
<tr>
<td>Farm household population (million)</td>
<td>34</td>
<td>27</td>
<td>21</td>
<td>17</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Share of population in farm households %</td>
<td>36.2</td>
<td>25.7</td>
<td>17.9</td>
<td>13.7</td>
<td>7.9</td>
<td>5.4</td>
</tr>
<tr>
<td>Farm households (‘000)</td>
<td>6,057</td>
<td>5,342</td>
<td>4,661</td>
<td>3,835</td>
<td>3,120</td>
<td>2,528</td>
</tr>
<tr>
<td>Share of full-time farm households %</td>
<td>34.3</td>
<td>15.6</td>
<td>13.4</td>
<td>12.3</td>
<td>13.7</td>
<td>17.9</td>
</tr>
<tr>
<td>Agricultural labors (‘000)</td>
<td>14,542</td>
<td>10,252</td>
<td>6,973</td>
<td>4,819</td>
<td>3,891</td>
<td>2,606</td>
</tr>
<tr>
<td>Farmland (‘000 ha)</td>
<td>6,071</td>
<td>5,796</td>
<td>5,461</td>
<td>5,243</td>
<td>4,830</td>
<td>4,593</td>
</tr>
<tr>
<td>Share of agriculture for GDP %</td>
<td>8.6</td>
<td>4.4</td>
<td>2.5</td>
<td>1.7</td>
<td>1.1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*Source: JMAFF statistics

To make the situation worse, total food supply in Japan started to decline from the mid-2000s, largely because of an ageing society - a national issue in Japan, but with specific repercussions in the agricultural sector (Figure 1). In 2010, more than half of the agricultural workers were 65 years or older.

![Fig. 1. Trends in age of agricultural labor in Japan](image)

In terms of consideration of young farmers, perhaps the most significant figure is the very small mean size of farm units in Japan, increasing steadily since 1960, but by 2010 it is still less than two hectares (Table 2). Farmland Reform after World War II provides the main reason for such small farm sizes in Japan. Farmers were permitted to own farmland up to one hectare, and were also prohibited from renting any additional farmland. As a result, many tiny holdings were ‘born’ in Japan. Such size restrictions or lease prohibition no longer exist, but the Reform seems to have had a lasting effect on the ways in which farmers’
value farmland – a move from land ‘for agricultural production’ to land as ‘property holding’.

Table 2. Farm economics in Japan

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</thead>
<tbody>
<tr>
<td>Average farm size (ha)</td>
<td>0.98</td>
<td>1.09</td>
<td>1.18</td>
<td>1.33</td>
<td>1.79</td>
<td>2.30</td>
</tr>
<tr>
<td>Income from farming ('000JPY)</td>
<td>219</td>
<td>508</td>
<td>952</td>
<td>1,163</td>
<td>1,085</td>
<td>1,196</td>
</tr>
<tr>
<td>Income from non-farming ('000JPY)</td>
<td>192</td>
<td>885</td>
<td>3,563</td>
<td>5,438</td>
<td>4,975</td>
<td>1,610</td>
</tr>
<tr>
<td>Farm household income ('000JPY)</td>
<td>411</td>
<td>1,393</td>
<td>4,515</td>
<td>6,601</td>
<td>6,060</td>
<td>2,806</td>
</tr>
<tr>
<td>Pension receipt ('000JPY)</td>
<td>32</td>
<td>199</td>
<td>1,079</td>
<td>1,797</td>
<td>2,221</td>
<td>1,825</td>
</tr>
<tr>
<td>Gross farm household income ('000JPY)</td>
<td>443</td>
<td>1,592</td>
<td>5,594</td>
<td>8,398</td>
<td>8,281</td>
<td>4,633</td>
</tr>
<tr>
<td>Share of income from farming (%)</td>
<td>49.5</td>
<td>31.9</td>
<td>17.0</td>
<td>13.8</td>
<td>13.1</td>
<td>26.2</td>
</tr>
</tbody>
</table>

*Source: JMAFF statistics*

However, an increasing number of farmers are quitting, or decreasing their farm size, and few are willing to rent or buy the farmland released. The land becomes a ‘weeds paradise’, causing neighbouring farmlands to degenerate as well. Japan’s Ministry of Land, Infrastructure, Transport and Tourism (JMLIT) reported in 2007 that 412 rural settlements would disappear within 10 years, with another 2,219 possibly disappearing after another 10 years (JMLIT 2007). This trend is confirmed by JMAFF estimates (2010) that 386,000 ha of farmland have been abandoned.

This section has endeavoured to provide a summary review of farming in Japan, highlighting contemporary pressures and practices, an essential context in which to set the consideration of young farmers in this country. Farming in Japan is unique in many ways, and this has an impact on the importance attached to and the practice of farm succession and new entry into farming.

3. Trends of New Entry into Farming in Japan

The previous section has identified a number of major differences in the characteristics of farming in Japan, critical to the clear appreciation of succession issues in this country. Focusing now on the issue of new entrants into farming, JMAFF began to maintain statistics from 2006 onwards (Table 3). Perhaps not surprisingly, from what has been said before, the overall picture is one of reducing entry, or re-entry into farming, a substantial drop over the six years. ‘Back to home farm’ means the people who come back to their home farm from non-farming jobs - farmers’ children or retired people. ‘New employees’ are those who are employed by farm businesses for farm work. ‘Create new farm’ are those who begin their own farm business but do not succeed to any farmland by kinship. It is observed that the ‘back to home farm’ is the largest group, although declining in number in the recent years.
With fewer individuals returning to the farm or starting up, it is not surprising, that the number of ‘new employees’ has risen. New start-ups, or ‘Create new farm’, are noticeably smaller in number, largely due to constraints on acquiring farmland since they have to obtain permission from both landowners and an agricultural committee in the area, which is usually not easy. The reason why the number of “create new farms” jumped up in 2012 was probably the instalment of the government program, which will be mentioned later.

Table 3. New entrants into farming in Japan

<table>
<thead>
<tr>
<th>Person</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back to home farms</td>
<td>72,350</td>
<td>64,420</td>
<td>49,640</td>
<td>57,400</td>
<td>44,800</td>
<td>47,100</td>
<td>44,980</td>
</tr>
<tr>
<td>New employees in farm businesses</td>
<td>6,510</td>
<td>7,290</td>
<td>8,400</td>
<td>7,570</td>
<td>8,040</td>
<td>8,920</td>
<td>8,500</td>
</tr>
<tr>
<td>Create new farms</td>
<td>2,180</td>
<td>1,750</td>
<td>1,960</td>
<td>1,850</td>
<td>1,730</td>
<td>2,100</td>
<td>3,020</td>
</tr>
<tr>
<td>Total</td>
<td>81,040</td>
<td>73,460</td>
<td>60,000</td>
<td>66,820</td>
<td>54,570</td>
<td>58,120</td>
<td>56,500</td>
</tr>
</tbody>
</table>

* Source: JMAFF statistics

Table 4 clarifies the situation further by showing this same data classified by age. From this it is clear that most ‘new entrants’ are 60 years old or older, and their main method of entry is ‘back to home farm’. This reflects the fact that the recent ‘new entrants’ are usually not young farmers, but people who retire from non-farming jobs to begin farming by using their home farmland; hence, the Japanese trend to ‘retire to farming’. On the other hand, younger people (39 years old or less) tend to be hired by farm businesses or those returning to home farms. The movement of older people into farming can partly be explained by the ‘baby boomer’ cohort. People born in the late 1940s reach their retirement age (60 years old in Japan) in the late 2000s.

Table 4. New entrants into farming in Japan (2012)

<table>
<thead>
<tr>
<th></th>
<th>39 years old or younger</th>
<th>40-59 years old</th>
<th>60 years old or older</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back to home farms</td>
<td>8,160</td>
<td>8,720</td>
<td>28,100</td>
<td>44,980</td>
</tr>
<tr>
<td>New employees in farm businesses</td>
<td>5,330</td>
<td>2,410</td>
<td>760</td>
<td>8,500</td>
</tr>
<tr>
<td>Create new farms</td>
<td>1,540</td>
<td>960</td>
<td>520</td>
<td>3,020</td>
</tr>
<tr>
<td>Total</td>
<td>15030</td>
<td>12,090</td>
<td>29,380</td>
<td>56,500</td>
</tr>
</tbody>
</table>

* Source: JMAFF statistics
4. Characteristics of Farm Succession in Japan

To reveal further unique characteristics of farm succession in Japan, the FARMTRANSFERS results are shown in this section. Japan’s survey was carried out in 2001 (Table 5). The details of the results can been seen at Uchiyama, et. al (2008).

Table 5. Farm succession data on Japan: Respondents’ Profiles

<table>
<thead>
<tr>
<th></th>
<th>Farm size (ha)</th>
<th>Respondent’s age</th>
<th>Successor’s age</th>
<th>Number of full-time labours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4.9</td>
<td>57.1</td>
<td>31.5</td>
<td>2.6</td>
</tr>
<tr>
<td>N</td>
<td>4,108</td>
<td>4,136</td>
<td>1,848</td>
<td>4,351</td>
</tr>
<tr>
<td>Std. deviation</td>
<td>12.8</td>
<td>10.7</td>
<td>10.5</td>
<td>1.4</td>
</tr>
</tbody>
</table>

* Source: FARMTRANSFERS

The respondent profiles confirm the foregoing contextual discussion, that is, farms are small, relative to those of many other countries in the developed world, although, in common with the latter, they are run by managers in their late 50’s, with assistance from a number of full time staff.

4.1 Identification of a Successor

Clearly, one of the first stages of the succession process involves the identification of a successor. The proportion of respondents in the FARMTRANSFERS study who had already identified a successor is higher in Japan than many other countries at 49.8 percent. For those who indicated that this was the case, the mean age of the successor identified was 31 years old (Table 5). The likelihood of having identified a successor is in part a function of the age of the farmer, which varies considerably between countries.

Accepting the trends as the expected norm, it is noticeable that Japan presents a pattern of earlier successor identification than other countries in the survey (Figure 2). This is most probably because of low farm incomes, Japanese farmers now tend to value farmland more for its potential development value, and less as a means of production. Successors therefore inherit the land with the expectation of realising huge capital returns. The succession is perhaps less dependent on a successor who is interested in farming and the decision is, therefore straightforward. In the meantime, property taxation is lower if the land is farmed, presumably, for cultural reasons.
4.2 Farmers’ Retirement Plans

Again, perhaps not surprisingly, farmers in Japan appear as the least likely to retire, with 44.5 percent indicating that they would never retire. Farming life in most, if not all countries, is characterised by the almost inseparable integration of work and home (Table 6). For Japan, this is quite clearly extreme, with very few farmers indicating that they will fully retire, eventually.

The fact that many people become involved in farming after enforced retirement from off-farm jobs, together with a particular virtue known as ‘Shogai-Gen-eki’ (a tendency for the Japanese, in general, to keep working as long as possible) may explain why such a large proportion of Japanese farmers report that they will ‘never retire’. Opportunities in this scenario for ‘new blood’ entries are, as a result, very few and very, very far between.

<table>
<thead>
<tr>
<th>%</th>
<th>Japan</th>
<th>USA: Iowa</th>
<th>USA: Virginia</th>
<th>England</th>
<th>Canada: Ontario</th>
<th>Canada: Quebec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never retire</td>
<td>44.5</td>
<td>27.4</td>
<td>42.1</td>
<td>14.9</td>
<td>22.1</td>
<td>13.3</td>
</tr>
<tr>
<td>Semi-retire</td>
<td>37.1</td>
<td>37.6</td>
<td>33.9</td>
<td>47.1</td>
<td>44.0</td>
<td>49.5</td>
</tr>
<tr>
<td>Fully retire</td>
<td>18.5</td>
<td>35.0</td>
<td>23.9</td>
<td>38.0</td>
<td>33.8</td>
<td>37.2</td>
</tr>
<tr>
<td>N</td>
<td>3,826</td>
<td>391</td>
<td>401</td>
<td>450</td>
<td>529</td>
<td>721</td>
</tr>
</tbody>
</table>

*Source: FARMTRANSFERS*

In summary, Japan presents a number of fascinating characteristics in terms of succession in farming. Many of these are clearly defined by the path of development in terms of land tenure, economic development, and the cultural significance of farming. It is not surprising then, that a very high proportion of farmers never intend to retire. Two of the
major issues in terms of succession, not unfamiliar elsewhere in the world, are the steady decline in new entrants coming into farming and the steady increase in age of farmers (Figure 3).

Even though the percentage of cases in which successors exist might not be considered low, most farmers, who are in their 70s and 80s, will shortly be expecting these successors to become more actively involved in the holding. In addition, it should be noted that when the respondents answered ‘yes’ to the question on securing successors, it might mean that the successor would inherit the farmhouse alone, thus separating the farmhouse from the land.

![Fig. 3. Agricultural population by birth year group](Source: JMAFF statistics)

Variations in socio-economic, cultural and environmental circumstances have a tendency to dictate a range of different approaches by government and others towards dealing with problems of public significance. Appreciating the decline in number of farming households in Japan in the second half of the twentieth century, and the nation’s focus most definitely on industrial development in this period, what efforts have been made by the government and others to respond to these pressures?

5. Government Policy Concerning New Entry into Farming

5.1 Exemption of Farmland Transfer and Inheritance Tax

Japan’s customs and practices on inheritance, including farmland inheritance, are based on primogeniture. However, the current civil law secures the equal rights of inheritance for property in general. If each farm was divided according to the number of heirs, the average farm size in Japan would be substantially less than a hectare. To ensure the viability of farm businesses, therefore, the government provides exemption for farmland from inheritance tax when one heir inherits the farmland solely. According to the rule, if a farmer transfers all the rights of the farmland to his/her successor, the successor is exempted from the transfer tax unless he/she quits farming, sells or leases out, or abandons the

- 9 -
acquired farmland. If a successor inherits the whole (or a part) of the farmland and continues farming for 20 years from inheritance, she/he is eligible for full exemption. This rule, therefore, enables successors to avoid the division of the farm holdings, as long as they are willing to continue farming for a long period. The government believes that this rule will help promote farm succession (JMAFF 1996), although, whilst this policy may be useful in preventing further division of farmland, it does nothing to encourage much needed farm amalgamation.

5.2 Farmers’ Pension Scheme

The Farmers’ pension scheme was first established in 1970 to encourage farm succession from one generation to the next. In this scheme, if the pension members retired from farming between the age of 60 and 65, they could get what was referred to as the ‘basic’ pension. When they retired from farming and transferred their right of the farm to a successor, they would get an additional of 50 percent premium. Its objective was as an incentive for older farmers to transfer their farm to the younger generation.

However, the scheme was designed as a pay-as-you-go plan and it collapsed in 2002 as there were more pension beneficiaries than the successors to pay for the pension. The successor to this is based on a funded system designed again to correct ‘the ageing’ problem. All agriculture-related people involved in farming for at least 60 days in a year can participate in this scheme. The main feature is that those who meet the requirements benefit from monthly government contributions, equal to their own contributions, for a maximum of 20 years, as long as they continue to contribute to the scheme. Table 7 indicates the detailed requirements for the subsidies. The differential rates in the current scheme clearly encourage young people to take up farming, as they receive higher payments if they meet the requirements before 35 years of age.

Table 7. Requirements for Government Pension Contributions under the new scheme

<table>
<thead>
<tr>
<th>Subsidies rate</th>
<th>Less than 35 yrs old</th>
<th>35 years and older</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>An authorized farmer using ‘blue return’ for tax report</td>
<td>50%</td>
</tr>
<tr>
<td>2</td>
<td>An authorized beginning farmer using ‘blue return’ for tax report</td>
<td>50%</td>
</tr>
<tr>
<td>3</td>
<td>The successors or spouse of above the two categories, who have made the family farm partnership agreement</td>
<td>50%</td>
</tr>
<tr>
<td>4</td>
<td>Authorized farmer or ‘blue return’ tax reporter who promises to become the other within 3 years</td>
<td>30%</td>
</tr>
<tr>
<td>5</td>
<td>A successor who promises to become the category (1) by the age of 35</td>
<td>30%</td>
</tr>
</tbody>
</table>

*Source: Farmers Pension Fund

Note): “Blue return” is a tax return where detailed financial accounts are submitted.

Participants become pensioners when they reach 65 years of age and they are entitled to the benefits of the premium when they hand over their farm business to their successors. The eligibility of the successors is the same as in the old scheme. The farmers’ pension scheme was designed to facilitate farm succession by encouraging younger farmers to enter into, as well as older farmers to retire from, farming. Some are sceptical about the
sustainability of the new scheme and, in fact, this programme was required to be ‘fundamentally reformed’ in 2010 by a government revitalization review. The review report concludes that the benefits of the scheme are disappointing, with the number of participants less than 100,000 up to March 2010, against the 2.5 million agricultural laborers in Japan in 2010. It seems probable that fiscal discipline is likely to restrict the level of payments available to participants in the future.

5.3 ‘Farm On Japan’ (Farm Succession Aid Programme)

In 2008, JMAFF launched the ‘Farm On Japan’ programme based on ‘the Farm On’ programme in Iowa, USA. This programme helps farm businesses by matching ‘beginner farmers’, who do not own land, with retiring farmers who do not have successors to continue the family farm business. In 2010, JMAFF changed the programme name to the ‘Farm Succession Aid programme’, as it is difficult for Japanese farmers and staff in the related organization to understand the meaning of ‘farm on’ (!!). The programme is funded by JMAFF and operated by the National Chamber of Agriculture (NCA), which has branches in every prefecture (county in the UK).

In the programme, both landowners and potential beginner farmers are registered. The beginning farmers can visit the registered landowners to become acquainted with them (trial training of up to two weeks). When the landowner and beginning farmers are ready to enter into an agreement of succession, they enrol for ‘takeover’ training, which lasts two years at most that is being subsidized by JMAFF. After the training is over, the parties complete the ‘succession’ according to the agreement.

The NCA highlights several different approaches to succession. In some cases, this involves the sale of the property to the beginning farmer or long-term lease agreements, whilst in others gradual transfers are effected by incorporation. According to the October 2013 NCA data, of 501 beginning-farmer and 289 landowner registrants, 127 cases were matched for ‘takeover’ training. Unfortunately, 37 out of 127 cases were cancelled because of disagreement on the conditions, including the value of the property for sale. On the other hand, 23 cases were reported that they had finished the succession process. Under the ‘Farm Succession Aid’ programme, a coordinator team is formed for each matching case. The members of the team are extension officers, agricultural cooperative staff, and neighbouring farmers. JMAFF and NCA consider it unwise to leave the matching landowner and the beginning farmer to their own devices. A further issue, however, is that, in some cases, the role of ‘the coordinator team’ has not been clear or there is a lack of leadership in the team. This results in confusion about each one’s responsibilities, and the team fails to help the matched cases.

The purpose of the programme is to prevent the breaking up and eventual loss of ‘excellent’ farms with no successors and to promote young people who want to become farmers. Success relies not only on the conduct of the parties and the leadership/facilitation within the programme, referred to above, but also on the availability of landowners who 1) intend to cease farming within five years, 2) are willing to open their balance sheet and profit and loss statement to outside parties, and 3) are willing to transfer their skills and
knowledge to “successors”, as well as the farm assets. Traditionally, Japanese farmers have been bound by strict rules to transfer their farmland according to kinship. The legacy of these rules are seen as a major constraint in the success and expansion of the ‘Farm Succession Aid’ activities, and Japanese farmers may need further assistance to change their ways of thinking in the future.

5.4 Young People Employed by Farms

Corporate farming is expected to develop in Japan since the 2009 farmland law revision, which via deregulation encourages more corporations in other sectors to become involved in farming. The number of farm corporations was reported to be 14,600 in 2013, whose share in the area farmed was 6.7 percent. The number of new employees in farm businesses steadily increased (Table 8).

The government encourages farm corporations to employ more people. The policy measure is “Farm employment aid program (No-no-Koyo-Jigyo)”. According to the program, a corporation hiring a person(s) can apply for 1.2 million JPY (approximately 12,000 USD) of the subsidy per year. The detailed information is shown in Table 8.

<table>
<thead>
<tr>
<th>Table 8. The outline of farm employment aid program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subsidy amount</strong></td>
</tr>
<tr>
<td><strong>Periods</strong></td>
</tr>
<tr>
<td><strong>Budget</strong></td>
</tr>
<tr>
<td><strong>Eligibility summary</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

*Source: JMAFF*

The new employees are expected to become managers in the corporation, or to become independent farmers by creating their own farm businesses in the future. On the other hand, the current problem is the fact turnover rate is high.

6. Implication from County Farm Estates in the UK

County farm estates (CFEs) in the UK are farms owned by the local (county) government to rent out for young people who want to become farmers. The statistics shows that there were 3,743 county farms in England and Wales, whose acreage was 107,125 hectare in 2002. Though the number of the county farms and its acreage has decreased, it is providing the significant opportunity to people without farm background to get into farming by leasing the farms.

The new tenants are chosen by the local government with the use of reviewing
points/criteria (Table 9). To become a tenant, the applicant should have the following requirements: 1) agricultural experience, 2) related qualification, 3) his/her own money, 4) good sense to decide the rent price, 5) younger age, 6) spouse, 7) application track and 8) diversification plan.

One of the benefits of the CFEs is that young people can get the “full-set” of farm assets with lower cost. Though it might be difficult for other countries (including Japan) to own farms through the government, the case of the CFEs shows extreme example to provide the opportunity to the young people who want to become farmers.

Table 9. Reviewing point at a county

<table>
<thead>
<tr>
<th>Items</th>
<th>Highest Mark</th>
<th>Lowest mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agricultural Experience</td>
<td>10 years as manager</td>
<td>Less than 5 years as general farm worker</td>
</tr>
<tr>
<td>2. Qualification</td>
<td>Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>3. Own fund</td>
<td>1,000 GBP per acre</td>
<td>Less than 200 GBP per acre</td>
</tr>
<tr>
<td>4. Rent offered</td>
<td>The difference to the government estimates is less than 10GBP per acre</td>
<td>The difference to the government estimates is 30 GBP or larger.</td>
</tr>
<tr>
<td>5. Age</td>
<td>26-30 years</td>
<td>Younger than 20, or older than 35.</td>
</tr>
<tr>
<td>6. Marital status</td>
<td>Married</td>
<td>Single</td>
</tr>
<tr>
<td>7. Application Track</td>
<td>Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>8. Diversification Proposal</td>
<td>Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

* Source: Authors survey

7. Conclusion

This paper has focused on the fortunes and misfortunes of a nation’s farming industry evolving in the midst of a meteoric rise in domestic industrial development during the second half of the last century. Such dramatic changes in post-war economic development have featured elsewhere in the world, but have been accentuated in Japan by the scale and pace of change. In terms of impacts, industrial development has drawn labor from agriculture, which resulted in major changes in diet and the demand for different foods, some of which cannot easily be produced in Japan. It has increased the demand for rural land and housing from affluent industrialists with money to inflate property values. The setting for this is a nation of farmers with strong cultural traditions. The product of the era is clear - a farming industry where the majority of units are small and unsustainable as farming households, with a declining share of the domestic food supply, partly as a result of the need to liberalize imports; reduced dependence on income from agricultural enterprises on the farm holding (increase in off-farm and on farm non-agricultural income) and a greater tendency for farmers to retire to farming, thus perpetuating the ageing issue in Japanese agriculture.

Some fear that Japanese agriculture is facing the threat of ‘extinction’. For many years, Japanese agriculture was considered stable, although not particularly efficient. This stability
was brought about by part-time rice producers who had full-time non-farm jobs. In recent years, however, employment instability and the ageing problem have had a significant impact on agriculture and have left their mark in the rural areas of Japan.

Policy measures have been established by the government in response to this situation. Of them, the ‘Farm Succession Aid programme’ can facilitate farm business continuity and provide opportunities to potential ‘beginning farmers’. This programme provides farmers with a strategy to enter into, as well as to retire from farm businesses without a successor. Although it has the potential for major impact on farm asset utilization and in nurturing beginning farmers, the programme is beset with difficulty in realizing its objectives.

Two potentially long-term constraints to future progress exist in Japan. First is the structure of farming – the very small holding sizes, insufficient to support a household from farming income alone. This has, perhaps, been perpetuated by the non-agricultural economic development, which has secured a rural economy allowing farming households to subsidize their farming income. Second are the traditional preferences of farmers for holding farmland for cultural reasons or as property with potential development value. The ‘territorial hold’ of the former is still strong and closely related to tenurial custom in Japan. Whilst there are attractions in terms of preserving links between people and land for a good proportion of the population, there are undoubtable issues relating to performance efficiency and the ultimate constraints to a prospective new entrant.

The future holds a number of challenges, not least in terms of food security. Japan’s agriculture is likely to pass through a long period of adversity. Both policymakers and academicians need to make sustained efforts to assist with the restructuring of agriculture and to continue to encourage retirement and the availability of opportunities for new entrants.

Summary (in Korean)

일본 농업은 지난 수년간 축소화 해왔다. 본 논문은 일본 농업 부문의 최근 트랜드, 농업 입문과 계승에 관한 최근 통계 수치, 농업 상속 과정의 특징, 청년층 농업 유치를 위한 정책 방안에 대해 분석하였다. 또한 영국과 미국의 농장 상속 패턴을 비교 분석하고 영국과 미국에서 시행한 프로그램을 소개한다. 본 연구는 농업분야의 고령화와 청년층 농업종사자 감소가 선진국 내 농업 부문에서 흔히 발견할 수 있는 특징이라는 것을 제시한다.
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73.
Recruiting Young Farmers to Join Small-scale Farming: A Structural Policy Perspective

Jiun-Hao WANG*1

*1Associate Professor
Department of Bio-industry Communication and Development
National Taiwan University
No 1, Roosevelt Rd, Sec 4, Taipei 10617, Taiwan
Tel: +886-2-3366-4415
E-mail: wangjh@ntu.edu.tw
Recruiting Young Farmers to Join Small-scale Farming: A Structural Policy Perspective

Abstract
Small-scale agricultural countries encounter severe structural problems, particularly the rapid ageing of farmer population and scarcity of young farmers entering the profession. Determining how to support young farmers is a political priority for future agricultural policy on smallholder farming in the world. Given that setting up young farmers has been at the center of the common agricultural policy in the EU since the 1980s, this article takes it as an example to systematically review the current young farmers schemes (YFS). The main objective of this study is to propose a policy framework for recruiting young farmers, by systematically reviewing the current supporting measures. Results show that the inheritance from an older family member is the most favorable and most feasible way to recruit young farmers among other entry channels in setting up farm businesses. Moreover, the installation aid for young farmers and the early retirement scheme are regarded as instruments in promoting intergenerational farm transfer. Furthermore, successfully recruiting young farmers to join small-scale farming is necessary to employ other supplementary measures, including farm improvement scheme, agricultural extension service, farm succession advice, and tax reduction within installation period. Consequently, considering the limitation of returns in smallholder farming, diversifying rural economic activity in the form of supporting non-agricultural new businesses might be an alternative approach for setting up next generation entrepreneurs in the countryside.

Keywords: Agricultural structure, family farm, generational renewal, young farmer’s scheme, early retirement scheme

1. Introduction
Agricultural restructuring is regarded as an important policy issue in smallholder agriculture countries. The small-scale farming system encounters severe structural problems, particularly the rapid ageing of farmer population and scarcity of young farmers entering the profession. The consequences of unsolved structural problems will hamper sustainable agricultural development (Ilbery, Chiotti, and Rickard, 1997). An example is the decreasing number of young farmers involved in European agriculture. With continuously diminishing numbers of European farmers less than 35 years of age, while one-quarter are over 65, effective measures are needed to encourage new entrants into the agricultural sector (European Communities, 2012). The demographic ageing problem is more severe in Asian countries than in the EU (Oizumi, Kajiwara, and Aratame, 2006).

The age-related structural crisis will lead to an array of agricultural development problems; in particular, farm productivity, market competitiveness, rural economic viability and food security will be under threat. These challenges related to the lack of generation renewal in the farming system should be overcome to secure agricultural sustainability. Therefore, determining how to support young farmers is a political priority for the future
agricultural policy regarding smallholder farming in the world (Hazell, Poulton, Wiggins, and Dorward, 2007).

Unlike market management tools, structural measures have the potential to directly affect farmland consolidation, farm holdings improvement, increase in farm size, generational renewal of family farms, young farmer training, early retirement and the adjustment of less developed, less densely populated rural areas (Gibbard, 1997). However, the policy objectives of maintaining an efficient and prosperous small-scale farm sector are still facing several problems such as over-priced farmland that results to high entry costs into farming.

Previous studies indicate that, compared to their older counterparts, young farmers have more potential to improve farm competitiveness and achieve better social viability for rural communities. Moreover, young farmers can also promote a wider range of rural socio-economic activities, such as food safety, rural tourism, conservation of traditions and cultural heritage, awareness of the negative effects of farmland abandonment, and participation in local associations (Bryant and Gray, 2005; European Communities, 2012). Therefore, the renewal of farming generations has become an urgent need for the adjustment of the agricultural sector.

Although a growing body of literature has discussed the policy tools required to recruit young farmers into small-scale farming (Quendler, 2012; FAO, 2014), relatively little attention has been paid to the generational renewal of family farming. To fill this knowledge gap, this article takes the European Union (EU) experience as an example to systematically review current young farmers schemes (YFS). The objective of this article is threefold: exploring the structural changes and challenges of small-scale agriculture, discussing the entry obstacles and possible channels for new farmers, and finally proposing a policy framework for recruiting young farmers by systematically reviewing the current supporting measures for young farmers.

The remainder of this article is organized as follows. The next section briefly introduces the structural changes and challenges of small-scale agriculture. Section 3 discusses the entry obstacles and possible channels for new farmers. This is followed in Section 4 by a systematic review of the existing policy instruments to support young farmers. This article then proposes a conceptual framework for recruiting young farmers under the structural perspective in Section 5. Finally, Section 6 concludes this article with a brief summary and a discussion on policy implications.

2. Changes and Challenges of Small-scale Agricultural Structure

The structural changes in land ownership, farm size, and age composition of farmers have been understood to have a significant impact on the efficient use of agricultural resources (de Janvry et al., 2001). The agriculture structural policy aims to reallocate resources to those producers with better capability of maximizing farm productivity and profitability. A particular structural challenge concerns the future development of family farms (Davidova et al. 2013; Tropea, 2014). According to the Food and Agricultural Organization’s (FAO) definition, “family farm is an agricultural holding which is managed
and operated by a household and where farm labor is largely supplied by that household” (FAO, 2013).

Davidova and Thomson (2013) indicate that family farming is synonymous with small, semi-subsistence farms. Indeed, family farming is the most common business model in small-scale agriculture. On the contrary, large incorporated farms account for only a small proportion of the global farm system. Given that the unique and substantial contribution of family farms to the production of food and public goods, as well as ensuring balanced rural development, the FAO has designated 2014 as the “International Year of the Family Farm” (Tropea, 2014).

The main challenges faced by family farms are illustrated by two features. First, the changing demographic structure of family farm is facing a serious ageing challenge. Take the European agricultural sector for example; over 97 percent of Europe’s farms are family-based business. However, only seven percent of the farmers in the EU-27 are under the age of 35, and nearly 24.5 percent of farmers are aged 65 or more (Table 1) (European Communities, 2012). The ageing problem of small-scale agriculture is more serious in Asian countries: the percentages of the aged over 65 farmers to the total farm population are 34.3, 31.8, and 31.2 percent for Japan, Korea, and Taiwan, respectively (FFTC, 2014).

Table 1. Changes of age structure in agriculture in the EU

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Age structure in agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement</td>
<td>holder replacement rate¹</td>
</tr>
<tr>
<td>Year</td>
<td>2007</td>
</tr>
<tr>
<td>Unit</td>
<td>ratio value</td>
</tr>
<tr>
<td>Belgium</td>
<td>0.14</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>0.04</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>0.21</td>
</tr>
<tr>
<td>Denmark</td>
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</tr>
<tr>
<td>Germany</td>
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</tr>
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<td>Estonia</td>
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<tr>
<td>Ireland</td>
<td>0.16</td>
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<tr>
<td>Greece</td>
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<td>Spain</td>
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<td>France</td>
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<td>Italy</td>
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<td>Latvia</td>
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- 21 -
<table>
<thead>
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<th>Country</th>
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<th>35.1</th>
<th>0.52</th>
<th>14.7</th>
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<td>Portugal</td>
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<td>0.04</td>
<td>2.6</td>
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<td>66.8</td>
<td>0.12</td>
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<td>58.4</td>
<td>0.08</td>
<td>4.3</td>
<td>56.6</td>
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<td>3.8</td>
<td>58.9</td>
<td>0.14</td>
<td>7.1</td>
<td>51.0</td>
</tr>
<tr>
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<td>36.1</td>
<td>0.22</td>
<td>8.6</td>
<td>39.8</td>
</tr>
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<td>49.9</td>
<td>0.09</td>
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<td>0.07</td>
<td>4.0</td>
<td>56.1</td>
</tr>
<tr>
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<td>EU-N12</td>
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<td>6.9</td>
<td>55.8</td>
<td>0.17</td>
<td>8.8</td>
<td>52.7</td>
</tr>
</tbody>
</table>

Table: over 65 aged farmers to the total farm population (%)

<table>
<thead>
<tr>
<th>Country</th>
<th>34.3%</th>
<th>31.8%</th>
<th>31.2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Note: The farm holder replacement rate is calculated as a ratio of the number of farmer under 35 divided by the number of farmer over 65 years old.


Given that the generation renewal is essential to the sustainability of family farming, the structural policy should put more efforts into “getting old farmers out” in a suitable manner, as well as “recruiting young people into farming” in a way that is competitive and productive in the long-term (Tropea, 2014). Despite its predominance in the agricultural structure, family farming encounters several difficulties in remaining economically viable, such as expensive land cost, low farm efficiency and productivity, high input prices, lacking accessibility of credit or other financial resources, weak bargaining power within the supply chain, fluctuating market prices and being particularly vulnerable to climate change (European Commission, 2012).

The abovementioned challenges can also be identified as the barriers for young people to enter into farming, especially the relatively scarce, as well as expensive land, and the limited access to credit. Therefore, entry to farming other than through inheritance is difficult in family farming system. It is acknowledged that generation renewal is a major element in the replication of family farming. However, intergenerational transfer is not only about “getting old farmers out” and “establishing new farmers”, but also concerns the transfer of farm proprietary rights and household livelihood security between generations (Tropea, 2014).

3. Entry Obstacles and Possible Channels for Young Farmers

The steady decline in the number of family farms has led to a significant shortage of new farmers. Most small-scale agriculture countries are consequently faced with two problems: the scarcity of young farmers and the rapid ageing of the farmer population. The
severity of the structural situation can be grasped by using the farm holder replacement rate, i.e. the number of holders under 35 divided by the number of holders over 55 (Regidor, 2012; (European Communities, 2012). Therefore, the answer to achieving structural improvement lies in the support offered to young people to become more willing to choose the career of farming.

Essentially, agricultural work is regarded as a 3D job i.e. dirty, dangerous, and difficult, which is in contrast to white-collar job with higher income (Osawa, 2014). Thus it is difficult to recruit young people to enter into farming. Moreover, three main causes for new entrants to farming decision should be taken into consideration: farm productivity and profitability, volume of employment generated and the ability to earn a satisfactory livelihood (Regidor, 2012); these three factors may become major obstacles to running a small-scale holding.

There are three possible entry channels for young farmers to set up a business: (a) family inheritance; (2) taking over from other retiring farmers (related to early retirement scheme); and (3) first installation of farming (for the beginning farmer or new entrant). With the predominance of family farming in small-scale agriculture, the inheritance from an older family member is the most favorable and most feasible way among these channels to recruit young farmers (Sotte, 2003; Quendler, 2012; Regidor, 2012).

Moreover, the early retirement scheme uses a subsidy measure designed to encourage older farmers to retire early, and is awarded when agricultural holdings are transferred to young entrants. Hence, the early retirement scheme is also a useful instrument to accelerate generational renewal outside the family farm. The last channel, from the beginning to entry farming, is particularly difficult for young people to engage in farming career. Accessing affordable land and capital plays a critical role for beginners to establish their farm. Furthermore, the high price and limited land market poses a significant barrier to new entrants and to expanding young farms.

A large body of literature has shown that many young farmers are credit constrained; this demonstrates negative consequences for farm development (Swinnen and Gow, 1999; Davidova et al. 2013). Gaining accessibility to credit is widely acknowledged as a major challenge facing young farmers attempting to establish, expand, invest in, or modernize their businesses. Most current schemes targeting young farmers aim to encourage those who are under 40 years of age to choose a farming career, by providing financial support measures. However, different entry channels require specific support mechanisms and requirements; the eligibility for the various YFS measures is conditioned by the entry channel voluntarily or obligatorily adopted by young farmers.

From the agriculture structural perspective, farm inheritance is the optimal channel for the family farming structure. The measures needed to constitute an incentive package for the family successors include young farmer start-up aid and farm holding improvement. In addition, the government should provide succession planning advice to facilitate the successful transfer from one generation to another. In contrast, another entry channel is via older farmer's retirement; the supporting measures should take the transfer process into account, namely the early retirement payment. Lastly, in addition to young farmer start-up
aid, for the entry channel for new beginning farmers, the supporting measures should pay more attention to land acquisition and provision of training programs on vocational skills and farming knowledge (Figure 1).

4. Systematic Review of Support Measures for Young Farmers: A Structural Perspective

According to the entry channels to set up farm business, young farmers can be divided into three categories: farm succession within the family through inheritance, farm succession outside the family by taking over from other retiring farmers, and new entrants to farming (i.e. the beginning farmer). In general, the land, labor, capital, and farming skills and ability are important input factors for the young farmers to start-up a holding. However, the needs and challenges facing young farmers are diverse, differing by entry channel, farm size and available resources. Hence designing comprehensive and effective policies to support young farmers is problematic.

Support for young people entering into farming has been at the centre of the common
agricultural policy (CAP) in the EU since the 1980s. This article will take the CAP experience as an example to illustrate possible policy instrument for setting up young farmers, and will lead to further discussion. For setting up a new farm holding, the major challenges lie in high costs for farm investments in the initial establishment stage; accessing affordable land and credit is critical to the start-up process (Gibbard, 1997). Therefore, the CAP provides different financial measures for setting up young farmer; they aim at enhancing farm management by renewing the manager generation, encouraging young farmers to invest in farm modernization, and improving the management practices and performances related to the agricultural holding.

Reviewing the young farmers schemes, which has been implemented in the EU, the existing YFS measures can be classified into three categories, as follows (Figure 2) (Regidor, 2012; Tropea, 2014):

(1) Installation aid for young farmers: measures providing access to maximum setting up subsidies for young farmers (set up as a farmer within the previous five years) to establish their own holdings, such as an up-limited single payment of total investment, preferential loans and/or plus interest subsidy. Such subsidies have been available to young farmers in the form of special aid payments for their first installation of farming. In addition to age requirement (under 40 years), the eligibility for payment entitlements is usually subject to attaining a minimum level of education or participating in certain agricultural training course, as well as offering a business plan. The requirement to submit and implement a business plan is likely to contribute to improving the competitiveness of farm holdings (Tropea, 2014).

(2) Early retirement scheme: measures that encourage elderly farmers (aged between 55 and 64) to transfer their holdings to qualified young farmers by providing them with an annual fixed pension payment; for instance, be eligible for a pension of up to €15,000 a year for up to 10 years in Ireland (Caskie et al., 2002; Regidor, 2012). It is evident that such early retirement schemes have been successful in encouraging retirement and replacing older farmers with younger or more productive farmers, and in increasing the average size of farm holding at the same time (Scanlan, 2002; Matthews, 2013).

(3) Farm improvement scheme: subsidy measures that provide special support for farmers to invest in farm modernization, particularly with regards to obtaining access to land. This measure will complement the installation aid for young farmers by subjecting eligibility to compliance with the business plan requirement.
Supplementary measures for young farmers schemes

Support Measures
- Installation aid for young farmer
- Early retirement scheme
- Farm improvement scheme
- Rural business start up aid

Objective
- Set up young farmer
- Elder farmer to exit farming
- Farm modernization and investment
- Rural economic diversity

Eligibility
- Aged under 40 active farmer set up as a farmer with previous 5 years.
- Minimum level of education or agri-training course.
- Farm business plan
- Aged 55-64 farmer.
- Voluntary stop farming activity.
- Farm transferred to another young farmers.
- Farm owner or leaseholder.
- Minimum farm size (e.g. 3 ha)
- Farm business plan
- General rural young people.
- New entrants to farming.
- Or establish non-agricultural new business.

Other supplementary measures
For example: tax reduction, preferential loan, land bank information system, agricultural extension service, farm succession advice, small producer organization, sole inheritor grant.

Fig. 2. Policy framework for young farmers scheme and supplementary measures.
In addition to financial subsidy measures, offering tax incentives, creating a convenient and affordable land tenure system, providing farm advice services and training programs, as well as promoting cooperatives and producer organizations are also relevant accompanying policy tools to assist small-scale young farmers to start up and promote their farming career (Hill and Blanford, 2007; Tropea, 2014). For example, agricultural training and education courses are important for young farmers to develop their farm businesses. Similarly, the farm advisory services offering business operation and investment appraisal advice would help to ensure progressive productivity through the efforts of young farmers. Both of these agricultural extension programs place considerable emphasis on knowledge transfer and innovation, which allow them to adopt new technologies on their farms and hence remain economically viable (Evenson, 2001; Warren, 2007).

Serving the structural adjustment purpose, the policies should particularly aim to encourage generation renewal in family farming. Two typical measures are often undertaken simultaneously: using early retirement to encourage elderly farmers to exit farming, and offer installation aid for young farmers. It is notable that farmland is considered an essential production tool for farming. However, accessing farmland in the initial stage is the most difficult part of the general new entrants. Several studies have revealed that intergenerational transfer within family succession is more likely to foster generation renewal than farm transfers through early retirement scheme in small-scale agriculture (Gibbard, 1997; Kimihi and Nachieli, 2001).

Moreover, a successful intergenerational farm transfer is highly dependent on planning, timing, mutual trust, and a shared understanding of the transfer process by the two generations. The other social factors likely associated with retirement and succession decisions of family farmers include the personal preferences for the retiring age of elderly farmers, and the availability of a suitable and willing young successor (Kimhi, 1997). If the elderly farmer decides to retire too early, the farm may be left to an unprepared successor who is not qualified to take over the farm business. Conversely, the retirement decision may come too late to find a successor, since all the young family members may have already engaged in non-agricultural employment or moved to urban areas. National legislation over inheritance also matters. For example, the general inheritance system requires farmland and family assets to be equally passed to all family members. Hence such an equal sharing inheritance has led to a prevalence of small farms and fragmented holdings. Therefore, several countries have introduced financial incentives and reduced taxation to encourage sole inheritor in the family farms, such as Germany and Austria (Gibbard, 1997).

Consequently, the use and provision of specialist advisory and consultancy services for succession planning could be useful to support the process of intergenerational farm transfer because farm succession advisers can help to interpret the related legislation regarding taxation, drafting succession agreements and offering guidance on restructuring of a family-run farm business. In addition to setting up young farmers, another indirect approach for attracting general young people to start up business in the rural areas might be taken into consideration. The underlying causes of the scarcity of young farmers would be viewed
from the wider perspective of the overall rural economic viability, rather than only focusing on the agricultural sector (Murphy, 2012). It recognizes that the ‘new entry into farming’ problem is likely resulting from the out-migration of rural youth in the countryside. The alternative solution may lie in improving the quality of life in rural areas by enhancing their potential for socio-economic development, and reducing imbalances between rural and urban areas.

Although supporting young people to enter into farming has merited much more importance than assisting rural youth to establish business, due to the scarcity of new farmers, farming-related measures alone will not suffice to deal with the low farmer replacement rate. Therefore, several studies suggest that the possible solution lies in the support that rural youths can obtain regarding opportunities to set up businesses in the rural areas (Irshad, 2013; Osawa, 2014). Greater attention also needs to be paid to the importance of rural economic diversity and the employment status of rural youths. In addition to measures designed to assist new young entrants to become professional farmers, other complementary measures should be created or reinforced in rural areas to encourage general young people to set up businesses in the countryside which provides a more suitable response to emerging needs for rural lifestyle and tourism. Under the rural development perspective, however, recent studies indicate that rural economic diversification into non-agricultural activities can also contribute to farming businesses. For example, the DEFRA (2012) proposed a diversifying farming businesses guideline which suggests that farmers can add non-agricultural activities to traditional farming to develop new sources of income by reinforcing the use of the rural resources advantage.

The rural business start-up aids for generating rural livelihoods can therefore be provided as a supplementary measure to support existing schemes for young farmers. The young farmers can use a combination of different measures if they can be qualified by the regulation requirements, such as a business plan and correctly implementing the business plan (Davis et al., 2013). The creation of new economic activity in the form of new businesses or new investments in non-agricultural activities is essential for the development and competitiveness of rural areas. This alternative subsidy would be open to all rural young people and contribute to setting up next generational entrepreneurs in the countryside. Considering the limited farming returns in small holdings, diversifying farm business can make better use of agricultural resources and the rural physical environment, by finding new uses for traditional skills and agri-food production, thereby integrating farms into the entire rural economy. The emerging rural tourism industry which is welcomed by rural youths includes tourist accommodation, farm shop, farm café and tea rooms, rural arts and crafts workshops, are good examples for demonstrating the benefits of diversified rural business (DEFRA, 2012). Small-scale farms can also benefit from the development of non-agricultural new economic activities.

5. Conclusion

Small-scale agriculture around the world is facing a massive structural crisis, especially
the demographic ageing problem. Special attention is being paid to family farming agriculture; to become more competitive and sustainable, agriculture structural policy needs to support generation renewal by recruiting professionally trained, progressive, and adaptable young farmers. Without generation renewal measures, future farming activities will be at risk along with negative effects on rural socio-economic development.

Despite the importance of recruiting young farmers, a number of factors threaten the planning and implementation of these schemes. Issues relating to farming economic viability, retirement succession planning, access to markets, land and credit all influence young people's decision on whether or not to enter farming (Tropea, 2014). Given that farm installation requires a considerable financial investment, those young farmers who do not have available access to land, capital, credit and farming skills and knowledge will not be able to establish sustainable farm business. The high costs of farm start-up investment and farm ownership takeover are major barriers for young people to enter into farming (Kazakopoulos and Gidarakou, 2003; Davidova and Thomson, 2014). Therefore, the government needs to organize and provide a more comprehensive policy framework for supporting young farmers, corresponding to different modes of entry into farming channels, and related problems.

Learning from the policy experience of different schemes for young farmers implemented in the EU, several policy implications of setting up young farmers can be inferred from these findings. The main result suggests that inheritance is the most favorable and most feasible way to recruit and set up young farmers, since the majority of small-scale agriculture is operated by family farms. Focusing on the characteristics of family farming structure, the schemes for young farmers should put more effort into the generational renewal mechanism within families. Integrating the public pension payment, early retirement subsidy and young farmer installation aid should exercise effective in promoting intergenerational farm transfer.

Providing financial incentives is the common policy instrument to support the installation of young farmers and to encourage elderly farmers to exit their farms. In addition to financial tools (e.g. grants, preferential loan, interest subsidy, and tax reduction), generational renewal schemes need to be strengthened by introducing other accompanying measures, such as agricultural extension and training programs, and a convenient and affordable land marketing system. More important is that the farm advisory services can play an important role in farm establishment and modernization by offering farm business planning, as well as operation and investment appraisal advice. Furthermore, the succession planning advice can also contribute to the process of intergenerational farm transfer.

Although setting up young farmers is most likely to contribute to improving farming competitiveness, it is acknowledged that the small holdings with limitations of available land, capital and labor are difficult to earn a sufficient livelihood. An alternative policy of the present young farmer-oriented model can be expanded by applying supplementary measures for general rural youths to start up non-agricultural business. From a broader structural perspective, enhancing the rural economic variability can not only lessen the gap between urban and rural economic development, but also indirectly support the livelihood of farm families in rural areas.
Considering that rural youth can hardly find appropriate jobs in the countryside, or make a livelihood in small-scale farming, introducing the rural business start-up aids can stimulate economic activity and employment opportunities in rural areas. Moreover, new entrants to farming also need other rural policy measures to expand their career possibilities in the countryside. Consequently, rural business start-up aids can be regarded as a supplementary measure to support the existing schemes of young farmers. The rural young people will have more options to diversify their rural careers, either to continue with family farming or to establish non-agricultural new business in the countryside.

**Summary (in Korean)**

영소 소농구조를 지닌 국가는 급격한 농업인구의 급격한 노령화와 농업에 진입하는 젊은 인력부족과 같은 구조적 문제를 마주하고 있다. 젊은 영농후계자 양성은 정치적 우선순위가 높은 농업정책이다. 유럽연합 국가들의 경우 1980년대부터 청년층 영농후계자 양성을 농업정책의 최우선과제로 여겨왔다. 본 연구는 유럽 국가들의 경험을 바탕으로 ‘젊은 영농인 계획’ 을 체계적으로 검토한다. 다른 어느 방식보다 가족의 농업을 상속받아 농업으로 입문하는 경우가 최선이며 계승이 용이하다. 또한 초기 자본지원 및 조기퇴직 지원은 통합적인 농경 상속을 장려 정책이다. 하지만 청년층 농업인의 영농분야 진입 확보는 농경지개선사업, 농촌지도사업, 농경상속상담서비스, 세금감면 등을 다양한 보조적 정책 시행에 있어 필수적이다. 따라서 영세소농의 제한적인 수입창출을 감안하면 농외소득을 증대시킬 수 있는 창업 및 사업확장을 위한 다양한 경제활동을 지원하는 것이 차세대 농업경영인을 육성하는 하나의 대안이 될 수 있다.

**References**


Korea's ‘Small but Strong Farms’ Policy: 
International Perspective for Current and Next 
Generation

Jong-seok SEO*1

1 Professor
Agricultural Economics Department
Chonnam National University, Gwangju, Korea
Tel: +82-62-530-2174
E-mail: jsseo@jnu.ac.kr
Korea’s ‘Small but Strong Farms’ Policy:  
An International Perspective for Current and Next Generation

Abstract
Suffering from ageing and female dominated labor force have been the major concerns in the agriculture sector in many countries. Korea is no exception. The ‘Small but Strong Farms (SBS)’ project of the Rural Development Administration (RDA) of Korea is the first human resource development (HRD) program for the farmers without government subsidy. In the process of executing the project, there seemed to be a struggle between the Ministry of Agriculture, Food and Rural Affairs (MAFRA) and RDA for the hegemony in implementing the project. Another conflict was found between participating farmers and responsible officials. SBS project of RDA has been the subject of interest since 2011. It is the ambitious plan to secure 100 thousand robust peasants by improving the farmers’ management competency through training and consulting measure without any government subsidy.

Keywords: Small but Strong Farms (SBS), agriculture, education, consultation

1. Introduction
The development of agricultural human resources is very important for the future of agriculture in most of the countries. Many have tried to streamline the agricultural structure to foster or encourage human resources. The importance of obtaining successive farmers in the national level is important as the problems of worsening environment of ageing and female dominated work force continue, and like many countries, Korea is not an exception.

‘Small but Strong Farms (SBS)’ project of the Rural Development Administration (RDA) of Korea has been the subject of interest since 2011. SBS is the ambitious plan to secure 100 thousand robust peasants by improving the farmers’ management capacity through training and consulting measure without providing any government’s financial assistance.

The SBS project of RDA is the first HRD program for the farmers without financial support. In the process of executing the project, there seemed to be a struggle between Ministry of Agriculture, Food and Rural Affairs (MAFRA) and RDA for the hegemony in implementing the project. Another conflict was found between participating farmers and responsible officials.

1 SBS project is similar to the business model “hidden champion” suggested by German economist Herman Simon(2009). The only difference is that SBS is applied only to agriculture on the contrary to the all industries in hidden champion.
The SBS project of RDA has been the subject of interest since 2011. SBS is the ambitious plan to secure 100 thousand robust peasants by improving the farmers’ management capacity through training and consulting measure without providing any government’s financial assistance.

Researches on the SBS, have been done intensively on the theoretical background and economic performances (Seo et al, 2011; Seo, 2012; Seo et al, 2013). Pedagogical approach for the need of job training and consultation (Jeong et al, 2002; Na et al, 2007; Ma Choi, 2008) as well as economic approach (Seo 2011), which analyzed the return on the agricultural education investment by separating ‘level effect’ and ‘marginal effect’, are justifying the execution of SBS project.

This paper tries to examine Korea’s agricultural labor policy and implication for the future based on the performance evaluation of SBS project. In chapter 2, path analysis is attempted by using AMOS\(^2\) to understand how differently agricultural project is accepted between farmers as demanders and extentionsts as suppliers. In chapter 3, SBS project is evaluated in economic terms followed by the implication in the international perspective.

### 2. Korea’s Human Resource Development

Over the past 40 years, the agricultural workforce development policy of Korea has laid emphasis on the urgent task to secure successors in the difficult environments of UR and WTO negotiations. During the period of 1980s and 1990s, many plans to foster farmers were established in order to keep the existence of the agriculture such as successive farmers, full-time farmers, leading farmers.

![Fig. 1. Korea’s strategy to foster farmers](image)

\(^2\) IBM SPSS Amos is a program that enables to specify, estimate, assess, and present models to show hypothesized relationships among variables.
Since the early 2000s, several programs to encourage leading farmers, new-knowledge farmers and excellent farmers have been introduced. These programs evolved to foster high income farms in the MB’s government, which has emphasized pro-business and making high-income earners in agriculture. He also asserted in the broadcast to have an intention of reducing the subsidies in the agriculture sector. It is not wondering that SBS project, which does not provide subsidies to farmers, secured annual government budget for education and employing over 100 experts.

The policy shift from fostering high income farms to SBS is so important to make several effects in the rural area. The policy helps farmers and returnees not only to take part in the educational and consulting program, but also to raise the competency of the farmers as a whole.

Table 1 shows the number of farmers in SBS program by items. At the end of May 2014, the cumulative participants were over 55,000. The number was distributed in the order of grains, vegetables, fruits, and livestock. The participating number in 2014 was drastically reduced, which was the result of RDA’s policy to recruit robust farmers compared to usual farmers.

Table 1. SBS farmers by items (as of May, 2014)

<table>
<thead>
<tr>
<th>year</th>
<th>total</th>
<th>grains</th>
<th>vegetables</th>
<th>fruits</th>
<th>floriculture</th>
<th>specialty income crops</th>
<th>livestock</th>
<th>others*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
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<td>3,950</td>
<td>3,550</td>
<td>3,223</td>
<td>802</td>
<td>926</td>
<td>1,994</td>
<td>805</td>
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<tr>
<td></td>
<td>(100%)</td>
<td>(26)</td>
<td>(23)</td>
<td>(21)</td>
<td>(5)</td>
<td>(6)</td>
<td>(13)</td>
<td>(5)</td>
</tr>
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<td>2012</td>
<td>14,014</td>
<td>4,006</td>
<td>3,483</td>
<td>2,935</td>
<td>471</td>
<td>657</td>
<td>1,432</td>
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<tr>
<td></td>
<td>(100%)</td>
<td>(29)</td>
<td>(25)</td>
<td>(21)</td>
<td>(3)</td>
<td>(5)</td>
<td>(10)</td>
<td>(7)</td>
</tr>
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<td>2013</td>
<td>16,465</td>
<td>4,701</td>
<td>3,344</td>
<td>3,279</td>
<td>338</td>
<td>827</td>
<td>1,438</td>
<td>2,538</td>
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<tr>
<td></td>
<td>(100%)</td>
<td>(29)</td>
<td>(20)</td>
<td>(20)</td>
<td>(2)</td>
<td>(5)</td>
<td>(9)</td>
<td>(15)</td>
</tr>
<tr>
<td>2014</td>
<td>9,416</td>
<td>2,437</td>
<td>2,290</td>
<td>2,488</td>
<td>202</td>
<td>775</td>
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<td></td>
<td>(100%)</td>
<td>(25.9%)</td>
<td>(24.3%)</td>
<td>(26.4%)</td>
<td>(2.1%)</td>
<td>(8.2%)</td>
<td>(9.2%)</td>
<td>(3.9%)</td>
</tr>
<tr>
<td>total</td>
<td>55,175</td>
<td>13,767</td>
<td>12,602</td>
<td>8,984</td>
<td>2,302</td>
<td>3,796</td>
<td>6,826</td>
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<td></td>
<td>(100%)</td>
<td>(25)</td>
<td>(22.8%)</td>
<td>(16.3%)</td>
<td>(4.2%)</td>
<td>(6.9%)</td>
<td>(12.3%)</td>
<td>(12.5%)</td>
</tr>
</tbody>
</table>

Note) * denotes rural resources, processing, experience tour, etc

3. Accepting Path of SBS Project

To examine the accepting path of SBS project, the structural analysis was conducted by using AMOS. The participants in the 2012 survey were 101 farmers and 103 extensionists. The result shows that they are strikingly different in terms of willingness to accept, easiness to understand, and credibility of the project.

Table 2 shows the several indexes to test the goodness of structural equation model of SBS project. In examining the fitness of the model, RMR (Root Mean-Square Residual),
RMSEA (Root Mean square Error of Approximation), NFI (Normed Fit Index), GFI (Goodness of Fit Index), CFI (Comparative Fit Index), AGRI (Adjusted GFI) were used.

In testing the fitness of the farmer’s model, RMSEA and CFI indexes were found in the range of optimal criteria and other indexes including RMR were also close to the optimal range. The test indexes of the extensionists model also show similar result. Based on the test indexes of the model, both farmer’s model and extensionists model were thought to be worth accepting. Figures 2 and 3 show the relationship between the factors affecting the acceptance path of farmers and extensionists, respectively. In the diagram, solid line implies the statistically significant whereas dotted line insignificant.

The diagrams show that risk awareness affects the usefulness, credibility for the duration, and understandability of the SBS project. It was also found that usefulness affects both credibility and self-image, while understandability affects self-image, and self-image affects willingness to accept in a chain. Table 3 shows the direct and indirect effects of decomposed results.

![Diagram]

Fig. 2. Farmers Acceptance Path for SBS Projects

Note 1: *** denotes significant at 0.01, ** denotes significant at 0.05, * denotes significant at 0.1
Note 2: e1 ~ e7 denote residuals (error terms) occurred in the prediction process of the model
Taken together, the willingness of acceptance for the farmers are affected in the order of usefulness, understandability, self-image, risk awareness, and credibility, while for the extensionists are in the order of understandability, credibility for the duration, and usefulness. For the willingness of acceptance of the project, understandability affects directly and indirectly the farmers and the extensionists, while the other factors such as risk awareness, usefulness, and credibility affect only indirectly. In accepting the SBS project, farmers are rating the usefulness higher than the understandability in contrast to the extensionists rating understandability higher than usefulness. An impressive result that credibility for the project duration is influencing extensionists substantially more than the farmers is convincing us the importance of the field work in the execution of the government project.

4. Performance Evaluation of SBS Project

To examine the performance of SBS project, both the income raising effect of education in agricultural extension program and the effect of competency improvement by participating SBS project were analyzed. The income effect model is planned to gauge the per time education effect, while the competency effect model is designed to calculate the monetary effect by the scores of RDA’s diagnosis program.

4.1 Income Effect of Agricultural Education

The following model was made to capture the income effect of per time agricultural education in the extension program (Seo et al, 2011).
According to the analysis, several meaningful implications were found. The first was the fact that training and education are positively related to the raising income for the farmers. The regression result of 2010 data showed that one hour of education has raised the farmers’ income to about $100. Secondly, the effect of education time appeared differently. The data showed an increase of about $40 to $50 for low-medium income farmers, while increasing the incomes of about $160 to $180 for high-income farmers. All the training courses were not likely to be high. The result showed that only five courses were effective out of 11 detailed courses in raising the income. This result requires the farmers to take the tailored courses for their needs to increase their income. In addition, the result can be a main evidence of the SBS project.

### Table 3. Effects on the willingness to accept to farmers and extensionists

<table>
<thead>
<tr>
<th>Factors</th>
<th>Effects on the willingness to accept</th>
<th>path of indirect effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total effect</td>
<td>Direct effect</td>
</tr>
<tr>
<td>Farmers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>risk awareness (ra)</td>
<td>0.281</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>usefulness (use)</td>
<td>0.704</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>credibility (cre)</td>
<td>0.239</td>
<td></td>
</tr>
<tr>
<td>understandability (und)</td>
<td>0.494</td>
<td>0.423</td>
</tr>
<tr>
<td>image (ima)</td>
<td>0.357</td>
<td>0.357</td>
</tr>
<tr>
<td>Extenists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>risk awareness (ra)</td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>usefulness (use)</td>
<td>0.439</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>credibility (cre)</td>
<td>0.547</td>
<td>0.547</td>
</tr>
<tr>
<td>understandability (und)</td>
<td>0.585</td>
<td>0.339</td>
</tr>
</tbody>
</table>
Table 4. The effect of education by farmers income

<table>
<thead>
<tr>
<th>Farmers</th>
<th>Effect of per time education</th>
<th>Effect of per time tailored education</th>
</tr>
</thead>
<tbody>
<tr>
<td>high income</td>
<td>$160 ~ $180</td>
<td>$22 ~ $24</td>
</tr>
<tr>
<td>medium and low income</td>
<td>$40 ~ $50</td>
<td>$13 ~ $14</td>
</tr>
</tbody>
</table>

4.2 The Effect of SBS Project at the National Level

The following model was used to find the monetary relation of the managerial and technological scores with the RDA’s diagnosing system (Seo et al, 2012) in participating the SBS project.

\[
Y_i = \alpha + \beta_1 \text{Age}_i + \beta_2 \text{Education}_i + \beta_3 \text{Size}_i + \gamma_1 \text{TechScore}_i + \gamma_2 \text{Mscore}_i + \sum_{k=1}^{K} \kappa_k \text{TD}_k + \sum_{i=1}^{N-1} \delta_{ij} \text{RD}_j + \sum_{a=1}^{C-1} \theta_a \text{GD}_a + \epsilon
\]

The regression shows that the farmers participating the SBS project are found to get the higher scores and higher income. Farmers participating the SBS project, in average, get the higher points of 1.05 and 0.763 in the evaluation of technology and management compared to the non-participating farmers. According to the analysis, 1 point of technology evaluation matches with about $1,800 of agricultural income and $170 of other income, while 1 point of management evaluation matches of $130 of agricultural income and $40 of other income.

As a result, total effect of SBS project in the national level reaches $41 million and $11 million for technology and managerial improvement, respectively. The benefit-cost ratio of the project was 3.7 as a whole.

Table 5. The effects of capacity improvement of SBS farmers ($ million)

<table>
<thead>
<tr>
<th>Effects</th>
<th>Points difference with non SBS farmers</th>
<th>Agricultural income</th>
<th>Other income</th>
<th>Total income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology capacity improvement effect</td>
<td>1.050</td>
<td>41,174</td>
<td>4,327</td>
<td>45,501</td>
</tr>
<tr>
<td>Managerial capacity improvement effect</td>
<td>0.763</td>
<td>11,124</td>
<td>4,582</td>
<td>15,706</td>
</tr>
<tr>
<td>Total effect</td>
<td>1.813</td>
<td>52,298</td>
<td>8,909</td>
<td>61,207</td>
</tr>
</tbody>
</table>

5. Pros and Cons of SBS Project: An International Perspective

Several things can be noted from the lessons of the SBS project of Korea for the countries suffering for the recruitment of young farmers.

Firstly, SBS project has contributed a certain portion for the inflow of young generation
and the aged returnees to the agriculture in Korea, though the project has been executed by RDA as a small extension program without solid theoretical background. Most extensionists admit that they feel compensated and rewarded with the increased young successors and returnees who ask for the participation of the program. Though the evaluation for the inflow of labor should be reserved until the announcement of government’s specific data, the atmosphere on the spot is very favorable.

Secondly, as shown in the previous chapter, there’s a big difference between farmers and extensionists in accepting and taking action for the government project. Farmers were found to have an interest in acquiring financial assistance from government, while the officials who are responsible for the SBS project were concerned about the duration of the project. The important thing, to make the project successful, is to get the support of officials rather than providing financial assistance to farmers since the extension officials usually keep up close relationship with the farmers in every side of agriculture.

Thirdly, it is desirable to modulate the conflict between the government agencies before certain project is to be executed. MAFRA has paid no attention to the SBS project under the reason that SBS project was initiated by the RDA. Many officials in MAFRA think that the development of agricultural policy is their share and the execution of the policy is agency’s share. Though MAFRA and RDA have a common target to secure young generation and returnees in the agriculture, MAFRA has never helped RDA in executing SBS project, which has contributed the inflow of people in agriculture. The adjustment of hegemony fighting between government agencies is required to help sustain agriculture.

Fourthly, many leading farmers armed with self-confidence in their skills are suspicious of the SBS education and training program. They are eager to get the information on management such as labor management, tax, patents, marketing, business strategies, etc. The supplier of education (RDA), however, seems not to be ready for the infrastructure of education or training. More young people would be interested in entering agricultural industry if various curricula are supplied.

6. Conclusion

As in other countries, fostering competitive farmers has become the key challenge of the agricultural industry and the government in Korea. Among the many programs to develop human resources, SBS project is of interest in attracting the people in a difficult environment.

SBS project is the program to support the development of the sustainable business model for the farmers by enhancing managerial competency through education and consulting. Early skeptical view on SBS project is vanishing as the program reaches the expected track. The SBS project is being recognized as the program to increase competency, and in turn, the income among the farmers. Although not expected, the project helps attract the people to overpass the threshold of agriculture. The SBS project can be an exemplary model in terms of inflow of labor forces in agriculture and raising the income of farmers, if suggested comments resolved.
고령화와 여성노동화는 한국을 포함한 많은 나라에서 커다란 고민거리이다. 농촌진흥청에서 의욕적으로 추진하는 ‘강소농 사업’은 정부의 재정지원을 배제하는 최초의 인력육성사업이다. 농식품부의 적극적인 지원을 받지 못하고, 재정지원을 제공하지 않는 인력육성프로그램의 시행과정에서 농진청은 농식품부 및 농업인들과 상당한 시행착오를 겪었다. 그러나 시간이 지나면서 교육과 컨설팅만을 통하여 2016년까지 10만명의 강소농을 육성했다는 농진청의 사업이 젊은 농업인 및 귀농인들의 호감을 얻으면서, 예상하지 못했던 농업인력 양성에 기여하고 있다. 이 논문은 계량적 분석과 정성적 분석을 통하여 강소농 프로그램이 인력양성에 미치는 긍정적 효과를 고찰한다.

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Entry of Young Generation into Farming in Thailand

Onanong TAPANAPUNNITIKUL*1

and

Siriluk PRASUNPANGSRI*2

1 Faculty of Natural Resources and Agro Industry, Kasetsart University,
Chalermphrakiat Sakon Nakhon Province Campus, Sakon Nakhon, Thailand
Tel: +66-4272-5036
E-mail: csnont@ku.ac.th

2 Faculty of Liberal Arts and Management Science, Kasetsart University,
Chalermphrakiat Sakon Nakhon Province Campus, Sakon Nakhon, Thailand
E-mail: csnlp@ku.ac.th
Entry of Young Generation into Farming in Thailand

Abstract

In the face of population growth, the world’s per capita food consumption is also growing, requiring 60 percent more food by 2050. Thailand could be referred to as the “kitchen” of the world, since it is one of the world’s leading food exporters. The major export commodities are cassava, sugar, fish products, and rice. However, the labor force in the agriculture sector has decreased gradually. In addition to unveiling the reason for this decline, this paper examines the development of young farmers by institutional agents, and illustrates the current situation and challenges of the agriculture sector in Thailand. The empirical evidence suggests two attempts made by the different levels of collaboration. Firstly, efforts were taken amongst the public and private sectors, and universities to encourage the young generation’s reentry or reengagement in the agriculture sector. Secondly, national plan has put forward a strategy to stimulate/foster a new intake in the said sector. In addition, the study suggests ways to transform the national plan both at local and national levels by considering short- and long-term strategies. Further suggestion is made to foster institutional level’s of collaboration in enabling the implementation of the national strategy. Thus, this paper argues the condition for a paradigm shift in agriculture growth that lies in strategic cooperation among all parties at the local, regional, and national levels in the context of Thailand.

Keywords: young farmers, agricultural development, cooperation, strategic management, agricultural entrepreneur

1. Introduction

Agriculture has long been an important industry for the development of Thailand and has been viewed as the “backbone” of the country. Over the past five decades, the agricultural sector used to be the key engine of economic growth in Thailand. In 1960, the share of agriculture in GDP was higher than the industrial sector with 32.1 and 22.1 percent, respectively (Suwannarat, 2014). In 1961, the value of agriculture sector was about USD 781 million while the national GDP was USD 2,562 million (Ministry of Agriculture, 2011a). However, it decreased dramatically to 8.3 percent in 2013 whereas Thailand’s labor force working in this sector is relatively high with 39.1 percent. Until now, Thailand has encountered difficulties that the number of labor force in agriculture sector has declined gradually. There are several reasons why farmers leave their lands. Beyond the realization of the agricultural importance towards the country economy, few joint initiatives were developed by joining forces in tackling such a difficult issue by supporting young generation’s return to the farm land. Hence, this paper critically reviews the current developments in changing agriculture situation in Thailand. In addition, it presents empirical evidence in sharing the developmental lessons learnt from collaborative initiatives from the public and private sectors, and the universities in reshaping and training new professional young farmers.
2. Background

2.1 Agriculture Overview

The agriculture sector in the 21st century has been facing inevitable challenges such as occurrence of climate change, extension of bioenergy market, and the growing of world’s population. According to the United Nations (2013), the world population has a projected increase to almost one billion people within the next twelve years, from 7.2 billion in mid-2013 to 8.1 billion in 2025, and could further increase to 10.9 billion by 2100 (Figure 1). These results are based on the medium-variant projection, which assumes a medium fertility.

![Population trend graph](image)

Fig. 1. Population of the world (1950-2100) according to different projections and variants (Source: United Nations, 2013)

At the same time as population increases, world’s per capita food consumption is also growing, requiring 60 percent more food by 2050 (Alexandratos and Bruinsma, 2012). Thailand could be referred to as the “kitchen” of the world. According to the Board of Investment of Thailand (2013), the country is among the top world exporter of cassava, sugar, fish products, and rice (Table 1).

<table>
<thead>
<tr>
<th>Commodity</th>
<th>World ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cassava</td>
<td>No. 1</td>
</tr>
<tr>
<td>Sugar</td>
<td>No. 2</td>
</tr>
<tr>
<td>Fish products</td>
<td>No. 3</td>
</tr>
<tr>
<td>Rice and Grains</td>
<td>No.6</td>
</tr>
</tbody>
</table>

* Source: The Board of Investment of Thailand (2013)
2.2 Thailand Focus

As reported by the Office of the National Economic and Social Development Board (2011), at the national level, there are some strategies in relation to the increase of youth and skilled labor to engage in agriculture in Thailand. However, when the national plan was implemented, there were no key performance indicators (KPIs) that directly support the agriculture strengthening strategies (Table 2).

Table 2. Policy related projects in Thailand that encourage the young generation into farming

<table>
<thead>
<tr>
<th>Policy</th>
<th>Related strategies</th>
<th>Related Development guideline</th>
<th>Related Key Indicators</th>
<th>Arguments</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Policy 2012-2016</td>
<td>Strengthening of the agricultural sector and security of food and energy</td>
<td>Creating job and income security for farmers by:</td>
<td>(1) Overall national development: Main indicators are:</td>
<td>No key indicator directly support the agricultural strengthening strategies</td>
</tr>
<tr>
<td>(Office of the National</td>
<td>1. Integrating income insurance system together with crop insurance</td>
<td>- The Thai Green and Happiness Index</td>
<td>- The Institute for Economics and Peace (IEP)</td>
<td></td>
</tr>
<tr>
<td>Economic and Social Development</td>
<td>2. Developing fairness for farmers and stakeholders in the contract farming system</td>
<td>- The ratio between 10% highest income and 10% lowest income</td>
<td>- The ratio of workers in the informal sector accessed social protection</td>
<td></td>
</tr>
<tr>
<td>Board, 2011)</td>
<td>3. Increasing better quality of life for farmers</td>
<td>- The Corruption perception index</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. <strong>Inducing youth, new generations and skilled labor to engage in agriculture</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Empowering small farmers affected by free trade agreements for maintaining their living conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural development</td>
<td>Promoting better quality of life for farmer</td>
<td>1. To increase security for farmer</td>
<td>1. Increasing the Thai Green and Happiness Index to 80%</td>
<td>No key indicator directly support the promoting of young generation to agriculture</td>
</tr>
<tr>
<td>Policy 2012-2016</td>
<td></td>
<td>2. To establish knowledge for farmer</td>
<td>2. Expecting the GDP growth more than 3%</td>
<td></td>
</tr>
<tr>
<td>(Ministry of Agriculture and</td>
<td></td>
<td>3. To empower farmer for ASEAN</td>
<td>3. Managing the land used for agriculture</td>
<td></td>
</tr>
<tr>
<td>Cooperatives, 2011a)</td>
<td></td>
<td>4. To ensure food security for household</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. <strong>To promote young generation to agriculture</strong></td>
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<td></td>
</tr>
</tbody>
</table>

Over the past five decades, the agricultural sector was the primary mechanism of economic growth in Thailand. In 1960, the agricultural value-share to GDP was higher
than the industrial sector with 32.1 and 22.1 percent, respectively. The agricultural share in GDP has declined from 32.19 percent in 1960 to 10.33 percent in 2009. In contrast with the industrial value-share in GDP, it has increased dramatically from 22.15 percent in 1960 to 43.40 percent in 2009. Therefore the agricultural share in GDP was smaller than industrial sector with 10.33 percent and 43.40 percent, respectively (Figure 2).

Fig. 2. Sectoral Value-share (% of GDP)
(Source: Suwannarat, 2014)

According to the National Statistical Office (2014), the amount of Thai farmer has deceased gradually since last three decades; decreasing from 65.65 percent in 1980s to 44.28 percent in 2000 (Figure 3). Most of people leaving the farm move to the service sector and some to the industrial sector. Consequently, increasing the labor force in industrial sector from 12.07 percent while increasing the labor force in service sector from 22.48 to 35.81 percent (Figure 3).
In 2013, the agriculture sector contributed only 8.3 percent to the GDP (Table 3). Contrary to the macroeconomics, income from agriculture sector distributed to most of Thai population, since 39.1 percent of Thailand’s labor force are engaged in this sector (Bank of Thailand, 2014).

Table 3. Structure of the economy in 2013

<table>
<thead>
<tr>
<th>Sector</th>
<th>GDP by Sector (%)</th>
<th>Labor force by sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>38.1</td>
<td>13.8</td>
</tr>
<tr>
<td>Wholesale and Retail Trade</td>
<td>13.4</td>
<td>15.3</td>
</tr>
<tr>
<td>Transport, Storage and comm</td>
<td>10.2</td>
<td>2.7</td>
</tr>
<tr>
<td>Agriculture</td>
<td>8.3</td>
<td>39.1</td>
</tr>
<tr>
<td>Construction and Mining</td>
<td>4.3</td>
<td>6.6</td>
</tr>
<tr>
<td>Other services*</td>
<td>25.7</td>
<td>22.5</td>
</tr>
</tbody>
</table>

* Financial, Education, Hotels and Restaurants, etc.
* Source: Bank of Thailand, 2014

Also, according to the National Statistical Office (2014), the number of Thai farmers has decreased gradually since the last two decades. In the 1990s, 19 million people (63.4 percent of total labor) work in agricultural sector; but in 2011 only 16.1 million people are left working in farms (41.1 percent). About three million people left the farm, most of them moved to the service sector and some to production sector (Figure 4).

Significantly, almost three million people have left farming within last 20 years. Unfortunately, young generations left the old farmers behind. Specifically, the number of 15-24 years old farmers has decreased dramatically from 35.3 percent to 12.1 percent since 1987 to 2011. In addition, the number of the older farmers has decreased from 34.7 percent to 28.7 percent. Contrasting with the proportion of old farmers, the number has increased gradually from 4.4 percent to 12.4 percent. At present, the average age of Thai farmers has increased steadily at 51 years old (Thailand Research Fund, 2010).
3. Why did farmers leave their land?

The number of farmers leaving their land is increasing gradually due to the following reasons: attitude (negative attitude towards farming), poverty (debt, have no land of their own), economics (low income, unreliable agricultural product price), hard labor in farming, and the conversion of agricultural lands to industrialize areas.

3.1 Attitude

Fundamentally, the study indicates that most of young people who grew up in a farmer family do not want to be a farmer. In their perspective, a rice farmer is a career that that requires hard labor in the field all day long but earns little money. It means farmers can never become rich. Their life value is driven by their ambitions to getting rich. Consequently, they considered farming as a not worthy profession.

Furthermore, the second type of farmers thought that being a rice farmer indicates lower social status in society. As a result, they discourage their children from farming. Therefore, when their children face career choices, non-agricultural options are highly encouraged by the parents.

According to the Knowledge Network Institute of Thailand (2014), only 8.8 percent of students in the university registrar majored in the agriculture program. In addition, farm work is perceived as hard labor work with unequal payment in Thailand.

3.2 Poverty

According to the Office of Agricultural Economics (2011), 29 percent of farmer household gained the average income below the poverty line (USD 592 per year). In 2011,
the national Bureau of Statistics announced that two out of three households of farmer had debt about USD 4,388 (Nuansoi and Penkleng, 2012). The low income and the debt caused the farmer and their descendants to lose their interest in working on their farmland and move to another labor sector, hence, 19.6 percent of Thai farmers lost their farmlands.

### 3.3 Production Costs and Product Prices

Another indication comes from uncertainty of revenue due to crop insurance system. It was discovered that there were no real intention to support farmers. In addition, cost of operation is high, in contrast with the low/unstable prices of products. These issues are caused by seasonality and bad weather, which result to large and unpredictable losses (Figures 5a and 5b).

![Fig. 5a. Total production cost of industrial crops](Source: Tunsri, 2011)

![Fig. 5b. Net income of industrial crops](Source: Tunsri, 2011)
4. Roles of the Public and the Private Sectors, and Universities in Fostering the Young Generation into Farming

Arguably, there are several sources of evidence that show the public and private sectors, and universities in fostering a joint force to encourage the young generation to go back into farming in Thailand. Public and private sectors diagnosed the shortage of farmers which would cause problems on food safety, energy, and export situation. Thus, public and private sector especially financial institutes have established several projects to encourage the society to be aware of and to cooperate for creating urgently the new generation of farmers. The new generation of farmers should have the following characteristics:

1. Mastery on learning on both new advanced technology from academic and local knowledge and integrate local knowledge and modern knowledge;
2. Know-how to increase revenue, and cost and quality management. In addition they should know how to access their target group for their products and services.

There are several sectors that drive the development of new generation of farmers. These sectors were classified into four groups (Figure 6) as follows:

I. Government agency
   1. Ministry of Agriculture
      1.1) Fishery Department
      1.2) Department of Livestock Development
      1.3) Agricultural Support Department
   2. Ministry of Education
II. Private sector
   1. Research Funding Institute
   2. Bank for Agriculture and Agricultural Co-operatives
   3. Private sector such as Kubota
   4. Non-Profit Organizations
III. Academic Institute
   1. Universities
   2. Vocational Colleges
IV. Research Unit
There are several projects that the public and private sectors, and universities established such as the New Farmer Development Project, School of Rice, Farmer Smart farmer Smart officer and Rice Camp (Tables 4a-c). The authors present only a few significant projects. For instance, in terms of public sector, the Ministry of Agriculture and Cooperatives established the “Smart Farmer Smart Officer Project”. The objectives are to initiate new generation of farmers by using data for decision making, and to create smart officers to be consultants of smart farmers. In addition, the Rice Department established “School of Rice and Farmer”. Its mission and function are to prepare and develop training courses, and knowledge in all aspects of rice grain production channels of learning and prepare the rice field demonstration, training system in accordance with the development plan, and effectiveness and network learning in rice through private sector education both formal and non-formal. There are several courses such as the Intensive Professional Farmers course, the health drink made from rice, initial course of farming, intensive skin care from rice bran oil, rice production course souvenirs, and cooking and baking rice. In terms of private sector, Charoen Pokphand Group founded its own university and has provided Bachelor of Science in Innovative Agricultural Management. In terms of university, there is the joint project called “My Little Farm Project”. It is the collaboration among Kasetsart University, Cooperative Auditing Department, Ministry of Agriculture and Cooperatives, and Bank for Agriculture and Agricultural Cooperatives. The objective is to inspire pupils to be a new generation of farmers by using a reality farming contest.

5. Challenges for Successful Projects in a Sustainable Way

Agriculture sector has long served as the critical instrument of culture and economy in Thailand. As traditional agriculture has suffered from declining labor force, and consequently in the decrease in its contribution to the national GDP, the country face challenges to revitalize renewed young professional farmers.

Regarding strategy, there are a few ways in relation to promoting the youth, new
generations, and skilled labor to engage in agriculture. However, there is no key indicator that directly supports the agricultural strengthening strategies in Thailand. Realization of the importance of the agriculture sector affecting their organizations by the public and private sectors, and universities, several projects were established to promote youth into farming. In order to solve declining labor force in agriculture, these projects were created to inspire youth engaging to the agriculture sector.

In terms of the public sector, it can be seen that the government has an intention to develop projects in the long-term. An example is the project “New Farmer Development Project” established by the Agricultural Land Reform Office (ALRO) under the Ministry of Agriculture and Cooperatives. ALRO gives opportunities to new farmers to access land and financial resources.

In terms of the private sector, as mentioned earlier, Charoen Pokphand (CP) Group offered courses such as Bachelor of Science in Innovative Agricultural Management. The students will complete their studies in 2016. Consequently, the number of agricultural entrepreneurs will increase.

Table 4a. Projects supported by the public and the private sectors, and universities in fostering the young generation into farming in Thailand

<table>
<thead>
<tr>
<th>Project</th>
<th>Responsibility</th>
<th>Objectives</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. New Farmer Development Project (2008-2012) (Agricultural Land Reform Office, 2012)</td>
<td>ALRO and MOAC, VEC, TRF, BAAC</td>
<td>1. To establish new farmer equipped with theoretical and practicing knowledge. 2. To develop sustainable agriculture.</td>
<td>1. Access knowledge: TRF and VEC established courses and invite young generation to the classes 2. Opportunity to access the land resource: the Agricultural Land reform permit interested persons utilize the land. 3. Opportunity to access occupations: increase the capabilities of land use for farming and generate sustainable income though the adoption and diffusion process 4. Opportunity to access finance resources from BAAC</td>
</tr>
<tr>
<td>2. School of Rice and Farmer (Rice department, 2013)</td>
<td>Rice Department</td>
<td>1. To Prepare and develop training courses and rice. 2. To knowledge in all aspects of rice grain production chain. 3. To demonstrate the rice field.</td>
<td>Establish courses: 1. - Intensive Professional Farmers 2. - Healthy drink made from rice 3. - Initial course of farming 4. - Intensive skin care from rice bran oil 5. - Rice production course souvenirs 6. - Course cooking and baking with rice</td>
</tr>
<tr>
<td>3. Volunteer Spirit Network (Volunteer Spirit)</td>
<td>OHM</td>
<td>1. To broaden farming perspective for the university student</td>
<td>Training course: - Farming experience - Field work in royal project</td>
</tr>
<tr>
<td>Project/Curriculum</td>
<td>Responsibility</td>
<td>Objectives</td>
<td>Activities</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------</td>
<td>-----------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Kubota Smart Farmer Camp (SiamKubota, 2014)</td>
<td>Siam Kubota Corp.</td>
<td>To broaden farming perspective for the university student</td>
<td>Farming experience sharing Field work</td>
</tr>
<tr>
<td>Field work for Children: Rice Farm (Charoen Pokphand Food, 2014)</td>
<td>CP</td>
<td>To broaden farming perspective for pupil</td>
<td>Farm experience sharing Field work</td>
</tr>
<tr>
<td>B.Sc. (Innovative Agricultural Management) (Panyapiwat institute of Management, 2014)</td>
<td>CP</td>
<td>To produce graduates specialize in agricultural management</td>
<td>New curriculum (open in 2013)</td>
</tr>
</tbody>
</table>

Table 4b. Private sector supported projects on fostering the young generation into farming in Thailand

MOAC = Ministry of Agriculture and Cooperatives
ALRO = Agricultural Land Reform Office, Ministry of Agriculture and Cooperatives
BAAC = Bank for Agriculture and Agricultural Co-operatives
DOAE = Department of Agricultural Extension, Ministry of Agriculture and Cooperatives
OHEC = Office of the Higher Education Commission
OHM = Office of His Majesty the King Principal Private Secretary
QLF = Quality Learning Founding
TRF = Thailand Research Fund
VEC = Office of Vocational Education Commission
Table 4c. Projects supported by Thailand universities in fostering the young generation into farming

<table>
<thead>
<tr>
<th>Project/Curriculum</th>
<th>Responsibility</th>
<th>Objectives</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Little Farm Project (Kantana Group, 2012)</td>
<td>Kasetsart University Joint BAAC CAD Farm Chanel</td>
<td>To motivate pupil to be a new generation farmer</td>
<td>Reality farming contest</td>
</tr>
<tr>
<td>B.Sc. (Agricultural Resources and Production Management) (KUCSC, 2011)</td>
<td>Kasetsart University</td>
<td>To produce new generation of agricultural entrepreneurs</td>
<td>New curriculum (open in 2012)</td>
</tr>
<tr>
<td>B.A. (Agricultural Resources Administration) (School of Agriculture Resources, 2014)</td>
<td>Chulalongkorn University</td>
<td>To produce new generation of agricultural entrepreneurs</td>
<td>New curriculum (open in 2012)</td>
</tr>
<tr>
<td>B.A. (Cultural Landscape Management) (Ministry of Education, 2013)</td>
<td>Mahidol University</td>
<td>To produce new generation of agricultural entrepreneurs</td>
<td>New curriculum (will establish in 2015)</td>
</tr>
</tbody>
</table>

* CP = Charoen Pokphand Group

In terms of universities, several universities in Thailand such as the Kasetsart University, Chulalongkorn University, and Mahidol University have opened new courses for producing agricultural entrepreneurs, which will graduate in 2015 and onward. For example, Kasetsart University opened new curriculum in Bachelor of Science in Agricultural Resources and Production Management.

However, their goals have not been reached yet due to several difficulties such as unclear key indicators and loose integration among entities. Nevertheless, we see a light at the end of the tunnel. Even most of these projects are at the preliminary stages but these can be counted as a good sign for the agriculture sector. For example, the New Farmer Development Project was the joint project among the public and private sectors, and universities. All these entities have cooperated and carried out short- and long-term development plans to match the needs of the industry. Hence, all entities should work closely together and recognize their potential, make a commitment, and take actions seriously to reach their goals. Therefore, it is the challenge for these entities to select the crucial mechanism and to cope with dynamic and limited resources.
6. Conclusion

Globalization has brought both opportunities and threats to the agriculture sector in Thailand. Increasing population dramatically has pushed Thai Government to take intervention to change the condition and social structure of the farming industry. Radically, joint forces are encouraged by the Thai government in making a change to develop more young generation farmers. The study demonstrated the important roles being played by the different institutions in the change process. Understanding the reasons why farmers have abandoned their farmland is vital; however, it also suggests a national level of collaborative strategy is needed to push this agenda further. This is not only to stimulate the collaboration at national, regional, and local levels but also to engage international players.

Summary (in Korean)

인구 증가와 함께 일인당 음식 소비량도 증가함에 따라 2050 년까지 식량생산을 60% 증대시켜야 한다. 태국은 카사바, 설탕, 해산물, 쌀 등을 주 품목으로 하는 세계 주요 식량 수출국으로서 ‘세계의 부엌’으로 인식되고 있다. 하지만 농업분야 노동력은 점차 감소하고 있다. 이러한 감소 추세 근원을 파악하는 것 이외에도 본 논문은 태국 내 청년 농업인력 개발을 위한 농업관련 기관의 노력을 대해 조사하고 태국 농업부문의 현황과 과제를 제시한다. 경험적 증거가 보여주는 바에 따르면 두 가지 형태의 접근이 있었다고 본다. 첫째, 민관학 모두 분야에서 청년층을 농업 분야로 유치하거나 귀농하도록 장려하는 노력이 있었다. 둘째, 국가 차원의 전략을 활용하여 농업 분야 신규인력 유치에 힘썼다. 또한 본 논문을 통해 장기적 전략 수립을 통해 국가 차원의 정책을 지역까지 전파하는 방법과 기관 간 협력을 통해 국가 차원의 전략 시행을 지원할 수 있는 방안을 논하고 있다. "농업 성장을 위한 패러다임 전환은 모든 관련 기관 및 관계자간 전략적으로 협력할 때 가능하다.

Acknowledgements

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Technology Consultation and Backup for Young Generation’s Entry into Farming in Vietnam

Bui Quang DANG*1

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1 Deputy Director
Department of Science Management and International Cooperation
Vietnam Academy of Agricultural Sciences
Vinh Quynh, Thanh Tri, Ha Noi, Vietnam
Tel: +84-4-3861-4331
Email: dangvrq@gmail.com
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Abstract

About 70 percent of the population of Vietnam (~ 63 million people) are living in the rural areas and rely on the agriculture sector. Despite much effort to elevate this sector, the country is also facing considerable difficulties and challenges which hinder its sustainable development, food security, and rising economy, particularly under the rigorous effects of climate change. Such situation has triggered difficulties in finding and/or being satisfied with farming jobs in the rural areas. This caused a significant proportion of the rural workforce to find off-farm occupations – particularly the young generation – resulting in the increase in average age of farmers (~30% of agricultural workforce is older than 44 years) and rise in the proportion of women in the current agricultural workforce. In addition, low education level, which is explained by the more than 90% of unqualified agricultural workforce, is the key reason for limited access/understanding of advanced technologies, cultural techniques, and post-harvest management strategies as well as the whole farm business. These are important aspects/factors for the expansion of the agricultural production. Understanding the current situation, the government has promulgated various policies and strategies so as to encourage the young generation to improve their knowledge and skills, and participate in agriculture. The Vietnam government also aims at promoting the adoption of advanced technologies for sustainable agricultural development.

Keywords: agriculture, labor, young generation, sustainable, advanced technology

1. Introduction

Vietnam is a traditional agricultural country with 70 percent of its population (~63 million people) living in rural areas and relying on agriculture sector. With population of around 90 million people, Vietnam is now in a period known as the ‘golden population structure’, which means that for every two people, there is only one dependent person.

Located in the heart of Southeast Asia with a total land area of 330,000 km², Vietnam is a narrow long country stretching over 2,000 km long. This results to diversified climate among Vietnam’s regions. Therefore, there are eight different agricultural/ecological classifications in the country that are divided on the basis of their differences on nature and climate. Although the presence and distribution of plants is various among different agricultural ecological regions but the role of rice varieties (Oryza sativa) are very important. The rice cultivation land in Vietnam is about 7.9 million hectares with total yield of 44.07 million tons. Vietnam used to have food shortage in the 1980s, but has become top rice exporter with the annual rice export at 7.5-8 million tons (Nguyen Van Bo, 2014).

In recent years, with the restoration of the national economic system and the integration with international market, Vietnamese agriculture has had substantial development. Average growth rate of the sector is four to five percent annually and total value of
agriculture makes up 22 percent of the country’s GDP. Agriculture has partially satisfied food domestic demand, guaranteed food security and established intensive farming locations destined to export. Vietnam has achieved noticeable achievements in agriculture in recent decades and become top-ranking export country in many agricultural products such as rice, pepper, coffee, rubber, cashew etc. According to statistics in 2012, export value of some main export commodities from the country was USD 3.48 billion for coffee, USD 2.64 billion for rice, USD 1.96 billion for rubber, USD 1.78 billion and USD 1.22 billion for forest products and Cashew nut and grains respectively (Hang et al., 2014). However, Vietnamese agricultural sector is also facing considerable challenges and difficulties that need to be improved in the future. Small-scale household farming, undeveloped technology, low quality product, high production cost, and low competitiveness to name a few. Total arable land in Vietnam is only slightly more than nine million hectare, consequently with the current number of household, average farming areas is just 0.63 ha and 60 percent of households are cultivating on the area smaller than 0.5 ha (MARD, 2013). Production is mainly done by human labor, since mechanization is still low. The application of science and technology especially in post-harvest processing are at its starting stage. Production is mainly based on rice-monoculture which shows instability and low efficiency in many regions. Labor force involved in agriculture although in considerable quantity, most of them are unable to meet the demand of industrialization and modernization process of the sector. In addition, the trend in ageing of agricultural labor force has also been pointed out as the main barrier of development.

2. Vietnam Agriculture: Challenges and difficulties

Although progress has been made, significant challenges and difficulties have been pointed out:
- Stagnant agricultural productivity.
- Slow rate of investment for agricultural diversification. Rice continues to dominate, accounting for 45 percent of agricultural production and 60 percent of cultivated land. Industrial crops (e.g. coffee, rubber, cashew, sugar cane, and pepper) account for only 20 percent of production.
- Underdeveloped marketing channels, institutions, and infrastructure. For example, farmers may not receive timely information on crop prices which affects their ability to sell products if the price is too high, or the lack of roads prevents them from transporting their crops to market in time and transaction costs increase.
- A widening gap between urban and rural areas and ethnic populations in particular. Economic growth has not benefited all populations equally, with poverty increasingly concentrated among ethnic groups and the more remote northern uplands populations.
- Unsustainable and inequitable patterns of natural resource use, access and control. In the forestry sector, for example, unmanaged logging leads to problems of erosion, flooding and loss of biodiversity. Water scarcity becomes a problem for both consumption and crop irrigation.
- Vulnerability to natural hazards. Flooding and storm surges in low-lying areas cause crop failure and livestock disease leading to loss of income and food insecurity.

- Limited capacity of public institutions and misalignment of public expenditure serving rural sectors interests. The budget for agriculture and rural development has been decentralized from the central to the sub-national governments which are still in the process of increasing their capacity to manage rural development projects.

In addition, the agricultural production in those regions is still based on manual labor which requires high manpower to meet the requirement of agriculture. Because it is not easy to provide miraculous solution in order to feed a continuously growing population (Gilland, 2002). Therefore production of food must increase in order to ensure food security in the world. The increase of food production in agriculture can be obtained by several ways such as agricultural land area expansion, enhancing yield of crops through the use of agrochemicals, organic fertilizer, biological controls, improvement of soil and water management, and application of new productive cultivars which are tolerant or resistant to disease and unfavorable conditions (Fernando, 2006). But, the expansion of agricultural land area is not feasible and it is even declined as the invasion of urbanization and industrialization as well as due to land erosion, reduction of fertility, salinization and desertification. In the present time, probably the useful response to this need is a more intensive use of agrochemical such as mineral fertilizers and pesticides. However, massive use of these materials causes serious contamination, decreasing water quality and safety of products (Schoroder et al. 2004).

The main challenge in rice cultivation in Vietnam is the difficulty in seed management and production. Vietnam at present satisfies only 30 percent of the seed requirement; the remaining 70 percent are cultivated using low quality seed. Besides, the dramatic increase in production input sources such as fertilizer, fungicide, pesticide, labor cost, seeds price which raised many difficulties for farmer in gaining profit to support their life. Injudicious use of chemical fertilizer and pesticide in rice-moniculture for the past years has caused soil degradation, loss of biodiversity; out-break of new pests and diseases and environmental pollution. Although soils have inherent quality which is determined by chemical, physical, biological properties of specific kind of soils but the ultimate determinant of soil quality is land management (Doran, 2002). The positive effect of long term irrigated rice cultivation causes a decrease in structural stability. Tillage performed before the installation of rice reduces aggregate size (Benintende et al. 2008). The decrease in the magnitude of soil gaseous exchange does not favor the development of microorganism, revealed by the low carbon and nitrogen content in the microbial biomass (Benintende et al. 2008). The lowest values of organic carbon and carbon content microbial biomass were in rice monoculture when compared with other rotation system such as rice-soybean rotation, rice-soybean-maize, rice-pasture rotation; probably associated with management practices for soil preparation and the inundation effects of rice cultivation (Benintende et al. 2008).

Poor and developing countries such as Vietnam are very susceptible to the effects of
climate change. The effect includes erratic and variable rainfall, higher temperature, and extreme weather events like typhoons, floods, droughts, and increase of sea level. Consequently, economic development is hampered, social security is unstable, livelihood of people especially farmer who rely upon agriculture, aquaculture and fisheries is unsound. The recent study on potential impact of climate change to Vietnam showed that one meter rise in sea level could approximately affect five percent of country’s land area, and influence living conditions of 11 percent of the population, impact seven percent of agriculture, and reduce GDP by 10 percent (Chaudhry, 2007). Large land area will be flooded and disappear as many regions in Vietnam such as the Mekong river delta is just 1-2 meter above sea level. Under the impact of climate change, it is expected that rainfall will be concentrated in rainy season months leading to the exacerbation of drought problems during the dry season. Climate change is set to make precipitation more uneven and variable over time and space (Schaefer, 2003).

Flood damage is expected to be aggravated by an increase in daily rainfall of 12-19 percent by 2070 in some regions. Drought will be exacerbated by increase in the variation in rainfall and increase evaporation (3% in coastal provinces and 8% in inland areas) as a result of global warming (MoNRE, 2003). Typhoon appears more frequently in southern areas in recent years, but it is expected that the northern areas will suffer more typhoon and the intensity of storm will increase. The same situation will also occur in coastal provinces. Mountainous regions will face more risks of flash floods and landslides from heavy rain. An estimated 80-90 percent of Vietnamese people will suffer the influence of typhoon (CCFSC, 2001).

According to the climate change scenarios in Vietnam of Ministry of Natural Resource and Environment, in the year of 2100 the temperature in Vietnam may rise from 1.4-1.7°C and the sea level may rise to 65 cm if the world’s gas emission, and population is reduced. However if the world population continue to increase and gas emission is still maintained, the temperature in Vietnam may rise to 2.1-3.6°C and sea level by 100 cm (Vietbao, 2009). Thus, to maintain the long term development and benefit for the next generation in the next 100 years, Vietnam needs to take consideration to develop the economy towards efficient and sustainable agriculture which is an important sector of the country. Taking full advantage and effective use of natural resources, reasonable application farming practices, minimum reliance on chemical inputs, and utilization of recycled resource are useful solutions to resolve the identified problems. Organic agriculture, through the creation of a whole system of agriculture- based nutrient and ecological principles could satisfy the abovementioned requirements. In France, for example it is estimated that the conversion to organic agriculture could reduce greenhouse emission by 10 percent (Sarah Boron, 2006). However, no single institution or country will be able to resolve this crisis; it requires the joint effort of the international community.

Vietnam is a tropical country with hot and humid climate. Agricultural production is usually faced with high potential risks on pests and diseases annually. The annual average
quantity of pesticide used has climb from 15,000 tons in 1991 to 76,000 tons in 2007 (as cited from Anh, 2002; Vinachem, 2008.Van Hoi, Mol et al. 2009). Total imported value of pesticides increased 9.8 times between 1991 and 2006 (as cited from GSO, 2008; Oanh 2005.Van Hoi, Mol et al. 2009). Beside the increase in the cost of production, overuse of agrochemicals is also related to problems of food safety and quality. High level of chemical residue which exceeds the allowed threshold from the application of fungicide or pesticide is common with many kinds of agro-products. In 2008 there were 205 food poisoning cases that resulted to 7,828 contracted people with 61 fatalities (Health and life, 2009). In 2009 there were 147 food poisoning cases relating to 5,026 people and 33 fatalities (Rural economy, 2009). According to the World Health Organization, approximately one-tenth of the Vietnamese population, or eight million people, suffer from food poisoning each year (Vietnamnet, 2009). Therefore there is an urgent demand in innovation the farming technique that reduces the dependence on agrochemical to improve the safety and quality of agricultural products.

3. Characteristic of Labor in Rural Vietnam and Solution to Encourage Young Generation into Farming

Majority of rural labor in Vietnam originates from farm families which are based on agricultural production as the main occupation and income. Agriculture in Vietnam is mainly household scale, and in shifting process from self-sufficiency to commodity production, limited technical infrastructure due to poor investment, manual labor, low productivity, backward farming habit and to be separated by customs and regional experience. These factors have negative influence to rural workers in the country with inherent distinctive characteristics.

Population and labor in rural areas accounts a high proportion of country’s population and labor force (Table 1). Rural population in 2011 was 59.9 million, accounting for 68.3 percent of the total population, a slight decrease compared to 60.4 million people, representing 71 percent of the total population in 2008. Labor force aged 15 and over in rural areas was 36.1 million in 2011, accounting for 70.3 percent of the total social labor force, an increase by 1.1 million people compared to the figure in 2008. Social workers have mainly increased in rural areas, while the number of jobs created has not been extended to meet the demand (Hai, 2012).

Table 1. Quantity and proportion of labor in rural and urban in Vietnam on 2001-2011
(Labor and society report, Institute of labor and Social science, 2011)

<table>
<thead>
<tr>
<th>Order</th>
<th>Item</th>
<th>Year 2001</th>
<th>Year 2005</th>
<th>Year 2006</th>
<th>Year 2010</th>
<th>Year 2011</th>
<th>Mean of growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2001/05</td>
<td>2011/06</td>
<td>2011/2001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Quantity (1000 people)</td>
<td>40108</td>
<td>44382</td>
<td>45579</td>
<td>50837</td>
<td>51854</td>
<td>2.6</td>
</tr>
<tr>
<td>1</td>
<td>Total</td>
<td>30522</td>
<td>33287</td>
<td>34002</td>
<td>36603</td>
<td>37024</td>
<td>2.0</td>
</tr>
<tr>
<td>2</td>
<td>Rural</td>
<td>9586</td>
<td>11096</td>
<td>11577</td>
<td>14234</td>
<td>14830</td>
<td>4.4</td>
</tr>
</tbody>
</table>
Labor in agricultural sector accounts for 59.6 percent total labor in the country, a significant reduction compared to 70.4 percent in 2006 and 79.6 percent in 2001 (Table 2). The proportion of workers employed in industry and construction in rural was 18.4, 12.5 and 7.4 percent in 2011, 2006 and 2001 respectively; employment in service sector in these 3 years was 20.5, 15.9 and 11.9 percent respectively.

Table 2. Shifting of labor structure in different economic sectors in social economic regions in Vietnam (Agriculture and Rural survey report in 2011, Department of Statistic)

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>2001</th>
<th>2006</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Whole country</td>
<td>79.6</td>
<td>70.4</td>
<td>59.6</td>
</tr>
<tr>
<td>2</td>
<td>Northern mountainous area</td>
<td>91.15</td>
<td>86.50</td>
<td>79.74</td>
</tr>
<tr>
<td>3</td>
<td>Red river delta</td>
<td>77.26</td>
<td>60.48</td>
<td>42.63</td>
</tr>
<tr>
<td>4</td>
<td>Central region</td>
<td>80.28</td>
<td>71.95</td>
<td>62.64</td>
</tr>
<tr>
<td>5</td>
<td>Central highland</td>
<td>91.94</td>
<td>88.38</td>
<td>85.28</td>
</tr>
<tr>
<td>6</td>
<td>South east region</td>
<td>8.46</td>
<td>49.06</td>
<td>36.07</td>
</tr>
<tr>
<td>7</td>
<td>Cuu Long river delta</td>
<td>79.23</td>
<td>71.81</td>
<td>62.17</td>
</tr>
</tbody>
</table>

Over the past 10 years (‘00-‘11), the employment structure of the country has changed in a positive direction. The proportion and quantity of labor in agriculture is reduced, but the number of workers in the industry and services sectors increased (Table 3).

Table 3: Quantity and proportion of labor (>15 years old) in different economic sectors (Annual statistic report, Department of Statistic).

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total</td>
<td>37075.3</td>
<td>42774.9</td>
<td>43338.9</td>
<td>47743.6</td>
<td>49048.5</td>
<td>50352.0</td>
</tr>
<tr>
<td>2</td>
<td>Agriculture</td>
<td>24136.0</td>
<td>23569.0</td>
<td>22449.6</td>
<td>24588.0</td>
<td>24279.0</td>
<td>24370.4</td>
</tr>
<tr>
<td>3</td>
<td>Industry and construction</td>
<td>4856.9</td>
<td>6525.3</td>
<td>8255.6</td>
<td>9548.7</td>
<td>10251.1</td>
<td>10725.0</td>
</tr>
<tr>
<td>4</td>
<td>Trading and service</td>
<td>4388.7</td>
<td>6228.7</td>
<td>7785.0</td>
<td>8928.1</td>
<td>9466.4</td>
<td>10120.8</td>
</tr>
</tbody>
</table>
Table 4: Education level of labor in rural areas in 2000-2011 (Survey data of Ministry of Labor, Invalid and Social Affair)

<table>
<thead>
<tr>
<th>Education level</th>
<th>Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2000</td>
</tr>
<tr>
<td>1, Illiterate</td>
<td>4.8</td>
</tr>
<tr>
<td>2, Primary school attending</td>
<td>18.5</td>
</tr>
<tr>
<td>3, Primary school graduate</td>
<td>31.0</td>
</tr>
<tr>
<td>4, Secondary school graduate</td>
<td>34.6</td>
</tr>
<tr>
<td>5, High school graduate</td>
<td>11.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100,0</strong></td>
</tr>
</tbody>
</table>

Table 5: Professional qualification of labor in rural in 2000-2011 (Labor report, Institute of Labor and Social Science)

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2000</td>
</tr>
<tr>
<td>1. Un-trained</td>
<td>85.43</td>
</tr>
<tr>
<td>2. Primary level of vocational training</td>
<td>8.72</td>
</tr>
<tr>
<td>3. Secondary level of vocational training</td>
<td>5.84</td>
</tr>
<tr>
<td>4. College and University</td>
<td>5.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100,0</strong></td>
</tr>
</tbody>
</table>

Due to the pattern of small scale, cultivation cannot develop into large commodity production and farmers face many challenges in production expansion. This feature has forced rural households to seek additional income from off-farm activities to ensure life.
thereby promoting a shift of the population and labor from agriculture to off-farm sectors and migration waves to urban and industrial areas (Figure 1).

In addition, the general trend of labor in rural is "ageing" and "feminization". Proportion of over 65 years old workgroup has increased steadily over the years, from 9.83 percent in 1996 to 10.45 percent in 2007; age group from 45-64 years has also recorded similar trend, increasing from 18.49 percent in 1996 to 24.59 percent in 2007. This means corresponding reduction in the proportion of young healthy work group (15-44 years old), from 71.68 percent in 1996 down to 64.96 percent in 2007. In recent years, the rate of decline of young labor group is even faster.

Table 6: Proportion of labor of different age groups in rural in Vietnam (%)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>100,00</td>
<td>100,00</td>
<td>100,00</td>
<td>100,00</td>
<td>100,00</td>
<td>10000</td>
<td>100,00</td>
</tr>
<tr>
<td>from 15 – 44 year old</td>
<td>71,68</td>
<td>71,34</td>
<td>71,69</td>
<td>71,33</td>
<td>68,4</td>
<td>67,49</td>
<td>64,96</td>
</tr>
<tr>
<td>from 45 – 64 year old</td>
<td>18,49</td>
<td>18,83</td>
<td>19,22</td>
<td>19,02</td>
<td>21,54</td>
<td>22,31</td>
<td>24,59</td>
</tr>
<tr>
<td>Over 65 year old</td>
<td>9,83</td>
<td>9,83</td>
<td>9,09</td>
<td>9,64</td>
<td>10,06</td>
<td>10,20</td>
<td>10,45</td>
</tr>
</tbody>
</table>

(Source: Statistic of employment in Vietnam 1996-2005 and 2007)

Historical development of the developing as well as developed countries has demonstrated that the process of labor restructuring takes place and associated with the industrial revolution and economic restructuring towards industrialization and modernization. There is an inevitable trend of labor restructuring in which reduce both
relative and absolute agricultural laborers, gradually remove boundaries to eliminate the gap of development between rural and urban areas.

With regards to Vietnam, in the changing process from agricultural production, subsistence and for many years operated under the centralized planning and subsidized economy to a market-oriented pattern, restructuring labor in accordance with market requirement is the irreversible trend. In agriculture that process has to comply with the general rules of the market economy, matches to the conditions and circumstances of Vietnam, and particularly tightly linked to the trend of economic restructuring towards industrialization and modernization including:

1. Maintain an appropriate workforce in agriculture to ensure national food security in the short and long term, both at the household level and the community
2. Increase the absolute number and proportion of workers in forestry, fisheries, and livestock; reduce the absolute number and proportion of labor in crop production. Creating interdisciplinary structure in agriculture, forestry, and fisheries and eliminate the dominance of crop production in agriculture.

Analysis of the qualitative aspects of agricultural labor in rural areas has showed that the small scale production practices, poor knowledge, and skills due to education and training shortage have led to labor in rural lack of manners and discipline of industrial production, and facing problems accessing to scientific and technological applications. Therefore to improve the quality of rural workers and encourage young generation into farming, there is a need for practical policies and training programs to improve professional qualification and labor discipline.

Practical has shown that the polity on encouragement shifting of production at farming scale has resulted in some positive impact to agriculture in rural area in Vietnam. Since the majority of farm are established on the foundation of household labor and family budget. The transition into farming businesses has encouraged labor especially young people looking to learn new production technology, economic management etc.

However, the development of the farm economy has faced many difficulties due to land shortage; capital; technology; and marketing. In general the policies of development of farming production has received positive feedback from rural areas but support farmers access to capital, the issue of product consumption and crop insurance need to be improved.

Policies to attract qualified young farmers in rural areas in order to strengthen human resource and effective management of resources have been applied. Some policies issued by the Government to encourage qualified young workers such as Decision 354 TTg 28/4/2000 encouraging young intellectual labor volunteer to work in mountainous regions; Decision 149/2000 / QD-TTg on 28/12/2000 about some incentives for young intellectuals who volunteered to participate in the mountainous rural development, and the most recent resolution No. 26-NQ/TW dated 5/8/2008 on agriculture, farmers and rural encourage young intellectuals to work in rural areas. These policies have been successful to some extent but in general it has not resulted in a significant change. Solving this problem requires a comprehensive strategy of reducing the disparity between rural and urban society.
Professional training in rural areas through agricultural extension is also an important solution to encourage the young generation into farming. Extension service has played an important role in expanding and understanding the technologies for farmer in cultivation, livestock, economic management and other necessary knowledge, helping them actively resolve unexpected situations encountered in their production process. Extension policy has been highly evaluated by farmers. Thanks to this policy, agricultural labor has shifted towards enhancing in the level of production and business, and income.

In addition, policy on land resource management, infrastructure development, credit and finance provision, public investment, education and training should also be facilitated to improve the agriculture sector.

Summary (in Korean)

베트남 인구 6천 3백만명 가운데 약 70%가 농어촌 지역에 거주하며 농업에 의존하고 있다. 농업활성화를 위한 다양한 노력에도 불구하고 베트남 농업에는 식량안보, 경제개발, 기후변화 대처 등에 대응하기 위한 지속적인 농업발전을 저해하는 과제가 산재해있다. 이러한 어려운 환경은 농업인의 직업만족도를 더욱 감소시키는 요인이 되었고 비농업계로 이직하는 비율이 높아졌다. 이직하는 농업인의 대다수가 청년층임에 따라 농업인 평균연령은 지속적인 증가추세를 보이고 있다. 현재 농업종사자의 약 30%가 44 세 이상이며, 여성 농업인의 비율도 증가하고 있다. 게다가 농업인력의 지학력이 저하된 환경과 문화 특유의 기술 활용, 수확 후 관리, 산업체 경영 등에 관련된 기술 및 지식 접근 용이성을 떨어뜨리며 농업생산성 증대를 방해한다. 현 상황을 감안한 베트남 정부는 젊은 농경후계자 양성 장려와 지식기술습득을 지원을 통한 지속 가능한 농업발전을 위해 여러 정책과 전략을 발표해왔다.

References
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Farm Expansion and Entry to Farm Business:
Experiences in Hokkaido Agriculture

Shunsuke YANAGIMURA*1

1 Professor, Department of Agricultural Economics
School of Agriculture, Hokkaido University
Sapporo, Hokkaido, Japan
Tel: +81-11-706-2466
E-mail: yngmr@agecon.agr.hokudai.ac.jp
Farm Expansion and Entry to Farm Business: Experiences in Hokkaido Agriculture

Abstract
One of the most serious problem Japanese agriculture has is the shortage of the number of farm business entities. The government has intended to secure farm business entities through some policies, which can be divided into either ‘farm’ or ‘farmer’ related policies. The ‘farm’ business policy is promoting agricultural restructure through farm expansion and improvement of business performance. The government hopes to improve basic conditions of farm business organizations and increase the number of young farmers as a result of agricultural restructuring. The ‘farmer’ business policy on the other hand, intends to increase the number of young farmers directly by providing financial support, targeting new entrants even without background on farming. The government started the loan program in 1995 and reinforced the ‘farmer’ related policy by introducing income support in 2000s. Today the amount of financial support to a beginning farmer from the Japanese government is the highest in the world and such combination between the ‘farm’ and ‘farmer’ related policies seems effective from the point of view of the flow economy.

On the other hand, a new problem of how to transfer farm assets is rising to the surface as farm expansion is realized. This is recognized as the matter with the stock economy and how to establish farm ownership by the re-join of ‘farm’ and ‘farmer’. In Hokkaido agriculture, well known for a large and business oriented farming, has faced such transfer issues since decades ago. Local organizations have tried to introduce farm transfer to new entrants through various support programs.

Keywords: Farm business policy, ageing of farmers’ population, farm expansion, support for beginning farmers, farm business transfer

1. Introduction
The most important issue the land-use type agriculture in Japan faces today is the retention of farm business entities. This issue has gained increasing attention from the Japanese government. Since the 1990s it has become particularly relevant to fundamental changes in agricultural conditions, such as the agricultural policy reform before and after the foundation of the World Trade Organization, and the increasing number of Japanese farmers reaching retirement.

According to the Census of Agriculture, the population of farmers engaged mainly in farming decreased from 4,128 thousand in 1980 to 2,051 thousand in 2010, and the proportion of 65 years old and over to all of them rose from 27.8 percent up to 74.3 percent during the same period. The average age is 66.1 years old in 2010 and the decreasing and ageing of farmers’ population has caused the decline of Japanese agriculture (Table 1).
Table 1. Outline of the decline of Japanese agriculture

<table>
<thead>
<tr>
<th>Year</th>
<th>1980</th>
<th>1990</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of farm families</td>
<td>(1,000)</td>
<td>4,661</td>
<td>3,835</td>
<td>3,120</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-18%)</td>
<td>(-19%)</td>
<td>(-19%)</td>
</tr>
<tr>
<td>Commercial farm families</td>
<td>(1,000)</td>
<td>...</td>
<td>2,971</td>
<td>2,337</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(-21%)</td>
<td>(-30%)</td>
</tr>
<tr>
<td>Total acreage of arable farmland</td>
<td>(1,000 ha)</td>
<td>4,706</td>
<td>4,199</td>
<td>3,734</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(-11%)</td>
<td>(-11%)</td>
</tr>
<tr>
<td>Abandoned farmland</td>
<td>(1,000 ha)</td>
<td>123</td>
<td>217</td>
<td>343</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(+76%)</td>
<td>(+58%)</td>
</tr>
<tr>
<td>Farmers engaged mainly in farming</td>
<td>(1,000)</td>
<td>4,128</td>
<td>2,927</td>
<td>2,400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(-29%)</td>
<td>(-18%)</td>
</tr>
<tr>
<td>Proportion of 65 year old and older (%)</td>
<td>27.8</td>
<td>46</td>
<td>66.5</td>
<td>74.3</td>
</tr>
<tr>
<td>Average age (Years old)</td>
<td>...</td>
<td>59.6</td>
<td>62.2</td>
<td>66.1</td>
</tr>
</tbody>
</table>

In this paper policies aimed at maintaining farm business entities and related policies from the two sides of the business; ‘farm’ and ‘farmer’ will be examined. The first side regards the farm as a business organization and involves maintaining the business entity through the solution of structural problems such as small farm size and low profitability. The second side is for farmers engaged in the farm business, and the issues associated with how to increase the number of new entrants into agriculture.

It seems appropriate to connect the rejuvenation of farmers’ population with agricultural restructuring, because the rejuvenation can be a good opportunity to change social structure, and solve problems in general. The above activities will be considered by tracing the trend of agricultural policy, and local activities in supporting beginning farmers in Hokkaido.

2. Trend of Agricultural Policy for Securing Young Farmers

2.1 Promotion of Establishing Farm Business

In Japan, a new policy framework called ‘farm business policy’, as a part of agricultural policy reform characterized by market orientation, has been established to promote farm expansion by farmland accumulation and stabilize farm income since 1992. Although there have been some amendments to this policy such as the start of direct payment in the 2000s, it remains largely unchanged today. Priority has been given to the measures aimed at the establishment of ‘efficient and stable farm businesses’. Further, as large numbers of farmers began to retire, it has been recognized as an opportunity to accelerate structural change rather than a cause of anxiety about the shortage of the population of farmers.

The government has also paid attention to the ‘farmer’ side issue. In 1995 a loan program targeting young people entering agriculture started. This program still plays an important part in the ‘farmer’ related policies. The beginning farmer centers were set up in all of prefectures to manage the loan program. This center works as a window to accept and advise people wishing to enter the agriculture sector. The Basic Law on Food, Agriculture
and Rural Areas was enacted in 1999 and article 25 titled “Secure and foster talented farmers” amongst other was included, thus the support policies for beginning farmers have been reinforced legally.

However, the government has had much concern about the ‘farm’ side issue and recognized that the establishment of farm business through structural change were required as a basic condition to increase the number of new entrants into farming.

The government’s 1992 policy, promoting farm land accumulation and stabilizing farm incomes, highlights the apparent trend. The goal of the said policy was to establish farm business that could operate a certain number of acreage of farmland in about ten years. In case of a family farm growing rice, the model was cultivating 10-20 hectares, which enabled a farmer to work 1,800-2,000 hours per year and earn $2.0 million -$2.5 million within a lifetime. The hours and income were equivalent to the conditions of workers engaged in other industries.

Moreover, the direct payment policy that started in 2007, requested community based farms organized by many small farmers to establish “efficient and stable farm business” in order to receive income support from the government. It stipulated the goal of the income support of an operator mainly in farming, in addition to other conditions such as acreage of farmland of 20 hectares and more, unified accounting as a sole business organization, and setting of plan to incorporate. Although the working hour condition has been eliminated, the government still intends to increase the number of young farmers through establishing ‘farms’ that can realize a target income. Further, this policy is widely accepted by the rural population.

2.2 Is farm business policy effective on securing farmers?

It is appropriate to assume that the establishment of farm business should realize a target income and enable to increase the number of new entrants into farming. However, the goal of the policy in securing ‘farmers’ can be accomplished only by such a farm business policy that could successfully establish farm businesses.

Figure 1 shows the proportion of farm families holding a farm successor. This indicates that, as farmland acreage increases so does the percentage of farm families holding a farm successor. However, the difference is not large. Sixty seven percent of farm families of 30 hectares or more have successors, while 54 percent of farm families of less than one hectare have successors. The difference increases if successors are regarded as all those living with the farm owners and those only engaged in farming or mainly engaged in farming. When this limited farm successor definition is applied, just four percent of farms of less than one hectare have successors and 45 percent of farms of 30 hectares or more. Yet the rate of farm families with successors still does not reach 50 percent even in case of those operating large farmlands. Evidence suggests that farm establishment influences new entrants’ behavior into farming, yet it does not secure enough entrants.
To fully understand this issue, we need to examine the following:

1) Does farm business establishment realize income targets?
   Despite the accumulation of farmland, incomes may not necessarily increase proportionally. This is because farm incomes are influenced by a variety of factors.

2) Do enough people want to enter farming?
   Even if income targets are realized and not enough people want to become farmers, new entrants cannot be secured. This is the supply side matter of new farmers.

2.3 Effect of Income Support for Beginning Farmers
   Agricultural policies to support beginning farmers started in 1995 with a “no interest” loan program. More than a decade later, in 2008, agricultural employment promotion started. In 2012, a subsidy program was established to assist new generation of farmers entering agriculture by providing a subsidy of USD 15,000 per year for up to seven years. Policies for new entrants were systematically improved and the level of support has been upgraded. Although the implementation of policy initiatives may be a little late, the separation of ‘farmer’ focused policy from farm business policy seems to be a positive development.

Figure 2 examines the above by using the supply curve of new entrants. When the new entrants supply curve is $S_0$ and income level is $I_0$, and the number of new entrants is set at A. If farm business establishment is realized and income level goes up to $I_1$, the number of new entrants increases from A to B. Moreover, if the supply curve shifts to $S_1$ from $S_0$ by income support while income level is the same, the number of new entrants will be set at C. Furthermore, the number of new entrants increases to D when there is a simultaneous improvement in income level and support.
3. Difficulty to Re-join ‘Farm’ and ‘Farmer’

The previously discussed issue reveals the flow economy of farm business and indicates that the number of new entrants into farming is influenced by income levels. Another issue involving farm stock and its economic impact exists. Transferring farms to new entrants was not easy, particularly as the size and associated assets of the farm increases. Farm assets can be divided into tangible and intangible assets. The following section discusses the difficulties associated with the transfer of each asset class.

Following the 1990s, policies to encourage young generation to enter agriculture has been developed. Recently measures to provide income support to beginning farmers were established. In the economic flow of farms, farm expansion leads to an increase in new agricultural entrants, while in the stock economy of farms, asset transfer is problematic, particularly with farm expansion. Farm asset transfer is a common problem in developed countries (Sakai et al., 1998). Issues around the intergenerational transfer of farm assets are beginning to surface in Japan. This issue focuses attention on the next generation of farm ownership and explores the issue regarding how to re-joint the ‘farm’ and the ‘farmer’.

Japanese farm families are facing difficulties in farm asset transfers through traditional farm succession practices. More suitable methods for intergenerational farm asset transfer are required even in case of a farm family with a successor. For example, some large farms have transferred assets by using the same measures as business succession planning for small companies in other industries. Further, some livestock farms use a venture capital funded by the government and the group of agricultural cooperatives to transfer farm assets.

Moreover, changing relationships and family dynamics are beginning to cause increasingly difficult farm transfers. Traditionally, farm families are characterized by an extended family, where two or three generations live together on the farm and there is a sole inheritor. A sole inheritance custom used to be connected with maintaining farming and farm family including care for old parents. Increasingly many issues are emerging around farm succession, which includes the following:

1) A successor with no spouse
2) A successor living apart from their parents
3) A successor’s spouse working in a non-agricultural industry
4) A farmer’s wife who is engaged in farming following child rearing
5) Claims for divided succession

In particular, claims for divided succession are gaining strength, challenging the traditional custom of sole inheritance. Improved family communications and methods for amicable and fair family agreements are required to ensure smooth farm business succession. Farm asset transfer in the case of non-related parties is more difficult than in the case of the transfer from parents to children. However, as illustrated in Figure 1, only small portion of farm families has secured successors devoted to farming. This trend also includes farm families of 30 hectares and more. The transfer of farm assets to new entrants, who does not have a farm family background, is becoming a significant issue for Japanese land-use agriculture.

4. New Entrance into Hokkaido Agriculture
4.1 Farm Transfer as a Part of Major Issues in Hokkaido Agriculture

Hokkaido agriculture is well known for the history of the agricultural development since the late 19th century, and its different characteristics such as large shares of products of dairy farming, growing of potato, wheat, beans and sugar beet like western countries, and relatively large and business oriented farms devoted into farming without any other job and business. It’s quite different from other prefectures in Japan where many farmers are part-time ones or elder generation operating rice farming with small paddy field.

Hokkaido agriculture is the most productive part in Japanese agriculture but it has faced problems such as difficulty in farm asset transfer from early time. In 2005, only 24.6 percent of farm families in Hokkaido and 55.4 percent in other prefectures had successors. Although in Hokkaido the percentage of farm successors mainly engaged in farming is much higher than other prefectures. Because not all family farms can be transferred successfully, the Hokkaido prefectoral government, local governments, Japanese Agricultural Cooperative (JA), and the Hokkaido Agricultural Development Corporation have begun to support new farm entrants. In the past 10 years between 2006 and 2013, 5,162 people have entered agriculture, with 609 (11.8%) not being the family farm successor. The beginning farmers without a farm family background are an indispensable part of new entrants in Hokkaido agriculture. And total number of new entrants without farm family background during the same period is 17,480, and the proportion of such entrants into Hokkaido agriculture is 3.5 percent.

Table 2 shows the number of new entrants into Hokkaido agriculture, and those without farm family background against the type of farming. According to this, new entrants without farm family background used to be the largest in dairy farming, however the most popular type in past five years is vegetable farming.
As farm businesses in Hokkaido are comparatively large and many farmers wish to sell assets such as farmlands, when they quit or retire new entrants are forced to find large sums of money to finance farm purchases. Moreover, the acquisition of intangible assets, including high level farm business management and production technology knowledge and skills, is necessary for beginning farmers. This reduces the risk of early failure and ensures the financial stability of the farm.

4.2 Various Supports for Beginning Farmers

Various measures are taken to help solve the difficulties beginning farmers face, which include supports for acquiring tangible and intangible assets that continue after the start of farming (Table 3). They cover issues widely from farm business and tax to living conditions. Support program is arranged differently depending on the type of farm business operation. This is influenced by which type of farm a new entrant candidate a support organization chooses to accept (HADC and HRARI, 2012).

A key difference amongst types of entry to agriculture is the size of farm assets (Table 4). Greenhouse cultivation growing vegetables and flowers are examples of small farm assets. Fixed assets are comparatively small and the initial investments are usually low. Alternatively, land use agriculture generally has large assets. This is particularly true for dairy farming, which typically includes a barn with a variety of facilities and vast forage fields.

<table>
<thead>
<tr>
<th>Table 2. The number of new entrants into Hokkaido agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of the start of farming</td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>Having the background of farm family</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>No background of farm family</td>
</tr>
<tr>
<td>Past 5 years (2009~2013)</td>
</tr>
<tr>
<td>1970~2013</td>
</tr>
</tbody>
</table>

* New entrants into agriculture survey, Department of agricultural policy, Hokkaido prefectural government.
Table 3. Supports for beginning farmers by local organizations

<table>
<thead>
<tr>
<th>Support for acquiring intangible assets</th>
<th>Provide an opportunity to acquire basic technology and management skill</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• in a farm run by the organization</td>
</tr>
<tr>
<td></td>
<td>• by farmers</td>
</tr>
<tr>
<td></td>
<td>• at the Hokkaido prefectural college of agriculture</td>
</tr>
<tr>
<td>Support for acquiring tangible assets</td>
<td>Provide an accommodation support for a house rent</td>
</tr>
<tr>
<td></td>
<td>Pay compensation for training</td>
</tr>
<tr>
<td></td>
<td>• to a trainee</td>
</tr>
<tr>
<td></td>
<td>• to a trainer</td>
</tr>
<tr>
<td>Support after starting farm business</td>
<td>Assist to purchase/rent farmland</td>
</tr>
<tr>
<td></td>
<td>Provide subsidy</td>
</tr>
<tr>
<td></td>
<td>• for acquiring fixed assets</td>
</tr>
<tr>
<td></td>
<td>• for paying loan interest</td>
</tr>
<tr>
<td></td>
<td>• for paying farmland rent</td>
</tr>
<tr>
<td></td>
<td>Provide subsidy</td>
</tr>
<tr>
<td></td>
<td>• for purchasing/reforming a house</td>
</tr>
<tr>
<td></td>
<td>• for making economic status stable</td>
</tr>
</tbody>
</table>

Table 4. Types of new entry to agriculture

<table>
<thead>
<tr>
<th>Style of farm business</th>
<th>Farm assets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>Standardized</td>
<td>A</td>
</tr>
<tr>
<td>Not standardized</td>
<td>C</td>
</tr>
</tbody>
</table>

However, asset costs can be reduced by contract farming and leasing farmland and machinery. Some new entrants to land use agriculture have established small asset based farms by leasing land where farmland prices are high.

Another key difference to divide types of new entry is the standardization of farm businesses. Financial risks can be reduced by standardizing the various aspects of farming. This includes providing production supplies, technology, sales of products, financing and business management. Further, risks to new entrants can be minimized by helping the beginning farmer reach and maintain these standard practices. The standardization of greenhouse cultivation is easier than other types of farming.

Some agricultural cooperatives in the dairy farming area have attempted to standardize dairy farm entry, and thus somehow reduce financial risks. This is done by establishing an educational farm for trainees to provide basic technology and skills to beginning farmers, and by setting up experiment farms to manage actual dairy farming, and spinning them out after making sure that their management becomes stable. The Hokkaido Agriculture Development Corporation (HADC) has offered a farm lease system to assist the transfer of farm assets. In many cases, local organizations have new entrants that start farming by using HADC program after two to three years training on a farm or facility. Thus, the process from the acceptance of new entrants to the start of farming has been standardized.

On the other hand, many other types of farming cannot be standardized. Diversified farms, growing several crops or livestock are difficult to be standardized. In diversified farming areas, it seems difficult to accept new entrants but recently some areas have started a support program in order to maintain the population of farmers and agricultural resources.

As initial investment increases in size so does financial risk. Financial support for the
acquisition of tangible assets is required to reduce such risk. Due to the comparatively small
initial investment required, and the accompanying smaller risks, greenhouse cultivation and
lease-type farming do not require large amounts of economic support.

Generally, a standardized farm with large assets, which is typically a dairy farm,
requires local government or agricultural cooperative support (Table 3, case B). Because of
the large amount of support required for dairying, the number of new entrants who can receive support is necessarily small. In contrast, a farm that is not standardized and has small assets requires little support (Table 4, case C). Therefore, it becomes possible to increase the number of new entrants. In such a case, there are many new entrants with various wishes for farming or living in country side, but their businesses are not always successful and the entrance and exit is repeated frequently as a result.

Moreover, the risk of failure can be reduced most effectively for standardized farms with small assets (Table 4, case A). Greenhouse cultivation is a typical example of this type. On the other hand, farms that are not standardized and have large assets (Table 4, case D) face the largest risk of collapse. To reduce the financial risks associated with farm succession for non-related entrants, careful consideration of this transaction is needed. A strong and durable relationship over several years needs to be built between the farm owner and the successor so that both tangible and intangible assets are transferred. In the town of Bifuka, some dairy farm owners who did not have children as successors built an organization to promote farm succession to non-related entrants (Yanagimura et al. 2012).

A variety of schemes in different areas of Hokkaido attempt to solve the difficult problems faced in transferring farm assets to beginning farmers. Although the establishment of support mechanisms for beginning farmers requires time and effort, these initiatives help re-joint a ‘farm’ and a ‘farmer’ and establish farm ownership. This not only greatly assists new entrants to agriculture but also benefits the revitalization of land use agriculture.

5. Conclusion

When the Japan government started farm business policies in 1990s, restructuring of small farms was focused on increasing new entrants into agriculture. On the other hand, the problem on farm transfer has emerged and the nature of this is an excess of farm assets for new entrants.

It’s necessary to realize a certain level of farm size to get enough farm income. But it is difficult to have farm assets - both tangible asset and intangible asset, in a short period of time especially for new entrants without farm family background.

To solve the problem of excess farm assets, the farm assets should be divided into small pieces and transferred to several farmers, or the process of farm transfer must be extended so that farm assets can be taken over gradually. We have to consider the system to realize such farm transfer and also how to get enough income from small piece of farm asset. Eventually, it’s important to establish a business model which is fit for new entrants and a method to reach it.

Dairy farming in Hokkaido is a typical farm business with large assets. Over USD 1 million is required as initial investment for new entrants, also the process of farm transfer is
becoming more difficult.

Recently many new entrants are interested in intensive grazing with comparatively low investment and small number of cows. They are thinking of ways on how to get income by increasing the income ratio to total sale. This is a good example of an action toward establishing a business model for new entrants.

Summary (in Korean)

일본 농업의 가장 심각한 문제는 농산업체 부족 현상이다. 정부는 농촌지원 및 농업인 장려 정책을 시행하며 농산업체 확보를 위해 노력해왔다. 첫째 농산업체 정책은 농경지 확대와 사업실적 제고를 통해 농업 구조조정을 꾀하는 정책이다. 정부는 농산업체의 근본 조건을 개선하여 농업 구조를 변화시키고 이로 인해 젊은 인력을 늘려나가고자 한다. 둘째, 농업인 장려 정책은 직접적인 재정지원을 통해 농업에 종사해온 가족 이력이 없는 청년층 농업 인력 유치를 목표로 한다. 정부의 대출 지원 프로그램은 1995 년에 시작되었고 이 정책은 2000 년 정부에서 농가 수입 지원 정책을 시행하면서 더욱 강화되었다. 현재 일본정부가 농업 입문인에게 제공하는 재정적 지원은 세계 최고 수준이며 농촌지원 및 농업인 장려 정책은 유량 경제 관점에서 볼 때 효과적이라고 할 수 있다.

다른 한편, 농경지 확대가 시행되면서 농장 재산 상속 방법이 새로운 문제로 대두되고 있다. 이는 저량경제 개념의 문제이며 농경지와 농업인을 통합하여 농경지 상속을 가능하게 하는 방법을 강구하는 개념이다. 대규모 농산업체 위주의 농업으로 잘 알려진 홋카이도 농업에서는 몇 십 년 전부터 이러한 상속문제로 고민을 해왔다. 지역 내 기관들은 농업 입문인들에게 농경지 상속을 진행할 수 있도록 다양한 프로그램을 시행해왔다.

References

Hokkaido Agricultural Development Corporation (HADC) and Hokkaido Regional Agriculture Research Institute (HRARI). 2012. Securing farm business entities and the conditions of their settlement; cases of new entrants.


Succession Decisions in Korean Family Farms

Jeong-im HWANG*¹ and Yoon-ji CHOI*¹

¹ Researcher
National Academy of Agricultural Science
Rural Development Administration, Jeonju, Korea
Tel: +82-63-238-2647
E-mail: jihwang@korea.kr
Succession Decisions in Korean Family Farms

Abstract

The number of farm households in South Korea decreased from 1,767,000 in 1990 to 1,151,000 in 2012, and so did the rate of farm households that have successors from 16.4 to 8.9 percent. Farm succession by the next generation has profound implications for the future structure of agricultural industry and the procurement of agricultural human resources. Therefore, this paper sought to investigate the relevant issues and explore support policies based on the results of a questionnaire survey on farm succession plans of farm operators. It should be noted, however, that this paper is a partial result of a study in progress and its scope of survey is limited to farm households engaged in the cultivation of paddy rice, food crops, vegetables, and fruits. The survey items are the presence/absence of successor, succession plan for the farm households with successors, and measures for those without successors. Even the farm households with successors were revealed to encounter difficulties with the implementation of step-by-step succession, thus requiring relevant assistance and educational support for the successors to acquire farming skills. About 28.3 percent of the farm households without successors had positive views regarding the transfer to third parties, suggesting the feasibility of initiating linkage measures for beginning farmers. Additionally, with the rate of willingness for “divisional succession” irrespective of the presence or absence of the successor being high, segmentation of agricultural land is anticipated and countermeasures are deemed necessary.

Keywords: Farm Succession, Farm Transfer, Intergenerational Succession, Korea

1. Introduction

The farm family sector relied heavily on intergenerational succession (Mishra et al. 2010). However, in South Korea, farming is characterized by an ageing population with a reduced rate of entry into farming by younger farmers. According to Agricultural Census (1990), the proportion of the farm households that have successors totaled to 16.4 percent; since then, it has been continuously declining (11.0% in 2000 and 8.9% in 2012). While return to farms and rural areas has lately been increasing and attracting attention in South Korea, constant effort should be put to set up policies for safeguarding the efficient intergenerational succession of the tangible and intangible resources of farm households and improving management structures. Despite this necessity, there is a lack of interest in and support of farm succession in South Korea.

A farm succession support system can be largely categorized into operator-centered, successor-centered, and operator/successor-centered systems. Most operator-centered systems focus on social security benefits after retirement, but it is generally acknowledged that they are not high enough to provide security for the life after retirement (Kim et al. 2007; Choi 2012). On the other hand, the government-sponsored agricultural human resources support policy targets family farm successors as well; however, there are hardly
any practical measures designed to promote family farm successors (Kang, 2008).

Against this background, this study aims to identify the current state of succession planning of farm households and explore support policies based on it, with special emphasis given to the importance of succession for the family farm-centered Korean agriculture.

2. Data

This paper presents the result of the first year of implementation of a two-year research. The subjects were farm operators aged 45 years or older who mainly cultivate paddy rice, food crops, vegetables, or fruits. The criterion of ‘45 years or older,’ which is the standard age for farm succession research, was set in consideration of the age at which farm operators begin to plan succession to their adult children. The subjects were selected with the probability proportional to size sampling (PPS sampling) method with respect to the number of family households at eup-myeon (lower-level administrative districts in South Korea) level for each of the four main crops. Five eup-myeon districts per each crop were extracted, and the survey was conducted on 30 family farms or so per district. Of the total 630 questionnaires distributed to the subjects, 545 questionnaires were received. After the exclusion of incomplete questionnaires, 539 questionnaires were used for analysis. Survey items were the presence/absence of successor, succession plan of the farm households with successors, and measures for those without successors.

3. Results

3.1 General Characteristics of the Survey Subjects

The most dominant age group of the survey subjects was 55–64 (34.1%), followed by 45–54 (28.8%) (Table 1). Most of them were married (92.8%), males were predominant (90.5%), and the most frequent education level was high school (41.0%).

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>45–54</td>
<td>155 (28.8%)</td>
</tr>
<tr>
<td>55–64</td>
<td>184 (34.1%)</td>
</tr>
<tr>
<td>65–74</td>
<td>152 (28.2%)</td>
</tr>
<tr>
<td>≥75</td>
<td>48 (8.9%)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>500 (92.8%)</td>
</tr>
<tr>
<td>Single</td>
<td>2 (0.4%)</td>
</tr>
<tr>
<td>Others</td>
<td>37 (6.9%)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>488 (90.5%)</td>
</tr>
<tr>
<td>Female</td>
<td>51 (9.5%)</td>
</tr>
<tr>
<td>Education attainment</td>
<td></td>
</tr>
<tr>
<td>No schooling</td>
<td>13 (2.4%)</td>
</tr>
<tr>
<td>Primary school</td>
<td>109 (20.2%)</td>
</tr>
<tr>
<td>Middle school</td>
<td>143 (26.5%)</td>
</tr>
<tr>
<td>High school</td>
<td>221 (41.0%)</td>
</tr>
<tr>
<td>College or higher</td>
<td>53 (9.8%)</td>
</tr>
</tbody>
</table>
3.2 Characteristics of Family Farm Management

The proportions of the main crops cultivated by the survey subjects, namely, paddy rice, food crops, vegetables, and fruits, ranged between 24.1 and 26.5 percent (Table 2). The most frequent size of cultivation area was three hectares or larger (27.5%). The most frequent amount of annual sales of agricultural products was USD 9,360–28,079 (31.9%), followed by USD 46,800–93,589 (24.5%) and USD 28,080–46,799 (22.8%). Most households were exclusively engaged in farming (74.2%), and 16.9 percent of the households had off-farm work, with which higher incomes could be achieved than farming. The households had off-farm work (8.9%), which brings less income than farming. The most frequent number of years of farming experience was 30–39 years (28.9%), and high proportion of the respondents had farming experiences from either their parents (46.8%), or grandparents (31.5%).

Table 2. Characteristics of family farm management

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency (%)</th>
<th>Category</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main crop</td>
<td></td>
<td>Income Source</td>
<td></td>
</tr>
<tr>
<td>Paddy rice</td>
<td>131 (24.3)</td>
<td>Farming only</td>
<td>400 (74.2)</td>
</tr>
<tr>
<td>Food crops</td>
<td>130 (24.1)</td>
<td>Farming &gt; Off-farm work</td>
<td>91 (16.9)</td>
</tr>
<tr>
<td>Vegetables</td>
<td>143 (26.5)</td>
<td>Farming &lt; Off-farm work</td>
<td>48 (8.9)</td>
</tr>
<tr>
<td>Fruits</td>
<td>135 (25.0)</td>
<td>Eco-friendly farming</td>
<td></td>
</tr>
<tr>
<td>&lt; 0.5</td>
<td>54 (10.0)</td>
<td>yes</td>
<td>194 (36.0)</td>
</tr>
<tr>
<td>0.5≤A&lt;1</td>
<td>108 (20.0)</td>
<td>no</td>
<td>345 (64.0)</td>
</tr>
<tr>
<td>1≤A&lt;1.5</td>
<td>73 (13.5)</td>
<td>Farming experience (year)</td>
<td></td>
</tr>
<tr>
<td>1.5≤A&lt;2</td>
<td>76 (14.1)</td>
<td>&lt; 10</td>
<td>47 (8.7)</td>
</tr>
<tr>
<td>2≤A&lt;2.5</td>
<td>38 (7.1)</td>
<td>10–19</td>
<td>85 (15.8)</td>
</tr>
<tr>
<td>2.5≤A&lt;3</td>
<td>42 (7.8)</td>
<td>20–29</td>
<td>99 (18.4)</td>
</tr>
<tr>
<td>≥3</td>
<td>148 (27.5)</td>
<td>30–39</td>
<td>156 (28.9)</td>
</tr>
<tr>
<td>Annual sales proceeds (US$)</td>
<td></td>
<td>40–49</td>
<td>88 (16.3)</td>
</tr>
<tr>
<td>&lt;9,360</td>
<td>105 (19.5)</td>
<td>≥50</td>
<td>64 (11.9)</td>
</tr>
<tr>
<td>9,360–28,079</td>
<td>172 (31.9)</td>
<td>1st generation</td>
<td>36 (6.7)</td>
</tr>
<tr>
<td>28,080–46,799</td>
<td>123 (22.8)</td>
<td>2nd generation</td>
<td>252 (46.8)</td>
</tr>
<tr>
<td>46,800–93,589</td>
<td>132 (24.5)</td>
<td>3rd generation</td>
<td>81 (15.0)</td>
</tr>
<tr>
<td>≥93,590</td>
<td>7 (1.3)</td>
<td>≥4th generation</td>
<td>170 (31.5)</td>
</tr>
</tbody>
</table>

※ 1 USD = 1,068.50 KRW (Oct/6/2014)

3.3 Characteristics of Farm Succession

Of the respondents, 12.1 percent answered that they had designated successors, and 17.1 percent answered that they had succession candidates. Only 16.5 percent responded affirmatively to the certainty of farm transfer, with the majority (83.5%) choosing uncertainty as an answer. The percentage of the certainty of farm transfer among the households with designated successors was 69.2 percent, while 30.4 percent of the households with succession candidates showed optimism over the possibility of farm transfer.
The distribution of the presence/absence of successor by variable did not show any significant differences depending on acreage under cultivation, annual sales proceeds, income source, and family farm experience. The variables significantly associated with the presence/absence of the successor were age, crop type, and real estate property. The percentage of having a designated successor or candidate was high in the farm households whose current operators were aged 75 years or older. This was also the case with the households cultivating primarily fruits. Households with real estate area of one to two hectare had a high rate of having designated successors, and in case of three hectare or more, the rate of having succession candidates was high.

\[\chi^2 = 186.046 (p = 0.000*** )\]
3.4 Farm Succession Planning of the Farm Households with Successors

The percentage of intrafamily succession among the farm households with successors was 93.6 percent, of which 67.3 percent were the first-born children. The dominant characteristics of the successors were 98.7 percent male and 35.7 percent in their thirties (average age: 37.5 years). The percentage of the successors dwelling together (28.0%) was three-fold lower as against those dwelling separately (72.0%). More than half (58.6%) of the successors were engaged in other business sectors than agriculture. About half (49.7%) of the successors participated in agriculture in the form of occasional help in the farms.

Table 4. Presence/Absence of successor depending on variables

<table>
<thead>
<tr>
<th>Category</th>
<th>Presence/Absence of successor</th>
<th>Total</th>
<th>$\chi^2$ (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Designated successor</td>
<td>Candidate No candidate</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>45–54</td>
<td>6 (3.9)</td>
<td>20 (12.9)</td>
</tr>
<tr>
<td></td>
<td>55–64</td>
<td>20 (10.9)</td>
<td>28 (15.2)</td>
</tr>
<tr>
<td></td>
<td>65–74</td>
<td>25 (16.4)</td>
<td>30 (19.7)</td>
</tr>
<tr>
<td></td>
<td>≥75</td>
<td>14 (29.2)</td>
<td>14 (29.2)</td>
</tr>
<tr>
<td>Main crop</td>
<td>Paddy rice</td>
<td>15 (11.5)</td>
<td>18 (13.7)</td>
</tr>
<tr>
<td></td>
<td>Food crops</td>
<td>17 (13.1)</td>
<td>24 (18.5)</td>
</tr>
<tr>
<td>Acreage under cultivation</td>
<td>Vegetables</td>
<td>9 (6.3)</td>
<td>11 (7.7)</td>
</tr>
<tr>
<td></td>
<td>Fruits &lt;1ha</td>
<td>24 (17.8)</td>
<td>39 (28.9)</td>
</tr>
<tr>
<td></td>
<td>1≤A&lt;2ha</td>
<td>18 (11.1)</td>
<td>29 (17.9)</td>
</tr>
<tr>
<td></td>
<td>2≤A&lt;3ha</td>
<td>20 (13.4)</td>
<td>25 (16.8)</td>
</tr>
<tr>
<td>Real estate property</td>
<td>≥3ha</td>
<td>12 (15.0)</td>
<td>8 (10.0)</td>
</tr>
<tr>
<td></td>
<td>&lt;1ha</td>
<td>15 (10.1)</td>
<td>30 (20.3)</td>
</tr>
<tr>
<td></td>
<td>1≤R&lt;2ha</td>
<td>27 (9.9)</td>
<td>42 (15.4)</td>
</tr>
<tr>
<td></td>
<td>2≤R&lt;3ha</td>
<td>30 (18.2)</td>
<td>27 (16.4)</td>
</tr>
<tr>
<td></td>
<td>≥3ha</td>
<td>24 (14.0)</td>
<td>27 (15.7)</td>
</tr>
<tr>
<td>Annual sales proceeds (US$)</td>
<td>9,360–28,079</td>
<td>23 (14.0)</td>
<td>27 (15.7)</td>
</tr>
<tr>
<td></td>
<td>28,080–46,799</td>
<td>14 (11.4)</td>
<td>27 (22.0)</td>
</tr>
<tr>
<td></td>
<td>46,800–93,589</td>
<td>13 (14.1)</td>
<td>12 (13.0)</td>
</tr>
<tr>
<td></td>
<td>≥93,590</td>
<td>6 (12.8)</td>
<td>5 (10.6)</td>
</tr>
<tr>
<td></td>
<td>Farming only</td>
<td>53 (13.2)</td>
<td>70 (17.5)</td>
</tr>
<tr>
<td></td>
<td>Farming &gt; Off-farm work</td>
<td>10 (11.0)</td>
<td>14 (15.4)</td>
</tr>
<tr>
<td></td>
<td>Farming &lt; Off-farm work</td>
<td>2 (4.2)</td>
<td>8 (16.7)</td>
</tr>
<tr>
<td>Income Source</td>
<td>1st generation</td>
<td>6 (16.7)</td>
<td>2 (5.6)</td>
</tr>
<tr>
<td></td>
<td>2nd generation</td>
<td>24 (9.5)</td>
<td>50 (19.8)</td>
</tr>
<tr>
<td></td>
<td>3rd generation</td>
<td>11 (13.6)</td>
<td>13 (16.0)</td>
</tr>
<tr>
<td></td>
<td>≥4th generation</td>
<td>24 (14.1)</td>
<td>27 (15.9)</td>
</tr>
</tbody>
</table>
Among those who graduated high school or had college education, only 13.5 percent of them studied agriculture (agriculture-related vocational high schools, junior colleges, and faculties). The successors’ average number of years of farming experience was 5.7.

Table 5. Characteristics of farm successors

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship</td>
<td></td>
</tr>
<tr>
<td>Child</td>
<td>147 (93.6)</td>
</tr>
<tr>
<td>Relative</td>
<td>5 (3.2)</td>
</tr>
<tr>
<td>Non-relative</td>
<td>5 (3.2)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>155 (98.7)</td>
</tr>
<tr>
<td>Female</td>
<td>2 (1.3)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>&lt;20</td>
<td>3 (1.9)</td>
</tr>
<tr>
<td>20–29</td>
<td>28 (17.8)</td>
</tr>
<tr>
<td>30–39</td>
<td>56 (35.7)</td>
</tr>
<tr>
<td>40–49</td>
<td>52 (33.1)</td>
</tr>
<tr>
<td>≥50</td>
<td>18 (11.5)</td>
</tr>
<tr>
<td>Education attainment</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td>Middle school</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td>High school</td>
<td>42 (26.8)</td>
</tr>
<tr>
<td>≥College</td>
<td>113 (72.0)</td>
</tr>
</tbody>
</table>

The most frequent reason for farm transfer to the successor (candidate) was “to pass the family business on to the next generation” (28.7%), followed by “to comply with the successor’s wish” (18.5%) (Table 6). As for the farm transfer stage, “indefinite concept stage” was the most frequent answer (46.5%). The most preferred timing for farm succession was “gradual transfer of management right and farm ownership during the lifetime” (33.1%) as opposed to “transfer of management right and farm ownership after death” (12.7%), followed by “undecided” (22.9%).

As for the succession of farmland, the answer “split between the farm successor and other children” outnumbered “exclusively to the farm successor” (51.6% vs. 35.7%).

Table 6. Farm succession planning

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reason for farm succession</td>
<td></td>
</tr>
<tr>
<td>To spend a carefree retired life</td>
<td>25 (15.9)</td>
</tr>
<tr>
<td>To pass the family business on to the next generation</td>
<td>45 (28.7)</td>
</tr>
<tr>
<td>To pass on the farming assets and mgmt knowhow</td>
<td>25 (15.9)</td>
</tr>
<tr>
<td>Preferred timing for farm succession</td>
<td></td>
</tr>
<tr>
<td>Management during lifetime and ownership after death</td>
<td>20 (12.7)</td>
</tr>
<tr>
<td>Ownership during the lifetime and mgmt after death</td>
<td>12 (7.6)</td>
</tr>
<tr>
<td>Gradual transfer of mgmt and ownership during the lifetime</td>
<td>52 (33.1)</td>
</tr>
</tbody>
</table>
To comply with the farm successor’s wish 29 (18.5)  
Because farming is better than other jobs 25 (15.9)  
Others 8 (5.1)  
One-off transfer of mgmt and ownership during the lifetime 17 (10.8)  
Transfer of management and ownership after death 20 (12.7)  
I don’t know 36 (22.9)  

<table>
<thead>
<tr>
<th>Current succession stage</th>
<th>Indefinite concept stage</th>
<th>Farm successor selection stage</th>
<th>Concrete planning stage</th>
<th>Early farm succession stage</th>
<th>Advanced farm succession stage</th>
<th>Completed farm succession stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of the operator</td>
<td>Total No. (%)</td>
<td>45–54</td>
<td>18 (69.2)</td>
<td>2 (7.7)</td>
<td>2 (7.7)</td>
<td>3 (11.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>55–64</td>
<td>25 (52.1)</td>
<td>6 (12.5)</td>
<td>12 (25.0)</td>
<td>4 (8.3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>65–74</td>
<td>23 (41.8)</td>
<td>12 (21.8)</td>
<td>6 (10.9)</td>
<td>3 (5.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≥75</td>
<td>7 (25.0)</td>
<td>8 (28.6)</td>
<td>2 (7.1)</td>
<td>9 (32.1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;20</td>
<td>2 (66.7)</td>
<td>1 (33.3)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Age of the successor</td>
<td>Total No. (%)</td>
<td>20–29</td>
<td>19 (67.9)</td>
<td>2 (7.1)</td>
<td>4 (14.3)</td>
<td>3 (10.7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30–39</td>
<td>28 (50.0)</td>
<td>5 (8.9)</td>
<td>14 (25.0)</td>
<td>5 (8.9)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40–49</td>
<td>17 (32.7)</td>
<td>15 (28.8)</td>
<td>4 (7.7)</td>
<td>7 (13.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≥50</td>
<td>7 (38.9)</td>
<td>5 (27.8)</td>
<td>0 (0.0)</td>
<td>4 (22.2)</td>
</tr>
</tbody>
</table>

The result of analyzing the age-dependent farm succession stages revealed that the majority of the operators under 75 years were in the “indefinite concept stage” (Table 7). The age group of 75 years or older showed a high rate of “early farm transfer stage.” As for the successor, the rate for “indefinite concept stage” was high independently of age.

Table 7. Farm succession stages depending on the age of operator and successor

<table>
<thead>
<tr>
<th>Category</th>
<th>Indefinite concept</th>
<th>Successor designated</th>
<th>Concrete planning</th>
<th>Early transfer</th>
<th>Advanced transfer</th>
<th>Completed transfer</th>
<th>Total No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of the operator</td>
<td>45–54</td>
<td>18 (69.2)</td>
<td>2 (7.7)</td>
<td>2 (7.7)</td>
<td>3 (11.5)</td>
<td>1 (3.8)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td></td>
<td>55–64</td>
<td>25 (52.1)</td>
<td>6 (12.5)</td>
<td>12 (25.0)</td>
<td>4 (8.3)</td>
<td>1 (2.1)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td></td>
<td>65–74</td>
<td>23 (41.8)</td>
<td>12 (21.8)</td>
<td>6 (10.9)</td>
<td>3 (5.5)</td>
<td>8 (14.5)</td>
<td>3 (5.5)</td>
</tr>
<tr>
<td></td>
<td>≥75</td>
<td>7 (25.0)</td>
<td>8 (28.6)</td>
<td>2 (7.1)</td>
<td>9 (32.1)</td>
<td>1 (3.6)</td>
<td>1 (3.6)</td>
</tr>
<tr>
<td>&lt;20</td>
<td>2 (66.7)</td>
<td>1 (33.3)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>3 (100.0)</td>
</tr>
<tr>
<td>Age of the successor</td>
<td>20–29</td>
<td>19 (67.9)</td>
<td>2 (7.1)</td>
<td>4 (14.3)</td>
<td>3 (10.7)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td></td>
<td>30–39</td>
<td>28 (50.0)</td>
<td>5 (8.9)</td>
<td>14 (25.0)</td>
<td>5 (8.9)</td>
<td>3 (5.4)</td>
<td>1 (1.8)</td>
</tr>
<tr>
<td></td>
<td>40–49</td>
<td>17 (32.7)</td>
<td>15 (28.8)</td>
<td>4 (7.7)</td>
<td>7 (13.5)</td>
<td>6 (11.5)</td>
<td>3 (5.8)</td>
</tr>
<tr>
<td>≥50</td>
<td>7 (38.9)</td>
<td>5 (27.8)</td>
<td>0 (0.0)</td>
<td>4 (22.2)</td>
<td>2 (11.1)</td>
<td>0 (0.0)</td>
<td>18 (100.0)</td>
</tr>
</tbody>
</table>

The average age of expected farm succession completion was 74.5, and 75–79 age group showed the densest distribution (16.6%) (Table 8). The dominant answer across all age groups was “unable to foresee the timing for completing the farm succession (58.0%). Only 1.9 percent answered that they had already completed the farm succession.
Table 8. Timing for completing the farm succession

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timing for farm succession completion</td>
<td></td>
</tr>
<tr>
<td>&lt;65</td>
<td>2 (1.3)</td>
</tr>
<tr>
<td>65–69</td>
<td>6 (3.8)</td>
</tr>
<tr>
<td>70–74</td>
<td>13 (8.3)</td>
</tr>
<tr>
<td>75–79</td>
<td>26 (16.6)</td>
</tr>
<tr>
<td>≥80</td>
<td>16 (10.2)</td>
</tr>
<tr>
<td>Unable to foresee</td>
<td>91 (58.0)</td>
</tr>
<tr>
<td>Already completed</td>
<td>3 (1.9)</td>
</tr>
<tr>
<td>Total</td>
<td>157 (100.0)</td>
</tr>
</tbody>
</table>

As difficulties encountered or expected while implementing a farm succession plan, the respondents chose “successor’s knowhow acquisition” most frequently (37.6%) (Table 9). As areas requiring specialist support for the process of farm succession, “business management” was named most frequently, followed by “farm successor selection and training” (31.3%).

Table 9. Difficulties encountered while implement farm succession and required support areas

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successor selection</td>
<td>22 (14.0)</td>
</tr>
<tr>
<td>Gradual farm transfer planning</td>
<td>21 (13.4)</td>
</tr>
<tr>
<td>Intergenerational communication</td>
<td>19 (12.1)</td>
</tr>
<tr>
<td>Different views on farm mgmt</td>
<td>22 (14.0)</td>
</tr>
<tr>
<td>Knowhow acquisition of the successor</td>
<td>59 (37.6)</td>
</tr>
<tr>
<td>Others</td>
<td>14 (8.9)</td>
</tr>
<tr>
<td>Total</td>
<td>157 (100.0)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successor selection and training</td>
<td>42 (31.3)</td>
</tr>
<tr>
<td>Communication with the successor</td>
<td>21 (15.7)</td>
</tr>
<tr>
<td>Business mgmt</td>
<td>59 (44.0)</td>
</tr>
<tr>
<td>Tax &amp; finance</td>
<td>6 (4.5)</td>
</tr>
<tr>
<td>Legal matter</td>
<td>3 (2.2)</td>
</tr>
<tr>
<td>Others</td>
<td>3 (2.2)</td>
</tr>
<tr>
<td>Total</td>
<td>134 (100.0)</td>
</tr>
</tbody>
</table>

The analysis of the difficulties encountered in each stage of farm succession resulted in the findings that “successor’s acquisition of agricultural and managerial knowhow” posed the most serious difficulties across the stages (Table 10). In the early farm succession stage, a relatively large number of respondents also indicated “intergenerational communication about the farm succession plan” and “adjustment of intergenerational discrepancy in farm management-related opinions” as difficulties encountered. As regards difficulties in relation to crop types, paddy rice cultivators indicated “successor selection” as the most difficult issue, whereas many respondents cultivating other three crop types chose “successor’s acquisition of knowhow” as the most difficult issue.
Table 10. Difficulties related to farm succession by current stage and crop type

<table>
<thead>
<tr>
<th>Category</th>
<th>Successor selection</th>
<th>Stage-by-stage farm succession planning</th>
<th>Intergenerational communication</th>
<th>Adjustment of opinion discrepancy regarding farm mgmt</th>
<th>Successor's knowhow acquisition</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indefinite concept</td>
<td>13 (17.8)</td>
<td>9 (12.3)</td>
<td>8 (11.0)</td>
<td>9 (12.3)</td>
<td>26 (35.6)</td>
<td>8 (11.0)</td>
<td>73 (100.0)</td>
</tr>
<tr>
<td>Successor selection</td>
<td>7 (25.0)</td>
<td>3 (10.7)</td>
<td>4 (14.3)</td>
<td>3 (10.7)</td>
<td>11 (39.3)</td>
<td>0 (0.0)</td>
<td>28 (100.0)</td>
</tr>
<tr>
<td>Concrete planning</td>
<td>2 (9.1)</td>
<td>4 (18.2)</td>
<td>1 (4.5)</td>
<td>4 (18.2)</td>
<td>7 (31.8)</td>
<td>4 (18.2)</td>
<td>22 (100.0)</td>
</tr>
<tr>
<td>Early FS stage</td>
<td>0 (0.0)</td>
<td>4 (21.1)</td>
<td>3 (15.8)</td>
<td>4 (21.1)</td>
<td>7 (36.8)</td>
<td>1 (5.3)</td>
<td>19 (100.0)</td>
</tr>
<tr>
<td>Advanced FS stage</td>
<td>0 (0.0)</td>
<td>1 (9.1)</td>
<td>3 (27.3)</td>
<td>2 (18.2)</td>
<td>5 (45.5)</td>
<td>0 (0.0)</td>
<td>11 (100.0)</td>
</tr>
<tr>
<td>Completion of FS</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>3 (75.0)</td>
<td>1 (25.0)</td>
<td>4 (100.0)</td>
</tr>
<tr>
<td>Paddy rice</td>
<td>8 (24.2)</td>
<td>6 (18.2)</td>
<td>6 (18.2)</td>
<td>5 (15.2)</td>
<td>7 (21.2)</td>
<td>1 (3.0)</td>
<td>33 (100.0)</td>
</tr>
<tr>
<td>Food crops</td>
<td>7 (17.1)</td>
<td>6 (14.6)</td>
<td>3 (7.3)</td>
<td>5 (12.2)</td>
<td>15 (36.6)</td>
<td>5 (12.2)</td>
<td>41 (100.0)</td>
</tr>
<tr>
<td>Vegetables</td>
<td>1 (5.0)</td>
<td>3 (15.0)</td>
<td>4 (20.0)</td>
<td>3 (15.0)</td>
<td>8 (40.0)</td>
<td>1 (5.0)</td>
<td>20 (100.0)</td>
</tr>
<tr>
<td>Fruits</td>
<td>6 (9.5)</td>
<td>6 (9.5)</td>
<td>6 (9.5)</td>
<td>9 (14.3)</td>
<td>29 (46.0)</td>
<td>7 (11.1)</td>
<td>63 (100.0)</td>
</tr>
</tbody>
</table>

3.5 Assistance Measures for Farm Households Without Successors

The most frequent reason for not having successors was “unwillingness of the children to accept the succession” (58.4%) (Table 11). As the plan after giving up farming, “distribution among the children” was the most frequently given answer (33.2%). The question whether they were ready to transfer the farm infrastructure along with farming knowhow to a non-family third party was answered most frequently with “not sure” (44.8%), and 28.3 percent gave an affirmative answer.
Table 11. Assistance measure for the farm households without successors

<table>
<thead>
<tr>
<th>Reason for not having a successor</th>
<th>Category</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No children</td>
<td>6 (1.6)</td>
</tr>
<tr>
<td></td>
<td>Refusal of the children</td>
<td>223 (58.4)</td>
</tr>
<tr>
<td></td>
<td>Unwilling to pass on farming</td>
<td>53 (13.9)</td>
</tr>
<tr>
<td></td>
<td>Bad mgmt situation (not worthwhile)</td>
<td>56 (14.7)</td>
</tr>
<tr>
<td></td>
<td>No suitable person</td>
<td>30 (7.9)</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>14 (3.7)</td>
</tr>
<tr>
<td></td>
<td>Farm transfer to a 3rd party</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>108 (28.3)</td>
</tr>
<tr>
<td></td>
<td>Not sure</td>
<td>171 (44.8)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>103 (27.0)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Farmland disposal plan when the farming is given up</th>
<th>Category</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Succession to the first son</td>
<td>22 (5.8)</td>
</tr>
<tr>
<td></td>
<td>Distribution among children</td>
<td>127 (33.2)</td>
</tr>
<tr>
<td></td>
<td>Rent to non-family members</td>
<td>46 (12.0)</td>
</tr>
<tr>
<td></td>
<td>Sale to a aspirant farmer</td>
<td>31 (8.1)</td>
</tr>
<tr>
<td></td>
<td>Sale without regard to land use</td>
<td>46 (12.0)</td>
</tr>
<tr>
<td></td>
<td>Deposit into the farmland bank</td>
<td>38 (9.9)</td>
</tr>
<tr>
<td></td>
<td>Farmland pension</td>
<td>32 (8.4)</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>40 (10.5)</td>
</tr>
</tbody>
</table>

The analysis of the farmland disposal plans by crop type resulted in the finding that while the households cultivating paddy rice, food crops, and vegetables inclined towards “distribution among the children” (joint inheritance), those cultivating fruits inclined towards sale (Table 12). The intention of joint inheritance was high in all groups of estate area, and highest in the <1ha group. The ≥2ha group was especially willing to use the farmland bank, and the 1≤S<2ha group showed a relatively high intention to use the services of farmland pension.
Table 12. Farmland disposal plan after giving up farming by crop type and estate area

<table>
<thead>
<tr>
<th>Category</th>
<th>Farmland disposal plan when the farming is given up</th>
<th>Succession to the first son</th>
<th>Distribution among the children</th>
<th>Rent</th>
<th>Sale</th>
<th>Deposit into the farmland bank</th>
<th>Deposit into the farmland pension</th>
<th>Others</th>
<th>Total</th>
<th>$\chi^2$ (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy rice</td>
<td></td>
<td>6 (6.1)</td>
<td>32 (32.7)</td>
<td>13 (13.3)</td>
<td>23 (23.5)</td>
<td>12 (12.2)</td>
<td>6 (6.1)</td>
<td>98 (100.0)</td>
<td>95</td>
<td>51.937 (0.000*)</td>
</tr>
<tr>
<td>Food crops</td>
<td></td>
<td>5 (5.6)</td>
<td>32 (36.0)</td>
<td>7 (7.9)</td>
<td>13 (14.6)</td>
<td>5 (5.6)</td>
<td>8 (9.0)</td>
<td>89 (100.0)</td>
<td>94</td>
<td>122 (100.0)</td>
</tr>
<tr>
<td>Vegetables</td>
<td></td>
<td>9 (7.3)</td>
<td>44 (35.8)</td>
<td>17 (13.8)</td>
<td>13 (10.6)</td>
<td>20 (16.3)</td>
<td>10 (8.1)</td>
<td>123 (100.0)</td>
<td>94</td>
<td>19.634 (0.074*)</td>
</tr>
<tr>
<td>Fruits</td>
<td></td>
<td>2 (2.8)</td>
<td>19 (26.4)</td>
<td>9 (12.5)</td>
<td>28 (38.9)</td>
<td>1 (1.4)</td>
<td>8 (11.1)</td>
<td>72 (100.0)</td>
<td>94</td>
<td>19.634 (0.074*)</td>
</tr>
<tr>
<td>&lt;1ha</td>
<td></td>
<td>8 (3.9)</td>
<td>70 (34.5)</td>
<td>25 (12.3)</td>
<td>35 (17.2)</td>
<td>17 (8.4)</td>
<td>18 (8.9)</td>
<td>203 (100.0)</td>
<td>94</td>
<td>19.634 (0.074*)</td>
</tr>
<tr>
<td>1≤S&lt;2ha</td>
<td></td>
<td>10 (9.3)</td>
<td>33 (30.6)</td>
<td>12 (11.1)</td>
<td>23 (21.3)</td>
<td>11 (10.2)</td>
<td>12 (11.1)</td>
<td>108 (100.0)</td>
<td>94</td>
<td>19.634 (0.074*)</td>
</tr>
<tr>
<td>≥2ha</td>
<td></td>
<td>4 (5.6)</td>
<td>24 (33.8)</td>
<td>9 (12.7)</td>
<td>19 (26.8)</td>
<td>10 (14.1)</td>
<td>2 (2.8)</td>
<td>71 (100.0)</td>
<td>94</td>
<td>19.634 (0.074*)</td>
</tr>
</tbody>
</table>

The analysis of the intention of farm succession to a third party in relation to the variables of age, crop type, estate area, and sales proceeds revealed that higher willingness was shown under the conditions of under 65 years, vegetables, 2≤E<3ha estate, and ≥46,800 US$ (Table 13).

Table 13. Intention of farm succession to a 3rd party by variable

<table>
<thead>
<tr>
<th>Category</th>
<th>Intention of transfer to a 3rd party</th>
<th>Total</th>
<th>$\chi^2$ (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>Not sure</td>
<td>No</td>
</tr>
<tr>
<td>Age</td>
<td>45–55</td>
<td>41 (31.8)</td>
<td>61 (47.3)</td>
</tr>
<tr>
<td></td>
<td>55–65</td>
<td>45 (33.1)</td>
<td>60 (44.1)</td>
</tr>
<tr>
<td></td>
<td>65–75</td>
<td>17 (17.5)</td>
<td>43 (44.3)</td>
</tr>
<tr>
<td></td>
<td>≥75</td>
<td>5 (25.0)</td>
<td>7 (35.0)</td>
</tr>
<tr>
<td>Main crop</td>
<td>Paddy rice</td>
<td>17 (17.3)</td>
<td>45 (45.9)</td>
</tr>
<tr>
<td></td>
<td>Food crops</td>
<td>21 (23.6)</td>
<td>38 (42.7)</td>
</tr>
<tr>
<td></td>
<td>Vegetables</td>
<td>53 (43.1)</td>
<td>50 (40.7)</td>
</tr>
<tr>
<td></td>
<td>Fruits</td>
<td>17 (23.6)</td>
<td>38 (52.8)</td>
</tr>
<tr>
<td>Estate area</td>
<td>&lt;1ha</td>
<td>43 (21.2)</td>
<td>96 (47.3)</td>
</tr>
<tr>
<td></td>
<td>1≤E&lt;2ha</td>
<td>39 (36.1)</td>
<td>44 (40.7)</td>
</tr>
<tr>
<td></td>
<td>2≤E&lt;3ha</td>
<td>16 (45.7)</td>
<td>14 (40.0)</td>
</tr>
<tr>
<td></td>
<td>≥3ha</td>
<td>10 (27.8)</td>
<td>17 (47.2)</td>
</tr>
<tr>
<td>Sales proceeds (US$)</td>
<td>&lt;9,360</td>
<td>9 (11.8)</td>
<td>32 (42.1)</td>
</tr>
<tr>
<td></td>
<td>9,360-28,079</td>
<td>31 (25.6)</td>
<td>60 (49.6)</td>
</tr>
<tr>
<td></td>
<td>28,080-46,799</td>
<td>28 (34.1)</td>
<td>38 (46.3)</td>
</tr>
<tr>
<td></td>
<td>≥46,800</td>
<td>40 (38.8)</td>
<td>41 (39.8)</td>
</tr>
</tbody>
</table>
4. Conclusion

The farm succession has profound implications from the perspectives of future structure of agricultural industry and procurement of agricultural human resources. Therefore, this paper sought to investigate the relevant issues and explore support policies based on the results of a questionnaire survey on succession plans of farm operators. The following results were derived from the survey data analysis.

First, support is required in establishing a master plan for the farm succession from operator to successor. According to the survey results, the critical ages of operators and successors are ≥65 and ≥40, respectively, for initiating farm succession planning, such as designation and farm succession. In other words, the timeframe for farm succession is expected to be narrow, thus necessitating the support to implement it efficiently in a short period of time. As a reference model of support program, the Resource Center for Farm Establishment of the Canadian province Quebec, can be mentioned. In this program, a farm household that prepares for farm succession enters into a 2- or 3-year contract with this support agency, which provides then customized support throughout the stages of feasibility analysis, mediation, and establishment of a strategic plan as well as information and mentoring services. Additionally, a model for supporting farm household wishing to proceed with a long-term farm succession by setting up a standing counseling system.

Second, a systematic educational support is required to support successors. In general, the age differences between operators and successors are over 20 years (the average age difference in this survey: 27.2 years), and there is a large discrepancy in education and experience. Moreover, it is difficult for family farms to establish a hierarchy for competence training to draw the line for intergenerational authority transfer and role division. A study (Shunsuke, 2012) reported that about 10 years is required for a second generation succession of intangible resources. According to the results of the current survey research, most successors have separate dwellings and are engaged in off-farm works, and do not have agricultural education; thus, they are expected not to have enough period to ensure the acquisition of farming-related knowhow. Despite continuous farming technology training programs offered by the local agricultural extension agency, there is an urgent need to develop and provide educational programs tailored to the needs of family farm successors.

Third, an assistance policy for farm households without successors should be set up. With the globally aggravating situations related to insufficient farm successors, individual countries have been putting effort to introduce and implement systems tailored to their situations to link retired farmers and prospect farmers. Based on the results of this study, which confirmed the general willingness for farm succession to third parties, a Korean-style non-family farm succession project model should be developed without delay. However, considering the difficulties expected to be encountered in implementing farm succession through matching retired farm operators with non-family farming aspirants, existing examples of advanced countries should be first explored profoundly.

Fourth, the fragmentation of farmland ownership should be counteracted. Farmland distribution among multiple successors is an important issue in farm succession, as shown in the survey result that more than half of the households with successors answered that the
successor would own only a part of the farmland and the rest would be distributed among other children. Additionally, even when the estate area is less than 1ha, a large proportion of the households without successors wished to split the farmland to distribute it among the children. Although it is not an easy task to address this conflicting interface of the equality principle encouraging equal distribution of inherited properties and the strategic objective of agricultural policy for keeping the integral unity of agricultural management, practical support measures are required in compliance with Article 22 of the Farmland Act relating to the prohibition of farmland ownership fragmentation.

**Summary (in Korean)**

한국의 농가수가 1990 년 1,767 천 가구에서 2012 년 1,151 천 가구로 감소하는 한편, 영농승계자가 있는 가구의 비율도 16.4%에서 8.9%로 감소하였다. 농업경영의 계승은 미래 농산업 구조나 농업 인력의 확보 등의 차원에서 중요한 함의를 가지기 때문에, 본고에서는 농업 경영주의 경영계승 계획에 대한 설문조사 결과를 바탕으로 관련 이슈들을 찾아보고 정책적 지원 방안을 모색하고자 하였다. 단, 본고는 현재 진행 중인 연구 결과의 일부로서 논의, 식량작물, 제소, 과수 농가에 국한한 조사 결과이다. 조사 내용은 승계자의 유무, 승계자 있는 농가의 경영계승 계획, 승계자 없는 농가의 대책 등이다.

전체 조사대상 가구 중 승계자나 후보자를 확보하고 있는 가구는 29.2%였으며, 이들 중 46.5% 경영계승 가능성이 높다고 응답하였다. 승계자가 있는 농가의 경우, 승계자 연령은 평균 37.5 세(경영주 연령 평균 64.7 세, 연령차 27.2 세)로 나타났으며, 비등기(72.0%)하면서, 농업 외 직종에 종사(58.6%)하고, 경영에서는 참여하지 않고 농사일을 돕고 있는 것(49.7%)으로 나타났다. 전체 승계자 중 농업 전공자는 13.4%에 불과하였다. 승계자가 있는 농가는 ‘생존시 단계적으로 경영권과 소유권을 계승하기를 희망’ 하고 있음(33.1%)도, 경영주 연령이 75 세 미만이 되도록 ‘막연한 구상 단계’ 라는 응답이 많았다(46.5%). 승계자가 있는 농가의 58.0%는 경영계승 완료 시기를 예측할 수 없었다고 하였으며, 예상하는 경우에는 75 세 이후라는 응답이 많았다. 이상의 분석 결과는, 경영계승에 대한 충분한 계획과 준비 기간을 가지지 못한 채 상황이 닥쳤을 때 경영계승을 실행할 가능성이 높음의 묘사한다. 한편, 경영계승 계획 추진 시 예로 사항은 ‘승계자의 영농 기술 습득’을 선택한 비율이 많았으며(37.6%), 경영계승에 대한 전문적인 지원이 필요한 분야로는 ‘경영관리’를 선택한 비율이 높았다(44.0%). ‘승계자의 영농 기술 습득’은 경영계승의 전 단계에서 예로사항으로 지정되고 있으며, 경영계승 진행 단계까지는 계획 수립 및 세대간 의사소통에 대한 지원이 필요한 것으로 나타났다.
승계자가 없는 농가의 58.4%는 자녀가 원하지 않아 승계자를 확보하지 못한 것으로 나타났으며, 영농 중단시 농지는 ‘분배 상속’ 하겠다는 응답이 많았다(33.2%). 제 3 자 경영이양에 대한 의사를 질문한 결과, 65 세 미만일수록 의사가 높았으며, 채소 농가, 농지 소유면적 2~3ha, 농산물 연간 판매금액 5천만원 이상에서 의사가 높게 나타났다.
승계자나 후보자가 있는 경우에도 단계적, 체계적으로 경영계승을 실행하지 못하고 있는 것으로 나타나 이에 대한 지원과 함께, 승계자의 영농 기술 습득을 위한 교육 지원이 요구된다. 승계자가 없는 농가의 경우, 28.3% 정도가 제 3 자 경영이양에 대한 긍정적인 의사를 보여 신규 영농 진입자와의 연계 방안 도입이 필요할 수 있음을 시사한다. 또한 승계자 유무와 관계 없이 농지를 ‘분배 상속’을 하겠다는 응답 비율이 높아 농지의 세분화가 우려되는 상황에 대한 대책 마련이 필요하다.

References
Attracting the Young Generation to Engage in Agriculture

Sri Hery SUSILOWATI*1

*1 Researcher and Deputy Director
Indonesian Center for Agriculture Socio Economic and Policy Studies (ICASEPS)
Ministry of Agriculture, Jl. Ahmad Yani 70 Bogor 16161, Indonesia
E-mail: srihery@yahoo.com
Attracting the Young Generation to Engage in Agriculture

Abstract

For the last ten years there has been a shift in the structure of agricultural labor in Indonesia, where the number of young farmers was declining, while the number of ageing farmers was increasing. The factors that affected the farmers’ interest on working in agriculture were mainly land tenure and earning prospects from this sector. To attract youth to work in agriculture, many countries provide incentives, particularly improved access to capital and land. Learning from the experience of these countries, the Government of Indonesia, particularly the Ministry of Agriculture, should give priority to young farmers through an incentive policy in order to attract the youth to work in agriculture and retain young farmers to stay in the sector. To assure youth involvement in agriculture, the policies required are not only in the form of incentive policies but also the overall rural industrialization policy, through rural agro industry development, innovation, investment, infrastructure and strengthening agricultural institutions from upstream to downstream.

Keywords: young farmer, ageing farmer, incentive policy

1. Introduction

Agriculture is one of the sectors that absorb significant labor force in Indonesia, contributing to nearly 43 percent of the total employment. Major problems of labor force in agriculture are: education level of the majority of the farmers is relatively low, increasing number of the ageing farmers and the decreasing involvement of young workforce in agriculture. According to the Agricultural Census, in 1993-2003 the composition of agricultural labor force by age had changed significantly. Agricultural labor less than 35 years old in 1993 is 25.8 percent, but ten years later (2003) it was reduced to 20 percent. In the next decade, the Agricultural Census in 2013 confirmed further decline of the younger workers (aged under 34 years old) to 12.9 percent. On the other hand, the data showed a growing number of ageing farmers, aged over 65 years (CBS, 2003, 2013). During the same period the youth who worked in the non-agricultural sectors showed an increasing trend.

There are many factors that make agriculture unattractive to young and educated workforce. These consists of push factors such as the increasing scarcity of agricultural land, and pull factors such as more promising and higher income in the non-agricultural sectors. Moreover, from the cultural value system point of view, the majority of youth consider that working in non-agricultural sectors is more prestigious. They prefer going to the cities to work as construction laborers, merchants, or civil servants. This phenomenon occurs almost consistently in all regions of Indonesia (Susilowati et al., 2012).

The declining interest of young workforce to work in agriculture is not without consequences, particularly for the future sustainability of this sector. In the future, with the increasing number of population, the burden to agriculture will be much more difficult, particularly in fulfilling the increasing demand for food. Therefore, the role of the
government in promoting the increase of food production and productivity becomes very challenging. For that reason, the interest of young people to become the next generation farmers must be fostered.

The main challenges facing the youth to start working in the agriculture sector are access to both capital and land, and limited skills. Therefore, it is necessary for the government to formulate incentive policies for young workforce so that they are encouraged in working in the agriculture sector. Unfortunately, up to now there have been no incentive policies in place. In fact, learning from the experience of developed and developing countries, the government could come up with a number of policies and programs for young people and beginning farmers who are interested in farming (Murphy, 2012; Shute, 2011; Katchova and Ahearn, 2014; Davis et.al, 2013).

The objectives of this paper are the following: (1) to study the structure of the agricultural labor force based on age, related to the phenomenon of ageing farmers and participation of young workforce in the sector; (2) to study the factors that influence young workforce on working in agriculture; and (3) to review incentive policies for young farmers in other countries and what policies have been carried out in Indonesia in response to the issue. Finally, the paper addresses some policy implications, in attracting young workforce to work in the agricultural sector in Indonesia.

2. Methodology

The paper utilizes both primary and secondary data. The primary data used is from the Indonesian Center for Agricultural Socio Economic and Policy Studies, Ministry of Agriculture (ICASEPS) drawn from household survey conducted in some provinces distinguished by agro-ecosystem (primary commodities), namely: plantation (4 provinces, n = 320), palawija or secondary crops (5 provinces, n = 300), paddy rice (5 provinces, n = 350) and vegetable (4 provinces, n = 193). It will be used to analyze the factors affecting young farmers on working on farm by using the Binary Logistic Regression model. The secondary data is collected from the Central Bureau of Statistics (CBS) to determine the structure of the Indonesian agricultural labor by age, particularly related to ageing farmers and young labor force participation in agriculture. Reviews of incentive policy for young farmers in other countries and in Indonesia are conducted through literature study.

3. Structure of Agricultural Labor in Indonesia

Participation of Young Workforce in Agriculture

The definition of young farmers (young workforce) varies, but in general some sources have determined the age range from 16-40 years of age. In Indonesia, according to the Law No. 40 of 2009, Article 1, paragraph 1 states that the youth are those who enter an important period of growth and development from the ages of 16 (sixteen) to 30 (thirty). Indonesian Youth Employment Network (IYEN) defines ‘young people’ as those who are in the age group of 15-29 years old (ILO, 2007). Several studies on peasant youth used the age limit of peasant youth (young farmers) differently. A study by Katchova and Ahearn (2014) on
the implications of ownership and lease of land for peasant youth and novice farmers used 35 years as the limit of age to be called as young farmers. David et.al (2013) used 35 years of age to determine someone as a young farmer. The French government uses the age limit of 40 as a peasant youth who is entitled to financial scheme (Murphy, 2013). In this paper, peasant youth are those who are 35 years of age and below.

For the last two decades, in both absolute and relative term, the number of young people who work in the agricultural sector has declined sharply (Figure 1). On the contrary, the number of ageing farmers has significantly increased. There are several factors explaining these phenomena. On the average, the size of agricultural land per household is getting smaller so that young farmers who are working in agriculture do not have other options but to become laborers, an option that is not their interest. The alternative is getting out of the agriculture sector and work in non-agricultural fields in the city. Another factor is the increasing number of youth who go to a higher level of education, enabling them to be more selective in finding the job. Non-agricultural jobs in the cities have become their choices instead of going back to their villages and work as a farmer.

![Figure 1. Composition of farmers according to age group, 2003 and 2013 (Source: CBS, 2003 and 2013)](image)

4. Factors Influencing Youth Engaged in Agriculture

This section will discuss the factors that affect the youths on working in agriculture by using a regression analysis. The dependent variable is dummy variable equal to 1 and 0, where the value of 1 is youth (aged 15-35) who are involved in agriculture, and the value of 0 is the youth who are not involved in agriculture. The analysis was performed for each base commodity region (Table 1).

The variables that significantly affect the probability of youth on being involved in agriculture are age, education, tenure, gender, and economic status. Meanwhile, the number of household members had a significant effect only in dry land-secondary crops area and year dummy had a significant effect only on dry land-plantation areas. The description of
each variable is as follows:

4.1 Age
The regression model showed that age significantly affects the chances of the youth to be involved in agriculture. This is true in all areas. The younger a person was, the bigger the opportunity to engage in agriculture. This indicated that the youth involved in agriculture generally were relatively younger than the age limit of 35 years old, which used in this analysis. It might be that young men were actually still in the learning period, for example, students helping their parents work on the farm.

4.2 Education
Education has a significant effect on the youth’s opportunity to be involved in agriculture. The higher the educational attainment, the bigger the opportunity to be involved in agriculture. This also meant that young workforce engaged in agriculture had relatively good education. Many young people who were still at school or college had a second job to help their parents on the farm.

4.3 Size of Land Per Capita
The smaller the land size per capita is, the greater the chance for young workforce to be engaged in agriculture. This means that most young workforce engaged in agriculture do not have arable land, both the land owned by their parents and their own, or the land of others which they cultivate on a profit-sharing or rental basis. So, the youth engagement is more like a worker/laborer who receive wages. This is consistent with the fact that the farm size of farmers is smaller so that the youth opportunity to get access to the land is also getting smaller, whether under owned, profit-sharing, or rental status.

4.4 Gender
Gender significantly had a negative effect on the chances of youth to be involved in agriculture. Only on dry land region of secondary crops did gender show a positive effect although insignificant. The fewer the young male workers are, the greater the opportunity for women to work on the farm. This suggests that many young female workers are involved / working in agriculture. This is quite common when the girls are no longer in school and unmarried. They usually help their parents on the farm until they get married and take care of their own household. Even those who are married often help her husband work on the farm.
Table 1. Factors influencing youth engaged in agriculture

<table>
<thead>
<tr>
<th>Variable</th>
<th>Wetland Coefficient</th>
<th>Pr&gt; Chi-Square</th>
<th>Dry land-secondary crops Coefficient</th>
<th>Pr&gt; Chi-Square</th>
<th>Dry land – vegetable crops Coefficient</th>
<th>Pr&gt; Chi-Square</th>
<th>Dry land- plantation crops Coefficient</th>
<th>Pr&gt; Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>-0.1572</td>
<td>***</td>
<td>-0.1008</td>
<td>***</td>
<td>-0.1747</td>
<td>***</td>
<td>-0.1125</td>
<td>***</td>
</tr>
<tr>
<td>2. Education</td>
<td>0.1989</td>
<td>***</td>
<td>0.2234</td>
<td>***</td>
<td>0.2403</td>
<td>***</td>
<td>0.1993</td>
<td>***</td>
</tr>
<tr>
<td>3. Land holding/capita</td>
<td>-0.2264</td>
<td>**</td>
<td>-0.3500</td>
<td>***</td>
<td>-0.6272</td>
<td>***</td>
<td>-0.3590</td>
<td>***</td>
</tr>
<tr>
<td>4. Sex</td>
<td>-1.0036</td>
<td>***</td>
<td>0.0631</td>
<td></td>
<td>-0.5815</td>
<td>**</td>
<td>-0.4709</td>
<td>***</td>
</tr>
<tr>
<td>5. Number of household member</td>
<td>0.0203</td>
<td></td>
<td>0.1229</td>
<td>*</td>
<td>0.0327</td>
<td></td>
<td>0.1600</td>
<td>***</td>
</tr>
<tr>
<td>6. Economic status</td>
<td>3.621E-6</td>
<td>***</td>
<td>4.5E-7</td>
<td></td>
<td>1.48E-6</td>
<td>***</td>
<td>1.137E-6</td>
<td>***</td>
</tr>
<tr>
<td>7. Dummy Year (2009=1; 2012= 0)</td>
<td>-0.2034</td>
<td></td>
<td>-0.1743</td>
<td></td>
<td>-0.3056</td>
<td></td>
<td>-0.4044</td>
<td>**</td>
</tr>
</tbody>
</table>

Source: primary data

***significant at the 99% level
**significant at the 95% level
*significant at the 90% level
4.5 Number of Household Members

The number of household members has a significant effect on dry land region of intercrops and dry land plantations. The larger the number of household members was, the greater the chances of young workforce to work on the farm. The involvement of the younger members of the household on the farm can be as temporary or permanent job. The household members who are still students was generally working on the farm as a sideline or for those who are non-students in addition to working on the farm they also work in non-agriculture sectors (transport, trade, etc.). Most of the household members generally have double jobs, in the agriculture and non-agriculture sectors.

4.6 Economic Status

Economic status which reflects the wealth is measured by the amount of income per capita (expenditure per capita). These variables significantly affect the opportunities of youth in working in agriculture in all regions except in the areas of dry land crops. The better the economic status was, the greater the chances of youth to work in agriculture. This implies that the economic status of the youth who were not involved in agriculture was not as good as those who were involved in agriculture. This is because agriculture was a source of household income which contributes to the per capita income greater than those who were not involved in agriculture.

4.7 Year Dummy

Year dummy only had a positive effect on regions with plantation-type farming. Year dummy showed the change in youth involvement in agriculture at two significant years, 2009 and 2012. It means that for the last three years there had been a significant change in youth involvement in agriculture, especially in the area of the plantation, and with the difference in 2009 to 2013, there were more youth involved in agriculture.

Apart from the abovementioned factors, there are many other factors affecting the interest of youth to work in agriculture. The data showed that youth involvement in agriculture has declined. The reluctance of youth to work in agriculture can be analyzed from two points of views, namely by understanding the push factors triggering youth to get out or be disinterested to work in the agricultural sector, and the pull factors causing youth to work in the non-agricultural sectors. The main driving factor causing the declining number of young people working in the agricultural sector is the small size of agricultural land assets which cannot guarantee a reliable source of income. The choice being a farmer is similar to working on farm with limited farming mechanization, and lowering of social prestige. The pull factors that make young people prefer working in non-agricultural sectors or getting out of agriculture is the growth of such sectors as industry, commerce, and services in urban areas which have particular attractions to youth.
5. The Framework of Incentive Policies

5.1 Learning from other Countries

To start a business in the agricultural sector, young and novice farmers generally will encounter several challenges, especially those who are categorized as small hold farmers. The main characteristics of small hold farmers are those having limited capital, education, and experience. With such constraints, it would be difficult to gain access to capital from commercial banks because generally they do not have any collateral so that the credit is deemed to have a higher risk in the repayment. The rising prices of land and the absence of collateral to the bank make young and beginner farmers find it difficult in gaining access to land (Kauffman, 2013). In countries that do not adhere to the system of land inheritance from parents to their children, their children as successor generation would start their business as farmers. They generally develop their business by buying, renting, or through a profit-sharing system. With limited capital and assets, access to farmland is a real challenge for young farmers and beginner farmers (Katchova and Ahearn, 2014). The condition is different from Indonesia where inheritance system is still widely applied. Parents will divide the land according to the number of their children so that land fragmentation occurs along with the increasing number of new farm households.

With the increasing population, the demand for food also keeps increasing. To meet the food needs, the agricultural sector plays a very important role. The increase in agricultural production and productivity is a key factor in the success of a country in providing food for its population. This is where the role of the next generation of farmers is very essential. The youth interest in working on the farm must be grown. But to start a business in agriculture, young farmers have constraints, primarily related to capital aspect. Aware of this problem, many developed countries as well as developing countries have come up with various incentive schemes so that young and beginner farmers can start their business in agriculture easily. After reviewing some of the references, various incentive schemes (Table 2) were noted as follows:

Table 2. Incentives scheme for young and beginning farmers

<table>
<thead>
<tr>
<th>No</th>
<th>Country</th>
<th>Programs/ Incentives</th>
<th>Targeted Object</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>European1</td>
<td>New entrance scheme for farmer:</td>
<td>Farmers under 35 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Working capital installation grant</td>
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<td>– Interest subsidy on a farm</td>
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<td>2.</td>
<td>Victoria – Australia2</td>
<td>Three loan facilities with an interest rate concession</td>
<td>People 40 years of age or under</td>
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<td></td>
<td></td>
<td>1. Purchase stock &amp; equipment</td>
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<td>2. Purchase land</td>
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<td>3. One to grow.</td>
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<td>3.</td>
<td>France 2</td>
<td>- lump sum or subsidized loan to help young farmer to buy the land</td>
<td>Young farmers (under 40)</td>
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<td>- a reduction in taxes over five years</td>
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<td>4.</td>
<td>United Kingdom2</td>
<td>Young Entrants Support Scheme (YESS):</td>
<td>People under 40</td>
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<td>– A one-off grant payment for a young entrant as head of holding for the first time or</td>
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<td>Country</td>
<td>Programs and Services</td>
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| Canada² | - Loan guarantees, innovative lending products, interest rate protection and interest rate reduction for education and training.  
- Farm Credit Canada (FCC) Loan up to $500,000 at a variable interest rate of cost of funds plus 0.5%. |
| Alberta-Canada² | The Agriculture Financial Services Corporation (AFSC)’s programs:  
- Interest rate concession of 1.5% for the first five years of a loan |
| Manitoba-Canada³ | Manitoba Agricultural Services Corporation (MASC)  
- Annual rebate of 2% on the first $150,000 of principal of a loan for each of the first 5 years which is $3000 annually and $15,000 total after 5 years.  
- 90% financing option that reduces the deposit required or five years of interest-only payments to assist with cash flow |
| USA²,³,⁴ | 1. United State Department of Agriculture (USDA) Farm Service Agency (FSA): “Lender of First Opportunity” to help farmers graduate to commercial credit  
- Guaranteed Loan Program  
- Direct Loan Program  
- Land Contract Guarantee Program  
2. Iowa Agricultural Development Authority (IADA)  
- Beginning Farmer Loan Program (BFLP)  
- Loan Participation Program (LPP),  
- Beginning Farmer Tax Credit Program (BFTC).  
3. Farm Credit System ³:  
- Provide credit at competitive interest rates  
- Lower loan fees, or loan covenants for owning land and leasing equipment |
| China⁴ | Ministry of Agriculture: loans and tax benefits |

Source: ¹Davis, et.al, 2013; ² Murphy, 2012; ³ Kauffman , 2013; ⁴ National Young Farmers Coalition, 2013; ⁵ Jieying Bi, 2014
The explanation of the above table is as follows:

A. Two main European Policy approaches to promote structural adjustment in agriculture are Farmer Early Retirement and New Entrance Scheme for Farmers. Two alternative approaches to a new entrance scheme: (1) working capital installation grant, and (2) an interest subsidy on a farm. A working capital installation would be made to new entrance meeting specific eligibility criteria concerning management control of the business, income viability, and a commitment to remain in farming as the main occupation for a specific period. Most of the studies concluded that the early retirement scheme for farmer was not effective because the farmers who benefited were soon due to retire. In contrast, the New Entrant Schemes for Farmers directly on capturing the benefits associated with the goal and aspiration of younger farmers to take control of a farm business for the first time. But there is not a lot of research evidence on their effectiveness. A suitable designed new entrance scheme involving an interest subsidy loan and working capital installation grant on a farm can result in significant improvements in farm performance (Davis et al. 2013).

B. Victoria-Australia has a Young Farmer Finance Scheme through Rural Finance that is available to people 40 years of age or under and provides three loan facilities with an interest rate concession.

a. Purchase stock and equipment: These loans have a term of up to eight years with two percent concession off Rural Finance’s commercial interest rate for the first three years and then commercial rates apply for the rest of the loan term.

b. Purchase land: These loans have a term of 15 years with two percent concession off Rural Finance’s commercial interest rate for the first five years and then commercial rates apply for the rest of the loan.

c. One to grow: This loan is aimed at young farmers who are looking to purchase their first block of land as a first step towards owning and operating a commercial farm. These loans have a term of up to 12 years with a one percent discount off Rural Finance’s commercial interest rate for five years and then commercial rates apply for the rest of the loan (Murphy, 2012).

C. France total public expenditure between 2007 and 2013 was €1.6 billion. Young farmers (under 40) can have as a lump sum or as a subsidized loan to start an agricultural operation. When land comes up for sale in some provinces of France it is the local government and a farmer board that decides who can buy the land and they also set the price. The government also assists young farmers with a reduction in taxes paid that is stepped up over five years, which helps cash flow through the start-up period (Murphy, 2012).

D. In the United Kingdom, the National Federation of Young Farmers Club in Coventry introduced a program that was running in Wales called the Young Entrants Support Scheme or YESS. The assistance package includes the following:

a. A one-off grant payment for eligible capital expenditure when a young entrant (under 40) is setting-up as head of holding for the first time or when the applicant has set-up as head of holding for the first time within the previous 12 months.
b. Access to funded mentoring services from established farmers and/or professionals. To qualify applicants are required to submit a Business Development Plan, including details of the capital investment that the grant will support. It requires that the holding must be viable or the applicant will be required to demonstrate in the Business Development Plan that the holding will become viable within 5 years after entry into the Scheme (Murphy, 2012).

E. Canada provided this study with a broader perspective on finance to young farmers by including a number of different assistance measures. They included assistance to beginning farmers, loan guarantees, innovative lending products, interest rate protection and interest rate reduction for education and training. This investment cannot cover the purchase, rent or lease of land, and livestock. Single Payment Scheme entitlements or farm machinery to be used for contracting activities. Financial assistance will take the form of a grant payment (made in arrears upon successful completion of an approved project) for an investment made in setting up as head of holding for the first time. The grant is for 50 percent of agreed eligible expenditure or maximum grant of £15,000 (Murphy, 2012).

F. In Alberta, Canada, the Agriculture Financial Services Corporation (AFSC) explained their program that does not take into account the age of the loan applicant but uses a net worth calculation to determine if the applicant qualifies for an interest rate concession. The Beginning Farmer Incentive offers an interest rate concession of 1.5 percent for the first five years of a loan and is available to any individual with a net worth of $500,000 or less at the time of application. A couple applying jointly for the loan could receive the Beginning Farmer Incentive on loans up to $1 million provided both have an individual net worth of $500,000 or less at the time of application (Murphy, 2012).

G. Manitoba Agricultural Services Corporation (MASC) has an interest rate rebate for farmers less than 39 years of age. The Young Farmer Rebate which is an annual rebate of two percent on the first $150,000 of principal of a loan for each of the first five years which is $3000 annually and $15,000 total after five years. The applicant also has the choice of a 90 percent financing option that reduces the deposit required or five years of interest-only payments to assist with cash flow. These loans have a maximum limit of $2 million (Murphy, 2012).

H. Young farmers in the USA have access to funding through a number of channels. If a young or beginning farmer does not qualify for a loan with a commercial bank then they can apply to Farm Credit. If they do not qualify at Farm Credit then they can apply for a loan from the Farm Service Agency which is a department within the United States Department of Agriculture. There are also organizations like Iowa Agricultural Development Authority (IADA) that have lending products and administer tax credits as a form of assisting young farmers (Murphy, 2012; National Young Farmers Coalition, 2013).

a. United State Department of Agriculture (USDA) Farm Service Agency (FSA)

FSA is referred to as the “Lender of First Opportunity” because each year it targets some of the direct and guaranteed loan funds for beginning and socially disadvantaged
farmers or who are members of a group which has been subjected to racial, ethnic, or gender prejudice because of their identity, without regard to their individual qualities. A farmer who is unable to obtain credit elsewhere to start, purchase, sustain, or expand the farm can apply for a loan from the USDA FSA. Unlike loans from a commercial lender, FSA loans are temporary in nature and the goal is to help the farmers to graduate to commercial credit.

b. Guaranteed Loan Program

Guaranteed loans are made and serviced by commercial lenders, such as banks, the Farm Credit System, or credit unions. FSA guarantees the lender’s loan against loss, up to 95 percent. FSA has the responsibility of approving all eligible loan guarantees and providing oversight of the lender’s activities.

c. Direct Loan Program

Direct loans are made and serviced by FSA using Government money. FSA has the responsibility of providing credit counseling and supervision to its direct borrowers by helping applicants evaluate the adequacy of their real estate and facilities, machinery and equipment, financial and production management, and goals.

d. Land Contract Guarantee Program

Land contract guarantees are available to the owner of a farm or ranch who wishes to sell real estate through a land contract for beginning or socially disadvantaged farmers.

I. In spite of the current rural to urban migration trends, more and more talented young people who are good at farming and who earn their first fortunes in the cities are shifting their focus to agriculture and going back to rural areas. The Ministry of Agriculture has issued new supporting policies in 2011, such as offers of loans and tax benefits, to facilitate youth to go back to their hometowns to start agriculture-based businesses. Training programs on practical farming skills and farm management are also provided (Jieying Bi, 2014).

5.2 Incentive Policies in Indonesia

About 55.3 percent of the farmers in Indonesia belong to the group of small hold farmers whose land ownership is less than 0.5 ha. In accordance to the characteristics of small hold farmers--low education, lack of skills and limited capital--the main problem in running their farming business is limited capital. Therefore, various incentive programs have been provided by the government to improve their access to capital, particularly for small hold farmers. In the meantime, there are various types of agricultural financing programs from the Ministry of Agriculture for small hold farmers today, such as: (1) Credit for Food Security and Energy (KKP-E), (2) People's Business Credit (KUR), (3) Credit for Cattle Breeding Program (KUPS), (4) Services of Agricultural Financing Scheme Program (SP-3), and (5) Social Responsibility Partnership Program (Partnership). However, there is no specific arrangement intended for young farmers.
5.2.1 Credit for Food Security and Energy (KKP-E= Kredit Ketahanan Pangan dan Energi) (Indonesian)

KKP-E is an investment credit and or working capital loan given to farmers and farmer groups in order to support the implementation of Food Security Program and Development Program of Biofuel Raw Material Plants. The aim of KKP-E is to provide an investment credit and or working capital with affordable interest rates to support the improvement of national food security and energy security through the development of biofuel raw material plants. In this scheme the government provides an interest subsidy, which is lower than the prevailing commercial interest. These credits can be accessed in groups on condition that they are extended by the executing banks (Directorate of Agricultural Finance, 2010)

5.2.2 People's Business Credit (KUR = Kredit Usaha Rakyat (Indonesian).

This program is a low-interest loan for working capital like KKP-E scheme, but KUR program has a wider credit target, not only farmers but also small and micro entrepreneurs. The purpose of the KUR for agriculture is to improve access to credit/financing for farmers and farmer groups from the bank to accelerate the growth of the real sectors (food crops, horticulture, plantation and livestock), and to support food security and poverty reduction as well as the expansion of employment opportunities in the agricultural sector. KUR target is for business people in upstream agriculture, that is, for the procurement of production facilities, equipment and agricultural machinery, on-farm cultivation of food crops, horticulture, plantation and livestock; and in downstream agriculture it includes production processing (Directorate of Agricultural Finance, 2010).

5.2.3 Credit for Cattle Breeding (KUPS = Kredit Usaha Pembibitan Sapi (Indonesian)

KUPS is the credits extended by the executing banks for business players in cattle breeding with an interest subsidy from the government. They are cattle breeding company, cooperative, and group / combined groups of farmers who run a cattle breeding business. KUPS aims to support the availability of beef toward food self-sufficiency. Through KUPS it is expected that breeding industry and breeding group will develop so that there will be an increase in the cattle population and the creation of jobs in the community. The target of the credit schemes for cattle breeding is the availability of 1 million heads of cattle in a period of 5 years or 200,000 heads annually, performed by the business players of beef cattle breeding and dairy cow breeding in a sustainable manner. KUPS for business players in the form of breeding company is a two-year interest subsidy in accordance with the longest loan period of 6 (six) years. KUPS interest rate is set at the prevailing market interest rate for similar loans. Meanwhile, KUPS interest paid by business people is set at five years. The difference between KUPS interest rate and the interest imposed on the employer is the government subsidy.

5.2.4 Scheme Program for Financing Agriculture (SP-3= Skema Program Pembiayaan Pertanian (Indonesian)

This program aims to finance investment and or working capital from commercial banks which are supported by the Ministry of Agriculture to encourage farming credit of food crop
sub-sector, horticulture, livestock and plantation, from upstream to downstream. Types of loans offered are investment credit and working capital loans. The duration of the program for food crops and one-season horticultural businesses, annual horticulture, plantation and livestock business is at least one business cycle. As for the upstream and downstream businesses related to food crops, horticulture, plantation, livestock and trade businesses, the maximum period is one year and can be extended. This credit scheme provides lower interest rates than commercial lending rates with a credit limit up to Rp 500 million and it is free administrative costs. The requirements to obtain this credit, among others, are a farmer with at least 21 years of age or married, has run his business for at least for two years and or has good business prospect.

5.2.5 Social Responsibility Partnership Program (PKBL = Program Kemitraan Bina Lingkungan (Indonesian))

PKBL is a partnership program between state-owned enterprise (BUMN) and small businesses to empower and improve the ability of small businesses to be resilient and self-reliant through the use of funds from parts of BUMN profits. The program provides a new loan facility for working capital or investment extended to BUMN’s prospective partners which is feasible but not yet bankable and generally the funds are in form of grants or loans with low interest rate.

Although the government through the relevant institutions has launched various financial aid programs, most of which are credit with an interest subsidy, in reality programs are under-utilized by farmers. This is because the banks executing the programs still require collateral to anticipate risks. So a credit scheme program with a guarantor is required so that the executing banks feel safe in extending their credits. Currently, establishing Bank of Agriculture is being initiated through the mechanism of credit without making farmer asset as collateral or through a guarantor from Insurance Agency.

However, scheme programs with an interest subsidy are only intended for farmers or farmer groups in general. They are not specifically targeted to young farmers and beginning farmers. So far the government has not had any special incentive program to attract new generation of farmers, so that there will be more young people interested in agriculture businesses. The data showed that the number of households and young people who are involved in the agricultural sector is decreasing during last decade (CBS, 2013). There are several government ministries responsible for youth development. Ministry of Youth and Sports has a duty to develop the young people of Indonesia, especially in sports, organization and social organization. The other ministries give more indirect contribution to the national programs related to youth employment. For example, the Ministry of Social Affairs serves as a facilitator of youth community organization development. Ministry of National Education, and Ministry of Manpower and Transmigration are active in tackling youth unemployment. Other programs for youth employment are youth workforce development for college graduates by including local universities, and self-employed development program through the participation of non-
governmental organizations for high school graduates. Another program for public job creation is to apply appropriate technologies aimed at disadvantaged community groups and groups with productive activities for rural communities (ILO, 2007). Ministry of Agriculture also has a variety of youth development programs for them although they are more in the form of training for capacity building. So far there has been no special program in the form of incentives to attract the youth to work in agriculture.

6. What Should the Government Do to Attract Youth in Agriculture?

Offering of incentives to strengthen the younger generation's work and enthusiasm in agriculture and to ensure that they will not leave rural areas is not enough. Additionally, rural industrialization should be systematically carried out so that the youth involvement in agriculture occurs on an ongoing basis through the following:

6.1 Development of Agro-industry

To improve the image of agriculture in the eyes of the youth, the development of Agro-Industry should be conducted. Over the past years, most people, including the youth, believed that agriculture was similar to on-farm agriculture, where farmers had to work on a narrow farmland with simple technologies. The picture was not attractive to young people, indicating less social prestige. This is in contrast to the on-farm system of agriculture in developed countries, where farmers manage extensive farmland with agricultural mechanization, developed and supported by good agricultural infrastructure. That the small size of agricultural land impedes young farmers to work in agriculture is a challenge that we should find the solution because this is an old persisting problem. On the one hand, the government will not be able to increase the size of land ownership or provide agricultural land for young or beginning farmers quickly, simply because the size of agricultural land is relatively fixed. On the other hand, land expansion is a high-cost program taking a long period of time. In this case, agroindustry offers a new paradigm, namely value-added agriculture, meaning that agriculture is not always on the farm producing raw materials/feedstock. All this time, the Indonesian agriculture tends to be culturally trapped in on-farm system of farming and has not headed to off-farm farming system (post-harvest). The strategy offered to overcome this problem is to change the views of young people about the stigma that agriculture is underdeveloped. Agriculture should become the industry that produces the final product, not just raw materials, which can create value-added products in the downstream sector due to a large margin. Branding, including packing and processing, is a creative economy that usually belongs to and is preferred by the younger generation (Daryanto, 2009). This industry can absorb more labor. Agricultural image through agroindustry will improve the perception of the youth because they do not have to work on farm all the time. At the same time, agricultural mechanization technology needs to be improved so that in addition to increasing the labor productivity agriculture can also increase the prestige of youth. Agro-industry should be able to lead the sector to overcome the present conventional agricultural pattern. Also it should be able to mix and match between the visions of entrepreneurs, the ideas typical to young people, with the
technology to be selected. The synergy between the private sector and academia need to be further strengthened to cultivate the new seeds of entrepreneurial spirit and create new technologies.

6.2 Innovation

Innovation is strongly associated with the younger generation, namely how to make agricultural industry produce something innovative that could inspire young people to go into agriculture. One example to improve the image of agriculture in the eyes of the youth is urban farming innovation. In this case, the innovation of information (i.e. internet, twitter, facebook) through social media is very familiar to the youth. The social media would successfully boost the spirit of the youth to participate even if they do not understand exactly what they are doing. The role of young people, students of agriculture major in particular, is to enlighten the people with the knowledge they gained from the campus. The youth involved can spread seeds, water, and pose on the land that has been intentionally arranged in row and partially planted. This action could attract the youth to farming/gardening in urban areas.

6.3 Incentives

Various incentive programs through interest rate subsidies as previously described shows the evidence of the government’s great concern with the agricultural sector. The problem is that the programs are not specifically intended for young people or novice farmers who are interested in working in the agricultural sector. Learning from the experience of other countries where the government provided various incentives for the youth, the Indonesian government also needs to add a special incentive scheme program, especially incentives in helping them with their capital. In addition to easier access to capital, incentives can also be in the form of input subsidies to maintain the stability of the prices of agricultural products. Using the same schemes as described earlier, the government should provide specific concession for the young and beginner farmers a much higher incentives. For instance, higher interest subsidy (lower interest rate) and higher credit limit. A priority should also be given on accessing agricultural land.

6.4 Infrastructure

Infrastructure is a very important factor to build agricultural industry from upstream to downstream, especially rural infrastructure such as transportation, energy, communications, and education. Infrastructure should be made available to open an access to villages so that industrial crops are easily distributed.

6.5 Investment

Agricultural investment will generate multiplier effects both forward (downstream) and backward (upstream). Investment does not have to rely on government budgets, but private and public investment should be constantly encouraged.
6.6 Institutions

Agricultural institutions must be built from upstream to downstream, providing production facilities, credit, information, farming activities, as well as post-harvest management. Therefore, it is a good idea to create and develop policies on business training, funding (capital loan), technology, and markets for the young people who will strive in the development of agricultural products of high economic value despite their relatively marginal land area.

7. Conclusion

The agricultural sector has always played a strategic role in supplying raw materials to meet the food needs which continue to grow along with the increasing number of population. Therefore, the role of youth as the next generation for the sustainability of the agricultural sector is very important. However, the phenomenon is that the youth are reluctant to work in agriculture so that the number of young farmers has declined but the number of ageing farmers has increased. The decrease in the number of young farmers is closely related to the size of agricultural land which is becoming smaller. Poor agricultural prospects due to its inability to provide a reliable income also contribute to the present condition.

Addressing the structural change in the employment and learning from the experience of other countries that offer a variety of incentives to attract youth to work on the farm, the Indonesian government, particularly the Ministry of Agriculture, has to be more supportive to young farmers. By using incentives that are available for the farmers in general, a special provision should be given to the young and beginner farmers. These may include higher interest subsidy on agricultural loan and higher credit limit. In addition to the incentive policies, the strategy that needs to be done to attract the youth to work in agriculture is to promote a much more productive and higher agriculture income through the development of agricultural industry, innovation, investment, infrastructure, and strengthening agricultural institutions from upstream to downstream.

Summary (in Korean)

지난 10 년간 인도네시아 농업인구 중 청년층 농업종사자는 줄어들고 장년층은 증가해왔다. 농업에 대한 관심 저하에 영향을 미친 요소로는 토지 소유 및 농업의 수입창출 가능성이 있다. 청년층을 농업에 종사할 수 있도록 장려하기 위해서 많은 국가가 자금 및 농경지 접근성을 용이하게 해주는 인센티브를 제공하고 있다. 이러한 국가들의 경험을 거울 삼아 인도네시아 정부 농업부도 청년층을 농업분야로 유치하고 지속적인 관리를 위해 다양한 인센티브를 제공할 필요가 있다. 청년층 농업유지를 확고히 하려면, 단순한 인센티브 제공뿐 아니라 농촌의 산업화가 이루어져야 한다. 또한 농산업 발전, 혁신, 투자, 인프라 구축, 농업 관련 기관 강화를 정책적으로 지원해 나가야 한다.
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Development of Young Agropreneur in Malaysia

Mohamad Kamal ABDUL KADIR*1

1 Deputy Director
Young Agropreneur Programme
Promotion & Technology Development Centre
MARDI Head Quarters
P.O.Box 12301, 50774 Kuala Lumpur, Malaysia
Tel: +60-136-963-339
E-mail: mdkamal@mardi.gov.my
Development of Young Agropreneur in Malaysia

Abstract
The Young Agropreneur Programme is designed specifically for young people under the age of 40. The approach of this program is to facilitate and encourage the involvement of the target group in agriculture-based entrepreneurship (Agropreneur) including all activities within the agricultural value chain, which encompasses the sectors on crops, livestock, fisheries, marketing, technology and innovation, as well as special projects on agro-tourism and agro-based industry.

The Ministry of Agriculture and Agro-based Industry (MOA) target’s to produce at least 1,000 young entrepreneurs in 2014 thru the abovementioned program. To achieve this, every agency and department in the ministry is responsible for producing 100 young entrepreneurs. It serves to attract potential youths in developing a generation of talented, entrepreneurial, and potential leaders in the agriculture sector through a complete service package. This service package is an integrated training that consists of business development and entrepreneurship, technical skills, project site/business preparation, promotion, marketing, and financing.

Keywords: Young generation, agriculture, business package, technology and innovation

1. Introduction
Agriculture is an important sector in Malaysia since before the country’s independence. It is the main contributor to the economy during the First National Agriculture Policy (1984-1991), which emphasized the expansion and focus on commodity crops such as palm oil and cocoa. Based on statistics, the agriculture industry is approximately 12 percent of the national gross domestic product (GDP). It also helps in reducing the unemployment rate in Malaysia. The history of agriculture can be traced back to the British administration in Malaya. Several new commercial crops such as palm oil, cocoa, and rubber were introduced. Since then, these crops became the main agricultural exports to the global market.

Moreover, agriculture can be a tool in overcoming poverty; one reason is that it has the ability to reduce the unemployment problem in Malaysia. The effectiveness of agriculture in combating poverty and unemployment has been proven by the success of a number of high-impact agricultural programs initiated by the Ministry of Agriculture such as Permanent Food Production Parks (or locally known as Taman Kekal Pengeluaran Makanan-TKPM), High Impact Project-Aquaculture Industrial Zone (HIP-ZIA), and Agropolitan (Faiz et al., 2010). Based on statistics, 12.5 million or 43.8 percent of the Malaysian population comprised the youth. From this figure, only 15 percent are involved in the agriculture sector. However, despite of the many efforts, agriculture entrepreneurship still fails to attract interest from the young generation, and a number of causes have been identified. Norsida (2008) has highlighted that first, many youths are not properly informed about the agriculture courses in universities and
colleges, and second, agricultural entrepreneurship is commonly associated with unstable profits. These perhaps could be the reasons why the young generation views agriculture as being a high risk venture. Third, as William et al. (2004) highlighted, there is lack of exposure to and relevant information about the importance of agriculture entrepreneurship and food sufficiency.

2. Young Agropreneur

The youth generally refers to man or women who are young, have abundance of energy and strength both mentally and physically (Bahaman et al., 2010). Youth is the main backbone and catalyst for a country’s economic development goals (Bahaman et al., 2010). The Malaysian Youth Council in 2007, emphasized that those whose age between 15 to 40 years old can be considered as youth (Bahaman et al., 2010). In 2000, around 52.6 percent or 2.3 million of the 4.37 million youths are employed (Othman et al., 2010). The remaining youths (i.e. 47.4%) consisted of those who had completed their education or training, applying for work, and students who are still in the secondary schools, attending preparatory courses and in tertiary education. By 2005, the total youth population has increased to 4.98 million (Othman et al., 2010). These data indicated that there is high and bright prospects for encouraging the youth to be in business in the manufacturing and most suitably in the agriculture sector.

The Malaysian government has continuously encouraged the involvement of youths in entrepreneurship, as it is in line with the national agenda. Young Agropreneur Unit was established by the Ministry of Agriculture and Agro-based Industry (MOA) through the aspirations of the Minister of MOA in September 2013. The main objective of this unit is to inculcate interest among the young generation towards the agriculture sector and develop a group of successful young agriculture entrepreneurs. This program is designed specifically for young people under the age of 40. The approach of this program is to facilitate and encourage the involvement of the target group in agriculture-based entrepreneurship (Agropreneur) including all activities within the agricultural value chain, which encompasses the sectors on crops, livestock, fisheries, marketing, technology and innovation, as well as special projects on agro-tourism and agro-based industry.

The main agenda of this program is to increase the involvement of the young generation in agriculture and agro-based industries and to shift their interest towards this sector. The government is focusing in changing the negative perception (towards agriculture) to bring youths closer and boost their participation in this sector, which is the third biggest contributor to the economy. The involvement of the young generation in agriculture industry is important to reduce the country’s dependency on imports, as well as to develop more innovative and modern generation of agriculture entrepreneurs.
3. Agriculture Entrepreneur Development Programs

The focal target group for young agropreneurs is new entrepreneurs who have interest in executing agriculture projects. They will be experiencing several phases of training through the following complete package:

a. Training and course
b. Advice services the provision of facilities such as the needs of the land
c. Technical advice
d. Loan service provider from Agrobank and TEKUN
e. Advice services on marketing
f. Continuous guidance/monitoring

In order to attract more young entrepreneurs to choose agriculture as a career, the MOA Inc. will process pre-approved loans and assistance for their activity. The Agrobank and TEKUN (a financing facility for micro-credit soft loans for cottage industries) are also fully supportive towards the program by providing loans up to RM300,000 (Agrobank) or RM100,000 (TEKUN) without collateral and guarantors. The government is also providing a grant of 30 percent from the overall cost or RM15000, whichever minimum. Along this process, various comprehensive courses which cover the economic activities, administration, financial and marketing will also be provided.

Requirement for young agropreneur schemes are:

1. Malaysians aged 18-40 years
2. Regardless of educational background
3. Individuals, young people who have a company, cooperative or association in agriculture

Registration forms for the young agropreneur programs are available online at the website of the Ministry or the Facebook page 'Young Agropreneur Unit', and also available at the departments and agencies under the Ministry in the county, state or during MOA Roadshow held across the country. Completed forms should be returned to the departments and agencies in the county, state or directly to the Young Agropreneur Unit in Putrajaya. Ratings and offer courses or programs will be made after further guidance to interested participants.

The young agropreneur program has been prepared by the MOA, while the process of implementing the projects will be conducted by the departments/agencies under the MOA. The main activities of the departments and its agencies include registration and selection of eligible participants, provision of a comprehensive and progressive training, technical advisory services and continuous monitoring. The project packages which are being offered to the young agropreneurs are developed by the departments and agencies.
Packages available

- Honey Bees Entrepreneur Package
- Bees Kelulut Entrepreneur Package
- Freshwater Fish and Marine Fish Entrepreneur Package
- Livestock Prawns Entrepreneur Package
- Seaweed Entrepreneur Package
- Ornamental Fish Entrepreneur Package
- Fertigation of Melon Entrepreneur Package
- Fertigation of Vegetable Crops Entrepreneur Package
- A Goat / Sheep Entrepreneur Package
- Breeding Quails Entrepreneur Package
- Poultry Entrepreneur Package
- *Caraginan* (Processed Seaweed) Entrepreneur Package

4. MARDI Young Agropreneur Program

The Malaysian Agricultural Research and Development Institute (MARDI) was established with the primary objective of generating and promoting new, appropriate and efficient means for the advancement of the food, agriculture and agro-based industries. MARDI act of 1969 has led to the establishment of MARDI on October 28, 1969. The MARDI vision has evolved from capacity building, establishment of cultivation and farming system towards the commercialization of technology, total quality management, and culture excellence in order to achieve recognition at the national and international levels. It provides training and consultancy for entrepreneurs.

MARDI is one of the agencies under MOA which is concerned on technology development, especially related to technology transfer. This activity is very important because there is a need to transfer new and innovative technologies to the end user and target groups including the young agropreneurs. New technologies and innovations carried out by MARDI which are offered to young agropreneurs include trigona bee farming, fertigation system, mushroom farming, and other agro-based industry.

MARDI provides a complete package in three phases for the benefit of young agropreneurs, these are the following:

1. Training and coaching phase
   A comprehensive training and coaching in the technical basis of technology transfer (technical advice), preparation of business planning, packaging and labeling, financial management and marketing.

2. Implementation phase
   a. MARDI will advise services the provision of facilities such as the need for land or the area for business activities.
   b. Easy access to funds. The funds available are RM20 million at AgroBank and RM20 million at Tekun Nasional. Grants in the form of in-kind contribution from the Ministry of 30 percent will be given to qualified applicants in the form of equipment and inputs.
c. Technical advice and continuous guidance/monitoring.

3. Marketing phase
Advice services on marketing.

Minimum income of RM5, 000 a month for the package being offered. Focus on high value agricultural projects and the use of modern technology.

5. Conclusion
The government is positive in increasing the percentage of young people participating in the agriculture industry. The ministry will continue various approaches to encourage the young generation into farming. In 10 years time, Malaysia will have more successful young agricultural entrepreneurs in the country.

Summary (in Korean)
젊은 영농후계인 프로그램은 40세 미만의 청년층을 대상으로 한 프로그램이다. 이는 농업의 가치사슬에 해당되는 모든 분야인 식량작물, 축산, 수산업, 마케팅, 기술과 혁신, 농업체험관광 및 제반산업에 관한 경영프로그램에 대상의 5가지 영농후계인 양성을 목표하고 있으며, 이러한 목표 달성을 위해 농업부 내 관련 부서마다 100명의 영농 후계인 양성을 의무화하고 있다. 통합적인 서비스 제공으로 잠재적인 젊은 영농후계인들이 기업가정신과 리더십을 함양하고 역량을 강화할 수 있도록 한다. 이 서비스는 농산업체 창업, 기업가정신, 기술관련 지식, 시범사업 시행, 창업 아이디어 및 마케팅, 재정지원 등을 망라한 통합적인 혼란 프로그램이다.

References
Building Farmers’ Assets and Investing in the Out-of-School Youths for Rural Development

Asterio P. SALIOT*1

1 Director
Agricultural Training Institute
Department of Agriculture
ATI Bldg., Elliptical Road, Diliman, Quezon City, Philippines
Tel: +63-2-928-7397
E-mail: ati_director@yahoo.com
Building Farmers’ Assets and Investing in the Out of School Youths for Rural Development

Abstract
Philippine agriculture is faced with many challenges. Poverty and low productivity in the rural areas continue to persist. Even if the country is agricultural in nature, it is still regarded as a lowly profession. Majority of the farmers are poor. Hence, it discourages the young people to go into farming and agriculture in general. Young people who are successors to the ageing farmers tend to go to the urban areas rather than stay in the rural areas and go into farming. They don’t see any future in agriculture.

The Department of Agriculture (DA) through the Agricultural Training Institute (ATI) and its partners still believe that there is still hope and future in agriculture if only the government and the private sector will work together to build the farmers’ assets and invest in the out-of-school youths (OSYs) for rural development.

DA-ATI has implemented various programs to realize this. Among which are the Schools for Practical Agriculture (SPA), the ladderized course for OSY, Youth in Agriculture and Fisheries Program, the e-Extension Program, the grow local and eat local movement, among many other programs to capacitate the youth and the farmers.

The Institute with the implementation of these programs hopes to build dreams and change lives among our poor.

1. Introduction
Farming and agriculture in this part of the world is regarded a lowly profession. This is understandable because Filipino farmers/fishers and most of those who depended in agriculture are among the poorest of the poor, thus rural areas are usually impoverished. The stigma of poverty and malnutrition in farm families and rural communities forced outmigration thereby trigger enumerable problems in the urban centers. It also discouraged young people to engage in farming and agriculture in the rural areas.

While many may have given up agriculture and considered it a dying if not a dead industry, the Agricultural Training Institute (ATI) of the Department of Agriculture (DA) and its partners believed otherwise. We see Philippine agriculture today similar to the sprouting of a new plant from its seeds or the hatching of the chicken egg to a chick or the birth of a farm animal. Only, it needs a lot of efforts and political will to make it a viable industry and occupation. This can also be achieved if we build on the farmers’ assets and invest in the out-of-school youths (OSYs) to develop them as successor farmers.

Usually, when one talks about farmers’ assets, it referred to the farm lands, draft animals or machineries that will be used to produce agricultural products. It may also include some amount of money that can be spent in farm activities. However, little importance is given to that asset “between the two ears” of the farmer much more those “small” farmers in the impoverished rural areas where most of them hardly finished elementary education much more
formal education at all.

It is that “asset” of the farmer must be built because it is in there where big things happen that may have started from small dreams. That is why the ATI takes as its motto “building dreams, changing lives.” It is building the dreams of any farmer by harnessing their talents and skills to change their lives for good. The Institute will build on the farmers’ dreams to cause positive changes in their lives and that of their families.

The same is also true with the OSYs. The rural youths whom many of them are OSYs usually face many barriers when pursuing higher education. Added to their woes is the lack of employment opportunities after graduating from secondary school since they are not prepared for the world of work. Most often, these OSYs end up as farmers if not doing some menial jobs in the urban centers. Since these OSYs lack the necessary education and skills in profitable farming, then most often their farming ventures end up in a dismal failure.

Having this common scenario, it is most appropriate to invest in our OSYs. By investing in their training and education today, we are not only developing successor farmers and farm managers. Therefore, a complementary program that will help build the assets of the farmers and invest in the OSYs will surely promote agricultural and rural development in the Philippines.

2. Schools for Practical Agriculture (SPA)

The SPA is a scheme wherein the farmers will be trained as trainer/extension worker in the community and his farm lot will be developed as a demonstration area or practical learning site. Eventually, it will be used for micro-teaching for other farmers and OSYs especially those who are enrolled in a ladderized course in agri-entrepreneurship. After fully trained as local trainer/extension worker, the farmer will act as community extension worker with support from ATI perhaps the local government unit (LGU) and other farmers. The farmer trainer will also receive financial assistance to develop his farm lot as hands-on learning sites which will later on form part of a network of “practical schools” for agriculture or farm schools network.

After extensive capacity building in farm entrepreneurship, the farmer trainer will be encouraged to take competency certification tests from the Technical Skills and Development Authority (TESDA). His/her farm lot will also be certified as practical learning sites. Members of the network of practical agriculture learning sites will soon be opened to visitors as part of an advocacy to promote the idea of “farm tourism.” By promoting farm tourism, the SPA learning sites will become tourism spots where actual agricultural activities can be witnessed and learned by visitors. It will also set the inclusion of community activities to show the beauty of agricultural landscape which can attract hands-on practice for students, educational tours for local government officials, extension workers and even researchers.

The SPA will serve as a venue for interaction among farmers including tourists on the commodity production management as a vehicle for information sharing and technology transfer. It will further harness the full potential in the resource-rich farming/fishing communities towards a holistic and integrated community-based agri-business-eco-tourism program which will uplift the quality of life of the people in the rural areas.
The involvement of the local communities in farm tourism activities can empower farmers, fishers, extension service providers (ESP), rural based organizations (RBO), and indigenous people’s (IPs). Moreover, it will build their capabilities and capacities for them to develop and manage agri-business-eco-tourism projects in their areas. Furthermore, it gives support to the agricultural and rural development programs as well as tourism initiatives aside from strengthening public-private partnership through investments and provision of counterpart funds. The “farmers assets” will surely be harnessed and developed as a viable production occupation, source of income and livelihood.

Specifically, the SPA is designed to:

1. Develop farmers and their farms as viable and productive occupation and source of income and livelihood;
2. Build capabilities and capacities of farmers/fishers, ESP, RBO, and IPs for them to develop and manage agri-business-eco-tourism projects in their areas;
3. Develop and implement agri-business-eco-tourism projects in municipalities and establish one-stop-shops showcasing the products and resources of the communities;
4. Strengthen public-private partnership through investments and provision of counterpart resources; and
5. Document the project’s success stories.

The basic principles in this program are that farmers will evolve as teachers/educators for other farmers in the community and the farmers’ farm will be the demonstration area/practical agriculture learning sites for the farmers and those aspiring to engage in farming. In choosing the farmer to be the community teacher under the SPA, the following criteria are set:

1. Graduates of Training of Trainers (TOT), Farmers Field Schools (FFS), Farmer Led Extension (FLE) trainings of ATI, Magsasaka-Siyentista (MS) or farmer scientist, or those who have undergone training in Training Services Enhancement Program for Rural Life Improvement (TSEP-RLI);
2. Farmer leader in the community;
3. He/she is willing to be trained;
4. He/she is willing to act as extension worker/trainer in the community;
5. He/she is willing to make available his/her farm as demonstration area/or hands-on learning site; and
6. Physically and mentally fit to perform his/her responsibilities.

2.1 The Learning Site

1. Accredited TESDA agricultural schools or LGU owned farms
2. Private farms
3. Established FFS sites
4. At least one hectare in size
5. Accessible by land and other transportation facilities
6. **With potentials for agri-business-eco-tourism site**

   Since the farmer’s time and efforts will be used in serving his fellow farmers and other interested people in farming, the following incentives may be provided:

1. Monthly allowance as local extension worker from the LGU or other ATI partners;
2. Start-up capital of not less than $1,200 or no more than $2,400 to help develop his farm from the LGU or ATI;
3. Life insurance coverage of $1,200 to $2,400 from ATI and the Philippine Crop Insurance Corporation (PCIC);
4. Farmer will be eligible for accreditation from TESDA as competent trainer/extension worker and his/her farm as an accredited learning site; and
5. Possible social security coverage (if funding allows) for future retirement benefits.

**2.2 The First SPA in Community Seed Banking**

   South Cotabato is nurturing a humble but great person which can be considered probably one of the country’s natural treasures in the person of Mr. Perfecto “Ka Peks” Vicente, who recently died.

   Ka Peks was 78 years old farmer-scientist who hailed from Pangasinan. He was a former Professor of the University of the Philippines and researcher who found solace in continuing his advocacy in rice breeding and organic farming in South Cotabato. Ka Peks notable contribution in serving and developing our traditional rice varieties through organic farming using his own ingenuity of which he was awarded a Gawad Geny Lopez, Jr. Bayanihang Pilipino Award and Lifetime Achievement Award from Masipag Foundation in 2004.

   During the first few months in office of the Secretary of the DA, Secretary Proceso J. Alcala, he made sure he never forget to look back to this great man who silently worked to advance the cause of the farming sector. In November of 2010, Secretary Alcala rewarded him a special Secretary’s Award during the 7th National Organic Agriculture Conference. Their meeting again followed when the Secretary personally visited him in his residence in December of the same year.

   The Secretary’s visit paved the way for other agencies to look into his efforts and make ways to further his initiatives. One of these institutions that immediately responded is the ATI. This author as ATI Director believed that Ka Peks legacy should be passed on to other farmers and extension workers through appropriate extension modality. The ATI acknowledged Ka Peks expertise and experience being a researcher as well as resource person to many training programs in rice breeding, seed banking and organic farming. That is why during the first visit to Ka Peks in February of 2011, the author mentioned his plan to put up a practical school for the farmer-scientist to showcase the research technologies in the farm and to develop Ka Peks farm as a practical learning site and a farm-tourism place for local tourists to visit.

   In September 2011, the Practical School was completed and inaugurated. The Practical School was constructed attached to the original house of Ka Peks. It is a two story structure with a training/meeting space as well as sleeping quarters. Surrounding the practical school is a one-hectare rice field which serves as the demonstration area or learning site. This SPA is
already being used by farmers, OSYs, students, among others as a center for learning in organic rice breeding and seed banking. This is the first SPA established by ATI in the entire country. After this, many as ATI continue to pursue its program in building the farmers’ assets and investing in the OSYs.

It is expected that various SPA are established all over the country, and it will be hands-on or practical learning sites of rural youths who are students of the ladderized course on agricultural entrepreneurship.

In his acceptance speech, Ka Peks said “I have no means to ask for anything. I only relied on the kind hearted people who visited me and saw what I am doing. This is not for me as I may soon be gone but the farmers must be assisted because most of them are poor. If we will not help them, food security will not be attained.” Truly, even Ka Peks has been gone, his legacy lived forever. The SPA that was established remains to flourish and is still being visited. This time, his daughter continues what his father has done.

Ka Peks legacy to teach the farmers to produce their own seeds is still evident up to this day. He wants the farmers to use the farm school he built and established. The farm school also serves as an information and reading center where farmers can access information, read materials about farming, especially rice breeding. Together with the farmers in the area, Ka Peks was able to produce traditional rice varieties. This way, rice farming in the Philippines will be sustainable and Filipino farmers are not dependent with traders, input suppliers and creditors for their seeds because they will be able to produce them.

3. Ladderized Course for the OSYs

As mentioned, poverty is very pronounced in the rural areas. This condition hinders many rural youths from pursuing higher education and even employment opportunities. Though the rural youths may have finished secondary education yet they are not prepared for the world of work.

Many college bound students see no future in agriculture. This is because even farmers themselves discourage their children from pursuing an agriculture degree if they have the opportunity to study college. Compounding the problem is the fact that existing agricultural high schools do not offer many options. This is because of a standardized secondary curriculum that does not offer livelihood skills relevant to the needs in rural communities. This therefore bring to fore the need for a program that allows hands-on agriculture education with special focus on entrepreneurship and farm management. Under this program the students will be at the same time learning and earning.

The ATI with the Foundation for People Development (FPD) takes the lead in establishing the Farm Schools Network to support the training program for farm entrepreneurs. Moreover, with the establishment of the SPA by ATI in cooperation with farmers who were trained as trainers/extension workers in partnership with SUCs plus the participation of TESDA in the certification system, the ladderized course on agri-entrepreneurship is well in place.

The ladderized program for the OSYs who are members of the 4-H Club of the Philippines will improve the links between secondary education, the agricultural communities and business
by assisting rural communities in designing self-sustaining, community-based and agriculture-focused school-to-work programs. This will also entail close collaboration between farms as industry training partners and schools which offer farm entrepreneurship program.

The curriculum under the ladderized program follows the regular secondary curriculum of the Department of Education (DepEd). The bridging school-to-work program entails an additional two (2) years to the high school curriculum and thus combines a secondary and post-secondary program now leading to a Diploma. During the additional two-year Diploma course, students shall go through an intensive on-the-job training program that will afford them hands-on exposure to various agriculture enterprises. The students will also supplement their studies by enrolling in various e-learning courses offered by ATI under its electronic-Extension otherwise called as e-Extension Program.

This post-secondary program (plus 2 years) shall be implemented under TESDA’s Dual Training System (DTS). Graduates who shall pass TESDA’s certification examinations shall also earn a national competency certificate in crops, horticulture, animal and poultry production, aquaculture as well as organic and natural farming system.

Students under this program will be awarded scholarships by ATI to undergo a two-year Diploma Course using the DTS. Graduates of the Program who wish to continue their studies for a college degree may qualify to apply to the Bachelor of Science in Entrepreneurial Management or a BS in Agricultural Entrepreneurship. Scholarships will then be provided by ATI under its Youth Agriculture and Fisheries Program.

There are at the moment two on-going ladderized courses promoted by ATI and the FPD:

Case 1: Diploma on Agriculture Entrepreneurship. This is offered by the MERALCO Foundation Inc. Farm Business School in partnership with the University of Rizal System, and the ATI which funded the program towards Bachelor of Science in Entrepreneurial Management major in Farm Business. For every semester of four (4) months, only one (1) month is spent for classroom instructions while the other three (3) months will be hands-on learning in partner farm schools. At the end of the year the student will take a competency examination administered by TESDA on the field the student is exposed in that particular year.

Case 2: Diploma in Eco-Farm Tourism Entrepreneurship. This is offered by the Western Philippine University in Puerto Princesa City towards a Bachelor of Science in Agricultural Entrepreneurship major in Eco-Farm Tourism. Similar to the first case, students will have both classroom and actual hands-on exercises in the farms. After which he/she will take the competency examination from TESDA. Again, this program is through the partnership with FPD, ATI, WPU, the two congressional districts of Palawan, the City Government of Puerto Princesa, the Palawan Provincial Government, TESDA, Palawan Experiment Station, SAKA Foundation, and the 12 Farm Schools partners.

Under the ladderized program, the students will be at least able to engage in an agricultural
enterprise in case he/she will not be able to complete the two-year program provided a semester is completed or finished. This is because in every semester the students will experience a hands-on and practical learning exposure to a certain agricultural enterprise at the same time pass a competency examination administered by TESDA.

4. Youth in Agriculture and Fisheries Program (YAFP)

Under this program, the DA through the ATI endeavored to offer a scholarship program that is open to all deserving children of farmers and fishers to pursue studies and professional career in agriculture and fisheries. The program enlisted the expertise of SUCs in providing quality education for the scholars who must be children of small holder farmers and fishers. The DA-ATI believes that by providing scholarship it will attract young talented persons to pursue studies and professional career in agriculture and fisheries. Scholarships shall be provided through SUCs as well as private colleges and universities. The scholarship program covers Bachelor’s Degree in agriculture, fisheries and other agriculture-related sciences which shall be granted through schools/universities/institutions.

The following are the general criteria of eligibility:

1. He/she must be a son/daughter of a bonafide small-scale farmers/fishers;
2. The parents/guardians having a gross annual income of not more than $2,600;
3. He/she must not be more than 30 years old at the time of application to the program;
4. The applicant must not have been a delinquent scholar of a previous scholarship;
5. He/she must be willing to apply in the field of specialization that conforms with the DA-ATI priority agriculture related commodity or discipline;
6. He/she must have passed the entrance/qualifying examination prescribed by the University/College where he/she intends to enroll;
7. Prospective scholars who have stopped schooling may apply to finish his/her course;
8. Must have complied/submitted the following documentary requirements:
   a. ATI Regional Training Center certification/endorsement
   b. Bureau of Internal Revenue (BIR) income tax return of the parents showing that their gross annual income is not more than $2,600
   c. Birth Certificate specifying that the applicant is not more than 30 eyars old
   d. Certification from the Municipal Agriculture Office that the applicant is a son/daughter of a bonafide small scale farmer/fisher
   e. Certification of good moral character from the high school principal
   f. Admission slip from the university/college where he/she intends to study
   g. Medical certification of good health from an accredited hospital
   h. High school grades and diploma or in case of a graduate of a ladderized course, diploma from college/university where the scholar finished the course
   i. Certification from the municipal coordinator where the scholar resides that he/she is a 4-H Club member
Scholarship Privileges

The scholars under the YAFP shall have the following privileges:
1. Monthly stipend of $140
2. Book allowance of $35 per semester
3. Actual tuition and other school fees
4. Funding support to conduct research amounting to $210 as a graduating student

5. Other Programs for the Youth
Among the other programs implemented by the DA and the Institute in particular are:
1. Lowering of age requirement of 4-H Clubs membership from 15-30 years to 10-30 years old.
2. Gawad Saka Award for Young Farmers – a national award system to recognize young farmers
3. Gawad Saka Award for Young Farmer Organization – a national award system to recognize young farmer organizations usually 4-H Clubs
4. Learning and Discovery Center for Agriculture and Fisheries – a center which showcases various farming systems, extension strategies, value chain of some commodities, innovations in agricultural extension, and features various successful farmer entrepreneurs and their products. This serves as a venue for expository tours of elementary and high school students for them to appreciate agriculture.
5. Special hands-on (season-long trainings) for OSY with TESDA NC II Certification

6. E-Extension Program for Agriculture and Fisheries as a Support Program
E-Extension can be defined simply as the use of electronic technologies especially information and communication technologies or ICT to enhance face-to-face and paper based interactions. These technologies can be as simple as teleconferences or as complex as wikis and blogs. The e-Extension Program initiated by ATI is an aggressive shift in its extension work envisioning a revolutionized agriculture and fishery e-extension services for self-reliant and globally competitive communities that can be delivered any time, any place at any pace. e-Extension is an electronic delivery of extension service of a network of institutions that provide a more efficient alternative to a traditional extension system for agriculture, fisheries and natural resources sectors. It focuses on creating an electronic and interactive bridge where farmers, fishers and other stakeholders meet and transact to enhance productivity, profitability and global competitiveness. It maximizes the use of ICT to attain a modernized agriculture and fisheries sector.

The DA-ATI’s e-Extension Program has three (3) main components namely, e-Learning, e-Farming or the Farmers Contact Center and e-Trading. The e-Learning is of three (3) types, 1) online or through the use of the internet; 2) off-line which is offered to areas without connectivity; and 3) blended which is a combination of online and face to face interaction. It
offers certificate courses equivalent to the traditional training courses offered in “as you know it” modality. Most often a course has two (2) to five (5) modules with sets of lessons per module and activities, assignments and assessments or tests.

Moreover, the e-Learning has on-call experts available for real time telephone consultation through message board or email or even text messaging or the short messaging system (SMS). Involvement of e-Learners is closely tracked by an e-Learning Coordinator. The outcome of the assessments or end-module tests will serve as basis for issuing Certificate of Completion. During the first year of implementation, learners are required to complete this course in two (2) to three (3) months. Today, e-learning courses are on a rolling mode and no time restrictions. Learners can learn any time, at their own pace.

There are more or less forty (40) pool of courseware developers in e-Learning. Thirty (30) of these developers are stationed at ATI and the others are from the Bureau of Agricultural Research (BAR), Department of Science and Technology – Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD), Xavier University, among others. These e-Learning courses are also offered in all the Regional Training Centers of ATUI as well as in PAES and the various Farmers Information and Technology Services (FITS) Centers in the LGUs.

6.1 Farmers’ Contact Center (FCC)

The FCC is a support center for the DA’s clients to deliver farm and business advisory services through ICT. It involves voice call and short messaging system modes through a pre-defined toll-free number specified across the country including chat and email.

6.2 Electronic Trading (e-Trading)

The e-Trading component is the last and final component of the e-Extension Program. It capacitates farmers and farmers’ groups or associations to produce quality products according to the need of the market or the consumers. It is patterned along the Market Maker system espoused by the United States Department of Agriculture through Cornell University. To date, the system is still being developed and farmers and farmers’ groups are being capacitated as well as markets are identified. Once the system is in place, it is hoped that farmers will have the command of the prices of their products and consumers will be assured that the agricultural products that they are buying are not only at reasonable prices but are also safe and truly nutritious.

This means, there will be traceability of all agricultural products sold in the markets. Consumers will know where the products came from and who produced the products they bought from the market.

7. Grow Local, Eat Local Movement

The grow local, eat local movement is another support program for our farmers and was launched on September 2011 at Puerto Princesa City, Palawan. It is a joint project of the ATI
and FPD. The main objective of the movement is to encourage Filipinos to grow and patronize food produced near their place. It is also an initiative to address food security of each town, city or province.

Among the benefits expected to be derived from the movement are the following:
1. Lower food prices
2. Reduce import bill and create ready markets for Filipino farmers
3. Increased income of local farmers
4. Reduce carbon footprint due to savings from food miles
5. Localization of food production and consumption of fresh and healthy food
6. Encourage the youth by making them realize that agribusiness entrepreneurship is a career option

Expected to join the movement are farmers and farmer groups, restaurants, hotels, resorts, supermarkets, hospitals, offices and individual consumers. Civic groups, professional associations, foundations, non-government organizations and tour operators can also participate in the movement. The movement will be promoted and included in its component are weekend markets, farmers’ markets, food exchanges and packing centers, and “community supported agriculture” via subscription farming. These will all lead to the establishment of a local food system that will benefit both consumers and producers.

8. Conclusion

Unlike in advances and well-developed economies in the world, Philippine agriculture and fisheries sector has much to be desired. Unfortunately, not too many people in the Philippines are interested in farming especially the youth. If ever some young people will engage in farming, it is because they were forced by circumstance. But given other options, these youths will prefer to venture in other activities other than agriculture.

The desolate situation in agriculture can be turned around if government and the private sector will work together and come-up with programs that will afford those that will engage in it bright opportunities through higher and secured income. Hence, much will power is needed. Since, agriculture is a science, it therefore has to be nurtured by developing the attitudes and character of those who will engage in it. It is by building the farmers’ capabilities and investing in the OSY that we can hope for a developed and progressive sector. It cannot be one after the other. It should be simultaneous to have synergy as the farmers hand over to the OSYs as their future successors the knowledge, skills and values they learned from their ancestors and years of experience.

On the other hand, the government and the private sector should formulate the needed policies and put-up infrastructures that will facilitate the achievement of the dreams and aspirations of those engaged in fishing and farming that eventually will change them to have better lives. Again, the development of Philippine agriculture hinges in building farmers’ assets and investing in the OSYs.
필리핀 농업은 농촌 지역 내 빈곤과 낮은 생산성 등 많은 문제에 봉착해 있다. 필리핀은 본래 농업국가임에도 불구하고 농업은 천직으로 대우를 받고 있다. 농업인 대부분이 빈곤층에 따라 젊은이들로 하여금 농업에 진입하고자 하는 의지를 저하시킨다. 퇴직을 앞둔 고령 농가의 젊은 농업후계인 대부분은 농촌 지역에 머무르며 농업에 종사하기보다 도시지역으로 이주하려는 성향이 강하다. 농업의 장래성을 보지 못하기 때문이다. 필리핀 농업부와 농업훈련센터 및 관련기관은 민관이 협력하여 농업인의 자산 증대와 미취학 청년층을 농업에 유입하기 위한 노력을 기울인다면 농업의 미래를 지킬 수 있다는 신념을 가지고 있다. 농업훈련센터는 이를 실현하기 위해 다양한 프로그램을 시행하고 있다. 그 중 농업학교에서 실시하는 농어촌청년대상 커리큘럼과 e-농촌지도 프로그램, 산지 내 농산품 소비를 주창하는 로컬푸드 소비 장려는 청년층과 기존 농업인 육성을 위한 프로그램이다. 이러한 프로그램 운영을 통해 필리핀 농업관련 기관들은 빈곤층의 삶의 질을 향상시키고 꿈과 희망을 심어줄 수 있기를 기대한다.

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How to Encourage Young Generation to Engage in Farming: Korea’s Case

Sang-jin MA*1

1 Research Fellow
Korea Rural Economic Institute
117-3 Hoegi-ro, Dongdaemun-gu, Seoul, 130-710, Korea
Tel: +82-2-3299-4258
E-mail: msj@krei.re.kr
How to Encourage Young Generation to Engage in Farming:
Korea’s Case

Abstract
As the share of the agriculture sector in the Korean economy has decreased since the 1970s, the Korean agricultural workforce has also declined and workers in their twenties and thirties became scarce, which led to a lower rate of agricultural labor productivity. Since the 1980s, Korea has been trying to secure young generation into the agriculture sector and rural areas by launching new programs such as the Farm Successor Fostering Program (1981), Korea National Agricultural College (1997), and Special Agricultural Program in Agricultural Schools (2006). While each program has its own outcomes, the greying of Korean farmers is likely to continue because of the less favorable public perceptions of agriculture, farm youth decrease, old farmers retirement and entry, and agricultural school graduates’ scarce entry into farming. In order to solve these problems, this study suggested the following measures: activating education about agriculture; fostering selected agricultural high schools; strengthening agricultural colleges’ role in fostering agricultural workforce; linking retiring farmers and new farmers through farm corporations; launching intermediate organizations in charge of regional agricultural workforce; and supporting capital formation of young farmers.

Keywords: agricultural workforce, ageing, fostering young farmers

1. Korean Agricultural Workforce

Korea has the traditional golden phrase “Agriculture is the fundamental foundation of the country.” Korea was a traditional agriculture-oriented country until the 1960s. In 1970, 48.2 percent of total economically active population in Korea worked in agriculture, and agricultural value-added accounted for 26.6 percent of the gross national income (Table 1). However, the national economic development strategy had put emphasis on commerce and industry – shipbuilding, construction, electronics, and the automotives – that became primary engines of growth. This is when the agricultural workforce began to move into these industries. Since then, the share of agriculture in Korean economy has been declining and the agricultural workforce has also shrunk. In 2010, only 6.3 percent of the total economically active population worked in agriculture, and agricultural value-added as a percentage of gross national income went down to 2.4 percent.

In most developed countries, national economic growth was accompanied by the decrease in the share of agricultural sector. The problem lies not in the decline, but in the ageing of agricultural workforce. The share of agricultural workforce aged 60 and over was 6.4 (1970), 11.2 (1980), and 23.7 percent (1990) (Table 2). In 2000, it was over 40 percent and finally in 2010, it was 55.9 percent. A bigger problem is that the share of agricultural workers who are in their twenties and thirties, the future generation in agriculture, is declining fast. In the 1970s, 57.6 percent of total agricultural workforce was under the age of 40, but the percentage dropped
to 22.1 percent in 1990 and down to 6.4 percent in 2010.

Table 1. Change in agricultural workforce and agricultural value-added in Korea (unit: billion won, thousand persons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross National Income (A)</th>
<th>Agricultural Value Added (B)</th>
<th>B/A Ratio (%)</th>
<th>Economically Active Population (C)</th>
<th>Agricultural Workforce (D)</th>
<th>D/C Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>2,763</td>
<td>736</td>
<td>26.6</td>
<td>10,062</td>
<td>4,846</td>
<td>48.2</td>
</tr>
<tr>
<td>1975</td>
<td>10,386</td>
<td>2,559</td>
<td>24.6</td>
<td>12,193</td>
<td>5,339</td>
<td>43.8</td>
</tr>
<tr>
<td>1980</td>
<td>38,774</td>
<td>5,576</td>
<td>14.4</td>
<td>14,431</td>
<td>4,654</td>
<td>32.3</td>
</tr>
<tr>
<td>1985</td>
<td>84,061</td>
<td>10,173</td>
<td>12.1</td>
<td>15,592</td>
<td>3,733</td>
<td>23.9</td>
</tr>
<tr>
<td>1990</td>
<td>186,690</td>
<td>14,998</td>
<td>8.0</td>
<td>18,539</td>
<td>3,237</td>
<td>17.5</td>
</tr>
<tr>
<td>1995</td>
<td>398,837</td>
<td>22,828</td>
<td>5.7</td>
<td>20,845</td>
<td>2,403</td>
<td>11.5</td>
</tr>
<tr>
<td>2000</td>
<td>578,664</td>
<td>24,939</td>
<td>4.3</td>
<td>22,134</td>
<td>2,243</td>
<td>10.1</td>
</tr>
<tr>
<td>2005</td>
<td>864,427</td>
<td>25,832</td>
<td>3.0</td>
<td>23,743</td>
<td>1,815</td>
<td>7.6</td>
</tr>
<tr>
<td>2010</td>
<td>1,174,753</td>
<td>27,832</td>
<td>2.4</td>
<td>24,784</td>
<td>1,566</td>
<td>6.3</td>
</tr>
</tbody>
</table>


Table 2. Change in age structure of Korean agricultural workforce (unit: thousand persons (%) )

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60+</th>
<th>Age Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>4,846</td>
<td>1,553 (31.6)</td>
<td>1,260 (26.0)</td>
<td>1,058 (21.8)</td>
<td>686 (14.2)</td>
<td>309 (6.4)</td>
<td>100.0</td>
</tr>
<tr>
<td>1975</td>
<td>5,339</td>
<td>1,559 (29.2)</td>
<td>1,177 (22.0)</td>
<td>1,180 (22.1)</td>
<td>962 (18.0)</td>
<td>461 (8.6)</td>
<td>100.0</td>
</tr>
<tr>
<td>1980</td>
<td>4,654</td>
<td>949 (20.4)</td>
<td>898 (19.3)</td>
<td>1,309 (28.1)</td>
<td>979 (21.0)</td>
<td>520 (11.2)</td>
<td>100.0</td>
</tr>
<tr>
<td>1985</td>
<td>3,733</td>
<td>568 (15.2)</td>
<td>681 (18.2)</td>
<td>997 (26.7)</td>
<td>924 (24.8)</td>
<td>564 (15.1)</td>
<td>100.0</td>
</tr>
<tr>
<td>1990</td>
<td>3,237</td>
<td>221 (6.8)</td>
<td>494 (15.3)</td>
<td>700 (21.6)</td>
<td>1,056 (32.6)</td>
<td>766 (23.7)</td>
<td>100.0</td>
</tr>
<tr>
<td>1995</td>
<td>2,403</td>
<td>103 (4.3)</td>
<td>339 (14.1)</td>
<td>466 (19.4)</td>
<td>672 (28.0)</td>
<td>823 (34.2)</td>
<td>100.0</td>
</tr>
<tr>
<td>2000</td>
<td>2,243</td>
<td>79 (3.5)</td>
<td>218 (9.7)</td>
<td>404 (18.0)</td>
<td>553 (24.7)</td>
<td>989 (44.1)</td>
<td>100.0</td>
</tr>
<tr>
<td>2005</td>
<td>1,815</td>
<td>29 (1.6)</td>
<td>83 (4.6)</td>
<td>286 (15.8)</td>
<td>420 (23.1)</td>
<td>994 (54.8)</td>
<td>100.0</td>
</tr>
<tr>
<td>2010</td>
<td>1,566</td>
<td>31 (2.0)</td>
<td>70 (4.5)</td>
<td>200 (12.8)</td>
<td>390 (24.9)</td>
<td>875 (55.9)</td>
<td>100.0</td>
</tr>
</tbody>
</table>


Korea has one of the oldest populations of farm holders among developed nations in agriculture. In Korea, the ageing of farm holders is more serious than the ageing of agricultural workforce. In 2013, the average age of farm holders was 65.4. The share of farm holders aged 60 and over was 67.3 percent and that of farm holders aged 70 and over was 37.7 percent. For the international comparison of farm holders’ ageing, the age group ratio of less than 35 years to 55 years and over is shown in Table 3. The EU-27 average in 2007 for farm holders (A) who were younger than 35 years was 6.1 percent and for farm holders (B) who were older than 55 years, it was 56.8 percent. The ratio of A to B (the ratio of young to elderly farmers) was 0.107. As of 2011, the ratio in the United States was 0.121. The United Kingdom, Italy, and etc. had the oldest farming populations with the ratio of 0.04. Whereas, the ratio in Korea was even worse: in 1990, the ratio was already 0.186 passing that of 2007 France; in 2000, the ratio was 0.045 similar to that of 2007 UK; In 2013, the ratio dropped to 0.004.
Table 3. Ageing of farming population in selected countries

<table>
<thead>
<tr>
<th>Country (Year)</th>
<th>Less than 35 years % (A)</th>
<th>55 years and over % (B)</th>
<th>A/B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark (2007)</td>
<td>6.0</td>
<td>44.6</td>
<td>0.135</td>
</tr>
<tr>
<td>Germany (2007)</td>
<td>7.7</td>
<td>30.0</td>
<td>0.257</td>
</tr>
<tr>
<td>France (2007)</td>
<td>7.9</td>
<td>40.9</td>
<td>0.193</td>
</tr>
<tr>
<td>Italy (2007)</td>
<td>2.9</td>
<td>68.0</td>
<td>0.043</td>
</tr>
<tr>
<td>Netherlands (2007)</td>
<td>3.9</td>
<td>44.5</td>
<td>0.088</td>
</tr>
<tr>
<td>UK (2007)</td>
<td>2.6</td>
<td>61.7</td>
<td>0.042</td>
</tr>
<tr>
<td>EU-27 (2007)</td>
<td>6.1</td>
<td>56.8</td>
<td>0.107</td>
</tr>
<tr>
<td>US (2011)</td>
<td>3.9</td>
<td>32.1</td>
<td>0.121</td>
</tr>
<tr>
<td>Korea (1990)</td>
<td>7.3</td>
<td>39.3</td>
<td>0.186</td>
</tr>
<tr>
<td>Korea (2000)</td>
<td>2.2</td>
<td>48.5</td>
<td>0.045</td>
</tr>
<tr>
<td>Korea (2007)</td>
<td>0.6</td>
<td>73.9</td>
<td>0.008</td>
</tr>
<tr>
<td>Korea (2013)</td>
<td>0.3</td>
<td>80.8</td>
<td>0.004</td>
</tr>
</tbody>
</table>


Korea’s agricultural labor productivity is at a standstill recently. It had grown rapidly until the 1990s, showing over six percent growth per year (Figure 1). From that year, its growth rate began to fall. It dropped to 3.5 percent in 1991-2000, and over the last decade it almost stopped growing.

![Fig. 1. Annual average growth rate of Korean agricultural labor productivity](Source: Statistics Korea. 1970-2012. Farm Economic Survey)

Compared to Korea’s total labor productivity of other sectors, agriculture shows a consistent decline (Figure 2). Agriculture and other sectors total labor productivity levels were similar in the 1970s, but the difference widened starting in the 1980s. In the 1990s, the agricultural labor productivity level was half of the total labor productivity level, and now it is almost 1/3. In 2010, value-added per economically active person in all industries was KRW 47.4 million while the agricultural workforce generated value-added equivalent to KRW 17.8 million.
Korea’s agricultural labor productivity is much lower than that of other advanced countries. France and the Netherlands have output per farmer that is over USD 60,000 in 2010 (standard price of 2004-2006), while Korea is only 1/9~1/10 of this level.

2. Policies for Youth Entry into Agricultural Workforce

2.1 Farm Successor Fostering Program

The Farm Successor Fostering Program was the first government program to secure young generation in the agriculture sector and rural areas. It is one of the long-lasting programs of the Ministry of Agriculture’s (MAF) policy history, which started in 1981. Apparently, many young people had left rural areas for their new jobs in cities since the 1970s. The program’s basic idea is as follows: once you are selected as a farm successor, you can get financial support from the government; however, you are not supposed to leave for a certain period of time. Otherwise, the money should be returned to the government.

The program’s target group is the young generation. When the program started, the age limit was 30 years old. It was assumed that it would bring the amount of one’s agricultural income close to that of urban workers’ income, given that one worked in a farm for at least ten years and reached the age of 40. However, as time went by, young people in rural areas became scarce and the age limit had risen up to 40 years old in 1992, and again to 45 years old in 2004. Recently, many citizens tend to migrate to rural areas after the 2008 economic crisis. Many of urban to rural migrants wanted to engage in farming. The ministry was trying to include them into agricultural policy. As a part of these recent political efforts, the Farm Successor Fostering Program’s age limit was extended to 50 years old in 2013.

If you are selected as a farm successor, you could get support for the new farm establishment up to KRW 300 million (USD 300,000), which is not free but a loan with low bank interest payable in 10 years. Almost half of the program quota is assigned to agricultural
school graduates and the rest to farmers with less than 10 years of farming experience. In addition to financial support, the recipients could get professional education and training for six months, which started two years ago.

For the past 40 years, over 130 thousand young farmers have been supported. Almost 90 percent of them are still engaged in agriculture. The recipient farmers account for about 10 percent of total farm holders, and literally they are distributed nationwide at the rate of almost three persons per rural village (Korea has 36,000 rural villages). The original purpose of the program was to foster one leading young farm successor per rural village. You could say the goal was already achieved, but the political and social needs for the program are not yet met.

2.2 Korea National Agricultural College

Due to the agreement of UR negotiation and embarkment of World Trade Organization (WTO) in the 1980s, the era of infinite competition throughout the world also came across the field of agriculture. Opening of the agricultural market to the world signaled to agricultural schools that the government was going to give up the industry. Since 1990s, many of agricultural schools started changing school names and department names as well as educational curriculums. In order to cope with the difficult situation in the agricultural sector and to enhance the competitiveness of the field, the need for fostering elite members leading the development of agriculture became urgent. Therefore, the Korea National Agricultural College (KNAC) was established in 1994 to breed professional farm managers as proposed by the presidential advisory organization, the Agriculture and Fishery Development Committee.

The purpose of KNAC, now Korea National College of Agriculture & Fishery (KNCAF, newly opening Aquaculture course in 2010) is to foster elite members leading the development of agriculture and rural communities with international views. There is a priority admission for people with farming background and agricultural high school graduates. Students get special grants like free dormitory and tuition, special exemption from military service and priority for Farm Successor Fostering Program. After graduation, they are supposed to farm for six years, which is twice the schooling period.

The college has a particular education system (sandwich training system): first year in school, second year in agricultural field, and third year in school again. In their first year, the students get basic education in agricultural philosophy and basic agricultural skills. During the second year, the students go out of school and experience agricultural skills and management knowledge in the farm. Some of them go abroad for almost 10 months to experience foreign farms. In the final year, they get problem solving education and are guided to design their own farm management plan.

The annual entrance quota is about 300 students for 10 agricultural departments - food, industrial, and vegetable crops, fruit tree, floriculture, beef and dairy science, and swine and poultry science, forestry and landscape architecture, and horse industry (the last two departments were newly setup two years ago). KNCAF has produced over three thousand graduates from 1997 to 2000. After the 3-year education, the first graduates came out in the year 2000. Out of all graduates, about 90 percent are working at farms and 10 percent are out of farms. Farm income of the graduates is double or more as compared to the average farm
income.

2.3 Special Program in Agricultural Schools

Other than KNCAF, to revitalize existing agricultural schools’ role in producing young farmers, two special programs were launched in 2006. One is for agricultural high schools and the other is for agricultural colleges. These programs encourage agricultural students to undertake agricultural business through on-the-job training so that more students can be involved in the business. The specific contents of the program vary every year. The program is generally divided into two areas including specialized education focused on the field experience and revitalization of agricultural high schools.

As of 2011, the special programs for agricultural high school were offered by 10 high schools for 5,184 students - Gyeongnam Jayoung High School, Gongju High School of Life Science, Gimje Jayoung High School, Boeun Jayoung High School, Suwon High School of Agro Life, Yeoju Jayoung High School of Agriculture, Jeonnam Life Science High School, Cheongju High School of Agriculture, Hongcheon High School of Agriculture and Korea High School of Life Science. The education program is set by grade and stage. The first grade is a stage of exploration, second is a stage of basic practice, and third is an advanced practice stage.

Also in 2011, the special program for agricultural colleges was offered by 11 universities and colleges for 1,645 students: Kangwon National University, Kongju National University, Jeju National University, Gyeongnam National University of Science and Technology, Gyeongsang National University, Chonnam National University, Chonbuk National University, Sunchon National University, Chungbuk University, Kyungpook National University, and Cheonan Yonam College. Such program included farm visit, farm internship, lectures on successful farmer stories, collaboration with agricultural high schools, and overseas agricultural experience. Along with such programs, job search program for agricultural college students called Job Map Project was provided to make right decision on being involved in agribusiness.

Still, the tangible outcome is not clear, but the Korea Agency of Education, Promotion, & Information Service in Food, Agriculture, and Fisheries or EPIS (2012) reported that many students who passed the program improved their farming knowledge and skills. However, Ma (2008) showed that not a small number of students had changed their future career plan into the field of agriculture.

3. Problems and Alternative Measures

3.1 Problems

While the above programs on securing young generation in farming have their own outcomes, the greying of Korean farmers is likely to continue due to less favorable public perceptions of agriculture, farm youth decrease, old farm retirement and entry, and agricultural school graduates’ scarce entry into farming.
The public kept a high level of awareness of the importance of agriculture. In 1999, 77.5 percent of the population viewed agriculture as a basic industry that is vital to the state economy. It further increased to 88.4 percent in 2006 and 89.6 percent in 2012. However, the attractiveness of agriculture as a career gradually decreased. According to the Korea Rural Economic Institute’s (KREI) annual survey on public perception of agriculture (1999-2012), 63.1 percent of the public agreed to have their children engaged in farming in 1999 (Figure 3). The number rapidly decreased to 45.7 percent in 2007 and 28.9 percent in 2012. The number of the youth and young adults in farms who are potential agricultural workforce has also decreased. Those under the age of 30 were 63.6 percent in the 1970s, 43.7 percent in the 1990s, and 20.1 percent in 2010.

![Fig. 3. Public who agree to have their children engaged in farming](Source: KREI, 1999-2012)

As the expected retirement age of farmers rises, age of entry for new farmers is also rising. According to the research conducted by Chae and Park (2012), farmers’ expected average age of retirement are 74.4, which is 12 years longer than the average age of retirement of farm holders (62.3) (Figures 4 and 5). It is not so different from the average of life expectancy of Korean adults, which is 77 years old.

![Fig. 4. Expected retirement age of Korean farmers.](Image)
As more and older farmers retire later, the average age of new entrants to farming is rising. The average age at entry to agriculture is 52 years old for new farmers whose experience in farming is less than five years. On the other hand, it is 29.8 years old for farmers with 20-25 years of farming experience, and 20.3 years old for those with more than forty years of farming experience.

In terms of quantity, the number of agricultural schools - an important route to foster agricultural workforce - has declined. In terms of quality, the trend of rural-urban migration is shown by the changes in the name of schools, departments, as well as curriculum. All high schools in 1960 were originally agricultural high schools, and the number reached 133 in 1969 (Figure 6). In 1972, the number of agricultural high schools started to decrease, as 43 were turned into academic, technical, and vocational high schools in the name of reorganizing inadequate agricultural high schools. The number of schools went up briefly to 75 in 1980, but it continued to decrease since. In 2010, there are only 23 original agricultural high schools in the country.
from agriculture as a primary industry in its contents of education since the 1990s. First of all, in the past ten years, most agricultural schools have removed the traditional name of agricultural school and have chosen ambiguous names that evade clear industrial distinction. As a result, now it is difficult to tell if the school or department is agricultural or not. When it comes to four-year colleges, starting with Seoul National University in 1992, for the name of college of agriculture was changed to College of Agriculture and Life Sciences, while others changed to College of Agriculture and Life Environment, College of Life Sciences, College of Life Science and Natural resources, etc. The name of college of forestry was changed to College of Forest Science or College of Forest and Environmental Sciences. Moreover, the name of college of animal husbandry was changed to College of Animal Resources Science and then changed to College of Animal Bioscience and Technology. There were many changes in the name of department (major) as well. Department of food sciences was one of the few departments that kept the traditional name. For example, the department of agriculture changed its name to the following: plant resource, crop producing engineering, plant applied science, plant resource applied engineering.

With the abovementioned trends, the graduates’ entry into farming has become scarce. Recently, only one percent of agricultural high school graduates (less than 100 students) entered farming. The number of graduates from the four-year agricultural colleges in the past three years is around 100 annually, which is less than the number of graduates from Korea National College of Agriculture and Fisheries.


<table>
<thead>
<tr>
<th>Year</th>
<th>Graduate</th>
<th>Higher Education</th>
<th>Employment</th>
<th>Farming</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>6,714 (100.0)</td>
<td>4,798 (71.5)</td>
<td>1,005 (15.0)</td>
<td>126 (1.9)</td>
</tr>
<tr>
<td>2010</td>
<td>7,305 (100.0)</td>
<td>5,447 (74.6)</td>
<td>1,305 (17.9)</td>
<td>63 (0.9)</td>
</tr>
<tr>
<td>2012</td>
<td>6,977 (100.0)</td>
<td>3,922 (56.2)</td>
<td>2,134 (30.6)</td>
<td>17 (0.2)</td>
</tr>
<tr>
<td>2014</td>
<td>7,123 (100.0)</td>
<td>2,739 (38.5)</td>
<td>2,615 (36.7)</td>
<td>44 (0.6)</td>
</tr>
<tr>
<td>Average</td>
<td>7,037 (100.0)</td>
<td>5,184 (73.7)</td>
<td>1,089 (15.5)</td>
<td>85 (1.2)</td>
</tr>
</tbody>
</table>

* Source: National Association of Agricultural Teachers. (2008-2012)

3.2 Alternative Measures

3.2.1 Activating Education in Agriculture

Agricultural education should be strengthened. Securing agricultural workforce needs to be approached in an aspect of life-long learning, broad, and long-term perspective. Investment in fostering potential agricultural workforce should be expanded targeting preschoolers, elementary, and middle school students, and the public, beyond the farmer-centered approach (Figure 7).

Fostering potential agricultural workforce needs to be approached at the level of improving the public’s agricultural knowledge, thereby securing potential agricultural human resources, and cultivating policy supporters even if they are not engaged in farming. The younger the target age is, the bigger the effect of investment in nurturing workforce (Heckman, 2008). The target should be expanded from those who are engaged in or are preparing to engage in farming to younger students. Beyond the existing passive image of agriculture and rural
areas, it is needed to present an active image that agriculture is an important industry in charge of our food requirements, a promising industry using IT, BT, etc., and that rural areas as the foundation of our lives.

Fig. 7. Returns to investment in human capital over the life cycle (Source: Heckman, 2008).

3.2.2 Fostering Selective Agricultural Schools

With efforts for increasing agricultural workforce’s inflow, it is needed to secure stable and new workforce by strengthening investment in agricultural schools. Agricultural schools are vocational schools for professional education that were established for this purpose. Recently, many agricultural education institutions are changing into non-agricultural ones. However, there are still many schools for fostering agricultural workforce. Each school has teachers or professors in charge of education by agricultural field and educational facilities. Before the condition gets worst, it is needed to help the schools play their roles by increasing investment in them.

It is necessary to assist about ten bases of agricultural high schools by province centered on self-management agricultural schools and schools only for agriculture. Integrated management of existing agricultural schools’ material and human resources, establishing a plan to foster agricultural high schools linked to local demand for agricultural workforce and promoting investment and cooperation of local governments’ agriculture-related agencies are necessary. Also, contests for agricultural majors and principal and teacher invitation systems are required, and the autonomous operation of the curriculum should be strengthened for education, which is centered on capacity needed in the field, beyond the existing subject-centered curriculum.

Agricultural colleges should be reformed to foster workforce related with farming and be linked with key local agricultural high schools. To strengthen agricultural colleges’ link with the agriculture scene, the farming-centered education system is needed in order to cultivate each region’s agricultural successors through special admission for jobholders and so on, in addition to the existing subject- and discipline-centered curriculum for those who want to be
employed in industries or disciplines including life science. The actual farming- or work-centered education system should be operated from selecting students to running programs. Graduates from the farming-centered education system could become professional farmers engaged in agricultural production in rural areas, or agricultural education instructors, or farming consultants as agricultural experts with business skills.

3.2.3 Links Between Retiring Farmers and New Farmers Through Farm Corporations

Agricultural corporations are contributing to revitalizing local agriculture in many aspects; as a means of effectively using local agricultural resources of large, medium, and small farms, and as actual agents of organizing local agriculture. Nevertheless, they have not developed into sustainable agricultural enterprises by securing agricultural workforce.

New farmers including those returning to farming are facing many constraints such as difficulties of securing farmland, learning production technology, and assimilating into rural communities for stable and successful settlement. Settlement incubating for new farmers, based on individual farm, has many limits. However, agricultural corporations have a lot of areas to use various experiences of those who returned to farming including farm accounting, sales and marketing, and the establishment of farming plans, and have less possibility of individual interests entangled.

The agricultural workforce development policy or program for elite farming unit should be changed from existing support policies centered on individual farms to the cultivation of agricultural corporations. At the same time, employing those returning to farming (external workforce) needs to be promoted to strengthen the function of agricultural producers’ organizations as incubating organizations for new farmers’ settlement. Specifically, it is necessary to expand policy support to the organizations including support for labor costs, management consultation, and securing joint farmland. If corporations with transparent accounting and labor management ability employ and train new farmers, the corporations should be paid for some part of education and training costs that the farmers pay for a certain period. In addition, improving those corporations’ employment conditions with a hopeful vision and stable job is required to establish the standard employment regulations including working hours, days off, and holidays in consideration of the nature of agriculture.

A program is needed to help retired farmers without their successors to transfer their farms to new farm households effectively. Farmers who plan to retire have a strong desire to return the capital they invested in agriculture, so they do not usually transfer their farms to others easily. New farmers have many difficulties in securing quality farmland and scaling up farms. In farm transfer, various interpersonal and financial problems can occur, and it is important to understand the system of taxes and farmland transfer. Major advanced countries including EU, Japan, and US, have already carried out projects for supporting farm transfer to solve problems that can occur in the process and to enable retired farmers and new farmers to devise and implement proper farm transfer plans (Ma, 2011). To prevent retired farmers’ farmland from being sold to non-farmers or being fallow land, and to continuously use it for agricultural production by farm transfer, consultation through farm visits and education for farm transfer are needed.
3.2.4 Setting Up Intermediate Support Organizations in Charge of Regional Agricultural Workforce

The current system of Farm Successor Fostering Program has improved through trial and error, but it has not worked well in many regions. Majority of local governments have operated organizations for the selection of agricultural successors and follow-up support separately. Also, in case of many local governments, people in charge of agricultural technology centers, the National Agricultural Cooperative Federation (NACF), and organizations related to support to farming successors do not know about many recent changes in guidelines, evaluation, and application standards for the project. Accordingly, those who apply for agricultural successors have difficulties in getting correct information.

Some local governments did not update data on successors engaged in farming after selecting them. The main reason of this problem is that related agencies’ persons in charge are changed often, and that the Program is considered one of many works, as many local governments do not place more weight on this project than other activities. That is, most on-site problems related with the project result from lack of interest at the local government level and personal capacity of people in charged in the field.

To foster agricultural successors and help their successful settlement, it is necessary to establish intermediate support organizations (local agricultural workforce support centers) that will continuously provide professional services despite changes in related administrative workforce. Through the organizations, those who apply for Farm Successor Fostering Program will be able to receive related consultation anytime, prepare evaluation materials related with selection, and get systematic information on loans linked with financial institutions. Applicants will also be able to receive support related to the systematic development of professionalism more suitable for each region including education, consultation, learning groups, and personal learning information.

The organizations can also support settlement of those who return to farming and rural villages; seasonal agricultural workforce including foreign workers; mentoring by linking leading farmers with new farmers; farm connection by linking retired farmers with new farmers; and agricultural high school and college students’ employment in agricultural corporations. The organizations can also conduct activities so that various projects for fostering agricultural workforce are delivered to demanders in a package through links among major agricultural agents and resources in the regions (agricultural schools and corporations, farmers’ groups, the NACF, agricultural technology centers, etc.)

Due to the nature of these works, the form of social enterprises will be suitable to organizations supporting the Farm Successor Fostering Program. If the organizations as social enterprises are revitalized in regions, they will facilitate participation of non-agricultural experts or agricultural college students (as the organizations’ agents or clients), thus linking existing private and public resources in agriculture in the project more systematically (social economy centered on agricultural successors).
3.2.5 Supporting Capital Formation of Young Farmers

To enable the Farm Successor Fostering Program to bring external workforce to rural areas, and make them settle down and engage in farming, strategies are needed to encourage the inflow of people who are not from a farming family or who does not have sound farming background, but have capacity and will. It is most important to induce these people to form assets for farming by stages. In this context, this study suggests introducing an Individual Development Accounts System.

The Individual Development Accounts System for new farmers helps them prepare funds related to farmland, facilities, and operating funds in phases voluntarily. According to a recent survey, new farmers point to economic capital including farmland, facilities, and operating funds as the biggest obstacles to entry (Ma, 2008a). The central and local governments support policy funds, a lease on agricultural machinery, and the farmland bank, but related problems have not been solved fundamentally due to most new farmers’ lack of basic economic assets. As for this, many implications can be drawn from the case of the US that introduced the Beginning Farmer and Rancher Individual Development Accounts program recently.

Individual Development Accounts are the individuals’ financial accounts to which private donations and government subsidies at a certain rate are added, if beginning farmers save a small sum of money to form capital for farm management. In the US, 15 states are conducting the demonstration projects. These projects enable capital formation in the long term - different from short-term subsidy-centered policies. It also helps beneficiaries to set a goal of capital formation and to achieve it actively. Through this, beneficiaries can make their future more positive by thinking that they can coordinate their lives independently.

Summary (in Korean)

농업인력 문제를 전담할 중간지원조직 지원, 신규 농업인의 영농 자본 형성을 지원할 제도적 지원 등의 방안을 제시하였다.

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One-stop Service for Young Farmers in Taiwan

Kun-Fong KUO*1

1 Senior Specialist and Chief
Agricultural Extension Section
Farmers’ Service Department, Council of Agriculture
Council of Agriculture, Executive Yuan, Taipei, Taiwan
Tel: +886-2-2312-4033
E-mail: kkf@mail.coa.gov.tw
One-stop Service for Young Farmers in Taiwan

Abstract
This paper describes the process by which the Council of Agriculture (COA) in Taiwan selected 100 young farmers with an average age of 33 in 2013 to guide and encourage them to engage in farming. Through assistance from local farmer's association, 15 collaborating organizations with more than 900 members have been established. By expanding the synergy of youth in farming from various faces, a positive atmosphere in which people could increasingly identify the young generation in farming can be created, consequently improving the agricultural workforce.

The project Guidance for Young Farmers involves a one-on-one tutoring system and a coordinating platform that facilitates multi-resource integration. Fourteen agricultural experiment institutions governed by the (COA) were integrated, subsequently establishing the Farmer’s Academy, which provides technical training. E-Farmland Bank was also created to assist young farmers in land acquisition. COA enables young farmers to acquire low interest loan and subsidy facilities, and equipment. Value addition competitions are also hosted to encourage young farmers. Furthermore, youth farming organizations of local farmer’s associations were combined to assist students from farming schools and institutes in career development, thereby constructing a one-stop service platform for young farmers in Taiwan.

Keywords: young farmers, E-Farmland Bank, Farmer’s Academy

1. Introduction
In response to challenges concerning food safety, climate change, globalization, and regional integration, the agricultural industry in Taiwan must redefine its perspectives based on the strategic goal of establishing a new agricultural value chain. Subsequently, traditional agricultural optimization, local production and consumption, niche market expansion, and internationalization can be promoted through the following efforts: (a) enhancing the agricultural value chain through innovation and cross-domain cooperation, (b) improving the efficiency of industries and human, land, and water resources, (c) internally optimizing industrial structures and externally expanding markets, and (d) creating opportunities for liberalization. "People" play a crucial role in achieving these goals.

In Taiwan, the agricultural industry mainly comprises small agricultural businesses in which each farmer possesses approximately one hectare of arable land. Among the 780,000 farm households in Taiwan, professional farmers only account for 28.2 percent. Due to economic transformation, the number of employed people in the service industries and industrial businesses account for approximately 95 percent of the entire employment structure in Taiwan. Most people of younger generations in the rural areas have left their hometown to pursue non-farming-related jobs. Thus, population ageing and outflow are observed in rural areas, causing continuous ageing in the agricultural population in Taiwan. Currently, the average age of farmers is 62 years, forming an agricultural population that is detrimental to
large-scale development and sustainable management. In this paper, we focus on exploring how young people can be encouraged to engage in farming, how the agricultural workforce can be adjusted, and the problems that farmers encounter during farming. We determined how the government, after assessing and analyzing problems, integrated the resources of the Council of Agriculture (COA) and planned a comprehensive guidance system based on young people’s needs for managing and developing farming businesses, to ultimately cultivate new-generation of farmers and optimize the agricultural workforce.

2. Reduced Agricultural Population and Increasing Ageing Population

2.1 Reduced Agricultural Population and Increasing Ageing Population

According to statistics, the number of people employed in Taiwan’s agriculture, forestry, fishing, and animal husbandry industries decreased from 950,000 in 1995 to 540,000 in 2012, showing a decline in the proportion of the total number of employed people in Taiwan from 10.55 percent in 1995 to 5.01 percent in 2012. This result indicates that the supply of labor forces in the agricultural industry is decreasing annually, negatively influencing agricultural development.

Furthermore, based on Taiwan’s agriculture census data for 2005 and 2010, the average age of farmers increased from 61.2 years to 62 years, which is (although lower than that in Japan) higher than that in advanced European countries and the United States. Specifically, the number of farmers aged 15–44 years declined from 9.56 to 7.92 percent, whereas that of farmers older than 65 years remained at approximately 44 percent (Table 1). Analyzing age groups by industry reveals that the number of people employed in the rice industry accounted for 42 percent of the total population, exhibiting an average age of 63 years. In addition, the average age of people involved in floriculture industry and processing and leisure industries is 57.4 and 55.6, respectively. Moreover, farmers aged 15–44 in the rice, floriculture, and processing and plantation industries account for 7.04, 13.30, and 17.65 percent of the total population, respectively. In summary, the proportion of young people in technological industries and secondary and tertiary industries is higher than that in traditional rice industries.
Table 1. A comparison of the age and number of people employed in various agricultural industries

<table>
<thead>
<tr>
<th>Industry</th>
<th>Total 2005</th>
<th>Age group 2005</th>
<th>Total 2010</th>
<th>Age group 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of people</td>
<td>15–44</td>
<td>45–64</td>
<td>65–69</td>
</tr>
<tr>
<td>Rice cultivation industry</td>
<td>729,387</td>
<td>9.56</td>
<td>46.78</td>
<td>15.32</td>
</tr>
<tr>
<td>Floriculture industry</td>
<td>721,446</td>
<td>7.92</td>
<td>48.15</td>
<td>12.76</td>
</tr>
<tr>
<td>Processing and leisure industries</td>
<td>304,986</td>
<td>7.04</td>
<td>45.49</td>
<td>12.88</td>
</tr>
<tr>
<td>Rice cultivation industry</td>
<td>6,029</td>
<td>13.30</td>
<td>58.98</td>
<td>9.87</td>
</tr>
<tr>
<td>Floriculture industry</td>
<td>221</td>
<td>17.65</td>
<td>61.09</td>
<td>5.88</td>
</tr>
</tbody>
</table>

2.2 Problems Encountered by Young People During Farming

Agriculture is an industry that has a threshold. For example, farmers are required to acquire land, technologies, and equipment to produce high-quality products and thereby increase their competitiveness. Thus, young people who are interested in farming often face numerous complex problems. According to analyses, these problems are as follows:

A. First, people who intend to run farming businesses must have a basic understanding of the industry they intend to invest in, how production technologies, land, and capitals are obtained, how facilities and equipment are incorporated into farming. They also need to acquire business management knowledge and establish sales channels. In other words, they must learn and understand every aspect of an industry chain.

B. Although students of farming schools and colleges are equipped with basic skills, they lack practical experiences and relevant support. How should they be helped?

C. For second-generation people whose family is in the farming business and who are willing to return home, they need assistance with taking over their family's business and handling problems related to communication with older generations, transformation, and growth.

D. Local farming organizations must determine how they can encourage local youngsters to cooperate and help one another.

E. Various governmental departments must identify how they can effectively integrate relevant resources.

2.3 Promotion Plans

Young people are filled with diverse and creative ideas; thus, they should be encouraged to engage in farming combined with activities related to the secondary and tertiary industries. Therefore, to help these people, the government must first establish a platform that provides a one-stop service based on their needs, integrate relevant resources, and provide support for various stages of farming, from preparation to the start and management of a farming business.
Consequently, young people can be guided to progressively manage and develop cross-domain industries. According to this idea, the COA began promoting a Project Guidance for Young Farmers (PGYF) in June 2013, enabling young farmers to engage in farming and accomplish their dreams at a young age.

### 2.3.1 Policy Goals and Strategy

**A. Goal:** To cultivate 500 high-quality and young new-generation farmers who earn stable income.

**B. Strategy:** 100 young farmers aged 18–45 were publicly selected and subjected to one-on-one guidance for two years. Based on the plan-do-check-action (PDCA) concept, the guidance system comprised of four stages: management diagnosis by consultants, young farmer project adjustment, on-site guidance and resource investment, evaluation review, and project modification. Subsequently, young farmers were divided into two groups: beginners and potential farmers, where the beginners were assisted with developing its managerial characteristics and the potential farmers were encouraged to further expand through innovation and value addition.

### 2.3.2 Measure Promotion

The COA has established relevant research institutes across Taiwan, where research, training, and promotional activities related to regional industries are conducted. In collaboration with farmer's associations in differing regions, the COA established an E-Farmland Bank that offers information regarding farmlands and loans for running farming businesses. Relevant measures were then integrated into this platform, providing young farmers with a one-stop service, described as follows:

**A. Training Program for Enriching Agricultural Knowledge and Learning Industry Chain**

The COA integrated its 14 agricultural experimental institutions, forming the Farmer’s Academy in 2012, where research, education, and extension resources are brought together to provide professional systematic training in 14 training centers. In this Academy, internship program is offered wherein professional farmers are invited to teach and guide students, allowing students to participate in agricultural production and management and apply the knowledge they gained during class in real-life settings. The goal was to construct a systematic stage-wise training system based on both theories and practices.

The systematic courses offered in the Farmer’s Academy are divided into four levels:

- **(a) Introductory course (3 days),** which provides individuals who are interested in farming with an overview of agricultural concepts.
- **(b) Beginner course,** a 10–20 day program, which includes practical training and teaches beginner farmers the basics of production technologies.
- **(c) Intermediate-level course,** a 3-day or 5-day course, which teaches professional farmers
the concepts of technology upgrades and quality management.
(d) Advanced-level course, wherein agricultural leaders or experts are invited to lecture participants on business management and share their experiences.

In 2013, 141 groups comprising a total of 4,090 people participated in the training program, among which 2,407 people were below 45 years of age (59%), and 1,683 people were above 45 years-old (41%). Overall, the program provided young farmers the opportunity to learn agriculture practices and professional farmers the opportunity for advanced life-long learning. Moreover, 111 people were matched to participate in the farm internship program. In 2014, the COA plans to recruit 4,590 people for the next training program, forming a total of 153 groups. Course schedules will be adjusted according to industry characteristics, and short-term selective courses will be offered. Agricultural enterprises will be encouraged to enlist themselves as internship employers, thereby offering additional opportunities for young farmers to learn business management. In addition, the 100 farmers selected for participating in the PGYF may choose the desired training of a specific level based on their needs.

The farm internship program involves a professional farmer offering instructions to learners about farming production and management. Young farmers could be classified as developing farmers, interns, or farmland owners. The internship period is from 4 to 12 months; the COA will pay the internship employer a salary of USD 330 (NT10,000) per month, and the employer must pay interns a sum that is greater than the basic salary regulated by law. Relevant recruitments are advertised on the Farmer’s Academy Website.

B. Farmland Acquisition for Young Farmers

In 2002, Taiwan acceded to the World Trade Organization and increased its area of fallow land. To address concerns related to food security and climate change, the COA has actively promoted the “Small Landlords and Big-Tenant Farmers” program and the “Program for Adjusting Farming System and Activating Farmlands.” These programs were integrated into the E-Farmland Bank Website to further enrich the service functions of the bank and farmer’s associations. The goal was to help young farmers acquire or rent farmlands. By the end of December 2013, the 100 young farmers of the PGYF have purchased or rented over 480 ha of land.

The Small Landlords and Big Tenant Farmers program was initiated in 2009. From 2010 to 2013, farmlands were leased to tenant farmers, increasing the number of tenants from 8,121 to 25,724 and substantially expanding farmland areas from 4,000 ha to 11,200 ha (Table 2). The number of big tenant farmers who participated in this program increased from 703 to 1,578. Most importantly, the average area cultivated by a tenant farmer increased to 8.4 ha compared with the average 1.1 ha for farms in general. In addition, the average age of 45 for tenant farmers was substantially lower than that of 62 for all farmers, exhibiting a significant result.
2.3.3 Provision of Startup Business Capitals for Young Farmers

Once farmers have entered the agricultural industry and acquired relevant techniques and land, the next step is to obtain capitals for purchasing seeds, fertilizers, and facilities. The COA collaborated with various farmers’ associations (e.g. Agricultural Bank of Taiwan and Agricultural Credit Guarantee Fund) and devised various loan options that would provide each young farmer a maximum of USD 167,000 (NT$5 million) loan at a low interest rate of 1.5 percent per annum. Young farmers with poor credit history can seek assistance from the Agricultural Credit Guarantee Fund and receive a guarantee for 95 percent of its loan. In addition, the COA has devised more than 10 types of agricultural loan plans for young farmers, including business improvement loan, land procurement loan, and agricultural machinery loan. Farmers could apply for these loans depending on their business needs. By the end of December 2013, 38 loans were granted.

2.3.4 Service and Exchange Organization for Local Young Farmers

In 2012, the COA began guiding farmer’s associations in various municipalities and counties (cities) to integrate a service and exchange platform for young farmers. In this platform, surveys on farmers’ management status, local information, and instruction services for farm internship and affairs were provided. This platform was dedicated to encouraging business cooperation and organizational guidance, enhancing organizational operation and overall marketing planning capability, and increasing the capacity of assistance and support provided to local young farmers.

Overall, in 2013, 15 farmer’s associations from various municipalities and counties (cities) were guided to establish a local exchange organization for young farmers; approximately 700 people aged 35 on average have been recruited, and this number is still increasing. Thus, a cooperative environment was created, wherein local expert farmers and young farmers could interact and assist each other.

For instance, through organizational operations, Taoyuan’s Farmers Market, with over 100 members, cooperated with farmer’s associations in Taoyuan County, supplying organic vegetables to elementary and junior high schools as part of the nutritious lunch plans for students. Large catering firms and service delivery markets were expanded and developed. By using online communities, an operating mechanism involving workers exchange, collaborative purchasing, and cooperation was established.

### Table 2. Effectiveness of the Small Landlords and Big-Tenant Farmers Policy

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Small Landlords</th>
<th>Number of People</th>
<th>Total Land Area</th>
<th>Area Available for Rent</th>
<th>Average Farming Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>8,121</td>
<td>703</td>
<td>5,649</td>
<td>4,056</td>
<td>8.0</td>
</tr>
<tr>
<td>2011</td>
<td>13,912</td>
<td>1,002</td>
<td>8,433</td>
<td>6,549</td>
<td>8.4</td>
</tr>
<tr>
<td>2012</td>
<td>18,265</td>
<td>1,328</td>
<td>9,579</td>
<td>8,004</td>
<td>7.2</td>
</tr>
<tr>
<td>2013</td>
<td>25,724</td>
<td>1,578</td>
<td>13,187</td>
<td>11,268</td>
<td>8.4</td>
</tr>
</tbody>
</table>
2.3.5 Promotion of PGYF

After combining advanced technologies, capitals, farmlands, and local organizations, in June 2013, the COA selected 100 young adults aged 33 on average and provided them with one-on-one counseling for a period of two years at nine agricultural experimental institutions of the COA. Counseling was provided based on individual needs. The content ranged from offering agricultural business knowledge, acquiring farmlands and capitals, submitting applications for facility and equipment subsidies, assisting with legal regulation and administrative consultation, and providing product marketing design and consultation services. This project was dedicated to helping young farmers establish and stabilize their business for developing an innovative industry.

At the end of December 2013, the following results were obtained: 250 people participated in the training programs held by the Farmer's Academy; 47 people attended the agriculture production and marketing groups; 68 product or brand story designs were submitted; counseling on 38 items pertaining to processing R&D was provided; 505 technical services were rendered; 1,226 one-on-one counseling sessions were given; 24 GAP items, 35 organic or transformed items, and 18 TAP labels were obtained; 63 farmers were assisted with expanding 115 marketing channels; and 97.41 ha of newly purchased (rented) farmlands and 384 ha of lands for contract farming were acquired.

In 2014, the focused area of the PGYA will be expanded as follows:
A. A pilot program involving five young farmers of the PGYA will be implemented. Specifically, these farmers will be guided to work at the Livestock Research Incubator, where they will collaborate with other young farmers, dairy product factories, dairy farming associations, and processing factories to integrate corn industry chain and establish a demonstration of the overall guidance procedure (i.e., the integration of industry value chain).
B. An innovative business competition will be organized. In this competition, participating farmers of the PGYA and other youngsters will be encouraged to form 19 business teams, each of which will propose innovative value addition or cross-domain cooperation plans. Subsidies and professional consultants will be allocated to each team to facilitate the implementation of their proposed plans.
C. Matchmaking services for specific types of requirements (e.g., organic agricultural products and processed products) will be planned, or product marketing resources will be integrated by local young farmers to propose a production plan, after which distributors are invited to visit the production area. Thus, the guidance for channel and contractual matching can be strengthened.
D. Overseas internship will be arranged for industry chain integration, cross-domain cooperation, and market analysis and exploration to expand international perspectives.

In 2015, the second group of 100 young farmers recruited for the PGYA has been announced. These farmers will be assigned to the aquaculture industries; aboriginal participants and those who applied as a group will be given priority for guidance counseling.
2.3.6 Promotion of Farm Job Shadowing and Summer Vacation Part-Time Work among Students of Farming Schools and Colleges

The COA will cooperate with agricultural schools to organize a summer vacation job shadowing program to help students understand their positions and the capabilities they need for their future career in agriculture. The scope of the job shadowing program will be extended to reflect their needs, the school's needs, and the requirements for the innovation and value addition of the future agricultural industry value chain. Agricultural enterprises will be encouraged to be a part of the job shadowing program. In 2014, a trial of the summer vacation part-time work was implemented, providing youngsters a channel for exploring their career development, thereby reducing the time they would expend to adapt to an agricultural work environment. Subsequently, students of farming schools and colleges are actively cultivated to become the main force of the future agricultural industry.

3. Conclusion

The COA will continue to actively promote relevant measures; attract young people to engage in farming, expand their business, and add value to the industry; encourage young farmers to form a group or become a member of an organization; and strengthen the process of organizing the career development of students in farming schools. This effort is aimed at making the concept of youth farming a value widely identified within Taiwan's society, thereby prompting the improvement of agricultural workforce to cultivate novice farmers in becoming the new hope of Taiwan's agricultural industry.

Summary (in Korean)

본 논문은 2013 년 대만 농업위원회가 평균 연령 33 세인 100 명의 젊은 농업인을 선별하여 농업에 종사할 수 있도록 했던 지도 과정을 묘사하고 있다. 지역 농업인협회의 지원을 받아 900 명의 회원을 갖춘 15 개의 협력기관이 형성되었다. 다양한 방법으로 청년층 농업종사를 장려하기 위한 방법을 모색하면서 많은 사람들이 청년층이 농업에 관심을 갖게 되는 긍정적인 분위기를 조성하게 되었다.

젊은 농업후계인 양성을 위한 프로젝트 가이드는 일대일 교육시스템으로 다양하게 통합된 자원활용을 추구한다. 농업위원회 산하 총 14 개 농업관련 기관이 통합되어 농민학교를 설립하여 기술교육을 제공하고 있다. E-농경지는행도 설립하여 젊은 농업인의 농경지 소유를 지원하고 있다. 농업위원회는 재정적 지원을 통해 젊은 농업인이 저금리로 농경자금을 대출 받을 수 있게 하며, 농경 관련 시설 및 자재 구비를 지원하며 젊은 강소농 욕성을 위해 부가가치창출 관련 대회를 개최한다. 또한 지역 농업인협회 내 청년층이 협력하여 농업학교 재학생들이 농업에 진출 할 수 있도록 커리어 코칭을 제공하고 있다.
References
## Directory of Participants

2014 FFTC-RDA International Seminar on  
“Enhanced Entry of Young Generation into Farming”  
Jeonju, Republic of Korea, 21-23 October 2014

### Speakers

**Dr. Jong-Seok Seo**  
Professor, Agricultural Economics Dept.  
Chonnam National University, Gwangju  
KOREA

**Dr. Jiun-Hao Wang**  
Assistant Professor, Dept. Bio-Industry Communication & Development, National Taiwan University, Taipei  
TAIWAN, R.O.C

**Dr. Tomohiro Uchiyama**  
Associate Professor  
Graduate School of Bioresources, Mie University, Mie  
JAPAN

**Dr. Sang-jin Ma**  
Research Fellow, Korea Rural Economic Institute (KREI), Seoul  
KOREA

**Dr. Jeong-Im Hwang**  
Researcher, Rural Environ. & Resources Div., Nat’l Academy of Agricul. Science, Rural Development Administration, Jeonju  
KOREA

**Dr. Kun-Fong Kuo**  
Senior Specialist and Chief, Agricultural Extension Section, Farmers’ Service Department, Council of Agriculture, Executive Yuan, Taipei  
TAIWAN, R.O.C

**Dr. Shunsuke Yanagimura**  
Professor  
Dept. of Agricultural Economics, School of Agriculture, Hokkaido University, Hokkaido  
JAPAN

**Dr. Asterio P. Saliot**  
Director, Agricultural Training Institute, Dept. of Agriculture, Metro Manila  
PHILIPPINES

**Dr. Onanong Tapanapunmitikul**  
Dean, Faculty of Natural Resources and Agro-Industry, Kasetsart University  
THAILAND

**Dr. Sri Hery Susilowati**  
Deputy Director, Collaboration and Research Results Utilization, Indonesian Center for Agriculture Socio Economic and Policy Studies, Ministry of Agriculture  
INDONESIA
# Speakers

Dr. Bui Quang Dang  
Deputy Director, Dept. of Science Manage. and Int’l Cooperation,  
Vietnam Academy of Agricul. Sciences, Ha Noi  
VIETNAM

Dr. Mohamad Kamal Abdul Kadir  
Deputy Director,  
Young Agropreneur Programme, Promotion & Technology Devel. Centre,  
MARDI, Kuala Lumpur  
MALAYSIA

# RDA, KOREA

Dr. Seungyong Ra  
Deputy Administrator  
Rural Development Administration  
KOREA

Mr. Suhyon Rho  
Director General  
Technical Cooperation Bureau  
Rural Development Administration  
KOREA

Dr. Myoung-Rae Cho  
Director  
International Technology Cooperation Center (ITCC)  
Rural Development Administration (RDA)  
KOREA

Dr. Yeoung-Seuk Bae  
Head, International & National Organization Cooperation Team  
ITCC, RDA  
KOREA

Dr. Kang-Su Kwak  
International & National Organization Cooperation Team  
ITCC, RDA  
KOREA

Dr. Suk-Won Kang  
International & National Organization Cooperation Team  
ITCC, RDA  
KOREA

# Staff

## FFTC

Dr. Yu-Tsai Huang  
Director  
Food and Fertilizer Technology Center  
TAIWAN, R.O.C

Dr. Chan-Ik Chun  
Agricultural Economist  
Food and Fertilizer Technology Center  
TAIWAN, R.O.C

Mr. Chung-Hsing Lee  
Sr. Administrative Assistant  
Food and Fertilizer Technology Center  
TAIWAN, R.O.C
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                Suk-Won Kang, Myoung-Rae Cho, Suhyon Rho, Chan-Ik Chun

300 Nongsaengmyeong-ro, Jeonju 560-500, Republic of Korea (+82-63-238-1119)