

College Education for Next-generation Leaders of Organic Agriculture Based on the Korea National College of Agriculture and Fisheries Case

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Introduction

The Korea National College of Agriculture and Fisheries (KNCAF) is an agricultural college established by the Korean government to nurture professionals in agriculture and fisheries based on the policy direction emphasizing the importance of agricultural human resources following the opening of the agriculture market marked by the Uruguay Round. Since its foundation in 1997, the collage has produced about 2,500 graduates and 94% of the graduates work in the agricultural industry.

As the purpose of the school is to nurture talented people intended to work in agriculture, KNCAF has a differentiated curriculum heavy-loaded with on-site training, compared those of typical colleges of agriculture that focus on the academic side or aim to prepare their students to enter other agriculture-related areas. In the second year of the three-year program, students are required to finish at least 10 months of on-site training in domestic or overseas farms. Over 90% of the students are from farming households and many of them are anticipated to lead the future of the Korean agriculture on the basis their parents have established.

Organic agriculture education is implemented through an integrated course called Environmentally Friendly Agriculture in a semester without a separate department or major. This paper aims to provide an overview of the current state of organic agriculture education in Korea based on the KNCAF case and identify future tasks to improve the organic agriculture education of Korea.

Current college curriculum of organic agriculture education

The three-year program of KNCAF which has gone through several reforms since the opening of the school is comprised of eight departments and 10 majors. Courses offered in the eight departments deal with not only production related subjects such as physio-ecology of crops and livestock, soil, crop protection, livestock hygiene, and farming technology, but also management-related topics such as agro-machinery, computer, business administration, marketing, processing, and agro-tourism.

The Environmentally Friendly Agriculture course is a required organic farming course since KNCAF's foundation that every KNCAF student has to finish regardless of his department or major. The course takes an integrated approach covering a comprehensive range of organic agriculture issues from the relationship between agriculture and environment, and production, distribution, consumption, business administration, marketing and policies of organic agriculture. As the technical aspects of organic agriculture often conflicts with those of conventional agriculture taught in

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other regular courses on soil, crop protection and cultivation management, students often got confused and some of them even became negative toward organic farming. Some perceived organic agriculture not as a system but as a technique hard to realize. Some others thought organic farming is not a technique but an unrealistic ideology. So far, organic agriculture education has been implemented at a low level only focusing to give general knowledge such as the relationship of agriculture with environment and ecological problems caused by conventional farming practices and the reduction of the use of chemical pesticides. The attitude of KNCAF students toward organic agriculture began to change in the late 2000s. Students have increasingly embraced organic agriculture, beginning to easily linking environmentally friendly agriculture to organic agriculture.

Tab. 1: Academic departments and organic agriculture curriculum of KNCAF (2011)

Department	Food crops	Industrial Crops Mushrooms		Vegetable Crops	Fruit Tree	Floriculture	Beef & Dairy Science	Swine & Poultry	Aquaculture	Total
		Medicinal-Industrial Crops	Mushrooms							
Number of student	40	30	30	40	40	40	40	40	30	330
Organic agriculture related courses	Required	Environmentally friendly agriculture and fisheries(An integrated course on relation between agriculture and environment, and production, consumption, management, marketing and policies organic agriculture)								
	Electives	Partially included	Partially included		Organic vegetable	Environmentally friendly orchard management		Environmentally friendly cattle farming and utilization of cattle manure	Utilization of Livestock manure	
Level of interest in organic agriculture	Moderate	High	Moderate	High	Moderate	Low	Moderate	Low	Moderate	Moderate

As for elective courses, there was no course carrying the words “environmentally friendly” in its title prior to 2009 (2007 in the case of livestock courses). As a result of curriculum reform, environmentally friendly agriculture courses began to be offered to reflect the expanded weight of organic agriculture (10%) in the industry and rising consumer awareness. For instance, the Department of Vegetable Crops adopted a degree program in organic vegetables in 2009. As for the Medicinal-Industrial Crops major, the curriculum includes organic farming related subjects even though the course titles do not carry “organic” or “environmentally friendly” due to the particular importance of safety and efficacy of medicinal-industrial crops. Compared to other departments, livestock-related departments show relatively low levels of attention to organic livestock farming, only acknowledging the need to utilize livestock manure as a valuable resource.

Recently, the public interest in antibiotics-free livestock farming is increasing and the issue of animal well-being is also attracting people’s attention. Most students in the livestock-related departments of KNCAF are, however, children of small-scale livestock farmers and thus only a few of them are showing aspiration for organic livestock farming. The situation is similar with the Floriculture students as the products of their interest are not food items and thus less sensitive to safety issues. Only a few students interested in flowers for food, tea or cosmetics pay attention to pesticide-free flower cultivation.

Teaching methods and contents

The environmentally friendly agriculture education in KNCAF is primarily theoretical education. Through lectures and audio-visual materials, students understand the relationship of agriculture with environment and ecosystem, theories of organic farming aiming for the balance between the natural ecosystem and the agricultural ecosystem, and explore management methods and techniques that enable farmers to pursue environment values and economic values at the same time through best practice cases at home and abroad.

While most of the departments offer on-site training in organic agriculture, the opportunities are not available as much as those in conventional agriculture. Moreover, the few opportunities of field training are seldom carried out in farms with an eco-friendly farming system. Consequently, students are dissatisfied with the theory-centered teaching. In particular, the second-year students cannot receive enough on-site training in organic agriculture due to the very little number of organic farms available. The shortage of on-site training is partly compensated for by extracurricular activities through the student club called Environmentally Friendly Agriculture Research Group where not all but many organic agriculture-aspired students of KNCAF get together and visit organic farms to hear the story of the farm owner's experience while dining together and learn the farm's environment, technology and farm running know-how. The organic farmers become mentors of the students providing continued guidance.

In addition, the club members grow cabbage in an organic method in the KNCAF test field, experiencing technical difficulties associated with organic agriculture. Through the experience, they realize that organic agriculture requires *extra care and diligence*. Finally, the students share the harvested cabbage with people in need.

Conclusions

The effect of organic agriculture education for the next-generation leaders in agriculture turned out differently depending on the reasons why students chose agriculture, as some chose agriculture as a way of living and some others chose agriculture primarily as a source of income. In addition, a student's attitude toward organic agriculture is influenced by his parents' farming method and philosophy. Consequently, technical education alone is insufficient to change students' attitude and persuade students to embrace organic agriculture. Therefore, organic agriculture education should be able to suggest a feasible organic farming model which also makes an economic sense and should encompass a comprehensive range of related subjects from production technology to sales methods and business management techniques.

The basis on which to nurture organic farmers equipped with multi-dimensional management skills is ecological sensitivity. The programs and contents of organic agriculture education that can develop ecological sensitivity of students should be provided through college education. In order to develop respect for lives, sense of community, and understanding of ecosystem, students learning organic agriculture should be helped to acquire knowledge not only on natural sciences but also on humanities. Therefore, the curriculum of agriculture education needs to be complemented with more courses on ecology, literature and sociology.