Uplifting Thailand’s agriculture through agricultural education: a paradigm shift for future farmers

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Abstract: Thailand was one of the largest agricultural commodities exporters in the world but Thai farmers are still facing a problem of poverty and low productivity. The root of the problem is believed to be the lack of holistic development approach and effective integrated management of agro-food chain of farmers. It is believed that an improved agricultural education system could be a tool to develop the country’s agricultural sector. Entrepreneurship education could be a way to enhance the farmers’ competitiveness, reduce poverty and help in social and economic development. This article reviews the issues of the country’s agricultural education in the past as well as a new model of agricultural education introduced to undergraduate students that combined the integrated knowledge from upstream to downstream of agricultural value chain with incorporation of social engagement learning into the program and curriculum.

Keywords: agricultural education; higher education; entrepreneurial farmer; Thailand; interdisciplinary; undergraduate program.


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1 Introduction

Thailand has been one of the world’s largest exporters of agricultural products where the significant share of its population have engaged in and relied on the agricultural sector. Thai agricultural sector has long been recognised to play a substantial role in the country’s economy and development. Over the past few decades during which Thailand successfully developed a fast-growing industrial-oriented economy, the contribution of the agricultural sector to the nation’s economy has been declining but its social impact remains significant. In 2015, the Thai agricultural sector accounted for 9.1% (World Bank, 2017) of the nation’s GDP while approximately 38% of the nation’s population participated in this sector (Office of Agricultural Economics, 2012). The agricultural population is still representing a large political base in which the issues concerning the agricultural sector have long been given a top priority in the Thai political agenda.

Thailand has offered agricultural education programs in higher education for over 70 years with the establishment of the first university specialising in agriculture in 1943. Since then, there have been proliferations of degree-granting programs in agriculture which are now offered by over 70 universities. However, the status of agricultural industry and the living standard of Thai farmers are still poor as agricultural sector in Thailand has been threatened with number of chronic problems. On average, more than 26% of farmers lived below the poverty line in the crop year 2013/2014 (Office of Agricultural Economics, 2018). In addition, the comparison of the wages earned in the formal and informal sectors classified by economic sectors indicated that the lowest average monthly wages were in the agricultural sector which was about 5,240 THB or 164 USD for formal sector workers and 3,024 THB or 95 USD for informal sector workers. While the average monthly wages in formal and informal employment were equivalent to 10,526 (329 USD) and 4,088 THB (128 USD), respectively (ILO, 2013).

Thai farmers largely adopted relatively outdated farming practices and simply make decisions about the plantation of their crop without seeking new knowledge and information about markets prior to cultivation, which leave them highly vulnerable to myriad risks such as climate change and price fluctuation. Farmers, especially those small-holders have constantly depended on governmental assistance and aids such as direct subsidy and price guarantee. The rapid-growing economy and urbanisation have led to a decline in number of farmers which affected the sustainability of the agricultural sector in Thailand. During 1980–1990, the population in agricultural sector was at 60% of the total population and just recently after 1997 the population that were engaged in agriculture was decreased to less than 40% of a total population and kept declining (Office of Agricultural Economics, 2012; National Statistical Office of Thailand, 2014). Furthermore, the aging of the work force is also a prominent issue at present as the average age of Thai farmers was about 45–51 years of age, whereas only 12.4% of these farmers were in the age between 15–24 years (National Statistical Office of Thailand, 2014; Jiaraphan, 2010).

Thailand has positioned itself as the ‘Kitchen of The World’ to leverage its distinct geographical location and climate. As the global agricultural industry is undergoing economic and technological changes with the rising demand on food safety and security and products with higher value-added, the achievement of such an ambitious vision will be made possible only when new generation and new farming practices are introduced.
into the agricultural industry. Despite the increase in the provision of agricultural education, the new generation has not shown aspiration to seriously seek career in agriculture. A study surveyed students enrolling in agricultural-science colleges in the year 2010 revealed that even 64\% of surveyed students were the children of agricultural families but only 20\% of respondents indicated the willingness to pursue career in agriculture (http://www.erp.mju.ac.th/openFile.aspx?id=MTI0NzIz). This drastic decrease of the younger generation in agricultural sector certainly presents an imminent threat to the future of Thai agriculture. There is a serious need for a reform in the agricultural education in Thailand in order to effectively attract more youths into the agricultural industry in Thailand.

This article reviews the issues of the country’s agricultural education in the past and the new model of agricultural education introduced to undergraduate students which among the first program and curriculum to combine the integrated knowledge from upstream to downstream of agricultural value chain with an incorporation of social engagement learning.

2 Agricultural education and entrepreneurship

Today’s youths are looking for careers that give them self-respect, reasonable return, and opportunities for self-development. Unfortunately, agricultural sector in Thailand has suffered from many unfavourable reputations which have deterred Thai youths to enter the sector. Thai farmers were generally viewed as those people who work hard in the field while earning very little and gaining fairly low respects from the society. In order to reform Thai’s agricultural education, it should aim to persuade new generation to see farming in a new light by paving the way for the youths to fulfil their career aspirations. However, to attract younger people to agriculture, the whole curriculum should portray farming as a prestigious career with great opportunities for advancement. When one looks at the daily challenges that typical farmers must face, one can easily conclude that every farmer is not just working in the field producing farm products but rather, is running his or her own business.

Entrepreneurship education has been viewed as the way to enhance competitiveness and potential in agricultural sector and to ensure a country’s national food security and could have an implication in poverty reduction, improving national economy, i.e., social and economic development. Similar to other businesses, farmer has to engage in the procurement of inputs, the production, the sales/marketing and distribution of farmer’s produce. Farmers must be trained to become an entrepreneur who equipped with knowledge and skill in every aspect of business not only the production. Hence, incorporating entrepreneurship into farming should create a more optimistic public perception of agriculture.

Many developing countries began to embrace the idea of entrepreneurship into their education. Entrepreneurship education is viewed as a tool for country’s development and poverty reduction since some countries have been reconsidered introducing and promoting entrepreneurship into their own education system as a new approach to support their national development (Darmadji, 2016; Garba, 2010). Many studies have showed that promoting an education in entrepreneurship is an important to enhance the students’ skills and attitudes toward the view of farming as business to uplift agricultural entrepreneurship (Seuneke et al., 2013; Spais, 2015; Rezai et al., 2011). However, most
of reports and findings about entrepreneurship and education were focused in adult farmers, i.e., informal education.

Although, there were several studies supporting entrepreneurship education but majority of these studies were focused on training and short courses and the attempt to develop new entrepreneurship education in higher education (Mohamed et al., 2012; Taatila, 2010) but the study on agricultural entrepreneurship education and curriculum in undergraduate program is still lacking and has not been reported.

3 Challenges of Thai agricultural education: crossing traditional boundaries

Higher education is known to be highly specialised area of knowledge with traditional disciplines and boundaries. The current education system was criticised by van Crowder et al. (2007) (van Crowder et al., 2007; Darmadji, 2016), to have a narrow discipline approach and, therefore, it is needed to reach and aim to develop a broader thinker, especially for agricultural education which itself requires broader spectrum of knowledge and cross disciplinary in order to deal with more complex issues at present which highly required more collaboration and cooperation.

The system of Thai agricultural education for undergraduates was generally taught in a single discipline with less generalised subjects and fairly specific to that particular discipline or what we called ‘vertical education’ which happened when a person only learned and knew only the core principles and subjects. In contrast, a ‘horizontal education’ or an interdisciplinary type of education was normally well-known and being taught in the graduate studies, but very few programs were available for undergraduate students. Undergraduate agricultural education in Thailand has been designed mostly to serve only the production side of farming while the post-harvest handling of farm products has been given scant attention, therefore, it is challenging to conduct an interdisciplinary curriculum, especially in undergraduate students.

The ideal education for preparing new generation farmers to be ‘agribusiness entrepreneur’ is a well-rounded type of horizontal education where the students need to understand their role throughout the value chain of agricultural product. Because, to be self-reliance, the farmers must be able to produce, process and market their products in order to run their farms successfully and become more competent.

4 Chulalongkorn University School of Agricultural Resources (CUSAR): an introduction of interdisciplinary program for undergraduate

The majority of higher educations’ agricultural programs are normally focusing on technology and agribusiness that tend to be production-oriented but none were tailor-made or suitable for entrepreneurial small-holder farmers. In order to revive this sector, we need to reconsider about the role of university and higher education institutions (HEIs) on how educational sector can serve and contribute to these problems. As the hardship of Thai farmers did not just cause by a single factor, therefore, this requires a holistic approach and method for mitigation. The proposed curriculum is focusing on the uniqueness of program which offers a well-rounded with integrated
knowledge and essential skills for future farmers. Unlike other programs in the past, this curriculum uses the approach of interdisciplinary that crosses traditional boundaries that Thai education used to have in the past, since we believed that once the farmers are equipped and have spanned knowledge across agricultural value chain they will become more self-reliance and are adaptable to changes.

CUSAR was initially called ‘Office of Commission on Agricultural Resource Education (OCARE)’ and was established in 2010 by which its curriculum was primarily initiated by the Chulalongkorn University’s faculty members from different departments together with cooperation of governmental officials, private sector who had been working with farmers and the communities as well as farmers themselves. In Figure 1, through a process of brainstorming, focus group meeting and public hearing by NGOs and selected representatives of village’s philosophers the curriculum and education concepts have been drafted.

Figure 1  Educational concept flow chart (see online version for colours)

The program aims to support younger generation farmers with well-rounded knowledge ranging from farm production to marketing while promoting community agriculture and local agribusiness with the ultimate goal in creating ‘new breed of agricultural entrepreneurs’. The students who will be accepted into the program must be the young people who have descended from the farmers’ family with background in agriculture or related areas. The intention of setting the curriculum was to fulfil a missing part of the Thai agricultural system; that is to provide the younger farmers with well-rounded knowledge in agriculture who are willing and able to work in the rural community.

This undergraduate program offers young new generation farmers an extensive knowledge ranging from production, processing and trading. It focuses on community farming in supporting students from areas of rural Thais with the ideal goals that it will be able to produce the graduates who have essential farm management skills from farm production to downstream and understand the mechanism of agricultural and food value chain (Figure 2). More than 90% of the program students were from rural areas in various parts of Thailand especially from the northern areas. The students who enrolled in this
program will be able to learn from various compulsory and elective courses ranging from production system, processing, logistics, marketing and even the land and environmental laws. In addition, they could also select specific group of subjects according to their own personal interest.

**Figure 2** Different area of knowledge within food value chain (see online version for colours)

Understanding of the food value chain could bring about a recognition and appreciation of the value of their own land, water and other natural resources, thus, this will, in turns, strengthen their own social well-being and provide social protection.

Its general philosophies of graduates’ production are:

- to develop human resource and knowledge for the community, not to produce technology specialist graduates
- to produce the new generation ‘agricultural entrepreneur’ who has complete vision in agricultural value chain.

The cores of its educational concepts are as follows:

- the farmer is not merely a producer, but agricultural entrepreneur
- the goal of the curriculum that aims to build the spirit of entrepreneur
- the graduates should become the community manager in food and agriculture for grassroots’ society in rural areas
- being a model for other universities that wish to produce this type of new generation graduates.
The student admission procedure (2010–2017) of CUSAR students is processed through the direct admission system from two areas:

1. Special areas include Nan, Phrae, Payao, Uttaradit and Chiangrai province
2. General areas include other provinces that do not belong to special areas.

The program provided the scholarship for 24 students with approximately 80,000 THB or about 2,500 USD per student each year throughout the duration of their studies at university. This includes tuition fee, dormitory fee, clothing, school’s stationery, tools, luncheon and monthly stipends under one condition that the students must return and work in their hometown after graduation.

Figure 3 Map of Thailand (see online version for colours)

This program is a four-year undergraduate program in which the students need to complete the total of 153 credits requirement that comprises of basic and core subject courses in both fields of science and business management. The students would be studying in two main campuses; Bangkok and Nan province (Figure 3). In Bangkok, the students would need to take various elective and core courses in different departments for the first three academic semesters before leaving for Nan’s campus. Living in Nan’s campus could enable the students to gain an opportunity in working and learning with local community and villages and this could have a positive benefit on the students in developing the real-life problem learning and solving skills. The teaching method used is a combination of theory and community-based learning. Also, the program invited highly-experienced speakers from different field of expertise including NGOs, retired-government officials, local philosophers and farmers to create inspiration and
passing, both, favourable and unfavourable experiences to the students, i.e., learning through experience of others. In Nan campus, the students can learn and attend class via a remote learning system or interactive distance learning (IDL) in which the lectures, pictures and sounds, could be taught and recorded so the students could study through remote system and are able to revise their lessons at any time. The e-learning are also provided in some courses. By learning through this remote system, it could also help the students to get familiarised with self-learning process and also to encourage them to be self-reliance continuing on their study throughout their life even after graduation.

However, to make the curriculum feasible and sustainable, there should be a linkage between students and rural community. This way, students can learn and practice through actual problems with more understanding about the roots of their community’s concerns and would feel more attached to their origins and places, since Nan is one of the classic examples of a few provinces in Thailand that has number of problems concerning food security and unsustainable crop systems. This would enable the students to have a direct contact with local rural community, so that they could learn from the real problems and be able to practice in the actual field.

Furthermore, in order to ingrain an entrepreneurial idea and fostering entrepreneurship in students, the curriculum’s compulsory course for the fourth year student is ‘senior project’ which is the year-course that the students are required to do a virtual business plan, by making their own business plan, creating products, marketing and selling. The students will, therefore, learn about their loss and profitability through process of being actual ‘entrepreneurial farmer’ by making investment and each group will receive funding with total of 7,500 THB or about 235 USD to start with and they are required to present and report the results of their loss and gain before passing the course.

Another prominent problems in rural area of Thailand are migration and land abandonment. However, to strengthen the community the people did not only need a support in terms of contents and knowledge but also a ‘spiritual’ support, especially in the young farmers who were usually inexperienced, therefore, the process of creating a new vision and perspectives and fair attitudes toward lives and the way of livings is critical especially in the remote rural villages. Encouraging the students and young farmers to have a volunteer mind and willingness to assist others within their own community or free will without any external forces, is a difficult task yet very important for any community development. Since in most society at present, people tend to be neglected and independent, therefore the guidance from the experienced mentors might be necessary for the young farmers. However, the program has foreseen the essence of the spiritual and emotional support and has established its mentor contents in extracurricular activities by which the experienced mentors and experts from different fields and professions were volunteered and arranged to meet with the students in Nan learning centre in order to pass on their experiences including their successful stories as well as their failures.

5 Preliminary outcomes and achievement

After launching of this new interdisciplinary curriculum and program, CUSAR set up the follow-up project as the program was aware of the difficulties and obstacles that the young graduates might encountered after graduation once they have started their own
career especially when they decided to enter and work in agricultural sector. Therefore, the objectives and purposes of the ‘graduates’ follow-up project’ are to:

• visit and learn about graduates’ problems and obstacles during early year after graduation
• be able to give advice and support in terms of technical and spiritual support
• collect data and information regarding their needs as well as feedback and recommendations from the graduates concerning the improvement of school’s curriculum and teaching methods
• build graduates’ confidence and create CUSAR alumni network.

The method of follow-up process of CUSAR is that the school initially selects the number of graduates to follow-up, i.e., only those who work in agriculture and in agricultural-related field will be tracked and followed. The data were collected from the students who graduated in year 2014–2015 primarily through questionnaires and selected in-depth interviews based on their career choices. The total number of students graduated in 2014 were 44 (female: 28 and male: 16). Whereas the number of 46 students was graduated in year 2015 (female: 27 and male: 19). The ages of students at the year of their graduation are between 22–23 year-old. However, we only had the complete set of data for the first batch of graduates since the follow-up and tracking process would normally take place one year after graduation.

From Table 1 and Figure 4, 9% of the first batch graduates pursued farming on their own or took part in their family agribusiness and farms. While 25% of total graduates in year 2014 did not pursue career path in farming but have worked in agricultural-related field in both governmental and private sector or in NGOs. Similar trend could be seen in the second batch (Figure 5) where it shows that 11% of graduates in year 2015 pursued farming on their own or took part in their family agribusiness and farms, whereas 60% had worked in non-agricultural sector or pursue their graduate study elsewhere and 29% worked in agricultural-related field.

Figure 4  Trend of career path after graduation of CUSAR graduates in year 2014 (see online version for colours)
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Figure 5  Trend of career path after graduation of CUSAR graduates in year 2015 (see online version for colours)

Table 1  Trend of career path after graduation of CUSAR students

<table>
<thead>
<tr>
<th>Graduated year</th>
<th>Batch</th>
<th>Number of graduates</th>
<th>Farming and family agribusiness</th>
<th>Agricultural-related field</th>
<th>Others, e.g., non-agricultural and graduate study</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1</td>
<td>44</td>
<td>4</td>
<td>11</td>
<td>29</td>
</tr>
<tr>
<td>2015</td>
<td>2</td>
<td>46</td>
<td>5</td>
<td>13</td>
<td>28</td>
</tr>
</tbody>
</table>

Note: Data collected from 2015–2016.

As this program is a relatively new initiative, therefore, there is not many up-to-date data, because in order to assess the success of the graduates or the program itself, this requires more time to be able to determine if this curriculum is considered to be a successful case. However, from this study, we can gain several valuable lessons and implications from the follow-up project and in-depth interviews with graduates that could be extensively used in an improvement of both, future students and the curriculum itself. In addition, the feedback and interviews reflected comments from the graduates as well as the obstacles by which the graduates have been encountered with were also mentioned. The followings are some of the selected comments.

5.1 Comments and recommendations from graduates for an improvement of the program

- The program/curriculum should add more courses or hours for field practice and internship and that should be arranged in a more holistic view from production part to downstream market throughout the production value chain.

- The curriculum should use a real-life farming problem or issues from their student’s family as problem-based or teaching method for students as this could help promote students’ understanding and attitude toward their own business and family farming.
The program should provide extra course or training program for students before they pursue their own career in the real sector, i.e., prepare the students with their future career of interest in agricultural field after graduation.

The program should initiate ‘start-up’ fund for newly graduates to help them to begin their career in farming after graduation.

5.2 Obstacles

A lack of resource and financial support prevented newly graduates to start their own business and farming.

Family conflicts related to culture and mindsets of parents. Because some parents viewed agriculture to be labour-intensive with a lot of hardship and difficulties therefore, majority of them prefer their children to work in the city and earn monthly salary rather than taking risks by running their own farms and businesses.

Some studies have reported similar trends about the obstacles and barriers that could prevent postgraduates’ students from achieving entrepreneurship (Sandhu et al., 2011; Yaghoubi, 2010) such as lack of resource, traditional teaching method and less attention on practical skills. However, not all studies were conducted in agricultural postgraduate students but came from various fields of professions. Therefore, we are among the first studies that have documented the process and preliminary finding for undergraduate program that promote agricultural entrepreneurship in higher education level.

6 Conclusions and lesson-learned

Our curriculum and program in agricultural management is the first undergraduate program in Thailand that used the interdisciplinary concept to teach students and have cooperation with different sector in both, government and private sector includes NGOs. Community engagement is considered to be one of the main focuses of the curriculum that would enable students to gain experience in field from working with farmers in the actual community and villages. However, running such unique program has certain constraints and obstacles such as problem concerning integration of academic staff and experts from different field to perform number of interdisciplinary tasks ranging from teaching students, research and extension which was not simple.

Another challenge for the program administrator is a ‘doubled-campus’ administration, for newly established program, however, it requires an effective and synchronise management and administration in both campuses in order to perform their corresponding tasks. In sum, our data and information on the trend of career path of graduates is not yet conclusive as more data and samples are needed, however, a continuous improvement of curriculum is necessary in order to provide an efficient agricultural education for younger generation.

However, the finding of this may not be generalised to the informal or non-student groups as this only focused on the undergraduate students and curriculum with some limitations of number of graduates and an incomplete set of feedback data due to the duration by which the students have graduated. As there is still a gap in the availability of data and research finding concerning formal education of undergraduate curriculum in
agricultural entrepreneur, therefore, the findings from this study could provide some useful lessons that can be used for developing agricultural development plan and education in many countries that have similar problems of farmers’ poverty and low replacement rate of younger people in agricultural sector. The preliminary data from this program could, therefore, be the first step in creating the new approach for development of new generation entrepreneurial farmer in the Thai context.

7 Future recommendations and moving forwards

• Provide more subjects and additional field activities that teaches on agricultural extension, community engagement and rural development and agro-tourism.
• Establish community or social enterprise for local business learning and internship.
• Teach students more skills on critical thinking and knowledge management etc.
• Promote and disseminate this educational concept and program to community level such as community college and provincial universities to scale up number of graduates.
• Initiate and establish ‘investment seed’ funds to financially support young graduates for their future investment in business after graduation.
• Organise mentoring course or training for the graduates, i.e., incubation centre for those who are interested in farming and wish to become agricultural entrepreneur after graduation for 6–12 months including short curriculum, entrepreneurial business plan and field practice project (if necessary).

References


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