

Competency of agriculture graduates in Malaysian public Universities

Marinah Muhammad¹, Ahmad Anwar Ismail², Aweng Eh Rak³

^{1,3}Faculty of Earth Science, Universiti Malaysia Kelantan, Jeli Campus, 17600, Jeli, Kelantan, Malaysia

²Faculty of Agro Based Industry, Universiti Malaysia Kelantan, Jeli Campus, 17600, Jeli, Kelantan, Malaysia
marinah@umk.edu.my

Abstract: Graduates are a valuable asset for the country as they are the heirs who will continue the development of the country and is the source of human capital. This important resource must be developed through a good education system so as to produce quality and knowledgeable human capital for the country. A study was conducted to obtain the true picture of public perception with regard to agricultural graduates' competency in Malaysia and what are the factors that influenced the competencies among them. The study was conducted in seven public universities and twenty companies in the plantation industry through the distribution of questionnaires to the students of agriculture and interviews with top management in the industry. The results shows that, career opportunities in the farming and commercial agricultural sector in Malaysia is bright and according to the industry, the agricultural graduates in Malaysia are competent, however, there are some aspects that need to be improved. Curriculums in universities also play an important role to make sure the students will be competent after graduation with other values inculcated in them during their studies in the University. The majority of these students pursuing agriculture program in the university are of their own initiative and awareness, without coercion from any party. This is a positive finding which goes to show that, there are still many young people who are interested in agriculture. The often heard claims that, agriculture is not a favored field for the youth is not accurate anymore. These students also have the desired characteristics as expected by government to further develop the farming and commercial agricultural sector in Malaysia. However the percentage of the students who are willing to venture into the agriculture sector as wage earners or self-employed after graduation, is still low. The findings of this study have also led to a further study on two more aspects which are perceptions of agriculture students on a career in agriculture and the status of career opportunities in the plantation industry and commercial agriculture in Malaysia

Keywords: Competency, agricultural graduates, curriculum of study, graduates' characteristics, public university

1.0 Introduction

Graduates are a valuable human asset as they are an important source of trained labour who are the heirs of the present generation who will inherit to continue the national economic development of a country. In the past energy resources has been the pillar of growth for Malaysia at the expense of agriculture which has backslided to become the third engine of growth. The workforce must now be geared towards producing skilled manpower for the agriculture industry to correct the imbalance. In this direction the government has taken steps to give greater prominence to produce larger number of agriculture graduates to meet the demand of the expected increase in the workforce in the plantation industry and commercial agriculture. Career opportunities for graduates are not hard to come by as the graduates can obtain jobs as employees in the private sector or work on their own as modern-day farmers or entrepreneurs.

Agriculture encompasses a broad field which include livestock, crop production, aquaculture and various downstream industries. Commercial agriculture refers to agricultural activities encompassing private sector plantations involving rubber and oil palm cultivation, smallholder farms like cocoa, pepper and big commercial growers of fruits and vegetable crops. The plantation industry particularly that of rubber and oil palm was the mainstay of the economy since 150 years ago when foreign capital investment was brought in by the British colonial masters to meet the world demand for natural rubber and palm oil. Soon after the other commodities followed like cocoa, pineapple, tea and pepper as world demand for them grew. Foreign capital investment flowed in and commercial giants like Sime Darby, Socfin, Guthrie, Golden Hope and Cameronian were already well established and synonymous with the country's agricultural landscape. Needless to say, these companies and some other big players in the plantation industry provide employment opportunities for our agriculture graduates. The Incorporate Society of Planters asserts that many professional career opportunities in commercial agriculture and smallholder farms are offered by several private plantations with various incentives and benefits which may not be offered in other economic sectors, like manufacturing, etc. Despite the generous schemes on offer, most of the commercial farms are still experiencing a shortage of skilled labour to take up managerial and professional positions in their companies.

The graduates, particularly those from the agriculture background, who have decided to venture into commercial farming either as employees or as budding agricultural entrepreneurs should be commended for making the bold decision. They could have well chosen to opt for other more popular and cushy jobs like their peers who are equipped with Diplomas and Degrees considered a ticket towards a professional career. These set of graduates are now ready to face the real challenges on the field and are prepared to work on the farm or plantations after acquiring relevant knowledge and skills for they are more confident as they can now adopt modern farming



techniques to achieve their desired goals. What is more important is for them to dismiss the often misconceived perception among family and community members that the agriculture sectors do not offer a professional career that guarantees their future.

The main purpose of this study is to determine the level of competency of locally trained agriculture students to complement the government's objective of being a source of knowledgeable and skilled human capital in the agriculture sector. The other objectives include are:-

- i. Gathering demographic information of students in the agricultural programs offered and demographic information of the agricultural industry in Malaysia.
- ii. Identifying the implementation in academic curriculum in the agricultural programs offered at public Universities.
- iii. Identifying the attributes of students pursuing agricultural programs locally.

2.0 Literature review

Producing a graduate who are holistic and competent is one of the objective of all Institutions of Higher Learning in Malaysia that have been set out in the National Higher Education Strategic Plan. The holistic and competent graduates often have a higher chance of marketability in the workplace. Various programs and activities undertaken by the public universities to make sure their students more competent while maintaining excellent academic achievement. Strengthening of soft skills through active learning using student-centred learning approach is one of the activities that will guide the students become more holistic and competent. Soft skills is seen as a feature or capability that must be available on each graduate to make sure they can hang out, talk, innovation, integrity, willing to accept challenges, to take risks, independent, know how to find information, make decisions and be able to solve the problem (Muhammad Hazrul Ismail, 2012; Robinson, 2006; Robinson, and Garton, 2008).

The government has taken several initiatives through the Ministry of Higher Education to give prominence to agricultural education at the tertiary level. The objectives are to train youths especially graduates to engage full-time in the agriculture sector and become successful agricultural entrepreneurs. There are success stories about young people working it in agriculture industry which prove that agriculture is a profitable business, although at present the percentage involved in this field is rather low. Most degree holders are still willing to wait for work to come by or looking for work in the public and private sector rather than looking at the agricultural sector. Some of them are prepared to seek a lower required position which are meant for diploma or school certificate holder. Graduates that are needed by the agriculture industry today are those graduates well trained with practical skills, ready to accept challenges, helped the industry to prosper by ensuring to provide clean and safe food through modern farming methods (Hamid and Auwal, 2012; Chiu et al., 2010). The notion that agriculture is a traditional occupation engaged by village folks, is unprofitable, often involved menial work and is dirty has to be relooked by the present generation. The present day agricultural profession require well trained graduates from institutions of higher learning who are sufficiently exposed to modern production technology so that a new generation of modern farmers or entrepreneurs are produced to meet the demand of modern day agriculture when expertise in many fields are needed to ensure the sector become productive and can contribute to the national economy significantly (Aidit & Husnizam, 2005).

The Ministry of Agriculture and Agro Based Industry (MOA) has reported that there are large number of job vacancies in the agricultural sector waiting to be filled by local graduates especially those who are unemployed (Utusan Malaysia 2005). The involvement of local graduates in the agriculture and farming sector is crucial to boost the sector's position currently the second largest contributor to the Gross Domestic Product (GDP) after gas and petroleum. The trouble is, these unemployed graduates are least interested and placed the agricultural sector as the last resort. In its earnest effort to develop and modernize the agro-based industry in Malaysia, the Ministry of Human Resources' Department of Skills Development together with MOA conducted a study to analyze the job profile in the agriculture & agro based industries sector. The study found that there were proposals for 192 job titles that may be offered through three sub-sectors and eight terms of reference. These sectors are Fisheries (terms of reference: aquaculture and capture fisheries); Food Crops, Floriculture & Industrial Crops (field work: planting materials, operations); and Production (the job: food, production, health and abattoirs). This study clearly goes to show the determination of the government and the private sector trying to help the graduates secure a career in this sector. All is left to the graduates as to their willingness to serve in the rural and remote areas away from the city lights for which most graduates these days would prefer to be stationed.

The mindset of the present generation would have to be conditioned right from the very young age to accept that the working environment in the agricultural sector is as important and more productive if not rewarding just as in the other sphere of economic activities. Education has a prime role to play here in molding the minds of the students beginning at all levels that agriculture and related courses be viewed positively. The parties involved, the government and the private sector, must give some serious thought on how to develop a more acceptable course in agriculture offered by those institutions of higher learning to meet the issues and the needs of the present graduates. Hopefully, this study will try to provide some answers on most of the issues and reduce the unemployment problem faced directly by the graduates and shortage of trained manpower badly needed in the plantation industry and commercial agriculture industry.

3.0 Methodology

This research was based on distribution of questionnaire and the conduct of face to face interviews in accordance with standard practices and methods that can provide high levels of confidence in the study. Two types of methods were involved namely, quantitative and qualitative. For quantitative methods, the data used were primary data collected from the distribution of a set of questionnaires to students majoring in agriculture and related science in 12 public universities. The universities chosen were Universiti



Sains Islam Malaysia (USIM), Universiti Islam Antarabangsa (UIAM) Universiti Kebangsaan Malaysia (UKM), Universiti Malaysia Kelantan (UMK), Universiti Malaysia Perlis (UniMAP), Universiti Malaysia Sabah (UMS), Universiti Malaysia Sarawak (UNIMAS), Universiti Sultan Zainal Abidin (UnisZA), Universiti Putra Malaysia (UPM), Universiti Sains Malaysia (USM), Universiti Teknologi MARA (UiTM) dan Universiti Utara Malaysia (UUM). Qualitative methods were used to obtain qualitative information through face to face interviews with top management personnels or their representatives from the industry of plantation and commercial agricultural in Malaysia. Among them were Kelantan Biotech, Kesedar Perkilangan Sdn Bhd, Cabaran Indah Sdn Bhd, GM Peladang, Pertubuhan Peladang Negeri Pahang, Genting Plantation Research Centre, Lembaga Kemajuan Pertanian Muda, Agricultural Chemicals(M) Sdn. Bhd, TM Organic Farms Sdn Bhd, Forest Research Institute Malaysia (FRIM), Symbient Corporation Sdn Bhd, Premium Food Corporation Sdn Bhd, Sime Darby Research Sdn Bhd, Wisma Felcra, Starfresh Agro Park, Bioblooms Sdn Bhd, Phytotech Sdn Bhd and UK Farm Sdn Bhd.

For the collection of data by distributing questionnaires to students, out of 12 public Universities only 7 of them provide feedback with overall number of respondents for this study was 832 students and the findings are significant to describe a population based on justification of Krecje & Morgan (1970) who say that size samples between 50 and 500 is sufficient for social science research. Table 1 shows the total sample of students by public universities involved for this study. While, collection data through face to face interviews, only 20 industries of plantation and commercial agriculture gave cooperation. However, the findings from these interviews are sufficient to support the findings from distribution of questionnaires because it is very comprehensive and thorough.

Table 1
Frequency table for total sample of students by public universities

University	Frequency	Valid Percent
Valid UMS	200	24.0
UniMAS	182	21.9
UniZA	76	9.1
UPM	140	16.8
USM	70	8.4
UiTM	74	8.9
UUM	90	10.8
Total	832	100.0

The creation of the questionnaire is important in the success of this study. Therefore, it has been carefully developed through several sessions of discussion with all research members. Two instruments were developed in this study. The first instrument used for face to face interviews, while the second instrument used in the distribution of questionnaires to students at selected public universities. The instrument has been tested through a pilot study in order to produce quality instruments and meeting the objectives of the study before it being use in this research. The data from pilot study are use to check the validity and reliability of the questions in the survey form. The method of face to face interviews using the first instrument was to collect qualitative data and distribution of questionnaires using the second instrument is to obtain quantitative data. The use of questionnaires is a great way to get the data in a short period of time. The accuracy of the quantitative data collected can be proved by qualitative information obtained through face to face interviews.

The data obtained from the distribution of the questionnaires were analyzed using quantitative analysis techniques using SPSS. In this study, only two analytical techniques involved namely frequency analysis and descriptive analysis. The purposes of both analytical techniques are to summarize demographic profile of respondents and to obtain an overview of the actual situation about the competency of agriculture students for public universities in Malaysia. While, the data obtained from face to face interviews were analyzed using qualitative analysis techniques called content analysis. This analysis aimed to evaluate in detail the information obtained, so that the overview of competency of agriculture students for public universities in Malaysia was derived in depth. Hence the qualitative data was converted into quantitative data and analyzed using SPSS to obtain accurate and meaningful results.

4.0 Results and Discussions

Demographic Information of Respondent

Respondents in this study consist of two categories namely, agriculture students of the public Universities and top management of the plantations and commercial agriculture companies in Malaysia. It can be clearly shown that from Table 2, majority of agriculture students of public universities in Malaysia consists of female students. The findings were in line with the current situation that exists in higher education institutions in Malaysia that are indeed number of female students than male. The majority of them also are Malay students, studying in third year and more than half of these students have close family members who are involved in agricultural activities.



Table 2
Frequency distribution for demographic of the students by gender, ethnic, year of study and family involvement in agricultural activities

Variables	Percentage (%)
Gender	
Male	26.4
Female	73.6
Ethnic	
Malay	77.0
Chinese	5.5
India	1.2
Others	16.2
Year of study	
Year 1	1.8
Year 2	34.1
Year 3	58.9
Year 4	5.2
Family involvement in agricultural activities	
Involve	56.3
Not involve	43.8

Table 3
Frequency distribution of industry by types of crops cultivated, ethnic groups of graduate workers, education status of employees and number of vacancies offer in a year

Variables	Percentage (%)
Types of crops cultivated	
Oil palm	46.0
Oil palm & Rubber	13.0
Oil palm & Fruits	7.0
Marine fish farming	7.0
Roselle	7.0
Napier grass & Banana	7.0
Tea	7.0
Vegetables	6.0
Ethnic group of graduate workers	
Malay	90.0
Chinese	5.0
Indian	5.0
Education status of employees	
Non-graduates	9.3
Graduates	90.7
Number of vacancies offer in a year	
No vacancy	25.0
1 vacancy	15.0
2 vacancies	10.0
5 vacancies	25.0
10 vacancies	5.0
15 vacancies	5.0
60 vacancies	5.0
Depend on vacancy	10.0

This study also give the demographic information about plantation and commercial agricultural companies in Malaysia by types of crops cultivated, ethnic groups of graduate workers, education status of employees and number of vacancies offer in a year, Table 3. Result from the analysis shown that, 47% from this companies working on activity of oil palm plantation and this is not contradict



with Malaysian main cultivation which is oil palm. Besides that, most of this companies tend to choose their employees from non-graduates candidates rather than graduates. However, the value of 9.3% for the category of graduate workers is very significant for this study because it shows the opportunities that exist and are given by the plantation and commercial agriculture industries in Malaysia to agriculture graduate. Out of the graduate employee 90% of them are Malay. The findings are parallel with demographic information that also shows the percentage of agriculture students in public universities in Malaysia are majority come from Malay ethnic group. So it is not surprise if the percentage of graduate workers in the plantation industry and commercial agriculture in Malaysia pioneered by ethnic Malays. The findings also indicate that there was offering vacancies in a year for the company in plantations and commercial agriculture sector in Malaysia.

The Implementation of academic curriculum for agricultural program in Public Universities

Competency of agricultural students after completing their program of study at institutions of higher learning relies heavily on practice and practical conducted by a university. From the analysis, it was found that there are universities, where by 22.5% of them that conduct the academic curriculum for agricultural program without involving students with field trips to commercial agricultural farms, Table 4. Activities or programs like this is one example of how an academic staff conduct an active learning and teaching outside the campus and it involved a student-centered learning approach. Through these activities, the strengthening of soft skills such as communication skills, critical thinking and problem solving, entrepreneurship, ethics and professional morality, leadership and team work can be done and hence give an impact to the competency of students. Supposed, all core courses in academic program of agriculture should adopt the learning through field trips so that students are more exposed to the real experience rather than the learning experience in the classroom and the laboratory alone.

Table 4
Frequency distribution of students ever/never joined a field trips to the farms during the study

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	645	77.5	77.5	77.5
No	187	22.5	22.5	100.0
Total	832	100.0	100.0	

Industrial training is also another program or activity that may contribute to the production of graduates who are more holistic and competent. All universities should make industrial training courses as core courses in their academic curriculum. According to the view of top management in several industries and agencies in Malaysia such as Kumpulan Pertanian Kelantan Berhad, Pertubuhan Peladang Negeri Pahang dan GM Peladang Sdn. Bhd. through interview session, they would prefer to hire graduates who have been involved in industrial training program as their workers because they can see the differences in the competency of graduates between this two groups. Most of the industries expect that, the agriculture students in Malaysia should have exposed to the industrial training course for at least 4 month, so that they have a good career path in agricultural sector. In addition, the industrial training is a platform for the companies in plantation and commercial agriculture sector to find and offer a holistic and competent graduates as their workers. This is supported by the findings from Table 5, which shows 100% of the companies in the plantation and commercial agriculture sector, state that industry training helps companies to get job candidates.

Table 5
Frequency distribution of industry about statement 'industrial training is a platform for the companies to find and offer a holistic and competent graduates as their workers.'

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	20	100.0	100.0	100.0

Characteristics of agriculture students in public universities

It is well known, implementation of the curriculum plays an important role in determining the competency of agriculture students in the universities. Nevertheless, the individual characteristics of each student also play a similar role in determining their employability after graduation later. This finding gives a true picture of the characteristics of agriculture student in public universities in Malaysia. The majority of these students are pursuing agriculture program in the higher learning institution because of encouragement and self-awareness and without coercion from any party, Table 6. This is a positive finding and shows that there are still a young people interested in agriculture field in Malaysia. As such, the allegations of most people about agriculture field is not a favored the youth is not accurate anymore.



Table 6
Frequency distribution of students about the factor that encourage them to pursue their studies in agriculture program

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Our self	559	67.2	67.2	67.2
Parents	111	13.3	13.3	80.5
Family members	62	7.5	7.5	88.0
Freinds	19	2.3	2.3	90.3
Teachers	24	2.9	2.9	93.1
Government	57	6.9	6.9	100.0
Total	832	100.0	100.0	

Nevertheless, students majoring in agriculture is more comfortable to choose a job in government sector after graduation. 23.8% of them are willing to work in the plantation and commercial agriculture industry and it very frustrated when only 6.9% of them are willing to become agricultural entrepreneurs, Table 7. From these findings clearly show, the effort of the government and related agencies are still not enough to attract the graduates in Malaysia to choose jobs in the plantation and commercial agriculture industry as their future career, even though they know that the plantation and commercial agriculture industry in Malaysia provide employment opportunities that can develop their future career, Table 8.

Table 7
Frequency distribution of student by field of career that will be taken after graduation

	Frequency	Valid Percent	Cumulative Percent
Valid Government	429	51.6	51.6
Statutory body	29	3.5	55.0
Private	116	13.9	69.0
Plantations/ Agriculture	198	23.8	92.8
Production/manufacturing	3	.4	93.1
Agribusiness	57	6.9	100.0
Total	832	100.0	

Table 8
Frequency distribution of student about plantation/ agriculture sector in malaysia provide employment opportunities to develop career.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	740	88.9	88.9	88.9
No	92	11.1	11.1	100.0
Total	832	100.0	100.0	

Further studies were conducted on 645 students who had attended a field trip activities in commercial agriculture farm to see and find out whether the agriculture students have the expected characteristics by the government to make sure they can develop further the plantation and commercial agriculture sector in Malaysia. Table 9 shows a summary of the findings about the students' feeling during and after a visit to the farms . From the finding it shows that most of the students showed a positive feature as agriculture students as it felt the activities and field trips in commercial agricultural farms are fun, got a lot of knowledge and a good opportunity for them. Majority of them about 89.0%, feel excited to do the job or visit to the farms again next time, if they get a chance.



Table 9

Distribution of students about their feeling during/after field trips

Variables	Percentage (%)
Perception of students on a field visits	
Fun	42.9
Tiresome	1.8
Dirty/soiled	0.3
Ontain useful knowledge	37.5
Time wasting	0.8
Good oppurtinities	16.7
Eagerness of students to do more field visits	
Yes	88.9
No	11.1

In addition, the competency of the students were also taken into account when their appearance or how they attired themself were examined. This is can also be an indicator as to the preparedness of the students to face whatever challenges and obstacles when forced with the choice for a career in the plantation and commercial agriculture sector. The findings shows that the agriculture students belong to a group who are good at adapting to the required work environment, Table 10. This reflects well on the attitude of the students who has the desired characteristics needed and hopefully through the current education system offered and available in the public universities will help them to attain a certain level of competency.

Table 10

Distribution of students about their appearance and endurance in the farm

Variables	Percentage (%)
Type of apparels used during in the farms	
Jeans and T-shirt	48.0
Baju kurung	1.0
Sport wear	43.0
Shirt & pants	8.0
Steps taken to protect againts sunlight	
Umbrella	9.0
Cap	62.0
Sun block	12.0
Sun glass	1.0
Nothing	16.0

Table 11

Frequency distribution of industry about the students' competency through their experience

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid competent	20	100.0	100.0	100.0

Table 12

Frequency distribution of industry about their opinion on student and graduates of agriculture in Malaysia

Opinion	Frequency	Percentage %
Well done, good and competent	3	15.0
Satisfy	2	10.0
Good, but should be given the knowledge about high-technology agriculture, skills and ways of thinking that are more global.	4	20.0
Have to undergo a lot of practical training and application from the theory they have learned to adapt to the working environment	2	10.0
Important asset and have a wide choice in career whether in the private sector, government and entrepreneurial agriculture.	1	5.0
No one has specific knowledge and skills required in each operation on the farm	1	5.0
Less and have no interest in agriculture and no willingness to work in rural areas	4	20.0
Not satisfy	1	5.0
No comment	2	10.0
Total	20	100.0

Table 13
Frequency distribution of industry about differences between students in public universities with students in private institutions

Opinion	Frequency	Percentage %
Students in public universities better than students in private institutions	5	25.0
Students in private institutions better than students in public universities	3	15.0
No difference, just depends on the students' own	9	45.0
No comment	3	15.0
Total	20	100.0

To further strengthen this statement, this study also obtained findings about the characteristics of agriculture student in public universities in Malaysia from industry point of view. All top management and representatives who can make decisions in the companies of plantations and commercial agriculture involved in this study, state that university students who have gone through the Industrial Training courses in their place is competent, Table 11. They also give their views and opinions about characteristics of agriculture students and graduates who have and are currently undergoing industrial training, or work with them. All opinions are summarized in Table 12, and it clearly shows 60% of the industry provides a good opinion about them. This study also obtained a finding about the differences between graduates from public universities and private institutions which is significant to view the competency of agriculture graduates in public universities in Malaysia, Table 13. Majority of them, about 45% say there is no difference between them because it depends on the students and the graduates themselves. Nevertheless, it shows that students from public universities is better than students in private institution with the exceed percentage of 10%. Among the opinions expressed by the industries are students from public universities have the knowledge, skills and discipline better than students from private institutions because of the academic curriculum design at public universities for agriculture program is more comprehensive, thorough and excellent when compared with private institutions. However private institutions has the advantage of providing a more practical graduates, open minded and to meet to the industrial requirements.

Competency of agricultural graduates also closely related to their academic excellence. This is agreed by top management and representatives who can make decisions in the companies of plantation and commercial agriculture that involved in this study, when 55% of them said that, mainly they will look at academic excellence of the graduates before employ them serving with the company, Table 14. However there are also companies that are more looking at the attributes of graduates compared with their academic achievement. Whatever their choice, the industry still highly expect the holistic and competent graduates to serve and contribute to the industry and hence develop the plantation and commercial agriculture sector in Malaysia. Among the features expected by the industry in Malaysia from agriculture graduates are knowledgeable and competent, hard work, passion, able to solve problems, think critically, be positive and professional, committed to farming career and has great thinking ability to develop agriculture to increase production of better quality. This clearly shows that an agriculture graduates should have a good academic record and have the soft skills and entrepreneurial attributes to meet the requirement of the plantation and commercial agriculture industries in Malaysia

Table 14
Frequency distribution of industry about academic excellence of the students is the important element for the company to employ the graduates candidates

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	11	55.0	55.0	55.0
	No	9	45.0	45.0	100.0
Total		20	100.0	100.0	



5.0 Conclusion

Competency of agricultural students after completing their program of study at institutions of higher learning relies heavily on practice and practical conducted by a university. There are universities, that conduct the academic curriculum for agricultural program without involving students with field trips to commercial agricultural farms. Activities or programs like this is one example of how an academic staff conduct an active learning and teaching outside the campus and it involved a student-centered learning approach. This is should not been happen, because activities or programs like this is one example of how an academic staff conduct an active learning and teaching outside the campus and it involved a student-centered learning approach. Through these activities, the strengthening of soft skills such as communication skills, critical thinking and problem solving, entrepreneurship, ethics and professional morality, leadership and team work can be done and hence give an impact to the competency of students. Industrial training is also another program or activity that may contribute to the production of graduates who are more holistic and competent. All universities should make industrial training courses as core courses in their academic curriculum because according to the companies through interview session, they would prefer to hire graduates who have been involved in industrial training program as their workers because they can see the differences in the competency of graduates between this two groups. In addition, the industrial training is a platform for the companies in plantation and commercial agriculture sector to find and offer a holistic and competent graduates as their workers. Clear picture of the characteristics of agriculture students in public universities in Malaysia were also obtained in this study. Majority of these students are pursuing agriculture program in the higher learning institution because of encouragement and self-awareness and without coercion from any party. This is a positive finding and shows that there are still a young people interested in agriculture field in Malaysia. As such, the allegations of most people about agriculture field is not a favored the youth is not accurate anymore. Nevertheless, students majoring in agriculture is more comfortable to choose a job in government sector after graduation even though they know that the plantation and commercial agriculture industry in Malaysia provide employment opportunities that can develop their future career. Through these findings, it can be concluded that public universities in Malaysia should try to change the minds of the students to be more open and interested to opt for employment in plantations and commercial agriculture sector as their future career. The finding also found that, most of the students showed a positive feature as agriculture students as it felt the activities and field trips in commercial agricultural farms are fun, got a lot of knowledge and a good opportunity for them. They also feel excited to do the job or visit to the farms again next time, if they get a chance. the agriculture students in Malaysia also belong from those who are good at adapting and strong. The results obtained clearly showed that the agriculture students of public universities in Malaysia actually has the expected characteristics and hopefully through the current education system in the public universities involved can help them to be a competent and holistic graduate.

To further strengthen this statement, this study also obtained findings about the characteristics of agriculture student in public universities in Malaysia from industry point of view. All top management and representatives who can make decisions in the companies of plantations and commercial agriculture involved in this study, state that university students who have gone through the Industrial Training courses in their place is competent. This study also obtained a finding about the differences between graduates from public universities and private institutions which is significant to view the competency of agriculture graduates in public universities in Malaysia. Majority of them, said that there is no difference between them because it depends on the students and the graduates themselves. Nevertheless, it shows that students from public universities is better than students in private institution in term of knowledge, skills and discipline better than students from private institutions because of the academic curriculum design at public universities for agriculture program is more comprehensive, thorough and excellent when compared with private institutions. However private institutions has the advantage of providing a more practical graduates, open minded and to meet to the industrial requirements.

More than half of the companies involved in this study stated that they were very concerned with academic excellence to employ a graduate serving with them. However there are also companies that are more looking at the attributes of graduates compared with their academic achievement. Whatever their choice, the industry still highly expect the holistic and competent graduates to serve and contribute to the industry and hence develop the plantation and commercial agriculture sector in Malaysia. Among the features expected by the industry in Malaysia from agriculture graduates are knowledgeable and competent, hard work, passion, able to solve problems, think critically, be positive and professional, committed to farming career and has great thinking ability to develop agriculture to increase production of better quality. This clearly shows that an agriculture graduates should have a good academic record and have the soft skills and entrepreneurial attributes to meet the requirement of the plantation and commercial agriculture industries in Malaysia.

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