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# The productivity from contract farming's technical transfer in kelantan, Malaysia

Siti Hajjar Mohd Amin, Junaida Ismail and Mahadir Ladisma@Awis

Faculty of Administrative Science & Policy Studies, Universiti Teknologi MARA (UiTM), P.O.Box 187, 08400 Merbok, Kedah, Malaysia.

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### ABSTRACT

Contract Farming (CF) is one of the major High Impact Project of the Malaysian government in order to be more effective in supplying fruits product and to provide enough land to produce it with collaboration and cooperation of eight government agencies where Federal Agriculture Marketing Agency (FAMA) acts as project manager. The reason for choosing watermelon production in Kelantan is due to the fact that the state has the highest number of participants involved under contract farming and the major crop produce in Kelantan is the watermelon. One of the objectives of this study is to determine the relationship between aspect of technical transfer and farmer's productivity in contract farming. Projects implementation of agricultural development needs the efficient and effective service support. The result showed that there is significant relationship between all independent variables studied. Results indicated that the highest percentage response on aspect of technical transfer and a significant relationship between aspects of technology transfer and watermelon output.

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### Introduction

Globalization has made technological developments, demographic changes, changing consumer preferences, trade liberalization and financial capital mobility. Thus, food and agricultural systems are being forced to adapt and modernize to cope with changes. This transformation has created challenges and opportunities for producers, processors, wholesalers, retailers and other supply chain actor's especially small farmers in developing countries who are vulnerable to the changes. Therefore, it is crucial for government and development agencies to come up with "income generation" activities for rural people as they lack both reliable and cost-efficient inputs such as extension advice, mechanization services, seeds, fertilizers and credit, and guaranteed and profitable markets for their output.

Wong (2007) mentioned that interest in agriculture is resurging, largely fuelled by a new understanding that growth in the agriculture sector plays a major role in overall growth and poverty reduction through linkage to manufacturing and services in supply chain and international trading network framework as well as in connecting the poor along agri-supply chain to growth. Hence, the agriculture sector has become the key aim under the Ninth Malaysia Plan in order to strengthen the agriculture and agro-based industry besides introducing new tag-line "Agriculture is Business".

According to Baumann (2000), there is an economic logic of Contract Farming (CF) as a way to divide risk between growers and contractors. Saminathan (2004) cites CF was developed to provide alternative markets for small farmers and guarantee consistent supply to the market. There is also the public motive of promoting smallholder development, transferring technology, building a smallholder political base and generating foreign exchange. Further, smallholders are

motivated by, amongst other factors, food security, cash flow and risk avoidance.

Thus, it is not surprising as Malaysia's Third National Agricultural Policy (1998 – 2010) included CF as one of its goals to ensure and adequate supply of agriculture products, therefore effort to vertically integrate the industry and to stimulate efficiency gains among the small farm sector were singled-out as strategies.

Eaton and Shepherd (2001) and Baumann (2000) state that contractual agreement varies according to the depth and complexity of the provisions according to three areas on market provision where the grower and buyer agree to terms and conditions for the future sale and purchase, resource provision regarding marketing arrangements where buyer agrees to supply selected inputs, including on occasions of land preparation and technical advice and management specifications, here the grower agrees to follow recommended production methods, inputs regimes, and cultivation and harvesting specifications.

It shows that, with an effective management according to these three provisions, CF can be a mean to develop markets and facilitate the process of transfer of technical skills which can be profitable for both the sponsors and farmers.

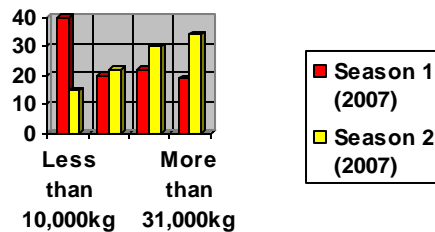
CF requires good partnership that engages long term commitment and cooperation among the parties involved. The most important factor under CF is the program that needs to be conducted as commercial in manner and not as political and social concern to avoid project failure.

Figure 1 shows diagrammatically a hypothetical CF framework. It sets out those aspects that must be considered when planning and implementing a venture. The objective of this study is to determine the relationship between aspect of technical transfer and farmer's productivity in CF in Kelantan, Malaysia.

Tele:

E-mail addresses: [junaidaismail@kedah.uitm.edu.my](mailto:junaidaismail@kedah.uitm.edu.my)

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**Figure 1: Watermelon Output**

#### Methods and Materials

The respondents of this research comprise of farmers at selected locations in Kelantan, Malaysia namely “Projek Diraja Kg Banggol”, “Kg Teliar, Pasir Mas”, “Kg Gong Datok, Pasir Puteh”, “Projek Diraja Gelung Gajah, Machang”, “Kg Panglima Bayu dan Alor Pasir, Tanah Merah”, “Projek Diraja Kg Tok Rusa, Pasir Mas”, “Kg Parit, Pasir Mas”, “Kg Pak Mali, Bachok” and “RPT Batu Mengkebang, and Kuala Krai”.

#### Data Collections

Primary and secondary sources have been used to gather the information and data in this research. For preliminary research, an unstructured interview with the Senior Manager Corporate Planning of FAMA and Marketing Research Officer of FAMA has been carried out. Besides that, FAMA monthly and yearly sales report also was used to analyze its sales pattern as their secondary sources. For the descriptive research, primary sources have been used. By using primary data, it has direct control over the data collection and often yielded more accurate, current, sufficient, available and relevant information. The primary data can be obtained through distributing the questionnaires to the respondents. By using this structured design, it can capture the actual farmer’s perception on which aspect of technology transfer is effectively delivered to them.

#### Data Analysis

Morgan, et al. (2005) defined data analysis as a process of classification, summarizing, organized and manipulated data that has been received from respondents. Hence, data analysis involves in this studies only emphasized on the Cronbach’s Coefficient Alpha, Descriptive Analysis and Correlations Analysis.

#### Results and Discussion

##### Cronbach Coefficient Alphas (Pre-test of Questionnaire)

According to Zikmund (2003), a Cronbach’s Alpha value above 0.9 is excellent. Sekaran (2003) stated that, the closer the reliability coefficient gets to 1.0, the better the goodness of a measure. In general, reliabilities less than 0.6 are considered to be poor, those in the 0.7 range, acceptable and those over 0.8 good. So for this research, Cronbach Alpha has been used to test the reliability and the result is 0.743 that shows the reliability of the questions in the questionnaire is good.

##### Descriptive Analysis

As shown in Table 1, the working experience of the Kelantan’s farmers involved in CF. Forty one (40.6%) farmers have working experience between 3-5 years. Thirty nine (38.6%) farmers have experience between 6-10 years. There are about thirteen (12.9) and eight (7.9%) working experience between 11-15 years and more than 16 years respectively.

Table 2 showed the age of the Kelantan’s farmers involved in CF. Forty (39.7%) farmer’s ages are between 41 to 50 years old. Thirty one (30.6%) farmers are above 50 years old.

Eighteen (17.8%) farmers age are between 21-30 years old, while twelve (11.9%) farmers are between 31-40 years old.

Table 3 showed the educational level of the Kelantan’s farmers involved in CF where 46 (45.4%) farmers are PMR level. A total of 26 (25.7%) farmers have the SPM qualification, while 16 (15.8%) farmers have other education levels such as certificate, diploma, degree or no education background. A total of 13 (12.9%) farmers possessed UPSR level of education.

#### Correlation analysis

The frequencies of user responses for the aspect of technology transfer in contract farming are shown in Table 4. There are eight aspects of technology transfer have been used to examine a farmer’s perception of identifying which aspect is the most successful when transferring to them in CF program. However, most respondent agreed that aspect of technical transfer is the most effective technology transfer for the farmers with 58.4%.

The result of the above statement has been supported by Eaton and Shepherd (2001). According to a study made by FAO Agricultural Services Bulletin, Rome; clearly stated that CF requires good partnership for technical transfer that engages long term commitment and cooperation among the parties involved which can be profitable for both sponsors and farmers.

As shown in Table 5, approximately fifty two percent (52%) of farmers agree that contract farming may increase their watermelon output. A total of 28 (27.7%) farmers disagree that contract farming may lead to increasing in the watermelon output. This result has been supported by the secondary data as shown in Figure 1. The chart has shown to use the direct implication that can be benefited by farmers especially in increasing their level of watermelon output.

Figure 1 showed two comparative seasons based on secondary data. The secondary data is for Season 1 (April 2007) and Season 2 (October 2007). As shown in Season 1, there are 40 farmers registered with the watermelon output of less than 10,000kg, followed by twenty two farmers produce watermelon output within range of 21,000kg-30,000kg. For Season 2, the watermelon output is increasing whereby there are about 86 farmers producing between 11,000kg to more than 31,000kg.

#### Conclusions

It can be concluded that cooperation among the agencies lead to 58.4% of the farmers agreeing to the technical aspect that was effectively transferred to them. There was a significant relationship between aspects of technology transfer and watermelon output leading to the effectiveness on aspects of technology transfers by MOA Inc. as perceived by the farmers in Kelantan.

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**Table 1: Working Experience**

Working Experience	Frequency	Percent
Between 3-5 years	41	40.6
Between 6-10 years	39	38.6
Between 11-15 years	13	12.9
Above 16 years	8	7.9
Total	101	100

**Table 2: Age of the Respondents**

Age of the Respondents	Frequency	Percent
Between 21-30 years old	18	17.8
Between 31-40 years old	12	11.9
Between 41-50 years old	40	39.7
Above 51 years old	31	30.6
Total	101	100

**Table 3: Education Level**

Education Level	Frequency	Percent
UPSR	13	12.9
PMR	46	45.4
SPM	26	25.7
OTHERS	16	15.8
Total	101	100

**Table 4: Aspects of ToT in Contract Farming**

Scale ToT Aspect	0	1	2	3	n=101 Rank
Technology	0 (0.00%)	49 (48.5%)	11 (10.9%)	41 (40.6%)	5
R&D	0 (0.00%)	68 (67.3%)	5 (5.0%)	28 (27.7%)	8
Financial	0 (0.00%)	54 (53.5%)	13 (12.9%)	34 (33.7%)	6
Marketing	6 (5.9%)	37 (36.6%)	7 (6.9%)	51 (50.5%)	3
Technical	2 (2.0%)	34 (33.7%)	6 (5.9%)	59 (58.4%)	1
Production	0 (0.00%)	32 (31.7%)	11 (10.9%)	58 (57.4%)	2
Management	0 (00.0%)	56 (55.4%)	14 (13.9%)	31 (30.7%)	7
Government	1 (1.0%)	40 (39.6%)	11 (10.9%)	49 (48.5%)	4

**Table 5. Watermelon Output in Contract Farming**

	0	1	2	3	Mean	Std Dev
Watermelon Output	0 (0.00%)	28 (27.7)	21 (20.8%)	52 (51.5%)	2.24	0.862

Note: 0-not applicable 1-disagree 2-neither disagree nor agree 3-agree