

## Factors Affecting in Banana Cultivation Activity among Banana Farmers in Jeli, Kelantan

Farah Adila Abdullah, Ahmad Firdaus Ibrahim, Fatimah Kayat, Suhaimi Othman,  
Akmal Adilah Idris and Zul Ariff Abdul Latiff  
Faculty of Agro-Based Industry, Universiti Malaysia Kelantan,  
Jeli Campus, 17600 Kelantan, Malaysia

---

**Abstract:** This study was conducted as a response due to low banana production in Malaysia specifically in Jeli, Kelantan. Furthermore, this study attempts to examine the level of knowledge, attitude and practice towards banana cultivation among banana farmers. This quantitative study using simple random sampling and total of 70 banana farmers were involved. The analysed data demonstrates practice is the highest mean score followed by attitude and the lowest is knowledge. Thus, based on the results obtained, it is recommended that agriculture agencies and agriculture related universities to play their role to educate local farmers about new agriculture technologies to ensure the increasing of banana production and meet the food demands in local setting.

**Key words:** Knowledge, attitude, practice, banana cultivation, banana farmers

---

### INTRODUCTION

Agriculture has emerged as one of the key factors in developing countries including Malaysia. In Ninth Malaysia Plan (2006-2010), it has stated that agriculture is the third income generator for the country. In addition, agriculture has recorded an encouraging growth and has come up as one of important income generating sector to the Malaysian economy. Furthermore, as stated by Shaffril *et al.* (2010), agriculture project also has become a medium to overcome problems in poverty.

In Asian countries including Malaysia, banana is an important tropical fruit which has their own commercial value. This crop is largely planted by smallholders and play a major role in food security and income generation for millions of rural poor in Asian region and also around the world (Molina *et al.*, 2004). The area covered throughout Malaysia for banana planting is 28,911.2 ha while banana production recorded as 303,106.7 metric tonnes in 2013. Among most of Malaysian citizens consumed banana domestically as there are variety of banana products such as banana chips, banana cake and fried banana. However, banana production in Malaysia has decreased due to issues such as threatening diseases which particularly Fusarium wilt, high labor costs and marketing issues.

While in Uganda, bananas have conquered largest cultivated area among other staple food crops and not

less than 75% of all farmers growing bananas. Bananas are usually planted as a subsistence food crop and most of the banana production been placed on a small subsistence farms with not more than 0.5 ha (Gold *et al.*, 1998). Banana farmers in Uganda plant different varieties of banana for production and also for consumption aspect (Akankwasa *et al.*, 2013).

**Farmers' knowledge on banana cultivation:** An ample knowledge with positive attitude is highly needed in an individual in improving management practices to make the farmers mentally strong in order to adopt an improved management practices (Gunvant *et al.*, 2014). The evolution of technology in agriculture can help farmers in improving their performance and productivity. However, the adoption rate was still low until today as many farmers are still not aware of the modern technologies in agriculture and they are not afford to have it in their farm. Thus, they are more preferred on traditional techniques to be implemented in their farm. Furthermore, most of farmers in Jeli, Kelantan are still practising indigenous knowledge and they are left out from evolution of technology and development process. Based on a study done by Warren and Rajasekaran (1993), indigenous knowledge is the systematic body of knowledge accumulated from local people through the accumulation of experiences, informal experiments and intimate understanding of the environment in a given

culture. Local people, including farmers are the curator of indigenous knowledge as they are knowledgeable about the local situations, resources, functional sources and changes of their system. Indigenous knowledge are commonly explained and adapted to local culture and environmental conditions to the needs of local settings. In addition, many studies has concluded that the decision of farming communities to accept and adopt recent technology is actually influences by their knowledge and perceived economic returns between the existing and recent technology (Adesina and Forson, 1995; Adesina and Zinnah, 1993).

**Farmers' attitude on banana cultivation:** Attitude is a tendency to act in a certain way and it is the state that influence a person's willingness to act in a given manner (Rahman *et al.*, 1999). Besides, attitude can be developed based on individual degree of like or dislike on something. It describe either positive or negative views toward a person, place, thing or event (Bahaman *et al.*, 2010). Furthermore, based on a study done by Bergevoet *et al.* (2004), attitude is directed towards an object, person, institution or event; has evaluative, positive or negative, elements; based on cognitive beliefs towards the attitude-object (i.e., the balancing between positive and negative attributes of an object leads to an attitude) and has consequences for behaviour when confronted with the attitude object. A study conducted by Gunvant *et al.* (2014), more than two third (68.7%) of the respondents were reported to have favourable attitude towards banana cultivation technology whereas 16.7 and 14.7% of the respondents had highly favorable and least favorable attitude towards banana cultivation technology.

**Farmers' practice on banana cultivation:** There are various farming practices among different farmers as most of farmers have their own skill and knowledge in handling and maintaining their crops at the best level. Cultural practice is another banana based cropping. According to Jassogne *et al.* (2013), intercropping of banana with coffee can provide additional food and income for smallholder's limited land and helps farmers reduce risks related to pest and disease attack, drought and coffee price volatility. As coffee crops required shade, so that any banana crops which intercropped with coffee crop would provide this. Moreover, banana crop also providing mulching material for the coffee. In addition, intercrop farming between rubber and banana can provide rubber seedlings to the small-scale rubber growers. Meanwhile, the banana can be expand its activity by selling its fruit and also planting materials to the new banana growers (Krishnan *et al.*, 2013). Related studies

Table 1: Socio-demographic profile of respondent

Characteristics	Frequency (n =70)	Percentage	Mean
<b>Gender</b>	60	85.7	
Male	10	14.3	
Female			53.4
<b>Age</b>			
21- 40 years	10	14.3	
41-60 years	38	54.3	
61-80 years	20	28.6	
81-100 years	2	2.9	
<b>Occupation</b>			
Government Sector	3	4.3	
Private Sector	2	2.9	
Self-employed	53	75.7	
Retired	6	8.6	
Housewives	4	5.7	
Unemployed	2	2.9	
<b>Size of cultivation area</b>			3.59
0.5 acres	8	11.4	
1.0 acres	14	20.0	
2.0 acres	18	25.7	
3.0 acres	10	14.3	
4.0 acres	8	11.4	
5.0 acres	3	4.3	
Above 5.0 acres	9	12.9	
<b>Agricultural income/month</b>		697.8	
>RM1000	59	84.3	
RM1001-RM3000	9	12.9	
RM3001 and above	2	2.9	

(Bird *et al.*, 1995; Hanson and Shauer, 1995) concluded that majority farmers faced problems in controlling weeds. Thus, based on studies done by Aldrich and Kremer (1997) and Forcella and Burnside (1994), the usual methods of weed control are physical control methods (machine tillage, mowing, hoeing, etc.), cultural control methods which include any management practice that increase a crop's ability to compete with weeds such as crop interference, fertilizer placement, timing of planting and crop rotation, biological control methods (use of biotic organisms to control weeds) and chemical weed control (use of organic and inorganic compounds to disrupt plant growth).

## MATERIALS AND METHODS

This study used the quantitative research design and 70 banana farmers in Jeli, Kelantan were involved. The developed questionnaire was constructed based on review of literature and also from the past studies. Furthermore, pilot study was conducted to measure the reliability of the items in the questionnaire by using reliability test. Based on the result obtained, Cronbach alpha values for each construct, namely knowledge, attitude and practices are 0.709, 0.731 and 0.513, respectively. For every constructs with the value of Cronbach alpha >0.7, the researcher has restructuring the items to ensure it can be easily understand by the

respondents. Simple random sampling was applied in this study so that each of the banana farmers has an equal chance to be selected as respondent. Meanwhile, the instrument used for this study comprised of three sections, namely as demographic profile, information on farmers' crops and information on banana crops. All items were measured using Likert scale range 1-5 which represent from strongly disagree to strongly agree and SPSS was employed to run the appropriate analysis of this study.

## RESULTS AND DISCUSSION

Table 1 indicate the socio-demographic profile of respondents. It shows 85.7% of banana farmers are male and only 14.3% are female while 54.3% which is the majority of the respondents is range from 41-60 years old and mean score was recorded for the age is 53.4 years old. Moreover, 92.9% of the banana farmers are currently not working with government or private sector as 75.7% of them are self-employed, 8.6% are pensioners, 5.7% are housewives and 2.9% are unemployed. Additionally, majority (25.7%) of local people owned 2.0 acres of banana cultivation area while mean for agricultural income is (Ringgit Malaysia) RM697.80.

Table 2 demonstrates the mean score of knowledge, attitude and practices in banana cultivation among banana farmers in Jeli, Kelantan. The researcher has categorized the mean score for this study into three categories namely; low (1.00-2.33), moderate (2.34-3.67) and high (3.68-5.00). Practices indicate the highest mean score ( $M = 3.74$ ,  $SD = 0.35$ ), followed by attitude ( $M = 3.35$ ,  $SD = 0.97$ ) and knowledge is the lowest mean score ( $M = 3.24$ ,  $SD = 0.56$ ).

Based on the findings of this study, the researcher has found that most farmers in Jeli, Kelantan has their own farming practices for banana cultivation in their farm as they believed surrounding fencing is better than plant fencing and they fertilize their cultivation monthly. Moreover, local farmers also cover the fruits while it's on tree to avoid it from rotten besides conduct pruning practices on yellow and dry leaves in avoiding disease from spreading to other crops and also to ensure the nutrient can flow effectively. There are a few practices done by farmers to maintain their cultivation at the best level (Gunvant *et al.*, 2014).

On the other hand, majority of the farmers marketed their product through middleman. At the same time, farmers also willing to give full commitment with banana cultivation and most of them have been involved with agriculture training before. Based on a study done by Gunvant *et al.* (2014), 68.7% of the respondents have

Table 2: Factors affecting towards technology usage

Levels	Frequency (n = 70)	Percentage	Mean	SD
Knowledge			3.24	0.56
Low	2	2.9		
Moderate	41	58.6		
High	27	36.6		
Attitude			3.35	0.97
Low	19	27.1		
Moderate	25	35.7		
High	26	37.1		
Practices			3.74	0.35
Low	0	0		
Moderate	17	24.3		
High	53	75.7		

favourable attitude towards banana cultivation. Meanwhile, 16.7 and 14.7% of respondent had high favourable and least favourable attitudes toward banana cultivation.

Lastly, knowledge shows moderate mean score of 3.24. Banana farmers in Jeli, Kelantan concern that organic fertilizer are way better than chemical fertilizer. Besides, they also noticed that pest and disease can only be overcome using chemical pesticide only. In addition, banana farmers also realize that banana seed supplied by Department of Agriculture is high in quality and not majority of farmers know the suitable fertilizer for their crop. In a study completed by Gunvant *et al.* (2014), there are 75.3% of the banana growers had medium level of knowledge followed by 14 and 10.7% of the respondents had high and low level of knowledge in banana cultivation, respectively which has similar results obtained by Srivastava *et al.* (2002) and Patel (2005).

## CONCLUSION

In this survey, 70 respondents were interviewed via structured questionnaire to determine farmers knowledge, attitude and practices in banana cultivation. This study concludes that the score level of knowledge and attitude in banana cultivation is moderate with the exception of practices which displayed a high score level. It can be concluded that these farmers are passionate in banana cultivation as this activity can become as an income generator among local people in the future. Therefore, related government agencies, educational institution or NGOs (Non-Governmental Organization) shall make an extra efforts to improve the knowledge, attitude and practices among local community on banana cultivation besides directly sharing their knowledge and skills to the targeted group to support their effort in this beneficial industry.

## REFERENCES

- Adesina, A.A. and B.J. Forson, 1995. Farmers perceptions and adoption of new agricultural technology: Evidence from analysis in Burkina Faso and Guinea, West Africa. *Agric. Econ.*, 13: 1-9.
- Adesina, A.A. and M.M. Zinnah, 1993. Technology characteristics farmers perceptions and adoption decisions: A Tobit model application in Sierra Leone. *Agric. Econ.*, 9: 297-311.
- Akankwasa, K., G.F. Ortmann, E. Wale and W.K. Tushemereirwe, 2013. Farmers choice among recently developed hybrid banana varieties in Uganda: A multinomial logit analysis. *Agrekon*, 52: 25-51.
- Aldrich, R.J. and R.J. Kremer, 1997. *Principles in Weed Management*. 2nd Edn. Iowa State University Press Ames, ISBN: 0813820235.
- Bahaman, A.S., L.S. Jeffrey, A.M.S. Hayrol and U. Jegak, 2010. Acceptance attitude and knowledge towards agriculture economic activity between rural and urban youth: The case of contract farming. *J. Appl. Sci.*, 10: 2310-2315.
- Bergevoet, R.H., C.J.M. Ondersteijn, H.W. Saatkamp, V.C.M.J. Woerkum and R.B.M. Huirne, 2004. Entrepreneurial behaviour of Dutch dairy farmers under a milk quota system: Goals objectives and attitudes. *Agric. Syst.*, 80: 1-21.
- Bird, E.A.R., G.L. Bultena and J.C. Gardner, 1995. *Planting the Future: Developing an Agriculture that Sustains Land and Community*. University of Iowa Press, Iowa, USA.
- Forcella, F. and O.C. Burnside, 1994. *Pest Management: Weeds*. In: *Sustainable Agriculture Systems*. Hartfield, J.L. and D.L. Karlen, (Eds.), CRC Press, Ann Arbor, Michigan, ISBN:1-56670-049-3, pp: 157-228.
- Gold, C., A. Kiggundu, D. Karamura and A. Abera, 1998. Diversity distribution and selection criteria of musa germplasm in Uganda. *Proceedings of the International Symposium on Bananas and Food Security in Cameroon*, *Proceedings of the International Symposium on Bananas and Food Security in Cameroon*, November 10-14, 1998, INIBAP Publishers, Cameroon, pp: 10-142.
- Gunvant, T.S.K. G.S. Sharma and R. Mishra, 2014. Knowledge adoption and attitude of the banana growers about the banana cultivation technology. *Indian Res. J. Genet. Biotech.*, 6: 666-669.
- Hanson, J.C.A. and A. Shauer, 1995. Practices of sustainable farmers, with applications to designing a sustainable agriculture extension program. *J. Sustainable Agric.*, 6: 135-156.
- Jassogne, L., V.P.J. Asten, I. Wanyama and P.V. Baret, 2013. Perceptions and outlook on intercropping coffee with banana as an opportunity for smallholder coffee farmers in Uganda. *Int. J. Agric. Sustainability*, 11: 144-158.
- Krishnan, K.T., S. Othman and A.H.M. Shariff, 2013. A novel approach towards sustainable banana farming intercropped with rubber by a smallholder-a profitable source of income diversification. *Proceedings of the 1st International Conference on Sustainable Agriculture Food and Energy*, May 12-14, 2013, Andalas University, Padang, Indonesia, pp: 1-10.
- Molina, A.B., L.B. Xu, V.N. Roa, V.D.I. Bergh and K.H. Borromeo, 2004. *Advancing banana and plantain R&D in Asia and the Pacific-Vol. 13*. *Proceedings of the 3rd BAPNET Conference on Steering Committee Meeting Held in Guangzhou*, November 23-26, 2004, Inibap Publisher, Guangzhou, China, pp: 23-26.
- Patel, H.B., 2005. *Management efficiency and economic performance of banana growers in Anand District of Gujarat State*. MSc. Thesis, Anand Agricultural University, Anand, India.
- Rahman, M.Z., H. Mikuni and M.M. Rahman, 1999. Towards sustainable farming development: The attitude of farmers in a selected area of Shimane Prefecture, Japan. *J. Sustainable Agric.*, 14: 19-33.
- Shaffril, H.A.M., A.F.A. Nasir, K. Idris, J. Uli and J.L. D'Silva, 2010. Agriculture project as an economic development tool to boost socio-economic level of the poor community: The case of agropolitan project in Malaysia. *Afr. J. Bus. Manage.*, 4: 2354-2361.
- Srivastava, K.K., M.S. Trivedi and M.L. Lakhera, 2002. Knowledge and adoption behaviour of chilli growers. *Agric. Ext. Rev.*, 14: 22-25.
- Warren, D.M. and B. Rajasekaran, 1993. Putting local knowledge to good use. *Int. Agric. Dev.*, 13: 8-10.