INVESTMENT ANALYSIS OF TOBACCO FARMERS' INCOME TO ENSURE SUSTAINABILITY FOR THIS INDUSTRY: A CASE STUDY FOR KELANTAN AND TERENGGANU#

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ABSTRACT

The aim of this paper was to find out the investment analysis for tobacco farmers in Kelantan and Terengganu. This is to ensure that the sustainability of this industry is guaranteed. The level of income from this industry as compared with other crops will determine the continuity of the farming activities. The level of profitability will attract more farmers to venture in this industry. According to the Tobacco Statistics year 2000, Kelantan and Terengganu, the two major tobacco-producing states in the Peninsular Malaysia, have an estimated 14,615 ha or 92.7% of the total tobacco area in the peninsular. For this reason Kelantan and Terengganu have been chosen for data collection.

The study focused on the farm investment analysis of the tobacco farmers. There were three types of farmers, namely, the farmers who planted and cured tobacco, the farmers who planted tobacco only, and the farmers who only cured the tobacco leaves. It has been found that the net farm income for those farmers under the supervision of the Lembaga Tembakau Negara (LTN) were earning between RM2,059.39/month to RM2,604.20/month. These farmers not only produced green tobacco leaves but also processed the green (wet) into dried tobacco leaves. On the other hand, those farmers not under LTN supervision only sold their green tobacco leaves to the middleman at a lower price. Their average monthly net farm income was only between RM198.55 and RM446.39. The Kelantan tobacco curers had lost about RM7,692.77/month during the study period while the Terengganu tobacco curers gained about RM702.39/month. The study will look into the yield per plant, the cost incurred per plant, the cost per kilogram of green (wet) and brown (dry) leaves and average profit or loss for all types of tobacco farmers. Besides that, the study also looked at the breakeven analysis for the tobacco curing industries for both Kelantan and Terengganu.

INTRODUCTION

It has been proven that the tobacco industry continue to provide and generate an important source of income to growers, curers and suppliers as well as to other related industries. In the year 2000, the tobacco industry created direct employment for 130,063 jobs and 33,200 jobs for indirect employment related to this industry. Direct

participation of these groups in the tobacco industry obviously would improve the farmers' standard of living within a short period if they practice good agronomic practices in planting tobacco.

A great effort has been made to streamline the Malaysian tobacco industry development since the 6th Malaysian Plan so that the tobacco industry development will be always under control and applied systematic agronomic practices. This has improved the productivity, quality of products as well as their level of production efficiency (Abdullah *et al*, 2000). Malaysian Tobacco Company (MTC) has introduced the systematic agronomics practices in planting tobacco since 1959. MTC is one of the private companies planting this crop for local cigarette manufacturing companies. This effort has encouraged the establishment another 14 local tobacco curing stations in Kelantan. The rapid increased of the private tobacco curers at the end of 1960's and early 1970's had caused a negative effect on the supervision, quality control on tobacco production. In fact, MTC has withdrawn their tobacco curing activity in 1972. To overcome this problem, the government in 1973 has established Lembaga Tembakau Negara (LTN) with the main task of solving the existing problem and redeveloped the tobacco industry again (Alang Perang and Turiman, 1983).

Since then, the development of the tobacco industry has improved rapidly through LTN using systematic agronomic practices and providing other necessary infrastructure to support the industry. However, very few studies about tobacco industry have been carried out including the investment analysis. The findings from such studies can facilitate the farming activities of tobacco farmers in order to boost the tobacco industry development in a comfortable manner.

Rational of the study

Improving the tobacco farmers' income using limited available resources to the optimal level is one of the main missions of the Ministry of Primary Industries. LTN, which is one of the agencies directly involved under this ministry, was given the main task to reshape the tobacco industry in the good manner. All entrepreneurs should emphasize on efficient use of resources to increase their yield production so that it could minimize the cost of production (Ahmad Fauzi, 1989). This could achieved through optimal usage of the available resources.

Tobacco farms are mainly concentrated in the rural areas. These farming activities are expected to increase farmers income and help eradicate poverty. Projects such as reallocation of poor farmers and fisherman in Rhu Tapai in the Farmers Industrial Garden Project (TIT – Taman Industri Tani) under LTN supervision with funds from the Ministry of Rural Development has benefited the farmers significantly. Their estimated monthly income of RM300 before joining the project, has increased to RM2,600 after joining the project (Ahmad Fauzi *et al*, 2002).

Tobacco leaves are used to make cigarette, cigar and chewing tobacco. Tobacco produces nicotine, which gives out is aroma for essential smokers. For years nicotine has been associated with cancer and sometimes tobacco is even referred to as "the killer weed". However the tobacco plant is not an irredeemable plants. Since its genetic makeup is fairly straightforward and well understood, scientists believe tobacco could turn out to be the *perfect bio-technical factory for protein-based drugs*. By splicing human genes, a technique developed in the early 1990s, researchers have enabled tobacco plants to produce a number of drugs and vaccines and even human blood components. Within 10 years, researchers are hopeful that tobacco farmers might be raising millions of acres of biofactories (Catherine 2000). The latest breakthrough in tobacco "pharming" may bring such a vision one step closer to reality. Scientists at Monsanto Co. reported in the March 2000 issue of *Nature Biotechnology* that they were able to genetically engineer tobacco plants to produce human growth hormone, otherwise known as somatotropin, an extremely costly drug used to treat dwarfism.

An analysis for the farmers' investment as well as funds from the government is a good tool in ensuring the sustainability of the industry. Today the public image of tobacco is not very encouraging, especially with protest from NGOs against cigarettes. By a turn a fate, 'Tobacco Pharming' has given light to this industry. We know that tobacco has vast medical importance to mankind in the future.

The status of tobacco industry

Malaysian Tobacco Company (MTC) a public listed company, started planting tobacco since 1959 in an area of 8 ha plot in the state of Kelantan. Since then the hectarage has increased to 8,044 ha in 1972. MTC was concentrating in cigarette manufacturing and could not cope with the planting industry. Thus, LTN was incorporated in 1973, inheriting 8,341 ha of tobacco area. The area planted with tobacco increased from 9,870 ha in 1974 to 16,180 ha in 1985 but now it has dropped to 14,390 in 2002 due to massive flash floods.

The production of tobacco leaf reached a maximum of 13,376 metric tons in 1989. Since then, production has decreased slowly especially in 1999 and 2001 with only 7,172 to 8,299 metric tons yearly. However the production has increased again in 2002 to 11,304 metric tons. The decline in production was mainly due to flash floods, which had destroyed about 42 to 55% planting area year[1] during that period. This caused a decline in the number of tobacco producers, due to risk adverse effect, did contribute to the drop in production.

Production cost for the tobacco industry it has gradually increased from RM6.59 in 1974 to RM7.89 in 1978, RM10.03 in 1980, RM11.42 in 1985 to RM12.63 in 2002. This increase caused a hike in the selling price of tobacco from RM7.50/kg in 1974 to RM13.00/kg in 1985. However since then the price increase was frozen in preparation

for AFTA. This is government strategy to compete with other ASEAN countries, which produce cheaper tobacco for the same quality.

The objective of the study

Generally, the main objective of this study was to find out the return of investment for the tobacco industry according to the types of tobacco farmers. The specific objectives of this study were as follows:

a) to analyse the return of investment for the tobacco industry
b) to compute the breakeven analysis for the tobacco farmers

It is our aim that results of this study will help interested parties to decide whether it is worth investing in tobacco industry or otherwise. The information provided from this study can be used as a guide in establishing new tobacco farm.

METHODOLOGY

Data were obtained through questionnaires given by tobacco farmers from the study areas, Air Tawar, Kelantan and Rhu Tapai, Terengganu. A total of 237 tobacco farmers was interviewed, 146 farmers from Air Tawar and 91 farmers from Rhu Tapai. There were four enumerators involved under this study, all of them graduate students from local universities undergoing practical training with LTN. In addition two LTN officers from Kelantan were also involved directly in this study.

Normal accounting techniques were adopted to analyze the return of investment. The questions were focused on a few important variables, namely, average yield per plant (kg/plant), cost per plant (RM/plant), cost per kilogram (RM/plant), selling price of wet leaves (RM/kg), cost per kilogram dry leaves (RM/kg), selling price of dry leaves (RM/kg) and profit or loss of the tobacco industry (RM/kg).

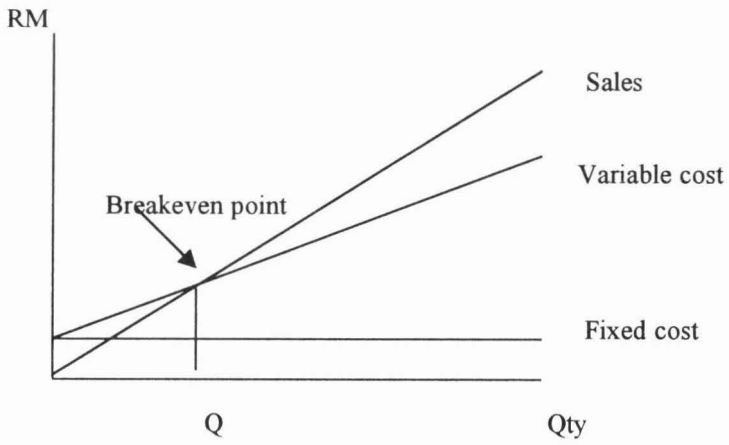
For the second objective, breakeven analysis was adopted as described by Horngren, Foster and Datar (1997). The formula used for the analysis is as follows:

$$BEP = FC/CM$$

Where:
BEP = Breakeven point
FC = Fixed costs
CM = Contribution margin

Figure 1 shows the theoretical breakeven point where all the revenues are equal to the total cost (fixed and variable cost).

Figure 1: Theoretical breakeven point



Where;
Qty = quantity
RM = Values
Q = quantity at the breakeven point

RESULTS OF INVESTMENT ANALYSIS

a) Tobacco production and price

The dry leaves yield for the first session produced by PPI[1] under LTN supervision for Kelantan and Terengganu were 856.76 kg and 933.61 kg respectively compared with 832.68 kg and 945.44 kg respectively for the second session. The prices fetched by Terengganu PPI farmers were higher i.e. RM15.11/kg for the first session and RM15.12/kg for the second session compared with Kelantan PPI who obtained RM14.48/kg for the first session and RM14.46/kg for the second session. Based on this information and using indicators of high yield and price, we predicted that the Terengganu PPI tobacco farmers with earn higher income. PPI not supervised by LTN had planted more then the recommended hectarage. Thus, this is reason why the yield of their dry leaves was low. The yield of dry leaves yield for Terengganu was higher compared with Kelantan.

The wet yields for the first session outside LTN supervision for Kelantan and Terengganu were 5,221.83 kg and 3,449.87 kg respectively. Similarly, the wet yields for the second session for the two states were 5,728.59 kg and 2,881.96 kg respectively. It has been shown that the individual growers in Kelantan produced higher yield compared with individual growers in Terengganu. There was marginal difference in price of wet leaves in Kelantan and Terengganu for both sessions with price ranging from RM0.79/kg to RM0.80/kg.

The production of dry leaves by curers in Kelantan was higher than in Terengganu. The average production of dry leaves for the first session in Kelantan was 10.8 ton compared with only 8.0 ton in Terengganu. Second session production of dry leaves for Kelantan farmers was 23.2 ton compared with 7.8 ton for Terengganu farmers. Prices of dry leaves were almost the same for both states.

b) Cost of production

The analysis of the study showed that the cost of production for the PPI tobacco farmers in Kelantan was a bit higher as compared with Terengganu (Table 1). The average costs of production for Kelantan and Terengganu were RM5,143.95/ha and RM4,867.33/ha respectively. The average costs of production under LTN supervision for Kelantan and Terengganu were RM5,010.94/ha and RM6,142.80/ha respectively. On the other hand, the corresponding value for PPI outside LTN supervision were RM5,212.38/ha and RM3,604.64/ha.

Table 1: Cost of Production of PPI RM/ha

Items	Under project	Outside project	Overall
Kelantan	5,010.94	5,212.38	5,143.95
Terengganu	6,142.80	3,604.64	4,867.33

It was also shown that the production cost incurred by curer for Kelantan and Terengganu were RM15.34/kg and RM13.14/kg respectively.

c) Tobacco farm income

With RM 18,229.42/year Terengganu PPI, under the supervision of LTN, earned the highest annual net farm income compared with the rest of the farmer groups. The second highest earner was Kelantan PPI RM 15,936.13/year, also under LTN supervision. They have earned RM15,936.13/year from the tobacco farming activities. Kelantan and Terengganu individual growers not involved in the LTN project only managed to earn a mere RM1,786.35/year and RM794.21/year (Table 2) respectively.

Table 2: Average Annual Tobacco Farm Income (RM)

Income	Kelantan			Terengganu		
	Under project LTN	Outside project LTN		Under project LTN	Outside project LTN	
	PPI	Grower	PPI	PPI	Grower	PPI
Annual income						
Session 1	17,763.20	3,899.13	16,767.3	14,106.85	2,584.30	12,559.13
Session 2	9,160.41	3,054.90	10,770.0	14,295.05	2,051.43	10,012.91
Sub-total	26,923.61	6,954.03	27,537.3	28,401.90	4,635.74	22,572.04
Production cost	10,987.48	5,167.68	13,124.4	10,172.48	3,841.53	7,606.51
Net tobacco farm income	15,936.13	1,786.35	14,413.9	18,229.42	794.21	14,965.53
Cropping period (month)	7	4	7	7	4	7
Monthly net farm income	2,276.59	446.59	2,059.07	2,604.20	198.55	2,137.93

It is clear that monthly income for tobacco farmers who planted and cured tobacco were higher than those farmers who did not carry out curing activities.

d) Investment analysis for the tobacco farming

i) Yield per plant

The average yields per plant for Kelantan and Terengganu tobacco farmers under the LTN project were 0.30 and 0.33 kg per plant respectively (Table 3). On the other hand, farmers in the same category but not under the LTN supervision was getting less yield with only 0.20 and 0.16 kg per plant for Kelantan and Terengganu respectively. Based from this analysis, it is clear that opportunities are still opened for the farmers to improve the yield of tobacco by improving their agronomic practices (see Table 3).

Table 3: Investment Analysis for Tobacco Farmers

Items	Kelantan				Terengganu			
	Under LTN	Not under LTN			Under LTN	Not under LTN		
	Panting & curing	Planting	Curing#	Panting & curing	Panting & curing	Planting	Curing#	Panting & curing
Wet yield per plant (kg/plant)		0.31				0.18		
Session 1		0.30				0.20		
Session 2		0.33				0.16		
Cost per plant RM/plant	0.29	0.18		0.30	0.35	0.12		0.21
Cost per kilogram(wet) RM/kg		0.59				0.66		
Average selling price (wet) RM/kg		0.80				0.80		
Cost per kilogram (dry) RM/kg#	5.91		15.34	6.87	5.41		13.14	4.90
Average selling price (dry) RM/kg	14.47		13.77	14.40	15.12		13.45	14.54
Estimated profit (loss) RM/kg	**8.56**	**0.20**	**(1.57)**	**7.53**	**9.70**	**0.14**	**0.31**	**9.64**

Included buying price for wet leaves (Kelantan RM8.06/kg and Terengganu RM7.54/kg)

ii) Cost per plant

Cost per plant was lowest for farmers planting tobacco only in Terengganu not under supervision of LTN, with only RM0.12 (Table 3). On the other hand the production cost per plant for farmers under supervision of LTN in Terengganu was the highest, RM0.35. The cost of production plant for PPI in Terengganu not under supervision of LTN was estimated RM0.21.

In Kelantan, the cost of production per plant for PPI under LTN supervision was RM0.29 and for those farmers not under LTN supervision the cost was RM0.30. Cost of production for PPI not under supervision of LTN was only RM0.18 per plant (see Table 3).

iii) Cost of production of green leaves per kilogram

Cost of production of green leaves is refers to selling wet leaves only. The costs of production for one kilogram green leaves for Kelantan and Terengganu were estimated RM0.66/kg and RM0.59/kg respectively (see Table 3).

iv) Cost of curing dry leave per kilogram

There are two types of curers under the study; those PPI who planted and cured tobacco leaves, and the other one, farmers who did not do any planting but instead bought wet tobacco leaves from other growers and carried out the drying process. Obviously the former has more advantage then the latter because the former got their wet leaves from their own farm while the latter had to buy from other growers, which involved higher cost.

The cost of curing of tobacco leaves for PPI under LTN supervision was estimated about RM5.91/kg for Kelantan and RM5.41/kg for Terengganu, while costs incurred for PPI not under LTN supervision RM6.87/kg for Kelantan and RM 4.90/kg for Terengganu (Table 3). PPI not under LTN supervision spent less for curing because they used very simple and cheap conventional technology. However, the quality of tobacco produced by these farmers were not of high standard thus, had adverse effects on the selling price.

v) Estimated net profit and loss

Farmers planting and curing tobacco not under the supervision of LTN in Terengganu had the highest profit margin compared with the rest of the farmers. They earned about RM9.64 from under LTN Terengganu for every kg cured tobacco leaves produced (Table 3). On the other hand, farmers doing only curing of tobacco in Kelantan had a negative profit margin (RM1.57/kg).

e) Breakeven analysis

Table 4, tabulates the required variables which are involved in the breakeven analysis according to types of tobacco farmers. The variables were fixed cost, unit variable cost and the selling price.

In the planting and curing categories, farmers not under the LTN supervision in Terengganu had the lowest breakeven volume, which was only 91.3 kg dry tobacco leaves per year (Table 4). On the other hand, farmers not under LTN supervision in Kelantan have required the highest breakeven volume in order to sustain their tobacco farming activities (487.69 kg dry tobacco leaves per year).

In the case of farmers planting tobacco only, the breakeven volumes for farmers in Kelantan and Terengganu were 1,574.87 and 946.43 kg wet leaves per year respectively. The lower volume for Kelantan was because the state experienced flash floods for that particular season and the farmers had planted more in order to maintain their quota of production assigned to them.

The production of curers depended mainly on the availability of wet leaves to be processed. We found that Kelantan tobacco curers had to produce about 60.8 metric ton dry leaves in order to sustain the curing process business, while the Terengganu tobacco curer required only a third of that, i.e. 14.6 metric ton dry leaves.

Our analysis also showed that PPI under LTN supervision in Terengganu had experienced the highest excess of dry leaves after deducting the breakeven. These PPI had an excess of 1,697.23 kg dry leaves per year, while the Kelantan tobacco PPI had the lowest excess with 1,036.81 kg dry leaves per year.

In the case of farmers who only planted tobacco and sold the wet leaves, Kelantan farmers not under LTN supervision experienced higher surplus of production of wet leaves per year 9,375.55 kg compared Terengganu farmers for about 5,385.4 kg .

Curers in Terengganu had an excess of cured tobacco production after deduction of the breakeven volume while the Kelantan curers had a shortage. The amounts of surplus for Terengganu and Kelantan were 1,154.75 and –26,799.75 kg dry leaves respectively. Kelantan tobacco curers suffered loss for the period of the study due to floods inundating the tobacco area.

CONCLUSION

The analytical method which were used for this study took the accounting approach in analyzing the tobacco farming industry according to types of farmers. The results from this study will be very useful for new comers to the tobacco industry as well as to the existing tobacco farmers. The analysis had showed that the tobacco industry is very profitable. This study also showed that the cost per plant, the cost of wet and dry leaves per kilogram and the curing cost per kilogram were considerably low. All the tobacco farmers with the exception of Kelantan tobacco curers had exceeded the breakeven volumes required. It implies that the tobacco farmers operating at profitable levels. Most of the tobacco growers were keen to carry out the curing process because they could fetch a better price with only a little extra work. This is one of the LTN's continuous campaigns. What is more important, this direction is in line with the country's preparation to implementation of WTO.

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REFERENCES

Abdullah, A et al. (2000). Perniagaan Pengawet Berlesen, Panduan Untuk Kejayaan LembagaTembakau Negara, Kota Bahru, Kelantan.

Ahmad Fauzi, P. (1989). Small Scale Farming Technique in Malaysia. University of New England, Australia (Unpublished Thesis).

Ahmad Fauzi P. and Mohd Noor M (2002). Financial Analysis edited in Krishnapilly, B. A Manual for Forest Plantation Establishment in Malaysia. Malayan Forest Record No.45, Forest Research Institute Malaysia.

Ahmad Fauzi P. et al. (2002). Socio-Economics Study for Peninsular Malaysia Tobacco Farmers': A Case Study for Kelantan and Terengganu. Paper presented at the Malaysian and Technology Congress 2002 organized by COSTAM and MOSTE, 12-14 December 2002 at Hilton Kuching, Sarawak.

Alang Perang, Z. Abd Turiman, S (1983). Status Pembangunan Sosio-Ekonomi Projek Penanam-penanam Tembakau Alor Ketitir 1983. Pusat Pengembangan dan Penyelidikan Lanjutan, Universiti Pertanian Malaysia, Serdang, Selangor.

Catherine E. (2000). Tobacco Turns A New Life. Businessweek, April 10, 2000 issue.

Horngre C.T., Foster G. and Datar S.M. (1997). Cost Accounting – A Managerial Emphasis, Prentice Hall Inc. 9th ed. USA. pp 306