

THE ROLE OF AGRICULTURAL EXTENSION AGENT AND ANALYSIS OF BUSINESS MODEL CANVAS IN IMPROVING SMALLHOLDER TEA INDUSTRY OF FARMERS GROUP IN MARGAMULYA VILLAGE AND CISONDARI VILLAGE, PASIR JAMBU SUB-DISTRICT, BANDUNG REGENCY

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Abstract: This research is located in the community plantation of Margamulya village and Cisondari Village, Pasirjambu District Bandung Regency is one of export quality tea producer. The purpose of this research is to analyze the role of extension worker and knowledge of canvas business model analysis (MBC) in an effort to increase the business of Tani Teh Rakyat group by using descriptive and verification research method. The result of the research shows that t-test of agricultural extension performance (X1) $t_{count}(6,234) > t_{table}(1,675)$, while MBC (X2) $t_{count}(1,777) > t_{table}(1,675)$, X1 and X2 have significant effect to business group peasant tea (Y). Ftest results obtained $F_{count} > F_{tabel}$ is $19.542 > 3.18$. With the limitations of this study, further research is needed to assess the development of competence of agriculture extension agents and farmers improvement strategies, especially for areas that are still weak in assistance.

Keywords: The role of extension worker, canvas model business, tea farmer group business.



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In Indonesia, agricultural sector is one of sectors supporting national economy. The provinces that produce the most tea in Indonesia are West Java (accounting for around 70% of national tea production), Central Java, and North Sumatra. The ownership of tea plantations in Indonesia is divided into three groups: smallholder plantation, State-Owned Enterprise (BUMN) plantation, and Private Plantation. The research question in this

study concerns on how the role of agricultural extension agent and analysis of current business model canvas in improving smallholder tea industry of farmer group in Bandung Regency, with the purpose of analyzing the role of extension agent performance and analysis of current business model canvas in improving smallholder tea industry of farmer group in Bandung Regency.

LIMITATION OF THE PROBLEM

One of the existing plantations in West Java is located in Margamulya Village and Cisondari Village, Pasirjambu Sub-district, Bandung Regency. This research was conducted in Margamulya Village and Cisondari Village, Pasirjambu Sub-district, Bandung Regency.

Table 1 Mature Area and Tea Production by Province and Farming Category

No.	Provinsi/Province	Tahun 2013			Tahun 2014			Tahun 2015		
		Smallholder			Smallholder			Smallholder		
		Luas/ Area (Ha)	Luas TM/ Mature (Ha)	Produksi Production (Ton)	Luas/ Area (Ha)	Luas TM/ Mature (Ha)	Produksi Production (Ton)	Luas/ Area (Ha)	Luas TM/ Mature (Ha)	Produksi Production (Ton)
1	DIYogyakarta	-	-	-	-	-	-	-	-	-
2	JAWA BARAT	48.455	32.424	42.453	47.92	31.905	41.717	47.559	31.665	41.345
3	KARTENI	-	-	-	-	-	-	-	-	-
4	JAWA TENGAH	5.136	4.282	6.233	5.13	4.27	6.165	5.115	4.34	6.156
5	DIYogyakarta	136	87	66	138	82	63	122	76	64
6	JAWA TIMUR	57	31	48	57	33	51	57	36	60
WILAYAH JAWA		53.787	36.824	48.8	53.237	36.29	47.996	52.853	36.117	47.625
INDONESIA		56.092	39.078	51.737	55.577	38.521	50.897	55.176	38.384	50.594
Sumber Data:		Direktorat Jenderal of Estate Crops								
		Statistik Perkebunan Indonesia Komoditas Teh 2013 - 2015								

The table above shows that tea plantation area is decreasing every year because of the transfer of function to other plantations. The survey which was conducted by researchers at 2 (two) Gapoktan Tani Mulya with 25 farmers and Cisondari with 26 farmers found that the price of wet tea leaves per kilogram is very low, and minimal knowledge in analyzing the existing business currently is because the price is monopolized by the factory around the plantation, which collecting the results of farmer's tea plantation.

Table 2 Comparison between the sale price of wet tea leave and coffee bean

Results of Production	Price Per Kilogram
Wet Tea Leave	2,300 rupiahs
Coffee Bean	5.000 rupiahs

Source: results of survey

The background that is very important above encourages researchers to evaluate the role of agricultural extension agent in accordance with the Law of the Republic of Indonesia No. 16 of 2006. In this study, the researchers took 4 (four) roles of extension agent in accordance with Law Republic

of Indonesia No. 16 of 2006 which is directly related to the efforts in improving smallholder tea industry of farmer group in Margamulya Village and Cisondari Village, Pasirjambu Sub-district, Bandung Regency, namely the role of extension agent in facilitating the learning process, the role of extension agent in providing ease of access to business development, the role of extension agent to grow business organization, the role of extension worker in analyzing problems, solving problems, and responding to opportunities and challenges in managing the business. The integrity of an overall business can be assessed easily and effectively by combining classical analysis (SWOT) through business model canvas. Some indicators in determining the success of business according to Henry Faizal noor (2007: 397) are profitability, productivity and efficiency, competitiveness, competence and business ethics, and a good image.

Alexander Osterwalder & Yves Pigneur (2014,13) state that business model canvas consists of 9 (nine) building blocks: Customers Segments, Value Propositions, Channels, Customer Relationships, Revenue Streams, Key Resources, Key Activities, Key Partnerships, Cost Structure. The results of the survey and initial interviews done by the researchers to the Chairman of the Cooperative (Mr.

Asek Bardja), Chairman of smallholder tea industry farmer group (Mrs. Tien Supartika and Mr. Bariyanto) in order to get the condition of small-

holder tea industry farmer group in Margamulya Village and Cisondari Village, Pasirjambu Sub-district, Bandung Regency. It can be seen in picture1 below:

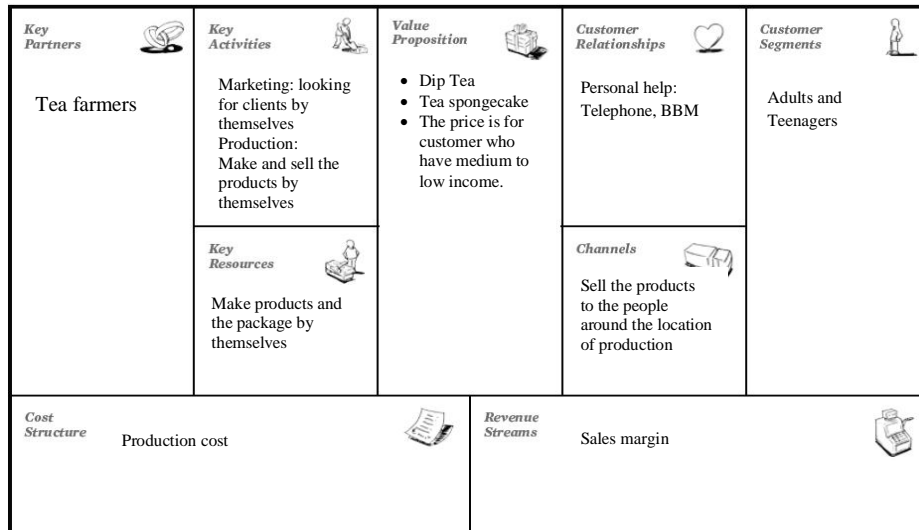


Figure 1 Analysis of business model canvas in tea plantation in Margamulya Village and Cisondari Village, Pasir Jambu Sub-district, Bandung Regency

METHOD

The role of agricultural extension agent (X_1)

Law of the Republic of Indonesia Number 16 of 2006
 Function of extension system

- Facilitate learning process
- Seek the ease of access to business development
- Grow and develop the organization
- Analyze and solve problems and respond to opportunities and challenges in business management

Analysis of Business Model Canvas (X_2)

Alexander Osterwalder & Yves Pigneur (2014 : 13), Business Model Canvas is a common language to describe, visualize, rate, and change business model. Business model is describing the rationale of how an organization creates, delivers, and captures value. Business model canvas consists of the 9 (Nine) building blocks, showing how the company makes money.

Improvement of smallholder tea industry of farmer group (Y)

Henry Faizal Noor (2007:397)

- Profitability
- Productivity and Efficiency
- Competitiveness
- Competence and Business Ethics
- Good image

Figure 2 Conceptual Framework

Type of Research Method

This research was conducted by using descriptive and verificative method.

Type and Source of Data

This research used quantitative and qualitative data. The data above was collected through two

sources, namely primary data, collected in this study through observation, interview and questionnaire, and secondary data, obtained from internal sources, various internet websites, public libraries, and educational institutions and others.

Table 3 Variable Operation

Variable	Variable Concept	Sub-Variable	Indicator	Scale
Performance of Agricultural Extension Agents (X_1)	Agricultural, fisheries, and forestry extension referred to counseling is a learning process for the main actors as well as business actors, so that they are willing, able to help, and organize themselves in accessing market information, technology, capital, and other resources in order to improve productivity, business efficiency, revenue, and welfare, and in order to raise awareness in the preservation of the functions of environment.	Facilitate learning process	<ul style="list-style-type: none"> - Increase in the sale results of tea farming business. - Knowledge of seeds and how to harvest. - Maintenance and fertilization - Process of tea harvest - Increase in the harvest results and the efficiency of tea business 	Ordinal
		Seek the ease of access to business development	<ul style="list-style-type: none"> - adding venture capital - build partnership with consumers - the types of products produced from tea leaves - promotion of tea crops - improving agricultural industry 	Ordinal
		Grow business organization	<ul style="list-style-type: none"> - empowerment and independence of farmers - aligning work plans with farmers' needs - information technology and production facilities - facilities/equipment and infrastructure - business strategy in the development of other products of tea leaves 	Ordinal
		Analyze and solve problems, respond to opportunities and challenges in business management	<ul style="list-style-type: none"> - business partnership between farmers and businessmen - business partnership with businessmen or certain institutions - ease in farming business - solution to problem - deliberation with extension agents to discuss problems faced in smallholder tea business 	Ordinal

Variable	Variable Concept	Sub-Variable	Indicator	Scale
Business Model Canvas (X ₂)	Business Model Canvas is a common language to describe, visualize, rate, and change business model. Business model is describing the rationale of how an organization creates, delivers, and captures value. Business model canvas consists of the 9 (Nine) building blocks, showing how the company makes money. Alexander Osterwalder & Yves Pigneur (2014: 13)	Value Propositions – VP	- customer's needs - strong network - strong strategy - customer satisfaction	Ordinal
		Customers Segments – CS	- customer transfer - customer segmentation - get new customers	Ordinal
		Channels – CH	- distribution channel - channel with economic scope	Ordinal
		Customer Relationships	- Customer relationship - Communication channel	Ordinal
		Revenue Streams	- Profit - Income can be predicted - Repeat purchase - Sustainable income - Paying production cost - Pricing	Ordinal
		Key Resources	- The use of resources - Production activities	Ordinal
		Key Activities	- Key activities - Quality of the implementation - Survey of taste	Ordinal
		Key Partnerships	- Work partners - Work relationship	Ordinal
Improvement of Small-holder Tea Industry of Farmer Group (Y)	Basically, in business, success is achieving the goals set. Hendry Faizal Noor (2007: 397)	Cost Structure	- Predicted cost - Cost structure - Efficient in cost - Profit from economic scale	Ordinal
		Profitability	Production	Ordinal
		Productivity and Efficiency	Cost efficiency	Ordinal
		Competitiveness	Added value of the product	Ordinal
		Competence and Business Ethics	Business Permission	Ordinal
		Good image	Consumers	Ordinal

Population and Sample

Population is the same as sample, thus this study used saturated samples. There were 53 respondents in this research, consisting of the chairman and members of the group of smallholder tea farmers in Margamulya villages and Cisondari Village in Pasir Jambu Sub-district, Bandung Regency; the graduate of junior high school are 31 people, 12 graduate of senior high school, graduate of D3 are 2 people, and bachelor's degree are 8 people.

Measurement Scale

Score is measured by using *Likert scale*

RESULTS AND DISCUSSIONS

The interval of average criteria for measurement is as follows:

Table 4 Score Interpretation

Average Score	Interpretation
1.00 – 1,79	Very bad
1.80 – 2,59	Bad
2.60 – 3,39	Moderate
3.40 – 4,19	Good
4.20 – 5,00	Excellent

Performance of Agricultural Extension Agent

Overall, it is in a bad condition with score of 2.43; this is because agricultural extension agents lack knowledge about the development of business, which can be seen in seeking easy access to business development, grow business organizations, analyze and solve problems, and respond to opportunities and challenges in managing the business who has a low score.

Business Model Canvas

Overall, it in bad condition with a score of 1.81; it is due to the lack of understanding of the farmers in analyzing the business they run. The researchers interviewed the respondents by making a series of simple questions in accordance with nine basic building blocks in business model canvas, to enable researchers to analyze the strengths, weaknesses, opportunities and threats, and then analyzed by using SWOT analysis before it is put into business model canvas to create new strategy.

Internal		Strength (S)	Weakness (W)
<div>Business Management</div>	Strength (S)	<ul style="list-style-type: none"> Raw material is derived from tea canvas Activities are conducted individually Partnership with farmer group 	<p>Weakness (W)</p> <ul style="list-style-type: none"> There is no good strategy in product and services Depending on one-way income Failed to get new customers Channel only focuses on one place Production place and marketing is far from the main roads
	External	<p>STRATEGY OF PROBLEM SOLVING, IMPROVEMENT, AND DEVELOPMENT</p> <ol style="list-style-type: none"> The use of online technology information online etc. Expand partnership in market the products Conduct survey of products in accordance with the desire of customers 	
Opportunity (O)		Strength/ Opportunity	Weakness/ Opportunity
<ul style="list-style-type: none"> Designing products and packaging in accordance with consumer's desire The location is close to recreation place of strawberry garden and white crater. 		<ul style="list-style-type: none"> Expand the marketing area, both around the location and using information technology 	<ul style="list-style-type: none"> Keep and always upgrade design and value as customers want
Threat (T)		Strength/ Threat	Weakness/ Threat
<ul style="list-style-type: none"> Tight competition of design and price offered Competitor has a number of income flow Competitor has marketing personnel 		<ul style="list-style-type: none"> Establish external business partnership Improve the partnership 	<ul style="list-style-type: none"> Maintain the quality of product

Figure 3 SWOT Analysis of Smallholder Tea Industry of Farmer Group in Margamulya Village and Cisondari Village

The Role of Agricultural Extension Agent and Analysis of Business Model Canvas

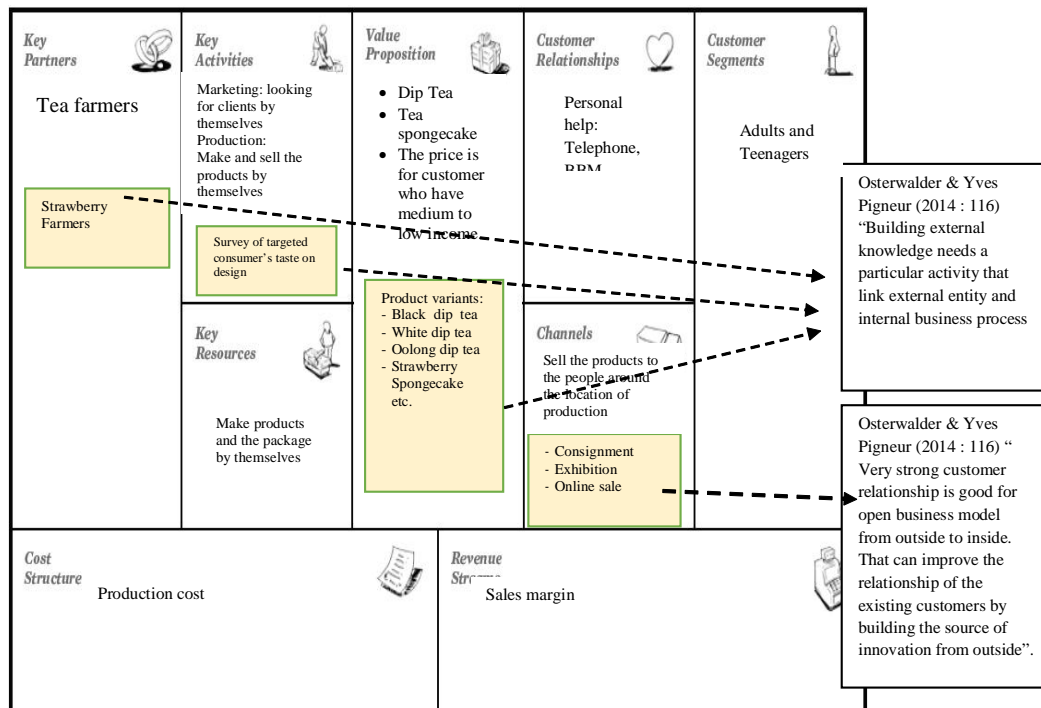


Figure 4 New Business Model Canvas of Smallholder Tea Industry of Farmer Group in Margamulya Village and Cisondari Village

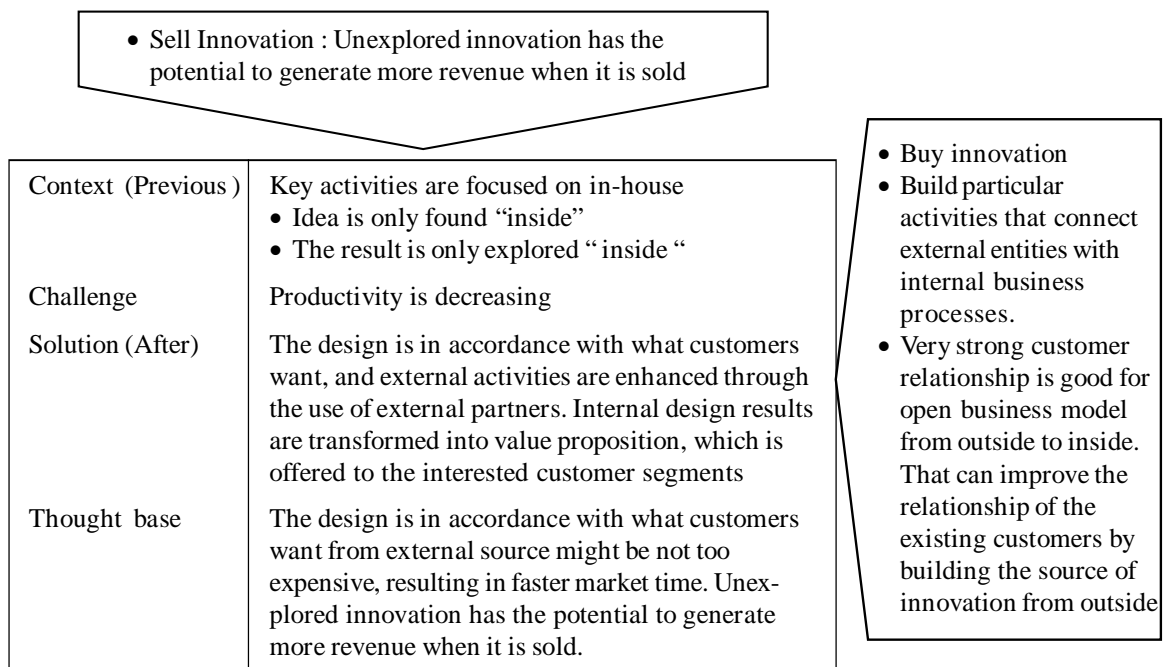


Figure 5 Summary of Open Business Model Pattern of Smallholder Tea Industry of Farmer Group in Margamulya Village and Cisondari Village, Pasir Jambu Sub-district, Bandung Regency

Improvement of Smallholder Tea Industry of Farmer Group

Overall, this is very bad, with a score of 1.40. This means that the existing farmer group business has not been managed properly; therefore, it has not been able to help meet the economic needs of families currently.

Validity Test

Overall, with level of significance of 5% (0.05), value of r_{table} obtained is 0.2706. Variable X_1 , X_2 and Y are valid because $r_{count} > r_{table}$

Reliability Test

Overall, X_1 (extension performance) is reliable; $r_{count} 0.757 > 0.60$. Variable X_2 (business model canvas) $r_{count} 0.718 > 0.60$. Variable Y (improvement of farming business) $r_{count} 0.765 > 0.60$.

Normality Test

Table 6 Results of Data Normality Test

One-Sample Kolmogorov-Smirnov Test			
	Performance of Agriculture Extension Agent	Business Model Canvas	Improvement of Farming Business
N	53	53	53
Normal Parameters ^{a,b}			
Mean	61.4340	56.0755	26.6981
Std. Deviation	6.38360	5.47670	2.94556
Most Extreme Differences			
Absolute	.148	.082	.227
Positive	.142	.082	.133
Negative	-.148	-.070	-.227
Test Statistic	.148	.082	.227
Asymp. Sig. (2-tailed)	.005 ^c	.200 ^{c,d}	.000 ^c

Source: Data processed by SPSS 23.0

Multiple Correlation Test

Table 7 Results of Multiple Correlation Test

Model	Coefficients ^a					Correlations			Collinearity Statistics	
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
	B	Std. Error	Beta							
1 (Constant)	1.740	4.944		.352	.726					
The role of agricultural extension agent	.312	.050	.676	6.234	.000	.635	.661	.660	.956	1.046
Business Model Canvas	.104	.058	.193	1.777	.082	.050	.244	.188	.956	1.046

a. Dependent Variable: Improvement of Farming Business

Source: Data processed by SPSS 23.0

Analysis of Determinant Coefficient

Table 8 Results of Determinant Coefficient

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Model Summary ^b				
					Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.662 ^a	.439	.416	2.25045	.439	19.542	2	50	.000

a. Predictors: (Constant), Business Model Canvas, performance of agricultural extension agent

b. Dependent Variable: Improvement of Farming Business

Source: Data processed by SPSS 23.0

Regression Analysis

It can be formulated a regression equation as follows:

$$Y = 1,740 + 0,312X_1 + 0,104X_2$$

Partial Hypothesis Test (t-test)**Table 9 Results of t-test**

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.740	4.944		.352	.726
Performance of agricultural extension agent	.312	.050	.676	6.234	.000
Business Model Canvas	.104	.058	.193	1.777	.082

a. Dependent Variable: Improvement of Farming Business

Source: Data processed by SPSS 23.0

Simultaneous Hypothesis Test (F-test)**Table 10 Results of F-test**

Model	ANOVA ^a				
	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	197.943	2	98.971	19.542	.000 ^b
Residual	253.227	50	5.065		
Total	451.170	52			

Source: Data processed by SPSS 23.0

CONCLUSIONS

The role of agricultural extension agent is in bad category, with a score of 2.43. The low score is broadly due to the role of agricultural extension agent in facilitating farmers and business people and developing their business.

Analysis of business model canvas is in bad category, with score of 1.81. The low score is due to the lack of knowledge about analyzing the business run by the farmer group.

The increase in smallholder tea business of farmer group is very bad, with score of 1.40. The low score is because the farmer groups sells and develops the crops of tea plantation.

The role of agricultural extension agent (X1), t value (6,234) > t table (1,675), is significant on improvement of smallholder tea business of farmer

group (Y). Business model canvas (X2), t value count (1.777) > t table (1.675), is significant on the improvement of smallholder tea business of farmer group (Y). Based on the results of F-test (simultaneous), it can be seen that F arithmetic > F table is 19.542 > 3.18.

Suggestions

Based on the analysis results of the performance of extension agents currently, supervision and monitor from related institutions is necessary in order to improve the performance of extension agents, thus they can be facilitators in developing smallholder tea business of farmer group in Margamulya Village and Cisondari Village, Pasir Jambu Sub-district, Bandung Regency; therefore, the economy of farmers in the research site can be improved, and

the farmers do not transfer the existing tea land into coffee field.

Knowledge of analysis of smallholder tea business of farmer group in Margamulya Village and Cisondari Village, Pasir Jambu Sub-district, Bandung Regency, needs to be improved by giving knowledge of business analysis that is easy to understand with business model canvas to farmer group by buying innovation. Buying innovation is building a particular activity connecting external entities with internal business process. Strong customer relationship is perfect for business which is open from outside to inside. That can improve existing customer relationship by building sources of innovation from outside.

In supporting the efforts above, the assistance of agricultural extension agents is necessary, in accordance with the Law of the Republic of Indonesia Number 16 of 2006 in order to further improve knowledge in viewing the strength, weakness, opportunities and threats to the business they run. It aims to make the products they produce competitive in such a tight competition so as to improve the farmers' standard of living nowadays.

Given this research is just the initial stage, further research is required to obtain more comprehensive information, including:

- (1) Examine the development of the competence of agricultural extension agents; and
- (2) Examine the strategy to improve farming business, especially for areas that are still weak in assistance.

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