

CATTLE FARMERS' PERCEPTIONS ABOUT LIVESTOCK INSURANCE PROGRAM IN LAWANG, EAST JAVA, INDONESIA

Yudi Rustandi and Ismulhadi

Politeknik Pembangunan Pertanian Malang (Malang Agricultural Development Polytechnic)
Jl. Raya Randuagung, Krajan, Bedali, Lawang, Malang, Jawa Timur 65153, Indonesia

ABSTRACT

Livestock insurance began to be encouraged as an effort to overcome losses due to the frequent occurrence of death of beef cattle. The study was aimed to analyze descriptively the perceptions of farmers regarding the beef cattle insurance program and analyze the factors influencing farmers' perceptions about the beef cattle insurance program. The study was conducted in Lawang, East Java, Indonesia from March to May 2018. This study was a quantitative study with a survey approach. The research population was farmers from group members of the superior commodity of beef cattle in Lawang who have not participated in the beef cattle insurance program. Samples were taken by saturated sampling technique and it was obtained 60 respondents. Data were taken using a questionnaire with a rating scale. The research variable consisted of farmers' perceptions of insurance program for beef cattle as the dependent variable, while age, educational level, number of livestock, price premium, insurance costs and premium payment term were independent variables. Data analysis used descriptive analysis and multiple linear regression analysis. According to the results of the study, it can be concluded that the majority of farmers are willing to receive insurance for cattle farming. Farmers' perceptions about the cattle insurance program are influenced by the insurance cost and payment term with the equation of $Y = 28.529 + 1.642X_5 + 1,205X_6$.

Keywords: livestock insurance, beef cattle, insurance cost, payment term

1. INTRODUCTION

The economy in Indonesia is influenced by several business sectors wherein each factor contributes to the formation of Gross Domestic Product (GDP). Agriculture is one of the business sectors that has a strategic role as seen from the large contribution of agricultural GDP to national GDP with an average contribution in 2008-2012 of 14%. According to the Ministry of Agriculture, the agricultural sector is divided into five sub-sectors, namely food crops, plantation crops, livestock and the products, forestry and fisheries. The livestock sub-sector in the

formation of agricultural GDP contributed 12% (Ministry of Agriculture, 2013). Furthermore, the livestock sub-sector contributed to economic development including employment creation, reducing poverty and increasing income for rural community (Daryanto, 2007).

Beef cattle as the largest meat contributor from the ruminants group has the potential to be developed as a profitable business towards national meat production (Achmad, 2013). Based on the development policy on food security in the National Medium-Term Development Plan (RPJMN) of 2010-2014, one of the five commodities that are made into strategic commodities derived from the livestock sub-sector, particularly beef cattle. The government launched a beef cattle self-sufficiency program targeted to be achieved in 2014. However, this self-sufficiency program seems to be far from expectations because the amount of beef production cannot meet the needs of the community. Beef cattle death is one of the problems that is a concern because it is closely related to the productivity of beef cattle.

In addition to the problem of productivity, in the implementation of beef cattle farming is faced with a variety of risks. According to Wahyuni (2007), there are several risks faced by beef cattle farmers, namely 1) price, 2) disease, 3) feed, 4) marketing, 5) theft, and 6) relationships with traders, with different main risks depending on the production center. Given the risks faced by farmers in their agricultural management, the government issued Law Number 19 of 2013 concerning the Protection and Empowerment of Farmers. Broadly speaking, the law aims to realize the sovereignty and independence of farmers in order to improve the level of life welfare and quality. In addition, Law number 19 of 2013 also includes one of the efforts that can be made in providing protection to farmers such as agricultural insurance. What is questioned by agricultural insurance in this law is an agreement between the farmer and the insurance company to commit themselves to farming risk insurance.

Beef cattle insurance program is an important program to support the agricultural sector particularly livestock, given the important role of beef cattle insurance program as a driver of livestock governance that protects against risk of loss and increases farmers' access to financial institutions. Beef cattle insurance program has been socialized in Lawang, Indonesia, yet not all farmers are interested in participating in a beef cattle insurance program. Extension activities concerning beef cattle insurance programs have been carried out to help farmers in preventing the risk of loss in running a cattle farming, especially because of deaths due to illness, accident, giving birth and theft. The study was aimed to analyze descriptively the perceptions of farmers on the beef cattle insurance program and analyze the factors influencing farmers' perceptions of the beef cattle insurance program in Lawang, East Java, Indonesia.

2. METHOD

The study was conducted in Lawang, Malang Regency, East Java Province from March to May 2018. This type of research was a quantitative study with a survey approach. Identification of farmers who have not participated in any insurance program and its characteristics were carried out by: (1) Arranging an identification form containing information regarding the name, the insured status of the beef cattle insurance program, age, educational level, and number of ownership of beef cattle, (2) Interviewing the head of the leading commodity group of beef cattle in Lawang, namely the Karya Makmur II and Arjuno Farmers Groups, and (3) Analysis of interview results with quantitative descriptive analysis methods to describe individual and object conditions of the research.

The population of the study was farmers from members of the superior commodity group of beef cattle in Lawang District who had not participated in any insurance program. Samples were taken using saturated sampling techniques, where in all populations were sampled (Sugiyono, 2016). The research data consisted of primary and secondary data. The research instrument used answer sheet questionnaire. The answer sheet was used to identify farmers who are members of superior commodity farmer groups who had not participated in the cattle insurance program. Questionnaires with rating scales were used to determine the results of evaluation of extension programs, farmers' perceptions about cattle insurance programs and factors influencing farmers' perceptions of cattle insurance programs. Prior to preparing a questionnaire, it is preceded by making a questionnaire grids and preparing questionnaires of extension and perception evaluation. The research instruments obtained have passed the validity and reliability tests.

Data analysis carried out in this study were descriptive analysis and multiple linear regression. Descriptive analysis was used to identify farmers and description of farmers' perceptions about cattle insurance programs. Multiple linear regression analysis was used to determine the factors influencing farmers' perceptions about cattle insurance programs. For the purposes of multiple linear regression analysis, data have passed the classic assumption test including normality tests, multicollinearity tests, heteroscedasticity tests, and autocorrelation tests (Yudiatmaja, 2013).

3. RESULTS AND DISCUSSION

Regional General Conditions

Lawang is one of 33 Districts in Malang Regency. Astronomically, Lawang is located between 112.6740 East Longitude and 112.7288 East Longitude and 7.8781 South Latitude to 7.8184 South Latitude (BPS, 2017). This district which has an area of 68.23 km² is located 36 Km from the center of Malang, with an average altitude of 327 masl. Lawang is bordered by Pasuruan District in the North, Singosari District is in the South, Probolinggo District is in the East and

Singosari District is in the West. Lawang is a District which focuses on industrial and agricultural activities.

In 2016, area of rice fields in Lawang district was 641.70 Ha, all of which were aquatic paddy fields. On the other hand, the area of dry land including land for buildings and courtyards, moorings/plantations/fields, forests and ponds was 6,181.30 hectares (BPS, 2017). Rice fields are used for rice commodities while non-rice fields are used for corn, cassava, orchids, roses, coffee, coconut and sugar cane.

The demographic conditions of Lawang district are divided into two categories by gender and age. According to population and gender published by the Central Bureau of Statistics of Malang Regency, the population of Lawang district was 110,754 people with 55,274 males and 55,480 females (BPS Regency Malang, 2017). The population is spread in twelve villages in Lawang district. The population of Lawang district by age can be seen in Table 1.

Table 1 shows that the population in productive age between the ages of 15-64 years was 74,983 people or on 69.50% of the population in Lawang district. This number showed that the productive population was more than the unproductive population. Productive people aged 30-65 years who work in agriculture both as farmers and farm workers were around 4,825 people.

Table 1: Population of Lawang district by Age

Age	Number
0-4 Years	8.737
5-9 Years	8.931
10-14 Years	9.027
15-19 Years	8.882
20-24 Years	8.870
25-29 Years	8.737
30-34 Years	9.154
35-39 Years	8.757
40-44 Years	8.700
45-49 years	7.691
50-54 Years	6.995
55-59 Years	5.427
60-64 Years	3.770
65-69 Years	2.774
70-74 Years	1.982
≥ 75 Years	2.320

Total	110.754
-------	---------

Community of Lawang district who work as farmers and farm workers generally also have a side business in the field of animal husbandry. In the field of animal husbandry, Lawang district has commodities in the form of horses, dairy cows, beef cattle, goats, sheep, rabbits and poultry. The number of livestock commodities raised in Lawang district from the period of 2013-2016 can be seen in Table 2.

Table 2: Large Livestock and Small Livestock Populations in Lawang

Type of livestock	Year			
	2013	2014	2015	2016
Horse	25	26	26	26
Dairy Cattle	987	1.028	1.105	2.192
Beef Cattle	5.869	6.423	6.857	8.382
Goat	2.513	2.697	5.622	5.622
Sheep	1.022	1.053	376	396
Rabbit	894	894	1.698	6.291

Table 2 shows that livestock commodities with the most population every year are beef cattle and followed by goats. Cattle cultivation activities carried out in Lawang district are intensive. Beef cattle raised by the farmers were in the form of fattening and breeding, but the community also makes these animals as savings. Beef cattle cultivation activity sometimes has several obstacles such as death. According to farmers, cattle deaths generally occur due to giving birth and disease.

Identification of Farmers' Characteristics

Identification of farmer characteristics was carried out on Arjuno and Karya Makmur II farmer groups. Characteristics of farmers identified include name, age, educational level and number of beef cattle raised. Identification results regarding age, educational level and number of livestock are illustrated in Table 3.

Table 3: Identification of Characteristics

Characteristic	Category	Percentage (%)	Average/Modus
Age	31-40	15	41-50
	41-50	35	
	51-60	20	
	61-70	22,5	
	>70	7,5	
Educational Level	Elementary School	70	Elementary School
	Junior High School	17.5	
	Senior High School	7.5	
	College	5	
Livestock Ownership	1	60	1
	2	1.5	
	3	12.5	
	4	7.5	
	>4	2.5	

Beef cattle farmers in the Karya Makmur II and Arjuno farmer groups aged ranging from 31 to more than 70 years. The results of this identification indicated that the majority of cattle breeders in Lawang district aged between 41-70 years. Beef cattle farmers are identical to farmers in general who are elderly. This research is in line with the research of Anwarudin (2009), Anwarudin and Maryani (2017), Maryani et al (2017) and Anwarudin (2017) that the majority of farmers in Indonesia are elderly. Efforts to increase interest in the younger generation in agriculture and animal husbandry fields need to be conducted as reported by Anwarudin and Haryanto (2018), Harniati and Anwarudin (2018), Wardani and Anwarudin (2018), Anwarudin et al (2018).

Educational level of beef cattle farmers is dominated by Elementary School followed by SMP, SMA and S1. Based on the results of this identification, it can be said that beef cattle farmers have a low level of education, thus extension is needed to increase their knowledge in the field of animal husbandry. Furthermore, farmers had an average of 1-2 beef cattles, while farmers who had more than four cattle have only one person. The ownership of cattle shows that farmers observed still carry out small-scale farming and have not carried out business activities for real agribusiness purposes.

Identification of Farmers about the Beef Cattle Insurance Program

Farmer identification was carried out to find out the number of farmers who have not participated in the cattle insurance program. Farmer identification was carried out in two groups of farmers namely Karya Makmur II and Arjuno farmer groups. This farmer group was chosen considering that this group was the group with the largest population of beef cattle in Lawang district. The activity was carried out by interviewing the head of the farmer group to find out members who had not participated in the cattle insurance program. The results of identification of beef cattle farmers that have been insured and have not been insured by the Cattle Insurance program can be seen in Table 4.

Table 4: Identification of Farmers about Beef Cattle Insurance Program

	Cattle Insurance Program	
	Present	Not Present
Number	0	40
Percentage (%)	0	100

Based on the results of identification through interviews conducted by the leader of farmer group in Table 4, it can be seen that all cattle farmers in the two farmer groups had not yet participated in the Cattle Insurance program. Farmers who had not participated in the cattle insurance program were 40 people, of which 20 were from the Karya Makmur II Farmer Group and 20 from the Arjuno Farmer Group. According to the leader of the farmer group, raised beef cattle often experience problems when giving birth and even cause death. Based on the results of the identification, extension activities needs to be made on the Cattle Insurance program to cope with the death of livestock.

Factors influencing Farmers' Perceptions

Factors influencing the perceptions of farmers were analyzed using multiple linear regression analysis. Multiple linear regression analysis is the relationship between the dependent variable and the independent variable, wherein there are more than one independent variable. Multiple linear regression analysis of the factors influencing the perception of cattle farmers regarding the Cattle Insurance program is presented in Table 5.

Table 5: Output of Regression Coefficients

Model	Coefficients ^a			T	Sig.	Description
	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta			
(Constant)	28.529	3.864		7.384	.000	
X ₁ .Age	-.018	.049	-.045	-.378	.708	Not Significant
X ₂ . Educational Level	-.607	1.145	-.070	-.530	.599	Not Significant
X ₃ .Number of Livestock	-.320	.327	-.123	-.979	.335	Not Significant
X ₄ .Price Premium	.216	.595	.048	.363	.719	Not Significant
X ₅ .Insurance Cost	1.642	.504	.469	3.256	.003	Significant
X ₆ .Premium payment term	1.205	.436	.392	2.766	.009	Significant

The results of data processing using SPSS software in Table 5 show the data of the linear regression model equation as follows:

$$Y = 28.529 + 1.642X_5 + 1.205X_6$$

The interpretation of the above equation is as follows:

1. Constant $b_0=28.529$ wherein age, level of education, number of livestock, price premium, insurance cost and premium payment term have a value of 0, perception of cattle farmers of the insurance program is 28.529.
2. Insurance costs partially affect farmers' perceptions of cattle insurance programs. The coefficient of $b_5=1,642$ shows that every additional cost of Rp. 1,000,000- for insurance costs while other factors are controlled, it will provide an increase in farmers' perceptions on the cattle insurance program amounting to 1,642.
3. Payment term of insurance partially affects the farmer's perception of the beef cattle insurance program. The coefficient $b_6=1,205$ shows that every increase in payment term of insurance for one year while other factors are controlled, it will provide an increase in farmers' perception on the cattle insurance program amounting to 1,205.

Based on the significance presented in Table 6, it is known that the variables of age, educational level, number of livestock and price premium do not significantly influence farmers' perceptions

of the Beef Cattle Insurance program. While the variable that has a significant effect is the amount of insurance costs and payment term.

The age variable studied did not significantly influence the perceptions of farmers on beef cattle insurance. This result is supported by the report of Amaefula et al (2012) that risk avoidance behaviour will decrease with age. In other words, the more people age, the more they take risks. Hermawati (2013) also stated that there was no difference in knowledge and understanding of life insurance at various ages of respondents. According to Baba et al. (2011), farmers with old age tend to experience more so that they have more knowledge in managing their farming. It can be concluded that the increasing age of farmers, the more experience and knowledge they get related to their farming so that they are better prepared to face risks in the business carried out.

The educational level studied did not significantly influence the perceptions of farmers about cattle insurance. Wirosari and Fanani (2013) state that higher formal education is not proven to significantly influence risk behaviour. Nurhayati and Lestari (2018) reported that there is no difference in insurance decisions based on educational level, and the educational level does not affect the decision to insure. Educational level is not a determining factor for someone in making insurance decisions. This can be caused because nowadays technology and information are developing rapidly. Increasingly developing technology and the ease and speed of obtaining information enable an individual who has the lowest educational level to have the opportunity to gain knowledge and information. The results of this study show different results from the research conducted by Amaefula et al (2012) which states that the more educated someone is, the risk avoidance behaviour will increase.

R² analyzes or coefficient of determination is used to find out how much the percentage of independent variables contributes together to the dependent variable.

According to Table 6, it can be seen that the value of R² (Adjusted R Square) is 0.534 so that the contribution of the independent variable that is influential is 53.4%, while the remaining 46.6% is influenced by other factors not examined.

Table 6: Output of Regression Model Summary

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.778 ^a	.606	.534	3.396	2.093

The F test is used to test the effect of independent variables together on the dependent variable. F-count obtained are in accordance with Table 7 which is 8.457. F-table can be found in the statistical table at the significance of 0.05 $df_1=k-1$ or $6-1=5$, and $df_2=n-k$ or $40-6=34$, which is equal to 2.477. It can be seen that $F\text{-count (8,457)} > F\text{-table (2,477)}$ so that age, level of education, number of livestock, price premium, insurance costs and premium payment term together influence the perceptions of cattle farmers on the Cattle Insurance program.

Table 7: Output of ANOVA Regression

ANOVA ^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	585.279	6	97.546	8.457	.000 ^a
	Residual	380.621	33	11.534		
	Total	965.900	39			

The t test is used to test the effect of partially independent variables on the dependent variable. The significance level used is 0.05. t-count as shown in Table 5 is -0,378 for age, -0,530 for educational level, -0,979 for number of livestock, 0,363 for price premium, 3,256 for insurance costs and 2,766 for premium payment term. The significance used is a two-sided test $0.05/2=0.025$ with $df=n-k-1$ or $40-6-1=33$ so that the t-table obtained is 2.034.

Age (X₁): -t-count (0.378) > -t-table (-2,034) so that it can be concluded that age does not affect the perceptions of cattle farmers about the insurance program.

1. Educational level (X₂): -t-count (-0,530) > -t-table (-2,034) so that it can be concluded that the educational level does not affect cattle farmers perception about the insurance program.
2. Number of livestock (X₃): -t-count (-0,979) > -t-table (-2,034) so that it can be concluded that the number of livestock does not affect cattle farmers perception about the insurance program.
3. Price premium (X₄): t-count (0.363) < t-table (2,034) so that it can be concluded that the price premium does not affect cattle farmers perception about the insurance program.
4. Insurance cost (X₅): t-count (3.256) > t-table (2,034) so that it can be concluded that the amount of insurance costs affect cattle farmers perception about the insurance program.
5. Premium payment term (X₆): t-count (2,766) > t-table (2,034) so that it can be concluded that the payment term affects cattle farmers perception about the insurance program.

Factors that Significantly Influence Farmers' Perception

The definition of insurance costs is the acquisition price of cattle without the addition of other costs agreed upon by the insurer and the insured parties and constitutes the maximum amount of compensation. Therefore, the cost of insurance basically can affect farmers' perceptions of the beef cattle insurance program. The cost of insurance partially influences farmers' perceptions of the AUTS Program in Lawang which is stated in the linear regression model $Y = 28.529 + 1.642X_5 + 1.205X_6$. The model shows that each increase in one value of insurance costs (X_5) while the other factors are controlled, will provide an increase in the value of farmers' perceptions of the Beef Cattle Insurance Program of 1.645.

Coefficient of partial determination analysis shows that the partial R^2 value for all factors is 0.534 (Table 6). This value shows the degree of influence of the overall factors studied on the farmers' perception of the beef cattle insurance program amounting to 53.4%. Effect of insurance costs on farmers' perceptions of the beef cattle insurance program shows significance value of 0.003.

A large factor in the cost of insurance in this study is indicated as the maximum amount of compensation in improving farmers' perceptions of the beef cattle insurance program. The results of the study which show that the insurance cost factor influences farmers' perceptions of the beef cattle insurance program can be explained as follows: Cattle Insurance Program has a risk transfer loss faced by the farmer if the livestock raised has died. This is evidenced by the insurance price of Rp. 10,000,000, which is the maximum amount of compensation. Insured losses are the death of beef cattle due to giving birth, illness, theft and accidents.

The payment term is defined as the length of time the livestock is insured by the insurance party, thus the payment term of insurance can basically affect the farmers' perception of the Beef Cattle Insurance Program. The payment term of insurance partially affects the farmers' perception of the Beef Cattle Insurance Program in Lawang District which is stated in the linear regression model $Y = 28.529 + 1.642X_5 + 1.205X_6$. The model shows that every addition of one factor value for the payment term of insurance (X_6) while the other factors are controlled, it will provide an increase in the value of the farmers' perception of the Beef Cattle Insurance Program of 1.205.

The coefficient of partial determination analysis shows that the partial R^2 value for all factors is 0.534 (Table 6). This value shows the degree of influence of the overall factors studied on the farmers' perception of the beef cattle insurance program amounting to 53.4%. The effect of the insurance payment term on the farmers' perception about the insurance program shows a significance value of 0.009.

The payment term of insurance in this study is indicated by the payment term the livestock is raised in improving the farmers' perception about the cattle insurance program. The results of the study indicate that the payment term affects the farmers' perception of the cattle insurance program as described as follows: The Cattle Insurance Program has a risk transfer loss if the livestock raised by farmers face death in the payment term of insurance. This is evidenced by the one year period of cattle insurance program starting with the payment of insurance premiums that are the obligation of farmers. During one year period, the risk of insured losses is beef cattle deaths due to giving birth, illness, theft and accidents.

4. CONCLUSION

The study of farmers' perceptions of the cattle insurance program in Lawang, Malang Regency, East Java Province concluded as follows: (1) Farmers' perception about cattle insurance program shows that 42.5% of respondents received the insurance program. Majority of farmers are elderly with educational level predominantly in elementary school and have an average number of cattle ownership of 1-2. (2) Farmers' perceptions about cattle insurance program are influenced significantly by the independent variable of 53.4%. Variable insurance costs and insurance payment term have a significant effect on farmer perceptions. While the variables of age, educational level, number of livestock and the price premium have no significantly effect.

REFERENCES

- Achmad M. 2013. Analisis Daya Saing dan Strategi Pengembangan Peternakan Sapi Potong di Provinsi Sulawesi Selatan [disertasi]. Bogor: Institut Pertanian Bogor.
- Amaefula C., Okezie C A and Mejeha R. 2012. Risk Attitude and Insurance : A Causal Analysis. American Journal of Economics, 2(3), 26-32. doi: 10.5923/j.economics.20120203.01.
- Anwarudin O. 2009. Pengembangan Kelembagaan, Partisipasi dan Kemandirian Kelompok Tani Dalam Usaha Agribisnis Perdesaan di Kecamatan Banjaran, Kabupaten Majalengka, Jawa Barat. Tesis. Universitas Sebelas Maret.
- Anwarudin O. 2017. Faktor Penentu Partisipasi Petani pada Program Upaya Khusus (UPSUS) Padi di Kabupaten Manokwari, Papua Barat. Jurnal Penyuluhan Pertanian. 12(1): 67-79.
- Anwarudin O and Maryani A. 2017. The effect of institutional strengthening on farmer participation and self-reliance in Bogor Indonesia. International Journal of Research in Social Sciences. 7(4): 409-422.

- Anwarudin O and Haryanto Y. 2018. The role of farmer to farmer extension as a motivator for the agriculture young generation. *International Journal of Social Science and Economic Research*. 03(1): 428-437.
- Anwarudin O, Sumardjo, Satria A and Fatchiya A. 2018. A review on farmer regeneration and its determining factors in Indonesia. *International Journal of Progressive Sciences and Technologies (IJPSAT)*. 10(2): 218-230.
- Baba S. 2011. Faktor-Faktor yang Mempengaruhi Tingkat Partisipasi Peternak Sapi Perah dalam Penyuluhan di Kabupaten Enrekang. *JITP*. 1(3).
- Daryanto A. 2007. Peningkatan daya Saing Industri Peternakan. Jakarta: PT. Permata Wacana Lestaria.
- Harniati and Anwarudin O. 2018. The interest and action of young agricultural entrepreneur on agribusiness in Cianjur Regency, West Java. *Jurnal Penyuluhan*. 14(1): 148-157.
- Hermawati S. 2013. Pengaruh Gender, Tingkat Pendidikan Dan Usia Terhadap Kesadaran Berasuransi pada Masyarakat Indonesia. *Jurnal Asuransi dan Manajemen Risiko*. 1(1).
- Maryani A, Haryanto Y and Anwarudin O. 2017. Strategy of agricultural extension to improve participation of the farmers in special effort in increasing rice production. *International Journal of Sciences: Basic and Applied Research (IJSBAR)*. 36(4): 163-174.
- Nurhayati I D and Lestari W. 2018. Keputusan Berasuransi, Studi Demografi dan Persepsional. *Kspektra. Jurnal Bisnis dan Manajemen*. 2(1): 44-55. DOI: <http://dx.doi.org/10.25139/ekt.v2i1.724>.
- Sugiono. 2016. *Metode Penelitian Kuantitatif Kualitatif dan R & D*. Cet. Ke-23. Alfabeta. Bandung.
- Wahyuni S. 2007. Kelayakan Pengembangan Asuransi Usahaternak Sapi Potong Pendukung Agribisnis Pedesaan di Wilayah Marginal, dalam: Makalah Seminar Nasional Hari Pangan Sedunia XXVII. Bogor. Pusat Anaisa Sosial Ekonomi dn Kebijakan Pertanian.
- Wardani and Anwarudin O. 2017. Peran penyuluh terhadap penguatan kelompok tani dan regenerasi petani di Kabupaten Bogor, Jawa Barat. *TABARO Agriculture Science*. 2(1): 191-200.

Wirosari T R and Fanani Z. 2013. Pengaruh Umur, Gender, dan Pendidikan Terhadap Perilaku Risiko Auditor dalam Konteks Audit Atas Laporan Keuangan. Fakultas Ekonomi dan Bisnis, Universitas Airlangga, Surabaya.

Yudiaatmaja F. 2013. Analisis Regresi dengan Menggunakan Aplikasi Komputer Statistik SPSS. Gramedia Pustaka Utama. Jakarta.