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The Influence of Internal and External Members Factors on The Sustainability of Cattle Farming in Jepara Regency, Central Java

Naroso, Sriroso Satmoko, CM Sri Lestari

Faculty of Animal and Agricultural Science, Diponegoro University
Tembalang Campus, Semarang 50275 – Indonesia
Corresponding E-mail : ainulyakin737@gmail.com

Abstract. The purpose of research is finding out the influence of internal factors and external members on the sustainability of livestock fattening beef cattle breeding business in Central Java Jepara regency. This research was conducted in February until Juni 2017 in Jepara regency. The survey was used in this research. The research material is breeder as respondent with the total of 250 people who are taken from 3 districts and villages stratified random sampling based on the number of cattle fire pieces in the most district, medium and at least. The instrument used is a questionnaire. The data analysis used regression followed by path analysis. The independent variables in this research are internal factors and external factors of members. The internal factors of the members consist of: members motivation (X1), members knowledge (X2), members attitude (X3) and external factors of members consisting of: information exposure (X4), the role of instructor role (X5), livestock performance (X6). The dependent variable is member sustainability (Y1). The results showed that simultaneously and partially the members motivation, members knowledge, members attitude, the instructor role and livestock performance affect significantly on the groups sustainability variable.
Keywords: Internal factors, external, member sustainability

Abstrak. Penelitian ini bertujuan untuk mendeskripsikan variabel penelitian mengetahui pengaruh faktor-faktor internal dan eksternal anggota terhadap keberlanjutan kelompok usaha peternakan penggemukan sapi potong di Kabupaten Jepara Jawa Tengah. Penelitian ini dilaksanakan pada bulan Pebruari sampai Juni 2017 di Kabupaten Jepara. Metode penelitian yang digunakan adalah survey. Materi penelitian adalah peternak selaku responden sejumlah 250 orang yang diambil dari 3 kecamatan dan desa di Kabupaten Jepara secara *stratified random sampling* berdasarkan jumlah ternak sapi potong di kecamatan paling banyak, sedang dan paling sedikit. Peralatan yang digunakan yaitu kuisioner (daftar pertanyaan). Analisis data yang digunakan adalah analisis deskriptif, analisis regresi yang dilanjutkan dengan analisis path. Variabel bebas dalam penelitian ini adalah faktor internal dan eksternal anggota. Faktor internal anggota terdiri dari motivasi berkelompok (X1), pengetahuan anggota (X2), sikap anggota (X3). Faktor eksternal anggota terdiri dari keterdedahan informasi (X4), peran penyuluh (X5), dan penampilan ternak (X6). Variabel terikat penelitian adalah keberlanjutan kelompok (Y1). Hasil penelitian ini dapat menunjukkan bahwa secara serempak dan parsial pengetahuan anggota kelompok, motivasi berkelompok, sikap anggota kelompok, peran penyuluh, keterdedahan informasi dan Penampilan ternak berpengaruh sangat nyata terhadap variabel keberlanjutan kelompok.
Kata kunci : Faktor Internal, eksternal, keberlanjutan kelompok

Introduction

The existence of a breeders group is expected to be able to become a breeder who is able to interact with each other. The interaction between members is expected to have the effect of needing each other, enhancing each other, reinforcing each other, so it will increase the knowledge and ability to manage the agribusiness system. Joining farmer groups will also help its members access production facilities (Nugroho, Satmoko, and Karno, 2018). The formed groups will help to connect members who have small businesses accessing larger market together (Zhou, Yan, and Li 2016). Group business will help to provide product stability in fulfilling the market needs (Alho, 2015).

Strategies in the development of institutional farmer groups must rely on local strengths and potential and also market-oriented (Charina 2016). Capacity enhancement can also take advantage of the social capital potential such as the spirit of kinship, cooperation and self-help of farmers (Supriono

et al. 2013). Sustainability of beef cattle breeding are inseparable from the role of farmers in developing their livestock business. The sustainability of the breeder's group is thought to be related to internal factors or external factors that exist in the group either directly or indirectly. Internal factors include the member's attitude towards the group, members motivation, and farmers knowledge. External factors that influence group sustainability include the instructor role, information disclosure, and livestock appearance.

Materials and Methods

The research uses survey methods with data analysis combining quantitative and qualitative approaches. The research survey was conducted from February to June 2017. The location of this study was determined purposively, namely Jepara Regency because Jepara regency was the People's Animal Husbandry Center (KSP) and beef cattle breeding source (Distanak Jepara Regency, 2016).

Jepara Regency consists of 16 Districts namely: Bangsri, Batealit, Donorojo, Jepara Kota, Kalinyamatan, Karimunjawa. Kedung, Keling, Kembang, Mayong, Mlonggo, Nalumsari, Pakis Aji, Pecangaan, Tahunan, Welahan (Statistics Central Agency of Jepara Regency, 2017). The study population was a farmer member of a livestock business group with criteria based on liveliness assessment from The Livestock and Agriculture Service Office of Jepara Regency (very active, active, less active). These groups are lived in 3 districts in Jepara Regency which have the most, medium and least number of beef cattle in the district. Table 1 shows that the districts that fulfill the research population criteria are Bangsri District (the largest beef cattle population), TahunanSub-District (medium beef cattle population), and Welahan District (the least beef cattle population). Table 2 shows that the total members of the livestock business group that fulfill the research population criteria are 250 people. Determination of research respondents was conducted with census techniques totaling 250 people.

Table 1. Livestock Population in Jepara Regency in 2017

District	Dairy Cow	Beef Cattle	Buffalo	Horse	Goat	Sheep
	---------- head ----------					
Kedung	0	685	201	6	542	440
Pecangaan	0	645	394	8	2.105	1.062
Kalinyamatan	1	304	245	12	1.362	725
Welahan	0	**231**	1.182	17	4.950	1.957
Mayong	0	1.856	136	9	7.420	2.095
Nalumsari	0	880	162	13	5.401	1.940
Batealit	0	4.137	45	5	3.790	1.790
Tahunan	2	**1.467**	13	4	7.830	850
Jepara	1	823	25	0	1.690	908
Mlonggo	0	2.377	93	3	2.854	950
Pakis Aji	0	5.513	55	0	2.780	410
Bangsri	0	**7.722**	157	24	8.320	8.450
Kembang	0	7.359	852	124	8.690	2.160
Keling	9	4.577	98	4	4.150	950
Donorojo	1	5.697	24	6	5.620	3.150
Karimunjawa	0	572	0	0	740	0
Total	14	44.845	3.672	235	68.244	27.837

Source : (BPS Central Java Province 2013)

Table 2. Number of Research Population Members of Livestock Business Groups

No	District	Village	Name of Livestock Business Groups	Total Member (people)
1	Welahan	Sidigede	Margo Rahayu	15
2	Welahan	Teluk Wetan	Suka Maju	20
3	Welahan	Gedangan	Lestari	15
4	Tahunan	Ngabul	Rejo Mulyo	30
5	Tahunan	Langon	Sido Dadi	30
6	Tahunan	Krapyak	Ngudi Rahayu	30
7	Bangsri	Srikandang	Sari Tani	30
8	Bangsri	Tengguli	Sido Makmur	40
9	Bangsri	Banjaran	Banjar Agung	40
		Total		250

Source: Primary data 2017

The research method used in this study is survey methods. Survey methods are observations or critical investigations of research by taking samples from a population and using questionnaires as a data collection tool (Sugiyono 2013). The type of data in this study is primary data and secondary data. Primary data is collected directly from respondents and informants, while secondary data is obtained from available data sources such as The Livestock and Agriculture Services Jepara Regency, Statistics Central Agency of Jepara Regency.

From the respondent's answer to each statement will be obtained frequency response distribution for each category, which then will be cumulatively deviated according to the normal distribution. From this the scale value can be determined, which is the weight or value of the respondent's answers that measured his attitude (Suryabrata, 2005 and Azwar, 2007). The validity of the instrument or measuring instrument that will be tested in this study is to test the validity of the item (item validity) of the research variable. Instrument reliability in this study using a one-time measurement estimation approach. The reliability estimation technique used is the alpha coefficient (α) of Cronbach. Quantitative data and information in this study were analyzed using descriptive analysis and regression analysis followed by path analysis.

Results and Discussion

Characteristics of Respondents

Characteristics of respondents examined in this research include age, education, number of beef cattle ownership and livestock experience. Farmers who are used as respondents have the age range between 21 to> 60 years. Most respondents are in the range of 41-50 years (33.20%). The majority of respondents' education is graduating from elementary school; they are 90 people (36.00%). Although most businesses in the field of agriculture require skills, the level of education can provide a positive correlation to mindset in problem-solving. The number of livestock ownership in the breeders which is made as the most respondents is 1-2 heads; they are 134 people (53.60%). The experience of breeders in breeding is at most in 5 years with 69 respondents (27.60%).

Descriptive Analysis of Research Variables

Descriptive analysis of research variables includes the mean value and the distribution category of respondents in Table 3. Table 3 shows that the average value on the attitude aspect is 104.156. This shows that breeders'

knowledge and beliefs about beef cattle breeding business are as expected by farmers, which is easy to implement, increase production, income and benefit. The attitude of members towards the beef cattle business group is formed through the experience interaction and learning processes and also environmental factors. The learning process itself takes place through interaction, that is through imitation of model behavior and direct experience (Hansen 2014).

The potential of the resources and market certainty of the cattle farming business results encouraging farmers to improve the livestock business so it resulting the change in the attitude of the farmer faster. The change in attitude is shown by understanding, belief and experience (cognitive aspects) that innovation is as expected by farmers, which is easy to implement, increase production, income and benefit. The value of group motivation variables had a mean of 103.01 and included in the medium category (Table 3). Group motivation is a boost that comes from the farmer to join the beef cattle fattening group. Encouragement from inside can appears because of the knowledge about groups benefits or the boost to fulfill the needs that can be fulfilled through the farmer group. Motivation is arranged from an assessment of the need for existence, the need for cooperation or relatedness, and the need for capacity building or the need to grow.

Farmers' knowledge of beef cattle fattening must be owned in order to be able to implement or implement accepted innovations. Farmers' knowledge of beef cattle agribusiness is obtained through learning, it also obtained from experience in trying and implementing innovation. The mean variable value of breeders' knowledge is 52.32 and the distribution of values is included in the medium category (Table 3). Knowledge variables are arranged from knowledge assessments about livestock breeds, animal feed, and livestock maintenance management.

The information disclosure about beef cattle business includes access to information and intensity of communication through interpersonal media, print and electronic media. The development of information and communication technology provides opportunities for group members to access information on institutional technical innovations, market information and capital sources. The average value of information disclosure variable was 128.44 and the value distribution was in the medium category (Table 3). The instructor role is the activity done by a farmer extension agent on livestock business groups in order to maintain the sustainability of group activities. The value of the instructor's message is calculated based on the respondent's assessment of the activities of the farmer extension agent as an innovator, motivator, facilitator, and communicator. The mean value variable for the role of the instructor is 114.63 and the distribution of values is included in the medium category (Table 3).

Table 3. Average values and variable distribution categories

Variable	Maximum Value	The average Value Achieved	Respondent Distribution Category
Attitude	155	104.16	medium
Motivation	145	103.01	medium
Knowledge	65	52.32	medium
Information Disclosure	185	128.44	medium
Instructor Role	165	114.63	medium
Livestock Appearance	25	18.14	medium
Group Sustainability	245	181.80	medium

Source : Primary data 2017

The livestock appearance when living reflects the livestock production. To assess livestock, the parts and conformations of the ideal body from the animal must be known first. Livestock appearance is assessed through animal health, obesity, and appetite. The mean value of livestock appearance variable is 18.14 and the values distribution is included in the medium category (Table 3). The problem faced by farmers in rural areas is they are not accustomed to providing concentrates to spur cattle growth with the reason of high relative costs. The development of beef cattle business must be supported by the development of the feed industry by optimizing the use of locally-specific local raw material sources and oriented to the integration pattern of crop-livestock (Sodiq and Budiono 2012).

Group sustainability is the ability of group members to manage the beef cattle business on an ongoing basis so it does not leave the membership which in the end, the group does not disband. The higher group sustainability means the higher the cohesion, the members commitment, positive independence, work program, beneficial economically, not disturbing the environment and acceptable in the surrounding community. The mean value of the group sustainability variables is 181.40 and the value distribution is in the medium category (Table 3).

Regression Analysis Results

The regression analysis results of the factors which influence the sustainability of beef cattle business groups in Jepara Regency, Central Java are presented in Table 4.

Based on the results of multiple regression analysis (Table 4) obtained the equation model as follows:

$$Y_1 = 161.46 + 0.35X_1 + 0.36\ X_2 + 0.40\ X_3 + 0.23\ X_4 + 0.30\ X_5 + 1.03X_6$$

Y_1 = Group sustainability
X_1 = Group member knowledge
X_2 = Group motivation
X_3 = Group member attitude
X_4 = Instructor role
X_5 = Information disclosure
X_6 = Livestock appearance

Table 4. The Results of Multiple Regression Analysis Factors Affecting the Sustainability of the Beef Cattle Business Group

Variable	Reg. Coefficient	Value-t	Probability
Group member knowledge	0.351	2.199	0.029*
Group motivation	0.343	2.858	0.005**
Group member attitude	0.397	3.586	0.000**
Instructor Role	0.232	2.043	0.042*
Information Disclosure	0.292	4.918	0.000**
Livestock Appearance	1.037	2.503	0.013*

Constanta = 161.46
R^2 = 0.509
t-table = 1.97
Fcount = 41.918
F-table = 2.26

Information :

**) significantin α ≤ 1%
*) significantinα ≤ 5%

The results of multiple regression analysis showed value R^2 of 0.509, which means that the independent variables in the model are group member knowledge, group motivation, group member attitudes, instructor role, information disclosure, and livestock appearance able to explain group sustainability variables by 50.90% and the rest 49.10% is explained by other variables outside the model.

F calculated value is 41,918, greater than the variable value of F table that is equal to 2.26 ($p < 0.05$), it shows that simultaneously the group member knowledge, group motivation, group member attitudes, instructor role, information disclosure, and livestock appearance has a highly significant effect on group sustainability variables. Variables of group member knowledge, group motivation, group member attitudes, instructor role, information disclosure, and livestock appearance partially have a significant effect on group sustainability variables.

Path Analysis Results

The assessment of the *goodness of fit* criteria is a step to assess the suitability between the values of observations with predictions from the proposed model (Ghozali 2011). The *goodness of fit* limit includes the RMSEA (Root Mean Square Error of Approximation) value between 0.05 and 0.08. The minimum value of GFI (Goodness of Fit Index) is 0.90. The limit of AGFI (Adjusted Goodness of Fit) value is a minimum of 0.90. The maximum CMIN / df (the minimum sample discrepancy function/degree of freedom) limit is 2. A minimum TLI (Tucher Lewis Index) value of 0.9. The NFI (Normal Fit Index) value is at least 0.90. The CFI (Comparative Fit Index) value is at least 0.95. (Ghozali, 2007). Test results are presented in Table 5.

The Goodness-of-Fit test results show that the RMSEA value is 0.098. This value does not meet the limits of goodness of fit and indicates an index that is not good enough to accept the suitability of the model. The GFI value is 0.975. This value meets a minimum limit of 0.90 in indicating a good index to accept the suitability of the model. The AFGI value of the test results is 0.899. This index is a GFI development that is adjusted to the degree of freedom ratio for the proportional model and degree of freedom for the model number. AGFI values do not meet the limits of greater than or equal to 0.90 to indicate an index that is not good at accepting the suitability of the model.

CMIN / df is a comparison between Chi-square with a degree of freedom of 1,964. This gives the conclusion that this value meets the limit of less than 2 to indicate a good value in accepting the suitability of the model. TLI and NFI values are respectively 0.951 and 0.991. Both of these values have met the minimum limit of model conformity of 0.9. The value of CFI is 0.972. This value meets a minimum limit of 0.95 to indicate the acceptability of the model. The overall test results give the conclusion that the data meets the assumption of structural equations and can be continued with the next assessment.

Path analysis is the development of multiple linear regression. This technique is used to test the amount of contribution shown by the path coefficients in each path diagram of the causal relationship between variables X1, X2, X3, X4, X5, Y1 to Y2 and their impact on Z. Path analysis is a technique of analyzing causal relationships what happens in multiple regression if the independent variable affects dependent variables, not only directly but also indirectly. The results of path analysis using the Amos 22 program can be seen in Table 6 and Figure 1.

Path analysis is used if in theory researchers are dealing with problems related to causation. The purpose of using path analysis in this study is to find out and explain the power of direct and indirect influences from a set of variables.

Table 5. Testing Result of *Criteria Goodness-of-Fit* Research Data

Criteria	Limitation	Value	Information
RMSEA (*Root Mean Square Error of Approximation)*	0.05<RMSEA<0.08	0.098	Not fit
GFI (*Goodness of Fit Index*)	>0.90	0.975	Fit
AGFI (*Adjusted Goodness of Fit*)	≥0.90	0.899	Fit
CMIN/df (*Chi-squarel degree of Freedom*)	≤ 2	1.964	Fit
TLI (*Tucker Lewis Index*)	>0.90	0.915	Fit
NFI	>0.90	0.991	Fit
CFI	>0.95	0.972	Fit

Table 6. *Regression Weights*: (Group number 1 - Default model)

			Estimate	S.E	C.R.	P
Member_attitude	<--	Instructor_Role	0.211	0.042	5.072	***
Group_motivation	<--	Member_attitude	0.124	0.059	2.112	0.035
Group_motivation	<--	Instructor_Role	0.482	0.040	11.968	***
Breeders_knowledge	<--	Instructor_Role	0.330	0.030	11.021	***
Livestock_appearnce	<--	Member_attitude	0.038	0.017	2.266	0.023
Livestock_appearnce	<--	Group_motivation	0.059	0.016	3.695	***
Livestock_appearnce	<--	Breeders_knowledge	0.066	0.021	3.096	0.002
Informtn_disclosure	<--	Instructor_Role	0.856	0.079	10.804	***
Group_sustainability	<--	Member_attitude	0.398	0.110	3.605	***
Group_sustainability	<--	Group_motivation	0.363	0.120	3.035	0.002
Group_sustainability	<--	Livestock_appearnce	1.030	0.410	2.514	0.012
Group_sustainability	<--	Breeders_knowledge	0.350	0.158	2.216	0.027
Group_sustainability	<--	Informtn_disclosure	0.299	0.059	5.096	***
Group_sustainability	<--	Instructor_Role	0.229	0.112	2.051	0.040

Source: Path analysis results by program AMOS 22, 2017

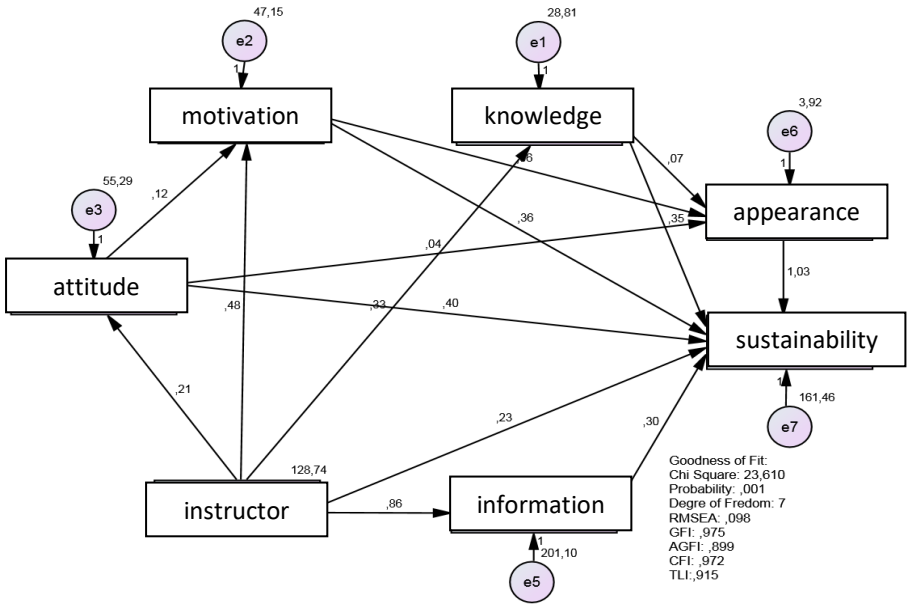

Figure 1. Path Diagram

Influence of Member Knowledge

The significance value of the group member knowledge variable is 0.029, means that the variable has a very significant effect on group sustainability. Direct coefficient value is obtained at 0.351, means that each group member knowledge variable increases by one value so the group sustainability will increase by 0.351 value. Thus the hypothesis 1.a which states the higher the knowledge of group members, the higher the group's sustainability can be accepted. Increased knowledge, especially knowledge about benefits, in groups encourages farmers' desire to jointly realize mutually agreed goals (Satmoko et al. 2013).

Effect of Group Motivation

The significance value of group motivation variables is 0.005, means that these variables have a significant effect on group sustainability. Coefficient value is obtained at 0.343, means that each group motivation variable increases by one value, then group sustainability will increase by 0.343 values. Thus the hypothesis 1.b which states that the higher the motivation to the group, the higher the group sustainability can be accepted.

Stronger motivation consistently reinforces group sustainability. Motivation is stronger in the aspect of fulfilling the need for existence and cooperation. The relationship between work motivation and group sustainability occurs where the components of work motivation, that is the need for existence, partnerships and capacity building work through networks.

Group Member Attitude

The significance value of the group member attitude variable is 0,000, means that this variable has a very significant effect on group sustainability. Coefficient value is obtained at 0.397, meaning that each group member attitude variable increases by one value, the group sustainability will increase by 0.397 values. Thus the 1.c hypothesis which states the higher the attitude of group members the higher the group sustainability can be accepted. Increasing members' attitudes will foster member participation in maintaining group sustainability. Institutional sustainability is principally maintained through high member sentiments and awareness, the realization of cohesiveness, and the high level of trust of members (Anantanyu 2011).

Influence of the Instructor Role

The significance value of the role variable of the instructor is 0.042, means that the variable has a significant effect on group sustainability. The coefficient value is 0.232, means that each group leadership variable rises one value, the group sustainability will increase by 0.232 values. Thus the hypothesis 1.d which states that the higher the role of extension agents is the higher the group sustainability can be accepted. Group sustainability is one of the responsibilities of instructor role who foster the group. One of the roles of the agricultural instructor is to develop farmer institutions. Agricultural instructors empowering agents essentially help farmers to be able to solve problems faced by themselves (Anantanyu 2011).

Influence of Information Disclosure

The significance value of information disclosure variables is 0,000, means that these variables have a very real effect on group sustainability. Coefficient value is obtained at 0.292, means that each information dropout variable increases by one value, the group's sustainability will increase by 0.292 values. Thus the 1.e hypothesis which states that the higher the information disclosure, the higher the group sustainability can be accepted. Information available includes access to information and intensity of communication through interpersonal media, print media and audio-visual media. Information on innovation is an important resource in agribusiness which is

oriented in agribusiness. The development of information and communication technology provides opportunities for farmers to access technical, institutional, market information and capital sources. Information and communication technology is part of the media used to convey messages to others such as variables, radio, print media, the internet so that networks are needed. The application of information technology often comes into contact with non-technological aspects such as social and psychological aspects.

Livestock Appearance Effect

The significance value of livestock Appearance variable is 0.013, means that the variable has a significant effect on the sustainability of the group Coefficient value is obtained at 1.037, means that each livestock appearance variable rises one value then the group's sustainability will increase by 1.037 values. Thus the 1.f hypothesis which states the higher the livestock appearance, the higher the group sustainability is accepted.

Group sustainability is strongly supported by the role of the group in facilitating members. The biggest benefit of group existence is the increase in product value, access to market and financial information, and also cooperation (Yuliando et al. 2015). The existence of livestock business groups that have members with adequate knowledge, group motivation that never goes out, the attitude of positive group members, the role of instructors, information disclosure will support livestock production and appearance. The availability of livestock with good appearance will provide high bargaining value and ease of group in meeting market demand. In time, group dynamics will go hand in hand with activities that can provide benefits to members.

Conclusion

From the results of this research it can be concluded that simultaneously group members 'knowledge, group motivation, group members' attitude, instructor role, information disclosure and livestock appearance have a high significant effect on group sustainability variables. Knowledge of group members has a positive effect on group sustainability. Group motivation has a positive effect on group sustainability. The attitude of group members has a positive effect on group sustainability. Information disclosure has a positive effect on group sustainability. The role of the instructor's agent has a positive effect on the sustainability of the group. Livestockappearance has a positive effect on group sustainability.

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