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Perception of Bali cattle farmers on the performance of Extensionist based on agroecosystems at Timor Island

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ABSTRACT: This research aims to determine the perception of farmers on the performance of Extensionist in the agroecosystems of pasture, agriculture, plantation, and forest at Timor Island, so that it can be information for improving the performance of extension workers who have an impact on repair the welfare of farmers. This research was conducted from January to December 2018. The research location was determined purposively representing the agroecosystem of pasture, agriculture, plantation and forest. The determination of respondents are 5-10% of the number of farmers in each agroecosystem that has > 10 Bali cattle. Data collection methods are done through observation, interviews, and documentation. Data processing method uses a Likert Scale, then analyzed decriptivelly. Indicators to measure the performance of livestock Extensionist based on Extensionist profile, materials and methods, procurement of activities, availability of teaching aids, and intensity of extension activities. The results showed that farmers' perceptions at agroecosystems of pasture, agriculture, plantation, and forest toward livestock extensionist in the category agreed that the existence of extensionist could be said well in aspects of Extensionist profile, materials and methods, and procurement of activities. This condition explains that Extensionist in carrying out his duties and functions in the field in accordance with existing standards, namely as a mediator, motivator, educator, communicator, facilitator, and assistance/visits. Nevertheless, it is very necessary to improve and repair the role of Extensionist related to competence so that it can influence farmers to be more productive in developing Bali cattle farming business them. Then Bali cattle farmers in the pasture agroecosystem with the highest value of the use of teaching aids by extensionist were 2 kinds (44,0%). Then the average farmers in agricultural agroecosystems with the highest value of the use of teaching aids by extensionist is 1 kind (40,2%). Next, the average of farmers in plantation agroecosystems with the highest value of using teaching aids by Extensionist are > 2 kinds (47,9%). While the average farmers in forest agroecosystems with the highest value of the use of teaching aids by Extensionist is 1 kind (>77,3%). While the intensity of extension activities during the past year shows that the average farmers in agroecosystems of pasture (70,7%), agriculture (59,8%), plantations (50,0%), and forests (68,2%) said more from 1 time.

Keywords: Farmers perception; Extensionist performance; Agroecosystems; Timor Island

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INTRODUCTION

A livestock extension is a non-formal education for farmers and their families aimed at improving the welfare of farmers with a focus on changing knowledge, attitudes, and skills. Thus the task of an extensionist is to remove barriers faced by a farmer by providing information and providing views on the problems faced (Sucihatiningsih and Waridin, 2010; Sapar *et al.,* 2012; Sawita *et al.,* 2013; Sajow *et al.,* 2014).

The livestock extension system in Indonesia is regulated in Law of the Republic of Indonesia Number 16 of 2006 concerning Extension Systems of Agricultural, Fisheries, and Forestry. It states that one of the main roles of the extension system is to facilitate the learning process of the main actors of the livestock business. Thus the role of Extensionist is as an educator and as a facilitator in facilitating the level of farmer learning success. The role as an educator is assessed from Extensionist performance in providing knowledge, skills, and good ways of livestock management to farmers that are known from Extensionist skills themselves, ability to master the material, how to deliver the material, mastering the principles of learning, and providing motivation. While the role of a facilitator is assessed from the suitability of the material and methods, and the purpose procurement of extension activities.

The suitability of the material and methods is known from the role of Extensionist creating a conducive learning atmosphere for the farmer through the appropriateness of the teaching aids, the conformity of the material with the problems faced by the farmer, and the method approach Extensionist held to a farmer. Whereas the purpose of procuring extension activities is known from the clarity of the information to be understood by farmers, the suitability of activities to support the personal goals of farmers, the provision of learning facilities, and the interaction frequency of extension held. The performance of Extensionist in Indonesia is still very low, in terms of several aspects, namely: (1) Extensionist profile consisting of skills, mastery of the material, motivation/attitude of the Extensionist, and discipline when Extensionist starts the activity is still lacking; (2) the suitability of the material and methods, namely the suitability of the teaching aids with the extension activities, the suitability of the material with the problems faced by farmers, and the methods carried out in the activities do not support the knowledge needs of farmers; and (3) procurement of activities, such as the purpose of conducting extension activities and the purpose of activities that support the personal goals of farmers are not well implemented (Sapar *et al*., 2012; Yunasaf and Tasripin, 2012; Habaora, 2015; Riwukore and Habaora, 2018 and 2019[a]).

The low-performance profile of livestock Extensionist in Indonesia is caused by (1) knowledge and skills of Extensionist are still low and tend to be incompatible with the needs of farmers; (2) Extensionist of low in education and training for capacity building, and if Extensionist are trained they tend to be irrelevant to the needs of farmers in their working area; and (3) Extensionist often lag behind of information from the farmers they serve (Sucihatiningsih and Waridin, 2010; Sapar *et al.,* 2012; Yunasaf and Tasripin, 2012). This condition can explain that the performance of livestock Extensionist also plays a role in the slow development of the livestock subsector in Indonesia, especially beef cattle farming.

One of the beef cattle production centers in Indonesia is the Province of Nusa Tenggara Timur (NTT) which contributes to the needs of domestic beef, where as much as 60% of the national beef demand is concentrated in Jakarta, Jawa Barat, and Banten. Bali cattle contribute around 26,92% to the supply of cattle which slaughter, and one of the highest areas of Bali cattle suppliers for slaughter is NTT (Riwukore and Habaora, 2019[b]). The center of Bali cattle production in NTT is Timor Island with a spread of cattle population of 65,97%, of which 593.408 of cattle are spread on the it of the total cattle population in NTT totaling 899,577 of cattle (Riwukore

and Habaora, 2019[c]), but in this area, the livestock system is still traditional with low production inputs (Mahbubi, 2015; Habaora *et al*., 2019[a,b,c]). It is hoped that the management and input of Bali cattle farms can be improved in terms of the involvement of livestock Extensionist in the area.

So far, there is no information and data that can provide a clear picture of the livestock Extensionist performance in the agroecosystems of pasture, agriculture, plantation and forest at Timor Island, NTT Province. Therefore we need a research that can provide a profile of the performance of livestock Extensionist so that it can be information in improving the performance of Extensionist that have an impact on improving the welfare of Bali cattle farmers.

MATERIALS AND METHODS

This research was conducted on Timor Island, Nusa Tenggara Timur province, Indonesia, which was conducted in January-December 2018. The research locations were selected purposively representing pasture agroecosystems located in Belu district, Malaka district, and Timor Tengah Utara district. Kupang district and Kota Kupang are areas that represent agricultural agroecosystems and plantation agroecosystems, and Timor Tengah Selatan district represents forest agroecosystems.

Table 1. Variable about perception of the livestock farmers to extensionist profile

Variable	Subvariables	Indicators
Perception	Extensionist profile	1. Skilled Extensionist
		2. Extensionist understand the material
		3. Innovative and creative Extensionist
		4. Dicipline Extensionist in start in activities
	Materials and Methods	1. Suitability of teaching aids with activities
		2. Suitability of material with farmers' problems
		3. Suitability of method with the activities held
	Procurement of activities	1. The procurement of the activity is clear and understandable
		2. The procurement of activities to support the personal goals of farmers

The research material is farmer information data where the determination of respondents is 5-10% of the number of farmers in each agroecosystem that has a cattle > 10 of head. Based on this technique, the number of farmer respondents for pasture agroecosystem is 127 respondents, agricultural agroecosystem is 102 respondents, plantation agroecosystem is 102 respondents, and forest agroecosystem is 105 respondents. Interview respondents used a questionnaire prepared. Data collection methods are done through observation, interviews, and documentation (Nashir, 2003). Data obtained from this data collection are primary data and secondary data. Primary data collected, namely (1) respondent profile; (2) knowledge of feed management; and (3) knowledge about animal health. Research data were processed and tabulated using Excel programming. Analysis of the data used in this research is descriptive based on grouping, simplifying, and presenting data such as the use of frequency distribution tables and measurements using a Likert scale. Likert scale is used to measure attitudes, opinions, and perceptions of a person or group about social events or symptoms. The use of this Likert scale connects the variables to be measured by being translated into measurable indicators, as in table 1.

Each answer is related to the form of an attitude statement expressed in categorized words, namely: (a) strongly agree (5); (b) agree (4); (c) quite agree (3);

(d) disagree (2); and (e) strongly disagree (1). The measurement of each research indicator uses the basic assumptions of class intervals and class ranges as follows:

Maximum value = Highest Score x Number of Samples x Number of Questions
Nilai minimal = Lowest score x Number of Samples x Number of Questions
Rentang kelas = $\frac{\text{Maximum Value-Minimum Value}}{\text{Number of Question}}$

Assuming the basic class intervals and class ranges can be made as follows.

RESULT AND DISCUSSION

Perception of Farmers to Extensionist Profile

Livestock Extensionist profile is a performance of an Extensionist actual ability to perform a role and function to achieve the goal of livestock extension effectively and efficiently (Riwukore and Habaora, 2019[a]). Indicators of livestock Extension profile, namely skilled of Extension, Extensionist understands the material, innovative and creative Extensionist, and discipline Extensionist in start in activities. The farmer assessment data on the Extensionist profile based on agroecosystems on Timor Island is presented in Table 2.

Information on Extensionist profiles based on the aspects of Extensionist skill in Table 2 shows that the average Bali cattle farmer in agroecosystems of pasture, agriculture, plantation, and forest is agreed that Extensionist working in their area were skilled with a percentage value in each agroecosystem in sequence, namely 55,8%; 72,4%; 60,9%; and 55,1%.

The state of this research shows that agricultural Extensionist who work in agroecosystem of pasture, agriculture, plantation, and forest have good competence in supporting the business objectives of Bali cattle farmers. Based on the competency, the agricultural Extensionist in the agricultural agroecosystem is considered to have the highest competency, followed by the Extensionist who works in the agroecosystem of plantations, pastures, and forests. The better the competency of an Extensionist, the better the extensionist profile (Riwukore and Habaora, 2019[a]). Competence is a process and effort to connect the power of knowledge, skills, and attitudes that have been owned by someone in achieving the desired performance goals (Sapar *et al*., 2011; Saswita *et al*., 2013; Mujiburrahmad *et al*., 2004; Rohaeni and Hartono, 2014; Gidoi *et al*., 2015; Polohindang *et al*., 2016).

Then according to the information in Table 2 based on the aspect of Extensionist understand the material, the average Bali cattle farmer in the agroecosystem of pasture, agriculture, plantation, and forest agreed that the livestock Extensionist on duty in their area was the Extensionist who understood the material with a percentage value on each agroecosystem with a sequence 59,5%; 62,5%; 44,3%; and 65,9%. This difference in percentage values may be influenced by differences in the characteristics of Bali cattle farmers in understanding and accepting the contents of the material.

This is due to the content of the material in the form of information presented in the form of images, sounds, and texts highly dependent on the intellectual abilities of the recipients of the contents of the material (Rintjap, 2015; Riwukore and Habaora, 2019[a]).

Table 2. Category and range of Likert Scale classes measuring farmer perceptions

Agroecosystems	Category	Class Range			
		Extensionist Profile	Materials and Methods	Procurement of Activities	Overall
1. Pasture	5. Very Agree	1948,9-2320	1461,7-1740	974,5-1160	4384,9-5220
	4. Agree	1577,7-1948,8	1183,3-1461,6	788,9-974,4	3549,7-4384,8
	3. Quite Agree	1206,5-1577,6	904,9-1183,2	603,3-788,8	2714,5-3549,6
	2. Disagree	835,3-1206,4	626,5-904,8	417,7-603,2	1879,3-2714,4
	1. Very Disagree	464-835,2	348-626,4	232-417,6	1044-1879,2
2. Agriculture	5. Very Agree	1461,7-1740	1096,3-1305	730,9-870	3288,7-3915
	4. Agree	1183,3-1461,6	887,5-1096,2	591,7-730,8	2662,3-3288,6
	3. Quite Agree	904,9-1183,2	678,7-887,4	452,5-591,6	2035,9-2662,2
	2. Disagree	626,5-904,8	469,9-678,6	313,3-452,4	1409,5-2035,8
	1. Very Disagree	348-626,4	261-469,8	174-313,2	783-1409,4
3. Plantations	5. Very Agree	1579,3-1880	1184,5-1410	789,7-940	3553,3-4230
	4. Agree	1278,5-1579,2	958,89-1184,4	639,3-789,6	2876,5-3553,2
	3. Quite Agree	977,7-1278,4	733,3-958,8	488,9-639,2	2199,7-2876,4
	2. Disagree	676,9-977,6	507,7-733,2	338,5-488,8	1522,9-2199,6
	1. Very Disagree	376-676,8	282-507,6	188-338,4	846-1522,8
4. Forest	5. Very Agree	1378,5-1160	1108,9-1320	739,3-880	3326,5-3960
	4. Agree	1096,9-1378,4	897,7-1108,8	598,5-739,2	2692,9-3326,4
	3. Quite Agree	815,3-1096,8	686,5-897,6	457,7-598,4	2059,3-2692,8
	2. Disagree	533,7-815,2	475,3-686,4	316,9-457,6	1425,7-2059,2
	1. Very Disagree	352-533,6	264-475,2	176-316,8	792-1425,6

Table 2. Farmers' perceptions of Extensionist profile

Indicators	Pasture				Agriculture			Plantation			Forest		
	Score	∑ Person	Total	%	∑ Person	Total	%	∑ Person	Total	%	∑ Person	Total	%
Skilled of Extensionist	5	12	60	14.0	13	65	18.7	14	70	20.1	15	75	22.5
	4	60	240	55.8	63	252	72.4	53	212	60.9	46	184	55.1
	3	42	126	29.3	9	27	7.8	16	48	13.8	22	66	19.8
	2	2	4	0.9	2	4	1.1	7	14	4.0	4	8	2.4
	1	0	0	0.0	0	0	0.0	4	4	1.1	1	1	0.3
Total 1		116	430	100.0	87	348	100.0	94	348	100.0	88	334	100.0
Extensionist understand the material	5	13	65	15.1	12	60	18.0	8	40	12.3	16	80	23.5
	4	64	256	59.5	52	208	62.5	36	144	44.3	56	224	65.9
	3	33	99	23.0	20	60	18.0	43	129	39.7	7	21	6.2
	2	4	8	1.9	2	4	1.2	5	10	3.1	6	12	3.5
	1	2	2	0.5	1	1	0.3	2	2	0.6	3	3	0.9
Total 2		116	430	100.0	87	333	100.0	94	325	100.0	88	340	100.0
Innovative and creative Extensionist	5	8	40	9.2	9	45	15.5	10	50	15.5	8	40	12.2
	4	76	304	69.7	32	128	44.1	34	136	42.2	49	196	59.6
	3	29	87	20.0	30	90	31.0	40	120	37.3	31	93	28.3
	2	2	4	0.9	11	22	7.6	6	12	3.7	0	0	0.0
	1	1	1	0.2	5	5	1.7	4	4	1.2	0	0	0.0
Total 3		116	436	100.0	87	290	100.0	94	322	100.0	88	329	100.0
Discipline Extensionist in starting activities	5	6	30	8.1	15	75	25.5	4	20	6.5	4	20	6.5
	4	43	172	46.6	33	132	44.9	33	132	42.6	49	196	63.6
	3	38	114	30.9	21	63	21.4	45	135	43.5	27	81	26.3
	2	24	48	13.0	6	12	4.1	11	22	7.1	3	6	1.9
	1	5	5	1.4	12	12	4.1	1	1	0.3	5	5	1.6
Total 4		116	369	100.0	87	294	100.0	94	310	100.0	88	308	100.0
Total 1+2+3+4			1665			1265			1305			1311	
Information			Agree			Strongly Agree			Agree			Agree	

Next, the profile of creative and innovative Extensionist in a extension activity is necessary considering the provision of activities in rural areas are generally limited in props, materials, and methods, as well as the budget of extension activities (Yunasaf and Tasripin, 2012; Makatita *et al*., 2014; Talibo *et al*., 2017; Lamarang *et al*., 2017; Riwukore and Habaora, 2019[a]). Bali cattle farmers in agroecosystems of pasture (69,7%), agriculture (44,1%), plantations (42,2%), and forests (59,6%) agreed that the Extensionist who served in their area were creative and innovative.

The circumstances of this research indicate that the competency (skills) of the Extensionist affect creativity and innovation in the implementation of activities into effective. The difference in the value of this category is caused to be due to differences in the effectiveness of the Extensionist communication toward the interests and needs of the farmer. This is in accordance with some research results which explain that extension will be effective if it always refers to the interests and needs of the farmer. If the farmer assesses that the Extensionist has credibility, the creativity and innovation that is conveyed or demonstrated will be adopted. Creativity and innovation are high that have the Extensionist because they have the competence and source of information to strengthen their capacity through non-formal education that is followed.

Non-formal education has a significant effect on the profile of Extensionist through creativity and innovation in achieving the Bali cattle development program, while formal education often does not affect the creativity and innovation models of Extensionist because usually, the knowledge and work experience possessed by Extensionist is still, also including rank and group from them are still low (Saswita *et al*., 2013; Abdullah and Ibrahim, 2014; Alpianor *et al*., 2017; Ediset and Jaswandi, 2017; Riwukore and Habaora, 2019[a]).

The Extensionist profile aspect based on the discipline Extensionist in starting activities showed that the average Bali cattle farmer in the agroecosystem of pasture (46,6%), agriculture (44,9%), and the forest (63,6%) agreed that Extensionist was on duty in their area are Extensionist who are disciplined in activities. The average Bali cattle farmer in the plantation agroecosystem (43,5%) stated that is quite agree that the Extensionist who served in their area were disciplined in their activities. This difference in value is believed to be very much influenced by the relatively far distance that the Extensionist must travel to arrive at the extension location. Besides that, it is very much influenced by the program of extension activities which usually starts with ceremonial events or reasons for delays in the authorities opening and starting the extension event. Berek et al., (2015) stated that the farming system and topography in Kupang district (research location) became an obstacle in implementing livestock programs and activities by the government. Riwukore and Habaora (2019[a]) stated that the implementation of activities on Timor Island carried out by the government was usually preceded by ceremonial, hospitality, and communication activities, as well as delays in authorities such as the Village Head, Subdistrict Head, and others for opening activities.

In general, the profile of livestock Extensionist in Table 2 shows the value of the category of farmers' perceptions of the profile of Extensionist in generally at agroecosystems of pasture, plantation, and the forest is agree category to the total score of ratings for each agroecosystem in a sequence of 1665; 1305; and 1311, whereas farmers in agricultural agroecosystems are a category of strongly agree with the total score of 1265. This explains that farmers agree and strongly agree that the Extensionist on duty in their area are skilled Extensionist, Extensionist understands the materials, creative and innovative Extensionist, and discipline Extensionist in starting activities.

The profile of Extensionist can be capital to provide encouragement so that farmers can increase their desires and learning needs because the Extensionist has provided an example of motivation. Motivation is the process of growing motives or encouragement so that farmers are willing to consciously learn and change their behavior. Existence of motivation then the extension activities will be directed and seriousness in activities maintained (Yunasaf and Tasripin, 2012; Talibo *et al*., 2017; Ediset and Jaswadi, 2017).

Farmers' Perception of Suitability of Material and Methods

Extension material is the implementation of the education function of extension regarding everything that is communicated to the extension goals by considering how to deliver the material to the target, the relationship between the material and the target's needs, the Extensionist ability to explain the material, the completeness of the material and attention to the mental readiness of the farmer, and repetition of the methods carried out, whereas the method is a collection of various ways the extension process can be applied so that it becomes more effective and efficient (Riwukore and Habaora, 2019[a]). Data on the perception of Bali cattle farmers based on agroecosystems about the suitability of material and methods in an extension are presented in Table 3.

Information on indicators of suitability of material and methods based on suitability of teaching aids with activities shows that the average Bali cattle farmers in the pasture agroecosystem (63,8%), agriculture (42,6%), and forests (64,5%) agreed that the teaching aids in extension of according to the activity, while the average farmers in plantation agroecosystems (40,3%) stated that they very agreed that the teaching aids in accordance with the activities. The condition of this research shows that the teaching aids used in an extension are able to be absorbed and adopted by farmer knowledge and easily understood by them.

This is in line with several research results which state that the role of teaching aids in extension activities is very important because the teaching aids can facilitate the delivery of information, avoid misperceptions, clarify information, make it easy understanding and can make it expedite communication at all levels of sensory capture. A teaching aid that is easy to understand and demonstrates helps farmers in receiving information of extension, then the availability of teaching aid various is needed for the development of farmers' skills because sensoric capture to receive information from each farmer is different (Sapar *et al*., 2012; Saswita *et al*., 2013; Sajow *et al*., 2014; Mujiburrahmad *et al*., 2014; Riwukore and Habaora, 2019[a]).

Table 3. Farmers' perception of suitability of material and methods

Indicators	Pasture				Agriculture			Plantation			Forest		
	Score	∑ Person	Total	%	∑ Person	Total	%	∑ Person	Total	%	∑ Person	Total	%
Suitability of teaching aids with activities	5	9	45	10.6	19	95	28.9	30	150	40.3	7	35	11.5
	4	68	272	63.8	35	140	42.6	33	132	35.5	49	196	64.5
	3	33	99	23.2	29	87	26.4	28	84	22.6	14	42	13.8
	2	4	8	1.9	3	6	1.8	3	6	1.6	13	26	8.6
	1	2	2	0.5	1	1	0.3	-	-	0.0	5	5	1.6
Total 1		116	426	100.0	87	329	100.0	94	372	100.0	88	304	100.0
Suitability of material with farmers' problems	5	30	150	33.1	17	85	27.2	5	25	6.9	4	20	7.4
	4	53	212	46.8	26	104	33.3	70	280	77.8	22	88	32.5
	3	26	78	17.2	35	105	33.7	17	51	14.2	42	126	46.5
	2	6	12	2.6	9	18	5.8	2	4	1.1	17	34	12.5
	1	1	1	0.2	0	0	0.0	-	-	0.0	3	3	1.1
Total 2		116	453	100.0	87	312	100.0	94	360	100.0	88	271	100.0
Suitability of method with the activities held	5	10	50	12.0	13	65	20.4	4	20	6.0	2	10	3.1
	4	64	256	61.5	38	152	47.6	54	216	64.7	74	296	90.8
	3	30	90	21.6	31	93	29.2	28	84	25.1	2	6	1.8
	2	8	16	3.8	4	8	2.5	6	12	3.6	4	8	2.5
	1	4	4	1.0	1	1	0.3	2	2	0.6	6	6	1.8
Total 3		116	416	100.0	87	319	100.0	94	334	100.0	88	326	100.0
Total 1+2+3			1295			960			1066			901	
Information			Agree			Agree			Agree			Agree	

Then according to the information in Table 3 based on suitability of material with farmers problem shows that the average Bali cattle farmers in the pasture agroecosystem (46,8%) and plantations (77,8%) agreed that the material gave by the Extensionist was in accordance with the problem being faced by farmers, while the average farmers in agroecosystems of agricultural (33,7%) and forests (46,5%) stated that they quite agreed that the material gave of Extensionist was in accordance with the problem faced by farmers. The difference in perception among Bali cattle farmers is allegedly due to differences in the ability to received clear information from material that is given. Another reason is that some of the technologies and innovations presented are not a solution to the problems faced by farmers, or the technologies and innovations are that has been known and or implemented by farmers. Thus the extension material is sought in accordance with farmer needs and provide or bring economic benefits. The suitability of the extension material with the problems faced by the target farmers is an attraction for the farmers so that their will automatically be present at every extension held (Makatita *et al*., 2014; Sajow *et al*., 2014; Rintjap, 2015; Mangare *et al*., 2016; Alpianor *et al*., 2017; Talibo *et al*., 2017; Sumner *et al*., 2018; Riwukore and Habaora, 2019[a]).

Next, the perception of Bali cattle farmers based on the aspects suitability of method with the activities held in the information in Table 3 shows that the average Bali cattle farmers in agroecosystem of pasture (61,5%), agriculture (47,6%), plantations (64,7%), and forests (90,8%) agree that Extensionist who work in their area use extension methods in accordance with the activities carried out. The difference in the value of the farmers' perception categories is believed to be because the selection of the methods used is not the same in the situation and condition of farmers. In general, Bali cattle farmers accept the existence of the methods used in an extension. The extension method used by the Extensionist is discussion and lecture. Talibo *et al*., (2017) and Alpianor *et al*., (2017) states that the benefits of extension through discussions and lectures are more efficient and easier in directing discussions so that the information exchange process can run well. The choice of method is not always the same according to time and place but depends on the problems, situations, and conditions that exist.

In general, farmers' perceptions in agroecosystems of pasture, agriculture, plantation, and forest to materials and methods in the livestock extension process that have been held in the category agreed with the total score on each agroecosystem in a sequence is 1295; 960; 1066; and 901. The higher the ability to apply materials and methods, the better the level of Extensionist performance in implementing livestock extension (Sajow *et al*., 2014; Garcia-Martinez *et al*., 2016; Ediset and Jaswandi, 2017). The role of Extensionist in the delivery of materials and methods is as the role of educators so that Extensionist must be able to increase the knowledge and insights of farmers so that them get useful and up-to-date information about the development and techniques of farming (Sapar *et al*., 2012; Mujiburrahmad *et al*., 2014; Mangare *et al*., 2016).

This can be assessed from the completeness of the material provided by the Extensionist. The suitability of extension materials and methods with the goals to manage interest in targets, achieve more goals, help overcome language barriers, stimulate targets to carry out information, help targets to learn more and be precise, stimulate targets to forward messages received to others, make it easier to obtain information by the target, encourage people's desire to know, then explore further and ultimately provide a better understanding, and help enforce the understanding obtained (Saswita *et al*., 2013; Sajow *et al*., 2014). Sumner *et al*., (2018) state that improving knowledge and management of livestock can be done through the delivery of materials and methods that are easily understood and

easily explained. This is very influenced by the Extensionist competence.

Perception of Farmers to Procurement of Activities

The procurement of activities is an effort to improve the behavior of farmers through extension activities to increase the knowledge and skills of farmers and changes in attitudes of farmers (Riwukore and Habaora, 2019[a]). Data on farmers' perceptions of the procurement of extension activities are presented in Table 4.

The data in Table 4 about the procurement of the activities are clear and understandable, showing that on average Bali cattle farmers in agroecosystems of pasture (44,2%), plantations (49,3%), and forests (67,6%) agreed that extension was conducted in their area have clear activity objectives and understandable, the average Bali cattle farmer in the agricultural agroecosystem (44,9%) stated that it was quite agreed that the extension activities carried out in their area have clear activity objectives and understandable. The difference in percentage values is believed to be very influenced by the ability of farmers to absorb information on the extension activities that are held.

This is in accordance with what was reported by Riwukore and Habaora (2019[a]) that respondents who said that the goals of each extension that was held were less understood because the level of education was low so that it affected the ability to receive the information were also low. The purpose of extension activities is intended to improve the behavior of farmers who are shown from the knowledge, attitudes, and skills of farmers that can be observed by others, either directly or indirectly in terms of the application of information.

Table 4. Perception of farmers to the procurement of extension activities

Indicators	Pasture				Agriculture			Plantation			Forest		
	Score	∑ Person	Total	%	∑ Person	Total	%	∑ Person	Total	%	∑ Person	Total	%
The procurement of the activity is clear and understandable	5	30	150	33.1	6	30	10.2	15	75	22.0	13	65	19.0
	4	50	200	44.2	30	120	40.8	42	168	49.3	58	232	67.6
	3	31	93	20.5	44	132	44.9	28	84	24.6	12	36	10.5
	2	5	10	2.2	5	10	3.4	5	10	2.9	5	10	2.9
	1	0	0	0.0	2	2	0.7	4	4	1.2	0	0	0.0
Total 1		116	453	100.0	87	294	100.0	94	341	100.0	88	343	100.0
The procurement of activities to support the personal goals of farmers	5	8	40	10.0	8	40	13.9	5	25	100.0	2	10	3.7
	4	47	188	47.1	32	128	44.4	43	172	0.0	3	12	4.4
	3	52	156	39.1	34	102	35.4	38	114	0.0	82	246	91.1
	2	6	12	3.0	5	10	3.5	6	12	0.0	1	2	0.7
	1	3	3	0.8	8	8	2.8	2	2	0.0	0	0	0.0
Total 2		116	399	100.0	87	288	100.0	94	325	100.0	88	270	100.0
Total 1+2			852			582			666			613	
Information			Agree			Quite Agree			Agree			Agree	

Based on aspects of the procurement of activities to support the personal goals of farmers according to the information in Table 4 shows that the average farmers in agroecosystems of pasture (47,1%) and agriculture (44,4%) agreed that the objectives of the extension activities support the personal goals of the farmers, then 100.0% of farmers in the agroecosystem of plantation stated that they very agreed that the objectives of the extension activities were very supportive of the personal goals of the farmers, the average Bali cattle farmer in the forest agroecosystem (91,1%) stated that it was quite agreed that the purpose of the extension activities supported the personal goals of the farmers. The circumstances of this research indicate differences in perceptions among Bali cattle farmers allegedly because most of the material presented by Extensionist is not in accordance with the farming problems being faced by farmers, besides that, it is also very influenced by the ability of knowledge in absorbing information on different activities in each farmer. Repair of information to farmers about the purpose of procuring activities that are easy to understand and adapted to the conditions of farmers' needs can increase the attractiveness of farmers to the objectives of extension activities carried out. If the farmer considers that the purpose

of procurement extension activities is problem that face of farmers, easy to understand, easy to carry out or easy to implement, and in accordance with the personal goals of the farmers, the extension activities are will more effective and increase of enthusiasm of farmers of participating in the extension activities (Abdullah and Ibrahim, 2014; Nugroho and Azizah, 2014; Alpianor *et al*., 2017; Riwukore and Habaora, 2019[a]).

In general, farmers' perceptions of the procurement of extension activities in agroecosystems of pasture, plantation, and forest in the value category agree with the total score of each agroecosystem in a sequence of 852; 666; and 613. This explains that the role of the Extensionist as a facilitator can run well so that conducting extension activities that are appropriate to the personal needs of farmers and easily implemented. The role of the Extensionist as a facilitator is the role of the Extensionist in supporting the implementation of the farmer's learning process properly. The Extensionist is not only as a provider or conveyor of information but is more needed as a motivator, dynamisator, and facilitator, while the perception of Bali cattle farmers on the procurement of extension activities in agricultural agroecosystems in the value category is quite agreed with the total score is 582.

The state of this research shows that the Extensionist allegedly has not been able to map the objectives of the implementation of activities in accordance with the knowledge and needs of Bali cattle farmers. Sumner *et al*., (2018) explain that improving the knowledge and management of livestock can be done through the delivery of materials and methods that are easily understood and easily explained. This very influenced by the competences of the Extensionist.

Farmers Perception toward Extensionist Performance

Indicators to a measure of farmer perceptions to Extensionist performance are the Extensionist profile, the suitability of materials and methods in extension activities, and the purpose of procuring activities that describe the responsiveness, responsibility, and service quality of the Extensionist itself (Riwukore and Habaora, 2019[a]). Data on farmers' perceptions of Extensionist performance are presented in Table 5.

Table 5. Farmers perception toward Extensionist performance

Variable	Subvariables	Agroecosystems							
		Pasture		Agriculture		Plantation		Forest	
		Value	Info	Value	Info	Value	Info	Value	Info
Extensionist Performance	Extensionist profile	1665	Agree	1265	Very Agree	1305	Agree	1311	Agree
	Materials and methods	1295	Agree	960	Agree	1066	Very Agree	901	Very Agree
	Procurement of activities	852	Agree	582	Quite Agree	666	Agree	613	Agree
	Total	3812	Agree	2807	Agree	3037	Agree	2825	Agree

In general, farmers' perception toward Extensionist performance in the agroecosystems of pasture, agriculture, plantation, and forest toward livestock Extensionist is a category of agree with the total score of each agroecosystem in a sequence of 3812; 2807; 3037; and 2825. This explains that the existence of Extensionist can be said both in terms of Extensionist profile, material and method suitability, and the procurement of extension activities. This condition explains that the Extensionist in carrying out his duties and functions in the field in accordance with existing standards, namely as a mediator, motivator, educator, communicator, facilitator, and assistance/visitor, this very necessary to improve and enhance the role

of Extensionist related to competence so that it can influence farmers to be more productive in developing their Bali cattle farming business. Surahmanto *et al*., (2014) stated that the achievement of government programs is determined by the high or low performance of Extensionist in the field because the Extensionist is technical implementers in the field. Abdullah and Jaswandi (2014) stated that the performance of Extensionist had a significant relationship with the achievement of the Bali cattle development program because the high performance of Extensionist would be followed by high program achievements, and conversely the achievement of low programs would indicate low performance also.

Availability of Teaching Aids and Intensity of Extension Activities

The intensity of extension is the frequency of farmers in accessing communication channels or information about technology that can be applied in the livestock business. The effectiveness of extension is the frequency of farmers participating in extension activities and also farmers' groups.

The intensity of the extension program can be seen from the number of meeting with Extensionist in displaying and demonstrating livestock information. Data on the availability of teaching aids and the intensity of farm extension activities are presented in Table 6.

Table 6. Availability of teaching aids and intensity of extension activities

Description	Agroekosystems							
	Pasture		Agriculture		Plantation		Forest	
	Σ person	%	Σ person	%	Σ person	%	Σ person	%
Teaching aids								
(-) 1 kind	17	14.7	35	40.2	33	35.1	68	77.3
(-) 2 kind	51	44.0	18	20.7	16	17.0	16	18.2
(-) > 2 kind	48	41.4	34	39.1	45	47.9	4	4.5
Total	116	100.0	87	100.0	94	100.0	88	100.0
Intensity of extension activities								
(-) > 1 time	82	70.7	52	59.8	47	50.0	60	68.2
(-) No activity	19	16.4	21	24.1	18	19.1	5	5.7
(-) Don't know because it's not invited	15	12.9	14	16.1	29	30.9	23	26.1
Total	116	100.0	87	100.0	94	100.0	88	100.0

The availability of assistive devices in extension activities can increase the effectiveness of communication, where the effectiveness of delivery can be increased with the help of teaching aids. The visual aids that are usually used at the time of extension are blackboards, loudspeakers, farming manuals, leaflets, posters and photocopies of material explained by the Extensionist, and newspapers or magazines. The data in Table 6 informs that the average Bali cattle farmer in the pasture agroecosystem with the highest value of using teaching aids by Extensionist is 2 kinds (44,0%), the average farmers in agricultural agroecosystems with the highest value of the use of teaching aids by Extensionist is 1 kind (40,2%), the average of farmers in plantation agroecosystems with the highest value of using teaching aids by Extensionist was > 2 kinds (47,9%), while the average farmers in forest agroecosystems with the highest value of the use of teaching aids by Extensionist are 1 kind (> 77.3%).

He variation in the value of the percentage of the use of teaching aids in extension affects the reception of

information by farmers so that many of the farmers have difficulty absorbing various information technologies and new innovations. The absorption of information by farmers is greatly influenced by the level of knowledge of farmers. A teaching aid that is easy to understand and demonstrates helps farmers in receiving information about the extension.

The availability of diverse teaching aids is needed for the development of farmers' skills because the power of receiving information from each farmer is different (Sapar *et al*., 2012; Saswita *et al*., 2013; Sajow *et al*., 2014; Mujiburrahmad *et al*., 2014; Riwukore and Habaora, 2019[a]). Yunasaf and Tasripin (2012) and Talibo *et al*., (2017) states that one important factor influencing the level of performance of an Extensionist is the extent to which extension activities carried out or are supported by the availability of adequate teaching aids.

The data in table 6 about the intensity of extension activities over the past year shows that the average farmers in agroecosystems of pasture (70,7%), agriculture (59,8%), plantations (50,0%), and forests (68,2 %) said more than 1 time. This is very influenced by the relatively high intensity of institutional meetings of farmers by the group of Bali cattle farmers in agroecosystems of pasture, agriculture, plantation, and forest.

The circumstances of this research indicate that there is a close relationship that extension livestock to farmers tends to be done through groups of farmers. In general, extension locations are generally carried out in village offices. Most respondents said that they often attended extension activities because the location of the house was close to the village office, had a handphone media that could receive invitations to activities, and was active in group activities so that it was easy to access activity information, while respondents who said there were no activities were believed to be because profession data as farmers was possible only as a formality of activities, and generally, the activities carried out at the Village Office had "sitting money" so that those involved were due to close to the organizing committee, whereas respondents who said they did not know because they were not invited said that the extension activities held at the Village Office did not have any benefit because what was taught was old material that had actually been known by the farmer. An extension must be able to realize the achievement of satisfaction. Satisfaction will greatly determine the participation of targets in extension programs.

CONCLUSIONS

In general, farmers' perceptions in agroecosystems of pasture, agriculture, plantation, and forest on livestock Extensionist in the category agree that the existence of Extensionist can be said both in terms of performance, material suitability, and in the provision of extension activities. This condition explains that the Extensionist in carrying out his duties and functions in the field in accordance with existing standards, namely as a mediator, motivator, educator, communicator, facilitator, and assistance/visits.

Nevertheless, it is very necessary to repair and enhance the role of Extensionist related to competence so that it can influence farmers to be more productive in developing their Bali cattle farming business. Then Bali cattle farmers in agroecosystem of pasture with the highest value of the use of teaching aid by Extensionist were 2 kinds (44.0%), the average farmers in agricultural agroecosystems with the highest value of the use of teaching aids by Extensionist is 1 kind (40,2%), the average farmers in plantation agroecosystems with the highest value of use teaching aid by Extensionist were> 2 kinds (47,9%), while the average farmers in forest agroecosystems with the highest value of using teaching aids by Extensionist were 1 kind (> 77, 3%).

The variation in the value of the percentage of the use of teaching aids in extension affects the receipt of information by farmers so that many of the farmers have difficulty absorbing various information technologies and new innovations, while the

intensity of extension activities during the past 1 year shows that the average of farmers in agroecosystems of pasture (70,7%), agriculture (59,8%), plantation (50,0%), and forest (68,2%) said more than once.

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