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RESPONSES OF FARMERS REGARDING THE ROLE OF FLY INSECTS AGAINST SKIN DEFECTS OF LOCAL CATTLE

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Abstract

Recently the average of national production of local beef cattle in Indonesia tends to decline. On the other hand, insect infestations, especially flies in cattle become one of the problems that cause a damage in cow skin and also inhibits local cattle production. This research aimed to evaluate the responses of small-scale local cattle farmers regarding infestation of flies and their consequences which they traditionally manage. The research method used was the descriptive method through a field surveys conducted in 12 small-scale local cattle farmers in Minahasa area and 12 others in Tomohon and North Minahasa. The results showed that the highest number of 42% of respondents who were disagree to say that flies have a potential to transmit disease to cattle, while 25% strongly were agree, the rest give varied opinions. Various responses to flies play a role in skin defects: The highest percentage who agreed with the number are those who say they disagree, that is 33%, who agree to 25%. Through an interview, it was directly shown that limit knowledge about insects resulted low understanding on the potential role of flies that caused a skin defect. However, 25% of respondents were aware that when in such cases appeared than a consultation with livestock health officers was needed.

Key words*: insect, skin defect, farmer, local cattle.*

INTRODUCTION

Local beef cattle production in various regions such as in North Sulawesi Province of Indonesia has great potential in supporting various breakthroughs for national food development for the community, as stated by Tarigan (2018). Moreover, it was observed that these cattle had a type of mix-farming activity. However, until now the farmer of this type of livestock have not a maximum benefit. In this current era of global markets which have begun to take place in the Southeast Asia region, the existence of livestock products faces a challenging because they have to compete with global markets.

The development of beef cattle production quality will be able to provide maximum profits to farmers both from the main results in the form of meat and by-products, especially leather. Local cattle ranches in the Minahasa region of North Sulawesi Province that we explored, showed all of them were small scale and traditionally managed. Kaosa-ard and Rerkasem (1999) constated that: "Traditional farming is based on systems with minimal or no imported inputs and where livestock and crop activities are integrated. Farm products are mainly for domestic consumption and the excess was sold locally". These cows were important in their daily activities because they are used as working cattle and cut. Livestock work because they help in hijacking in the farm or was used a transportation equipment from the farm to the house in their village.

One of the problems found in cows maintained by these farmers was a skin disorders that caused injury. These wounds were often become a place of insect activity, especially flies (Rumokoy et al., 2018a). These insects have been known for their role as pathogenic agent vectors that have an impact on the wound or on environmental health, especially to the animal's body. Maintenance and handling of cow's skin health problems in local cows depended on the perspective, knowledge and insights and experiences of the farmer himself. Newborns have clean skin conditions without a skin defect compared to those over one year, as a consequence of the function of colostrum in

calves as in other mammals such as horses (Rumokoy and Toar, 2014). Injuries to the skin that were not resolved completely resulted an increasing of size of the wound and damaged to the skin permanently which were called a skin defect. Toar et al. (2013) suggested that there were various bio-active ingredients such as citronella oil and papain obtained from several types of local plants in the tropics that have been developed to make fly repellent in livestock.

The problem in this traditional livestock system was a threat of contamination with pathogenic micro-organisms in their environment (Rumokoy and Toar, 2015).

In order to be able to support precisely in overcoming the problems of these traditional farmers in the current conditions, we need a variety of the latest scientific information, especially regarding their responses to the role of fly insects on local cow skin defects that they traditionally raise.

MATERIALS AND METHODS

A descriptive method was used in this research through a field surveys conducted in 12 small-scale local cattle farmers in centre of Minahasa area and 12 farmers with the same type outside of centre of Minahasa (Tomohon, and North of Minahasa).

Figure 1. Survey Locations Map, (Google Map, 2019)

The survey realized by an interview technical to get the response from farmer aboutthe role of flies on their cattle' skin defect. The first parameter was the opinion about flies as pathogenic agent transmitter and the second was farmer response to overcome this skin defect.

The instrument in this study was questioner by using Likert scale to measure the response. The first parameter was explored by proposing four questions to detect the opinion farmer concerning the flies and cattle skin defect:

P1 (flies were able to transmit pathogenic agent); P2 (many species flies infested in skin defect in cattle); P3 (flies were able to lead a skin defect); P4 (a skin defect could be more serious by a simultaneous infection of virus, bacteria, and parasite).

The second parameter was elaborated to detect their opinion of the way to overcome cattle suffered with a skin defect: rather to consult with skilled person or use their own traditional manner by using a question:

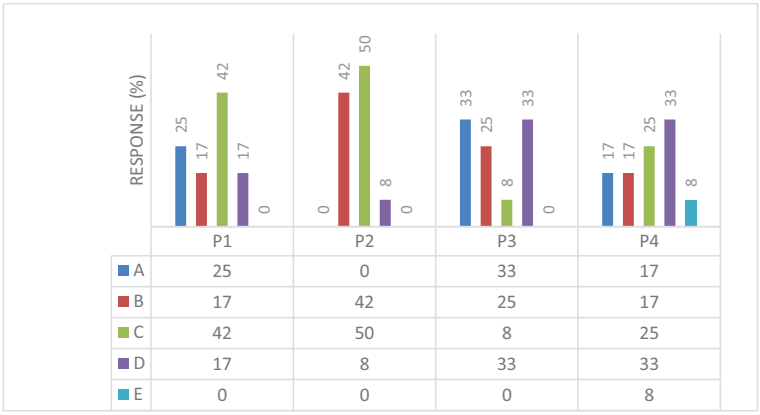
Do you think that consulting with people who are competent in the field of livestock health is important to overcome skin defects rather than using their own traditional methods?

RESULTS AND DISCUSSIONS

Various of farmer's response related to question P1: Were flies able to transmit pathogenic agents? Although not exceeding 50%, it turned out that in the field most farmers gave a neutral response (42%).

When they were asked that the existing of flies infesting in the skin defects or wounds? As many as 42% agreed, while 50% were still hesitant. They were more likely to generalize flies. Based on the statement that "flies were able to lead a skin defect, gave a divers response of the farmer connected which showed that the same proportion between to whom responded: strongly agree compared to the response disagree.

In this point 25% respondents were agreed. Concerning to the question P4 showed the same presentation (33%) for both the person who were strongly agreed and agreed reached to say that a skin defect could be more serious by a simultaneous infection of virus, bacteria, and parasite, while 25% respondents were neutrals, but 33% of respondent were not agreed as shown in Figure 1.



	P1	P2	P3	P4
A	25	0	33	17
B	17	42	25	17
C	42	50	8	25
D	17	8	33	33
E	0	0	0	8

Figure 2. Bar chart of farmer's opinion on flies and skin defect in cattle

Figure 3. Skin defect of a cattle

Figure 4. Skin defect of a cattle with flies infestation

The farmer's responses concerning the manner to stun the cases skin defect of their cows were varied (Figures 2, 3, 4, 5). In location A (Centre of Minahasa area) showed that a largest part (34%) agreed that it was better to consult with the trained person rather than used the traditional manner, followed by the response that they preferred to apply a local traditional manner for this case (33%) and 17% of respondent expressed a neutral decision to choose an opinion to overwhelm the problems of skin defect (Figure 6).

In this areal of observation, a same proportion appeared from the respondents who had answered strongly disagreed compared to those who were strongly disagree.

Figure 5. Flies activities in a skin wound of cattle maintained with traditional manners

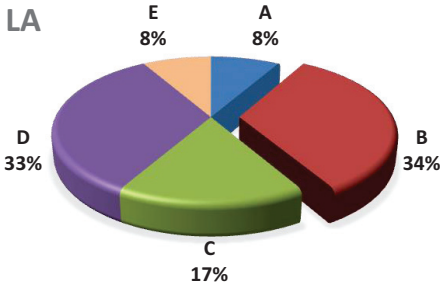


Figure 6. Farmer's opinion in location A (LA)

The respondent of farmers in location LB showed a different opinion: a portion of 25% revealed from the respondent who was strongly agreeing that needed to a trained person to resolve their cow's skins defect (Figure 7). The answer "agree" was also 25% found in the location LB, while 33% could not decide to choose a negative or positive opinion.

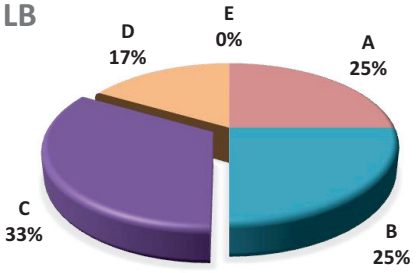


Figure 7. Farmer's opinion in location B (LB)

From the results as mentioned above, illustrates various points in the fields of agriculture and livestock in locations where the surveys were realized:

Technical Support: Farming in Asian countries can be characterised as smallholding agriculture (Ye and Pan, 2016) included the farming surveyed in this research. A technical support seemed to be needed for farmers surveyed to overcome the problem of skin defects of their cows.

Another work of Toar et al. (2018) showed that most beef cattle experienced skin defects associated with infestations of various species of fly even though in this recent survey rose a 42% of respondents gave otherwise respons. The intended support will be needed because some of these breeders were still unaware that flies have the potential to transmit disease agents through injured skin.

Various local natural resources could be used to treat various conditions of infections which spread by insects such as flies, as related to the reports of Rumokoy et al (2018b). Therefore, supports oriented to increase agricultural production including livestock products and the crops as managed by the farmer. Devendra (2012) reveals that a breaking of challenges will be able to increase productivity, improve the quality of life and environment sustainability in the future.

The connection of knowledge of livestock skin health with cattle production gave a consequence to the farming condition which was detected through constant number of cattle in regions do survey. If an extension of technical assistance is programmed periodically, it is highly probable that the farmer can improve their cattle production.

Cultural Context: It was also noted, that families who carried out cattle having a high mobility in their work and run a multi-job of work in agriculture domain, for example as a farmer, a fisherman, a carpenter. In generally this multi-jobs have been done for generations, while their cattle used to be as laborers in their agriculture fields and also as a transport vehicle between their fields and homes.

Livestock ownership in the areas of survey has a social perspective value even though only a few heads of animal. This condition can trigger an increase in the quantity and quality of cow production that intersects with agricultural programs from the government in the region.

Economic Drivers: This type of cattle farming could be as one of the economic growth drivers in the community, especially for those who in the same time have coconut plantations and other perennials as well as vegetable crops. Technical assistance destinate to middle-income farmers can help mind-sets to develop from aspects of production and income. According to Widiatmanti (2015) the household income in the middle level are needed to be support in order to reach in a high net worth individual.

CONCLUSIONS

Cattle farming in the Minahasa region have important geographical and cultural values in order to improve regional economies and contribute to the national food supply. The effort to increase the local cattle farms production in this area needs to be accompanied by technical assistance, especially in overcoming the problem of skin defects associated with the role of flies.

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