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DETECTION OF HELMINTH PARASITES INSIDE BEEF CATTLE AT THE SLAUGHTERHOUSE

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KEYWORDS
Slaughterhouse, Beef Cattle, Kato-Katz, Worm Eggs.

ABSTRACT
Slaughterhouse is a facility where farmed animals are butchered, primarily for food and this facility already have permission letter to operate from the local government because it has meet criteria of animal health standards, as well as a place for monitoring and surveillance of animal diseases and zoonoses. Attempt to develop beef cattle can be potentially improved. Yet, due to poor beef cattle rearing methods, such as poor pen sanitation, accumulation of cow dung in the pen and leftover cow feed in the pen, it will affect the condition of cow pen. The cows will not feel comfortable in dirty pen and dirty pen will cause disease by parasites. This study aims to detect the presence of Helminth class parasites in beef cattle at slaughterhouses. This research is an observational study with a purposive sampling method. The samples used were dung of Balinese and local beef cattle, with a total of 70 samples. Examination of the samples was carried out using a microscope and applying the kato-katz method to see the type of worm eggs/parasites inside the dungs. The results showed that of the 70 dung samples that had been examined, there were 61 positive samples (87.14%) infected with worm eggs from the helminth group, and 9 samples (12.84%) tested negative because there were no worm eggs visible on microscopy. Worm infections obtained from nematodes were sorted from highest to lowest respectively, namely Ascaris by 31 (44.28%), Bunostonum trigonocephalum 7 (15.71%), Haemonchus contortus 8 (11.42%), and Moniezia bendeni 11 (10). %), then worm infection from trematodes namely Fasciola hepatica by 4 (5.71%).

INTRODUCTION
The development of the livestock sector is one of the most important main objectives to support livestock establishment in Indonesia (Pertanian, 2017) Beef cattle are one of the livestock, developed primarily for the efficient production of high economic value of meat and are important to fulfill the needs of animal protein for the Indonesian people (Sugeng et al., 2008). Slaughterhouses are community service units which provide safe, intact, healthy, and halal meat, as well as a place for monitoring and surveillance of animal diseases and zoonoses. The Provincial Government of Central Sulawesi through the Plantation and Animal Husbandry Service (Regency Plantation and Animal Husbandry Service) appealed the public to slaughter cattle through Animal Slaughterhouses.

Attempt to develop beef cattle can be potentially improved. Yet, due to poor beef cattle rearing methods, such as poor pen sanitation, accumulation of cow dung in the pen, and leftover cow feed in the pen, it will affect the condition of cow pen. The cows will not feel comfortable in dirty pen and the dirty pen will cause disease by parasites (Bilgic & Yen, 2013). Beef cattle included in the genus Bos are one of the livestock which are kept for the main purpose of producing meat. One of the diseases considered as an

obstacle to animal husbandry is parasites, especially in relation to increasing population and livestock production (Koswara, 1988). The most common and widespread disease is a disease caused by worm parasites (Kusumamiharja, 1985).

Losses due to parasitic diseases include decreased livestock productivity, weight loss, decreased meat quality, stunted growth in young cattle, and the danger of transmission to humans or zoonoses (Gasbarre, Leighton, & Sonstegard, 2001). One of the diseases considered as an obstacle to animal husbandry is parasites, especially in relation to increasing population and livestock production (Koswara, 1988). Based on this explanation, this research was conducted with the aim of detecting the presence of helminth class parasites in beef cattle at the Slaughterhouse in Palu City.

RESEARCH METHODS

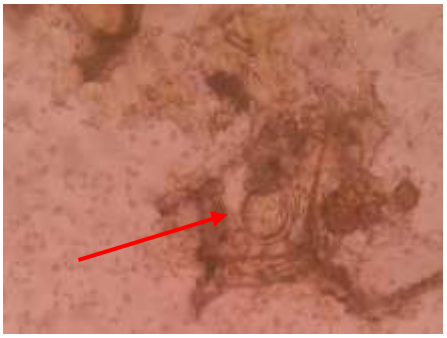
This research is an observational study with purposive sampling method. The sample used is fresh dungs from beef cattle taken from the Slaughterhouse in Palu City. The total sample was 70 samples, and then a microscopic examination of the dungs was carried out using the Kato-Katz method, at the Laboratory of Parasitology, Faculty of Medicine, Tadulako University. The working principle of the kato-katz method is the same as the direct slide method with the addition of selophane tape which has been soaked with malanchit green as a background (Limpomo & SUDARYANTO, 2014)

RESULTS AND DISCUSSION

Result of the Study

Based on the results of study conducted on 70 samples of beef cattle dungs taken from the slaughterhouse in Palu city, it showed that 61 samples tested positive for infection with worm eggs and 9 other samples were considered negative because no worm eggs were seen during microscopy with the Kato- Katz. This process has been carried out in the Parasitology Laboratory Faculty of Medicine UNTAD.

Figure 1
Microscopic examination results of worm eggs using the Kato-Katz method

No.	Type/Species of worm eggs	Picture of worm eggs
1.	*Asscaris.Sp.*	

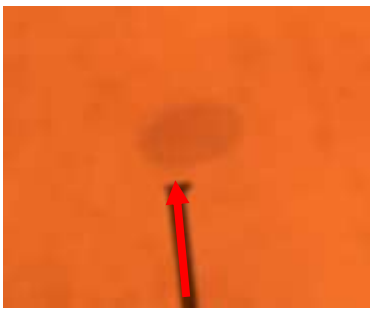
2.	*Bunostonum trigonocephalum*	
3.	*Moniezia bendeni*	
4.	*Haemonchus contortus*	
5.	*Fasciola hepatica*	

Table 1
Number and percentage positively infected with worm eggs

No.	Name of species	Number of Species	Percentage (%)
1.	*Asscaris*	31	44,28%
2.	*Bunostonum trigonocephalum*	11	15,71%
3.	*Haemonchus contortus*	8	11,42
4.	*Moniezia bendeni*	7	10%
5.	*Fasciola hepatica*	4	5,71%
	Total	**61**	**87,14%**

Discussion

According to the results of the study, of the 70 dung samples which had been examined, there were 61 positive samples (87.14%) infected by worm eggs from the helmint group, and 9 samples (12.84%) tested negative, because there were no worm eggs found during microscopy using the Kato-Katz method. This shows that the prevalence of helminthiasis in beef cattle at Slaughterhouse in Palu City is quite high, which is 87.14%. According to (Arsani, 2015), in Indonesia, a disease that often attacks cattle is helmintiasis which is widely spread with a fairly high prevalence rate. This high prevalence can affect the cattle health, infect the digestive tract which result in a decrease in nutrient absorption, causing growth delays so that the quality of cattle will decrease. Further, this can impact on economic losses. These factors are inseparable from the epidemiological triangle, namely the host, agent, and environment (Astiti, Yuniarta, AK, & Edy Sujana, 2017).

In the initial survey conducted at the Slaughterhouse in Palu City, it was seen that there was a lot of cow dungs/cow excretion residue in the cow pen. Apart from that, the feed for the cows, which is placed on the floor of the pen, has been mixed with the rest of cows' excretions. Asa result, the feed is being contaminated with residual excretion, so that cows which consume the feed can cause parasitic infections from worms. This is in line with research conducted by (Levine, 1990), that contaminated feed and poor environmental sanitation are sources of worm transmission in cattle. In addition, with poor sanitation, the accumulation of cow dung in the pen and the presence of leftover cow feed in the pen will cause uncomfortable feeling for the cows and will cause diseases caused by parasites (Bilgic & Yen, 2013).

The results of the study on the examination of dung show that 61 positive samples are infected with worms which belong to the helminth group such as the nematode and trematode phyla. Worm infections from nematodes were sorted from highest to lowest, namely *Asscaris* at 44.28%, *Bunostonum trigonocephalum* 15.71%, *Haemonchus contortus* 11.42%, and *Moniezia bendeni* 10%, then helminthic infections from trematodes, namely *Fasciola hepatica* at 5.71 %, respectively.

Infection by worm eggs is from the most common class of nematodes, namely *Ascarias, Bunostonum trigonocephalum, Haemonchus contortus*, and *Moniezia bendeni*. This can happen because of dirty environment and sanitation in the slaughterhouses. We can see cow dungs scattered in the cow pen and there is cow feed that has been mixed with the cow dungs. This is in line with research conducted by (Yeung et al., 2005) which stated that nematode class worms are worm parasites that often infect cattle. The prevalence of nematode worms in cattle can be influenced by the host, parasite, and

livestock environment. Besides that their life cycle which does not require an intermediate host facilitates the occurrence of nematode infections. This research is also supported by the results of research conducted by (Santi, Setiyani, & Anggita, 2019). It is stated that food and the environment in which the cattle are raised is the cause of nematode worm infection in cattle.

The infection starts when the parasites are transmitted by eggs present in dung or feces which in turn contaminate soil in areas where sanitation is poor. Then, those contaminated eggs hatch into infective larvae in grazing areas. These infective larvae move between the grass in the grazing area which at any time can be ingested by cows grazing on polluted grazing areas (Junaidi, 2014). In mild infections, symptoms are not seen unless dung examination is carried out to identify them with certainty. Clinical symptoms can be caused by worm larvae or adult worms which have a predilection for the intestine (Natadisastra & Agoes, 2009). These worms can migrate to the bile ducts, pancreas, mouth, and nose. In the process of migration to the lungs, the worms can cause shortness of breath and eosinophilic pneumonia. Severe infection of the intestine can cause intestinal obstruction and pain in the abdomen (Pusarawati et al. 2014).

Meanwhile, infection with trematode worm eggs, namely *Fasciola hepatica* at Slaughterhouse in Palu City, was 5.71% and considered as the lowest one. The infection can occur due to consuming water plants or wet plants. The process happens at the slaughterhouse when there is cow urine in the pen, which is then mixed with the grass. That contaminated grass is one of the breeding grounds for the intermediate host for *Fasciola* worms, in this case, the snails that stick to the grass. Further, the grasses are eaten by cows so that the cows become infected with *Fasciola* worms. This is in line with the results obtained by Muhammad and Susanti (2014) which stated that there are stagnant water leftover from piles of garbage and rain which cows use to wallow and drink. In addition, leachate drainage channels used for drinking cows were also found which are thought to be the route of *Fasciola* infection.

Research conducted by Pusarawati, et al (2014) states that water plants or wet and moist plants can trigger infection from *fasciola sp* eggs because eggs released with feces must be in water with a temperature of 27°C to be able to hatch and become miracidium within 19 day. *Fasciolasis* infection causes severe damage to the bleeding and inflammation. The impact is cell death and fibrosis (weight loss), so that meat productivity will decrease and result in a decrease of farmer's income. According to Khan et al, in 2021 trematode worm infections can also cause diarrhea and decreasing the quality of cattle production.

The number of worm eggs found in beef cattle at the Slaughterhouse in Palu city is influenced by several factors, namely food, hygiene, and environmental factors. This is in accordance with research conducted by Gasbarre et al. (1990), stated that gastrointestinal worms are mainly spread because it is influenced by the way of raising and feeding the livestock. The poor condition of the pen can affect the nutritional quality of the feed and the hygiene of the livestock so that they are easily infected with parasites including gastrointestinal nematodes. This result is also strengthen by the results of a study conducted by Nofyan et al., (2010) which stated that bad and not optimal ways in raising cattle and the muddy and dirty condition of the pen caused by feces mixed with urine are very possible for parasitic infections to arise.

Losses caused by gastrointestinal worms generally interfere with the digestive system, causing diarrhea, enteritis (intestinal inflammation), bleeding, gastritis, anemia

due to ruptured blood vessels in the intestine, drastic weight loss, and dehydration (Basetto et al. 2011). Parasitic infections will cause growth delays in livestock, which will affect the productivity of meat as people consumption. This situation attacks people's income and economic in general. The role of parasitism is very significant in most agro-ecological areas and it is a major threat to the livestock economy worldwide (Vercruysse and Claerebout, 2001). Worm infection is considered to be one of the main constraints to livestock production in all subtropical and tropical regions (Githiori et al., 2004).

CONCLUSION

Based on the results of present research which has been conducted on the examination of the faeces of beef cattle at the slaughterhouses in Palu city, it can be concluded as follows:

The results showed that there was a parasitic infection, that of the 70 dung samples which had been examined, there were 61 positive samples (87.14%) infected by helminth eggs worm, and 9 samples (12.84%) tested negative because no worm eggs are visible at the time of microscopic examination.

Worm egg infections obtained from nematodes were sorted from the highest to the lowest, namely Ascaris by 31 (44.28%), Bunostonum trigonocephalum 7 (15.71%), Haemonchus contortus 8 (11.42%), and Moniezia bendeni 11 (10%), then helminthic infections from trematodes namely Fasciola hepatica by 4 (5.71%), respectively.

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