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## THE PRESENCE OF INSECTS IN ANIMAL FARM IN NORTH SULAWESI

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**Abstract**

*The existence of insects in the environment of animal farm has a big role in connection with the development of livestock production in tropical humid areas especially for those located in North Sulawesi, Indonesia. By understanding of the presence of insects in the animal farm environment could help to control the various roles of insect in transmitting pathogenic agents to livestock. Today this understanding is important because there are so many farms that are traditionally carried out which confronted with health control. This article aims to present some important insect order located within the livestock environment in North Sulawesi Indonesia as well as various achievements in detecting the existence of flies. Some of the important species of Diptera found in farms such as: Stomoxys calcitrans, Musca domestica, Musca bahari, Chrysomya megacephala, Haematobia exigua, Haematobia irritans and Sarcophaga spp. This scientific information is expected to be a technical information for farmers, observers, and researchers who are interested in this domain.*

**Key words:** insect, Diptera, livestock, environment.

### INTRODUCTION

Clean environmental conditions of livestock in tropical humid areas can support maximum livestock production. This situation depends on various factors, such as climate, sanitation level, quality aspects of cattle house construction, control of disease, and the commitment of farmers to maintain quality livestock management (Baldacchino et al., 2013). The insects have a big role in the development of livestock. They can spread pathogenic agent to the animals (Rumokoy et al., 2017<sup>a</sup>) and therefore the presence of some traditionally maintained could get a higher risk than in modern livestock with more stringent health control standards (Toar et al., 2017). Up to now, in tropical humid region, exist many farms which are traditionally managed. For that reason, it is necessary to recognize the presence of various insect orders that can affect the livestock improvement. This article specifically discusses the presence of insects, especially flies, in farming environments conducted in several locations in North Sulawesi Province, on the other hand to be linked with the development

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augmentation of human population (Sumardianto et al., 2013).

On the other hand, goat farming with local breed generally is reared with a little amount by household.

Even though the numbers are small, this farming pattern is spread over many locations. Accumulatively, the amount is important by contribution to a provision of food for the community.

The health of goats is one of the determining factors to increase goat production, especially in relation to viral and bacterial infections (Aldridge et al., 2018) and will determine to a level of success in livestock management systems (Silva et al., 2014; Caroprese et al., 2016). To get animal good health, it has to anticipate the bacterial pathogen spread which related to the report of Heidt et al. (2012). The

Subsequently, a variety of antigens extracted from insect are potential support goats production optimally (Toar et al., 2019).

Good production is also a consequence of the functioning of the immune system properly so as to control bacterial infection or infestation of parasitic organisms such as insects.

This paper presents the results of research activities using thoraxial antigens extracted from *M. domestica* on growth performance of local goats.

This research work is a continuation of previous research that has been done by observing the role of IAMTd on blood serum immunoglobulin levels in goat kids, which showed that this

immunogen extract indicated to increase serum IgG of goat kids (Rumokoy et al., 2020).

#### MATERIALS AND METHODS

Twelve local goats after weaning were used in this experiment. The initial body weight of animals is shown in Figure 1. The animals were divided into two groups: a control group (AK1) and a treatment group (AK2). Animals were reared in experiment cage. All animals were offered various local green forages which were alternately supplied in the same manner. Drink water were available *ad libitum* to all animals observed. The animals of treatment group were immunized with thoraxial antigen extract of *M. domestica* (IAMTd). Each experiment animal in AK2 group was treated by subcutaneous injection with 10 µl of IAMTd.

$$DMI = \frac{(fo-rf)}{t}$$

which,

fo = total DM weight of feed offered (g)

rf = total DM of residual feed (g)

t = number of days during observation

2). Daily body weight gain (DWG), calculated as:

$$DWG = \frac{(fbw - ibw)}{t}$$

which,

fbw = final body weight (g)

ibw = initial body weight (g)

t = number of days during observation

3). Feed conversion ratio (FCR) was calculated

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