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Worm infections of the digestive tract in Serama Chickens which are kept in closed cages at Rifky's Farm Cimaphar, Bogor

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ABSTRACT: Serama chickens are ornamental chickens often susceptible to gastrointestinal worm infections. This study aimed to identify the digestive tract worms infecting Serama chickens kept in closed cages. Five fecal samples from Serama chickens at Rifky's Farm in Cimanggu were used for the research. Stool examinations were conducted qualitatively using native and flotation methods and quantitatively with the McMaster method. The examination results revealed the presence of trichurid eggs, with a 60% infection rate and a light to heavy infection, indicated by an eggs per gram value of 133-1,800. The identified worm species was *Capillaria* sp., likely due to the closed and humid conditions of the cages, which favor the development of infective eggs and facilitate direct infection.

Keywords:
Serama chicken, *Capillaria sp,* closed cage, Trichurid

■ INTRODUCTION

Serama chickens are a cross between Japanese dwarf chickens and silkie chickens, with a body weight not exceeding 500 grams (Fahrozi 2016). These chickens are primarily kept as ornamental pets. However, worm infections (helminthiasis) are common in chickens due to housing conditions, such as closed cages. This issue is also observed in Serama chickens at Rifky's Farm, where they are kept in closed cages. Infected chickens exhibit symptoms such as diarrhea and lack of appetite. According to Tanuwijaya & Febraldo (2021), chickens infected with worms show symptoms of diarrhea. The chickens at this farm are suspected of being infected with worms due to their closed cage environment. Closed cages tend to have low temperatures but high humidity levels compared to open cages, primarily due to limited exposure to sunlight. Shatyaayyupranathasari *et al*. (2021) stated that high humidity provides ideal conditions for the development of worms. Indrasanti *et al*. (2022) reported that broiler chickens kept in closed cages in Subang Regency had a 45% higher incidence of gastrointestinal worm infections compared to 29% in open-house cages. There is minimal information regarding worm infections in closed-cage Serama chickens in Indonesia, making further research necessary. This study aimed to identify the digestive tract worms infecting Serama chickens kept in closed cages at Rifky's Farm.

■ MATERIAL AND METHOD

Fecal Sampling: This study used five fecal samples from Serama chickens, consisting of four females and one male, aged 6–10 months, obtained from Rifky's Farm. Fresh fecal samples were collected in the morning and placed in labeled plastic bags. The samples were transported in a cool box and stored at a temperature of 4-6°C (Rosyid *et al*. 2023). Fecal examinations were performed at the Veterinary Clinic of the IPB University Vocational School.

Stool Examination: Fecal examinations were carried out qualitatively using the native and flotation methods, followed by a quantitative examination using the McMaster method.

a. Native Method: A small amount of Serama chicken feces was placed on a slide, mixed with 1-2 drops of distilled water, homogenized, and covered with a cover glass. The sample was examined under a microscope at 4x–40x magnification (Siagian & Tiuria 2018).

b. Flotation Method: One gram of feces was placed in a glass container with 29 ml of saturated salt-sugar solution and homogenized. The solution was filtered 3-5 times, poured into a test tube until a convex meniscus formed, covered with a cover glass, and left for 15–20 minutes. The cover glass was then removed, placed on

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a slide, and observed under a microscope at 4x magnification.

c. McMaster Method: The suspension from the flotation method was placed into three McMaster counting chambers using a Pasteur pipette and examined under a microscope with a 4x–10x objective lens. The number of eggs per gram of feces (EPG) found in the three McMaster counting chambers was calculated using the EPG formula.

■ RESULT AND DISCUSSION

The results of this study showed that three out of five Serama chickens were positive for trichurid worm eggs (Table 1), indicating a 60% infection rate. The trichurid eggs had thick walls, were oval-shaped, and featured bipolar plugs at both ends (Figure 1). This finding aligns with those reported by Belo *et al.* (2023). Trichurid eggs measure 45-50 µm in length and 22-25 µm in width, with slightly protruding bipolar plugs, a thick shell with a wrinkled surface, and granular, non-segmented contents (Kusuma *et al*. 2021). The adult worms producing these eggs are *Capillaria* sp., a nematode that frequently infects chickens and birds. Worm infections often do not exhibit typical clinical symptoms, especially in the early stages. Clinical symptoms become apparent only in chronic infections (Salsabila *et al.* 2020).

The examination of eggs per gram of feces (EPG) in Serama chickens yielded a value of 133-1,800, indicating a light to heavy of infection. According to Sharma & Busang (2013), an EPG value of >1,500 signifies a heavy infection intensity. The worm infection in Serama chickens is attributed to the closed and damp conditions in the cages, which promote the development of Capillaria sp. and facilitate direct transmission to the chickens. This observation is consistent with Belo *et al.* (2023), who found that temperature and humidity factors in the cage influence the development of eggs to the infective stage, thereby increasing the occurrence of infections. Transmission can occur directly through contaminated food and water. Ybañez *et al.* (2018) noted that while the presence of worms in small quantities can be tolerated by birds, higher quantities can be detrimental to their health. Worms consume nutrients, cause extensive damage to the intestinal mucosa, and disrupt food absorption. Consequently, worm infections can lead to decreased egg production and even death in birds.

Table 1. Results of faeces examination of Serama Chickens

Serama Chicken	Native Method	Flotation Method	Result	EPG	Severity
1	Positive	Positive	Trichurid	267	Light
2	Positive	Positive	Trichurid	133	Light
3	Negative	Positive	Trichurid	1,800	Heavy
4	Negative	Negative	-	0	
5	Negative	Negative	-	0	

EPG: eggs per gram

Figure 1. Examination results of trichurid eggs in fecal examination of Serama chicken

■ CONCLUSION

A fecal examination of Serama chickens revealed a 60% infection rate with trichurid eggs, indicating a light to heavy infection with an EPG value of 133-1,800. The infecting worm was identified as *Capillaria* sp., likely due to the closed, humid cage conditions, which favor the development of infective eggs and facilitate direct infection.

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