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Case Report of Mixed Infestation of *Menacanthus stramineus* and *Menopon gallinae* in Commercial Pullets in Ibadan, Nigeria.

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ABSTRACT

The poultry industry is crucial to Nigeria's agricultural economy, significantly supporting food security and income. However, ectoparasitic infestations remain a major obstacle to maximizing productivity. This case report details a mixed infestation of two lice species—*Menacanthus stramineus (M. stramineus)* and *Menopon gallinae (M. gallinae)*—in a flock of 500 commercial pullets in Ibadan, Nigeria, focusing on clinical signs, parasitological results, and treatment approaches. Clinical examinations showed infestation in a greater population. Examination of 50 birds shows *M. stramineus* in 92% and *M. gallinae* in 68%, with 60% hosting both lice. Average lice counts were 11 to 18 per bird, respectively. Treatment involved applying a pyrethrin-based insecticide powder topically, with a second application after 10 days. Environmental cleaning and improved husbandry practices were also adopted to prevent reinfestation and eliminate lice from the farm. Mixed lice infestations can seriously harm poultry health and output. Timely diagnosis, effective treatment, and strict biosecurity are vital for sustainable poultry management.

Keywords: Lice infestation; Poultry; Pullets

INTRODUCTION

The poultry industry is a cornerstone of the global livestock sector, providing high-quality animal protein—meat and eggs — to meet the nutritional needs of a growing human population (Scholten *et al*., 2013). In Nigeria, poultry production is one of the fastest-growing agricultural enterprises, serving as a key source of income for both commercial-scale farmers and smallholder or backyard producers (Mohammed, 2020). According to a 2013 USDA report cited by Essay Sauce (2020), large-scale poultry production in Nigeria generates approximately USD 800 million annually. Poultry farming accounts for about 25% of the nation's agricultural GDP, making Nigeria the leading egg producer in Africa and the fourth-largest broiler producer on the continent, according to the Ministry of Agriculture and Animal Resources (2012).

Despite its economic significance, the poultry sector faces numerous challenges, among which ectoparasites remain a major constraint. Ectoparasites, such as lice, mites, ticks, and fleas, can inflict substantial economic losses through their adverse effects on bird health and productivity (Sychra *et al*., 2011; Mishra *et al*., 2016). Infested birds often suffer from dermatitis, irritation, feather loss, anemia, weight loss, and reduced egg production; in some cases, ectoparasites may also serve as vectors of zoonotic pathogens (Pavlovic *et al*., 1989; Bala *et al*., 2011; Lucchini, 2016). Lice, in particular, spend their entire life cycle on the host and are frequently associated with farms that have suboptimal housing and husbandry practices (Mungube *et al*., 2006).

CASE REPORT

A poultry farmer in Ibadan, Oyo State, Nigeria, presented a flock of approximately 500 growing pullets, about 10 weeks old, to the Veterinary Teaching Hospital, Faculty of Veterinary Medicine, University of Ibadan. The farmer reported reduced feed intake, persistent body scratching, emaciation, stunted growth, and feather loss. The birds were managed on a deep litter system, and the litter had not been replaced for six weeks due to economic constraints.

Pen/Birds Examination

Of the total 500 birds in the pen, 50 (10%) were randomly caught and examined for lice infestation. The pullets were observed to be slightly crowded in the pen.

Lice Sample Collection

Infested birds were manually caught and restrained, and a feather brush was used to dislodge lice from their plumage into a sample jar containing 70% ethanol. The jar was properly labeled and transported to the Veterinary Parasitology and Entomology Laboratory, University of Ibadan, for morphological identification following the method described by Soulsby (1982) and adopted by Mlondo *et al*. (2025).

RESULTS

Parasitological Findings

Examination of 50 randomly selected birds from the flock revealed a mixed infestation of two lice species. *Menacanthus stramineus* (Figure 1) was present on 92% (46/50) of the examined birds, with a mean intensity of 18 lice per bird (range: 5–32). The species was straw-colored, dorsoventrally flattened, and elongated, measuring 3.0–3.5 mm in length, with a broadly rounded abdomen bearing multiple rows of dorsal setae.

Figure 1: Ventral views of *Menacanthus stramineus.* Male (Left) and Female (Right) at x400 Magnification

Menopon gallinae (Figure 2) was detected on 68% (34/50) of birds, with a mean intensity of 11 lice per bird (range: 3–21). It was a small, wingless chewing louse with a flattened, elongated body; a broad head wider than the thorax; short, two-segmented antennae fitting into head grooves; and an abdomen tapering posteriorly. Mixed infestations occurred in 60% (30/50) of birds, often with higher total lice counts than single-species infestations. Clinical examination revealed adult lice on the feathers of nearly all pullets, with nits firmly attached to the feather shafts.

Figure 2: *Menopon gallinae* (Ventral view) at x400 Magnification

Treatment and Management

The infested pullets were treated individually with a pyrethrin-based insecticide, applied as a topical powder to ensure thorough coverage of the plumage and skin. A second treatment was administered after 10 days to eliminate newly hatched nymphs, as pyrethrins have no ovicidal activity and cannot destroy lice eggs (nits). Post-treatment, the flock was relocated to a cleaned and disinfected pen to prevent re-exposure. All litter materials from the original housing were removed, buried, and layered with sulfur dust to destroy any remaining ectoparasites in the environment. The farmer was further advised to adopt strict biosecurity and husbandry measures, including regular litter replacement, routine flock inspection, and timely ectoparasite control interventions, to prevent future outbreaks.

DISCUSSION

The detection of a mixed infestation involving *Menacanthus stramineus* and *Menopon gallinae* in commercial pullets in Ibadan underscores the persistent threat posed by ectoparasites to poultry health and productivity in the tropical regions. Both lice species are obligate ectoparasites that complete their life cycles on avian hosts, and their co-occurrence in a single flock suggests a conducive environment for parasite proliferation, likely exacerbated by poor litter management and inadequate biosecurity. The clinical signs observed (scratching, feather loss, emaciation, and stunted growth) in this report are in accordance with previous records on lice infestations in poultry (Mungube *et al*. 2006; Mishra *et al*. 2016). These symptoms not only compromise bird welfare but also have direct economic consequences, including reduced feed efficiency and lower market value. The high prevalence of *M. stramineus* (92%) and *M. gallinae* (68%) in the sampled birds, with 60% showing mixed infestations, underscores the severity of the outbreak and the potential for synergistic pathogenic effects. Mixed infestations may exacerbate clinical outcomes due to increased parasite load and competition for feeding sites, leading to more pronounced irritation and stress in affected birds.

However, the successful use of pyrethrin-based insecticide, despite a lack of ovicidal activity, showed the importance of strategic treatment timing and environmental sanitation. The second application, combined with litter removal and sulfur dusting, was crucial in breaking the lice life cycle and preventing reinfestation. However, reliance on chemical control alone is unsustainable; integrated pest management (IPM) strategies, including regular litter replacement, routine flock inspection, and improved housing, are essential for long-term prevention and control.

This case also emphasizes the need for farmer education and capacity building. Economic constraints often lead to compromised husbandry practices, which in turn create ideal conditions for ectoparasite outbreaks. Extension services and veterinary outreach programs should prioritize awareness campaigns on ectoparasite prevention

and control, especially in high-density poultry production zones.

Conclusion

This report contributes to the growing body of evidence on the epidemiology of poultry lice in Nigeria, highlighting the need for proactive management. Future research should examine the seasonal patterns of lice infestations and assess the effectiveness of alternative control methods, such as herbal formulations and biological agents, to promote sustainable poultry health.

Conflict of Interest

The authors have no conflict of interest to declare.

Authors Contribution

POO conceptualized the study. POO, IOA, OOO, and NFO designed it. They participated in fieldwork and data collection. POO, IOA, and OOO analysed the data, while POO and IOA interpreted it. POO drafted the initial manuscript, which IOA reviewed. All authors contributed to refining the final manuscript and approved it for publication.

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