

## Conference Paper

# Inventory of Chicken Disease Occurred During the Poverty Alleviation Program in Indramayu District, West Java Province, Indonesia

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**ORCID**I G A P Mahendri: <https://orcid.org/0000-0002-1576-5183>**Abstract.**

The emergence of disease is one factor inhibiting the development of local chicken particularly in rural area. This paper aimed to identify the types of disease occurred in superior local chicken KUB (*Kampung Unggul Balitbangtan*: improved local chicken) during the Poverty Alleviation Program in Indramayu District, West Java Province. About 157.750 heads of chickens owned by 3155 households in Anjatan Subdistrict, Indramayu District were monitored weekly regarding the types of diseases occurred during the program from March to October 2019. Data gathered were analysed descriptively. The result showed that diseases diagnosed in the area mostly were chronic respiratory diseases (2.7%), while there were other diseases found in local chicken during the program such as Cholera, Choriza, Pullorum, Coccidiosis and Newcastle Disease which reached no more than one percent of total chicken population. These types of diseases mainly occurred in May, a transition month from rainy to dry season in which many chickens experienced a weakening of the immune system; and the disease decreased slowly until September. Moreover, the disease was higher for chicken at five-week age. In conclusion, it is suggested that raising local chicken should follow good farming practices particularly in the transition season.

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## 1. Introduction

The demand for local chicken has significantly increased in Indonesia due to increasing in lifestyle and preferences of people. Moreover, there is a particular segmentation for local chicken found in Garut District, West Java Province, leads to the increase price of local chicken (1). To meet the demand, Government of Indonesia has supported the development of local chicken by distributing improved local chicken (invented by Indonesian Agency for Agricultural Research and Development) through Poverty Alleviation Program (so called BEKERJA Program: *Program Bedah Kemiskinan Rakyat*

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*Sejahtera*). Poor households who involved in this program received 50 heads of chickens, feed and pen subsidy, assistances and vaccination program.

Chicken vaccination program is critical aspect during raising local chicken due to this can prevent disease outbreaks (2–5); in addition to ameliorate chicken's productivity (6–8). In fact, disease problems are still a major problem in chicken farms which can cause very significant economic losses. Economic losses due to CRD (Chronic Respiratory Diseases) disease in Indonesia in 2001 reached IDR 305 billion, while in the United States reached about IDR 140 million per year (9). Moreover, Indonesian National Committee of Avian Influenza Control and Pandemic Preparedness Plan (Komnas FBPI) as cited by (10) has estimated the amount of losses in Indonesia due to AI outbreaks in 2004-2008 reaching IDR 4.3 trillion, based on the standard Computable General Equilibrium (CGE) model. (11) also reported the impact of AI in decreasing the chicken production up to 60%. In addition, disease outbreak has also impacted on the decrease of job opportunity and disruption to the poultry industry (12).

On the other hand, climate change as a result of global warming impacts on erratic patterns of rainy and dry seasons. An increase of environmental temperature have a significant impact on the increase of heat stress particularly in chickens (13). This condition is exacerbated by fluctuation of temperature between noon (midday) and night (early morning). Heat stress not only affects chicken performance but can increase the formation of stress hormones (glucocortoids) which can cause disruption in the formation of immune cells so that diminishes the chicken's immune system (14).

Disease outbreak has almost the same pattern as the previous years. There were various types of diseases attacked chickens with similar symptoms that needs advance skill to distinguish the diseases. Different types of diseases need different types of diseases management. An approach and strategy conducted in disease management will depend on the identification of the outbreaks in each area. Therefore, the objective of this paper is to identify the types of disease occurred in superior local chicken KUB (improved local chicken) during Poverty Alleviation Program in Indramayu District, West Java Province. Disease identification is important to define disease control and management strategies.

## 2. Materials and Methods

The research was conducted in Indramayu district, West Java Province, Indonesia due to one of several areas involved in Poverty Alleviation Program (BEKERJA Program) held by Ministry of Agriculture through Indonesian Agency for Agricultural Research

and Development (IAARD), Indonesia in 2019. Among three sub-districts received the program, Anjatan sub-district was chosen in this study due to it had the highest number of households who received local chicken from Government during the program which were about 3155 households, while Haurgeulis sub-district and Bongas had 1973 and 3061 households respectively.

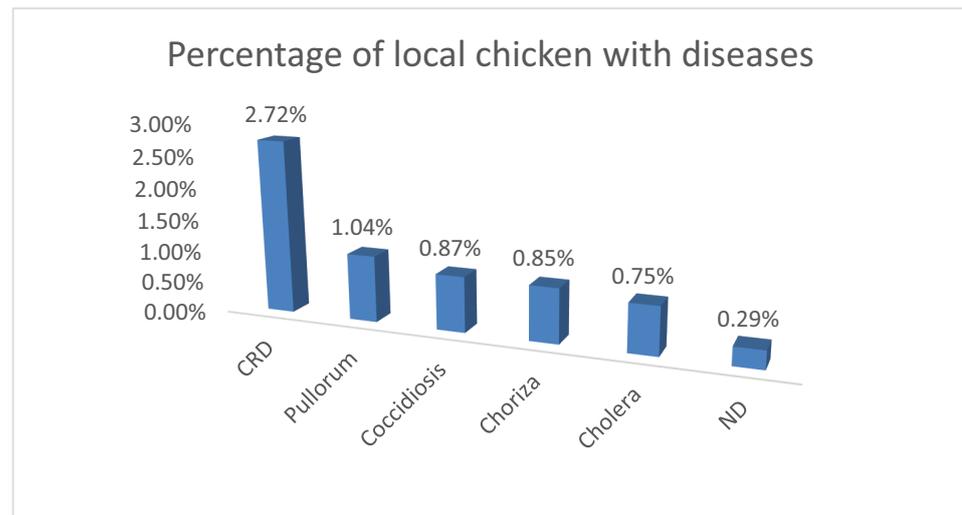
Total of 157.750 heads chicken belong to 3155 households were monitored every week from March to September 2020, to obtain number of chicken exposure different types of diseases according to time (month) and age of chicken. Data obtained were analysed using descriptive statistics analysis (percentage) and involved figure to explain the results.

### 3. Results and Discussion

There were six types of diseases in local chicken found during Poverty Alleviation Program in Indramayu District in 2019 which were Chronic Respiratory Diseases (CRD), Cholera, Choriya, Pullorum, Coccidiosis and Newcastle Disease (ND). Highest percentage of chicken (about 2.7%) were suffered from CRD, while about one percent of those chicken were exposed by pullorum. Only less than one percent of chicken population experienced Cholera, Choriya, Pullorum, Coccidiosis and ND (Figure 1).

CRD is one of bacterial diseases that are very detrimental to poultry including local chicken. Even the prevention of CRD has been done through antibiotics and vaccines (both lived or inactivated vaccines), the cases still exist which were in Indonesia found higher compared to other bacterial pathogens cases (9). However, (15) reported that CRD were only 2.5% of total diseases found in broiler farm in Sukabumi District. CRD transmission in commercial layer chicken farms were exacerbated by high density of chicken in a flock (16). Moreover, frequency of disinfectant spraying every week can reduce the risk of disease transmission compared to spraying disinfectants that are carried out once a month (16).

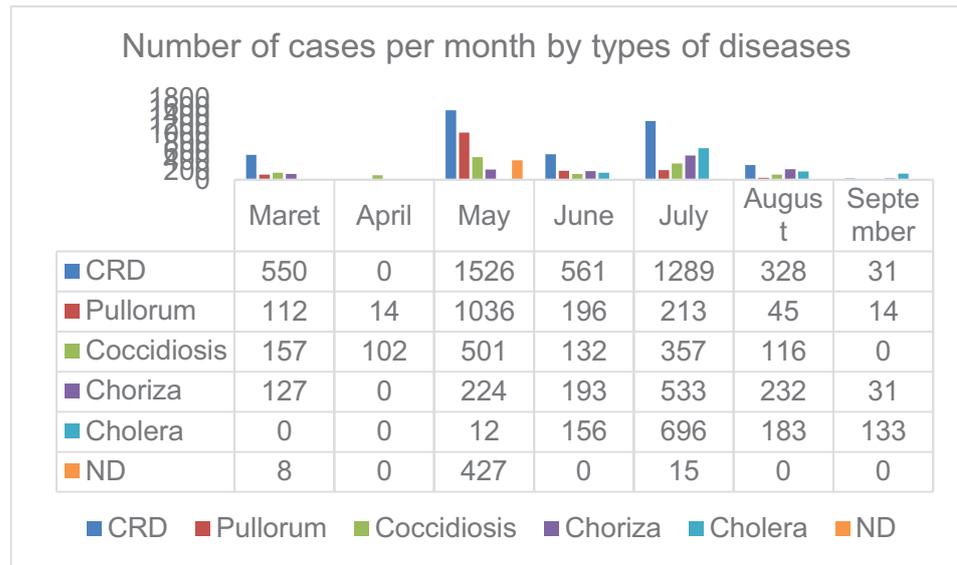
Pullorum cases which were acute or chronic infectious disease caused by *Salmonella pullorum* bacteria, identified about 1.04% in Indramayu District. This percentage was lower than that percentage of Pullorum cases found by (15) that reached 10% of total cases in chicken farm in Sukabumi. While other diseases such as Choriya, Cholera, Coccidiosis and in particular ND were counted very low in the research areas due to chickens were raising in battery cage. Coccidiosis usually occurred for chickens raising in the litter cage that trigger the growth of coccidiosis particularly for wet and humid (humidity more than 30%) litter (17–19).



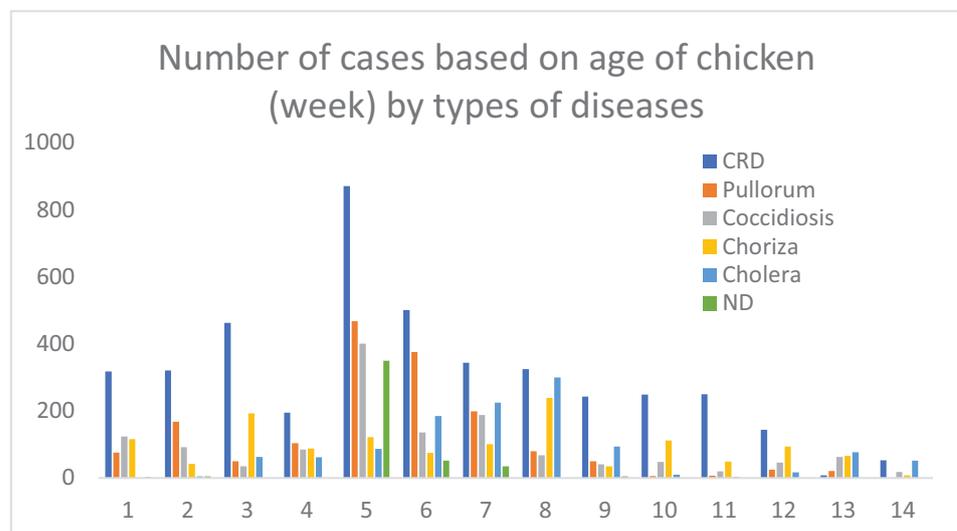
**Figure 1:** The percentage of local chickens suffered from different types of diseases in Indramayu District, 2019.

According to Figure 2, number of cases in local chicken were found significantly higher in May for those six types of diseases, where it was a transition month from rainy to dry season that made the chickens become more stress so that decrease their immune system. A different result reported by (20) that the prevalence of CRD during rainy season was 55.0%, higher than during dry season that reached 49.7%. A similar result by (15) found that the case of diseases increased in rainy season due to poor condition of cage whereas more puddle that stimulate the growth of bacterial and parasites. Other research in Pakistan and Nigeria also asserted that the prevalence of CRD during winter were higher compared to summer time which reached more than 45.13% (21,22).

Majority of cases occurred on chickens aged 5 weeks for all types of diseases (Figure 3), due to the change's management of chickens from brooder management to the battery cage management. Initially, chickens distributed to households were kept in brooder (small carton with light and heat controlled) for about a month (4 weeks), then moved to battery cage after 4 weeks. One causes of stress in chickens is the movement of chickens from the postal cage to the battery cage (23). However, a higher cases of diseases in chickens mostly when chickens aged 11-20 days (15) that caused by maternal antibody titers in chickens has started decreasing so then chickens were vulnerable towards diseases infection.



**Figure 2:** Number of local chickens suffered from different types of diseases by month in Indramayu District, 2019.



**Figure 3:** Number of local chickens suffered from different types of diseases by age of chicken in Indramayu District, 2019.

### 4. Conclusions

The type of diseases attacked local chickens in Indramayu District were mainly respiratory and digestive diseases included CRD, Cholera, Choriza, Pullorum, Coccidiosis and Newcastle Diseases, particularly during transition season in May and transition chicken environment from brooder to battery cage. This is related to the poor condition of chicken cage which ease the outbreak of diseases and trigger stress to chickens, as a result decrease chicken’s immune system. It is suggested that good farming practices is required in developing local chicken industry.

## 5. Acknowledgement

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