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LEVEL OF BIOSECURITY APPLICATION IN LAYER CHICKENS FARM IN BANGGAE TIMUR DISTRICT, MAJENE REGENCY

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ABSTRACT

Biosecurity is something that greatly influences livestock production, especially in reducing the risk and consequences of the introduction of infectious diseases. Therefore, the implementation of biosecurity must be implemented well so that livestock are not easily affected by disease and can produce with good economic efficiency and achieve target production. The aim of this research is to determine the level of biosecurity implementation in layer chickens farms in East Banggae District. This research was carried out in East Banggae District, Majene Regency from August to October 2022 . This type of research uses quantitative descriptive analysis. The sample used in this research was 17 breeders. This research instrument uses a questionnaire whose contents are structured questions/statements, closed answer options using a measurement scale, namely the Guttman scale. The implementation of biosecurity observed in this research is isolation, sanitation and traffic control. Data analysis in this research uses quantitative descriptive analysis. The results of this research show that the application of biosecurity is isolation with a percentage of 75%, sanitation with a percentage of 68.4%, and traffic control with a percentage of 22.2%.

Keywords: Biosecurity, East Banggae, Layer Chickens, Majene

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INTRODUCTION

Chickens are one of the potential livestock in Indonesia, especially layer chickens . The laying hen business has its own interest because it is able to generate decent profits and produce products needed by society, namely eggs as a source of animal protein (Khasanah *et al* ., 2021). Currently laying chickens are divided into several groups, namely medium type chickens and light type chickens. The medium type has brown shell eggs while the light type has white shell eggs (Setiawati *et al* 2016).

The population of layer chickens always increases every year . According to BPS data (2021), the number of layer chikens in 2018 was 261,932,627 and increased to 281,108,407 in 2020. The increase in the population of layer chickens indicates that there is an increase in public demand for egg consumption (Setiawati et *al* ., 2016). The laying chicken business is very popular with the public because it can produce very fast capital turnover and low egg prices relatively cheap so it's easy to reach society. Keeping layer chickens requires a good maintenance system so that they are not easily attacked by disease and cause losses for the breeders (Widyantara *et al* ., 2013). There are several things that must be considered when raising layer chickens, one of which is biosecurity (Ramadhani, 2017).

Biosecurity is a program implemented to safeguard and protect livestock from various diseases. The aim of biosecurity is to prevent the possibility of transmission and spread of disease in a farm (Disnakeswan Provinsi Jawa Tengah, 2021). Biosecurity is not the only effort to prevent disease, but biosecurity is the first line of defense against disease. If biosecurity is carried out well, correctly and with discipline, livestock productivity will increase and economic efficiency will be achieved, because livestock health is maintained . Therefore biosecurity is very important in a farm (Swacita, 2017).

Implementation of biosecurity divided into three parts, it aims to prevent and reduce disease germs entering the cage environment. What is meant by three parts are: before entering the livestock area, disease seeds can still enter, therefore biosecurity is implemented The second and third levels can be carried out with greater attention so that disease germs do not enter the cage area and infect the chickens in the cage. Level of biosecurity implementation can influence increased production when implemented properly and correctly and can also reduce production if biosecurity is not implemented well, basically the level of biosecurity implementation in line with the increase in egg production although the effect is small.

If a farm does not implement biosecurity, disease will easily enter the farm area. Disease in livestock can have a negative impact on breeders, ranging from reduced production to death, both on a small and large scale. There are no exceptions to the diseases that attack chickens, especially layer chickens, which vary from mild illnesses to diseases that can cause the death of the chicken. One of the efforts that is currently widely applied to laying hen farms is the implementation of a biosecurity system where the system aims to prevent livestock from disease attacks that can cause death (Wahyuni *et al* ., 2021)

East Banggae District is one of the areas located in Majene Regency. East Banggae District is a livestock area and is the largest egg-laying poultry business development area in Majene Regency. This is proven by the increasing population of layer chickens every year. According to data obtained by the Dinas Pertanian, Peternakan dan Perkebunan Kabupaten Majene, in 2017 there were 6,000 heads and this will increase in 2021 to 8,704 heads. However, laying hen breeders in East Banggae District on average are still small-scale farming businesses of under 500 birds per production period and do not pay attention to the importance of biosecurity. Based on this, research regarding the level of biosecurity implementation in laying hen farming businesses in East Banggae District is very important . Based on the problems above, this research aims to determine the level of application of biosecurity, isolation, sanitation and traffic control in laying hen farming businesses in Majene Regency , (Rasyidah Mappanganro, *et al* , 2018).

RESEARCH METHODS

This research was carried out in East Banggae District, Majene Regency from August to October 2022 . The type of research used in this research is quantitative descriptive . The

population in this study were all laying hen breeders in East Banggae District, namely 17 breeders. Meanwhile, the sample used in this research was 17 breeders. The method used to determine the sample size is saturated sampling . Data collection was carried out using interview methods and observation methods .

This research instrument uses a questionnaire whose contents are structured questions/statements, closed answer options using a measurement scale, namely the Guttman scale. The implementation of biosecurity observed in this research is isolation, sanitation and traffic control. Data analysis in this research uses quantitative descriptive analysis.

RESULTS AND DISCUSSION

1. Level of Isolation Application

Isolation is one of the most important parts of biosecurity , this aims to prevent the entry of disease into a farm. Johari (2004) states that isolation means keeping chickens away from people, creating an environment where chickens are protected from carriers of pathogenic bacteria (people, other animals, air and water) , vehicles and objects that can carry pathogens. The percentage of respondents' knowledge regarding the level of application of isolation for layer chickens in East Banggae District, Majene Regency can be seen in table 1

The distance between the cage location and the resident's house is a minimum of 1000 m

In table 1, it can be seen that the majority of breeders in East B anggae District, Majene Regency do not have a distance of at least 1000 meters between their cage locations and people's houses . Data shows that around 5.9% of breeders implement this . This is because the majority of breeders in the district has limited livestock land , is expensive and has a traditional maintenance system. Availability of capital is the main obstacle for breeders in finding land that meets standards. So that breeders choose the location of the cage according to the isolation measures which are still very lacking and do not meet the requirements stated by (Rasyidah 2018) namely maintaining a minimum distance between poultry farms of around 400-1000 meters, holding poultry in a controlled environment, making separation screens to protect so that the livestock that are kept remain in the cage and other animals remain outside (wild birds, dogs, cats, rats, etc.).

The existence of a dividing fence between the farm and the external environment

A guardrail is one way to prevent the entry of wild animals and unauthorized people. This aims to reduce the spread of disease. Based on table 1, it can be seen that the majority of livestock breederss in East Banggae District, Majene Regency do not yet have a barrier between their livestock and the outside environment. Where the total that implements a guardrail between the farm and the outside environment is 41.2% . The gate of a farm is the first place for people who want to enter the farm area or complex and is the starting point for the success of a farm being free from outbreaks or disease attacks. ensure that every person or vehicle does not enter and exit the Farm carelessly, and the door is always strictly guarded by officers Direktorat Pembinaan Sekolah Menengah Kejuruan, 2014). So the farm location must be fenced with one entrance to the house where the poultry house and other animal cages are arranged in a separate location.

Breeders awareness of implementing biosecurity between fences and the outside environment is very high, but there are some breeders who have not implemented this due to the cost factor of purchasing materials to fence around their cages. Breederss' awareness of implementing biosecurity, namely the fence between the outside environment, has not yet reached the standard, there are still many breeders who have not implemented this due to the cost factor of purchasing materials to fence around their cages.

There is a Separator between the Cages with Residential House

Humans are one of the disease-carrying agents. So you have to live separately from the cage. This aims to prevent the spread of disease agents. Based on table 1, it can be seen that all livestock breeders in Banggae Timur District, Majene Regency implement a separation between the cage and the residence. The data shows that the number of people implementing a separation between the cage and the residence is 100%. This is in accordance with the opinion of Siahan (2007) who states that isolation measures include livestock from the outside environment, the distance between livestock and people's homes. This means that breeders have realized the importance of biosecurity separating the cage and the house, so that breeders separate the cage from

the house so that the cage area is not easily attacked by disease.

There is a Separation between Sick Animals and Healthy Animals

Birds that are sick or show signs of illness must be separated from healthy birds. This aims to reduce the spread of disease agents in livestock. Based on table 4.1, it can be seen that the majority of breeders in East Banggae District, Majene Regency have implemented separation of sick and healthy animals. Data shows that the number that has implemented separation of sick and healthy animals is 82.4%. Birds that are sick or show signs of illness should be separated from healthy birds.

Dead birds have the opportunity to spread the Avian Influenza virus. According to (Ryder 2005) and (Damron 2006), one of the most important parts of biosecurity is that dead birds must be buried or burned. Dead birds and contaminated materials should be destroyed as soon as possible. (Siahaan, 2007) added that farms that do not bury/burn dead waterfowl are at risk of being exposed to Avian Influenza.

Birds that are sick or show signs of illness should be separated from healthy birds. Sick birds have the potential to carry disease agents and nearby birds are susceptible to the *Avian Influenza virus* . It is known that the spread of *the Avian Influenza virus* from birds to other birds can be through direct contact or through aerosol droplets and feces of sick birds (Ditjen Peternakan, 2005). In addition, if a case of disease occurs, isolation of sick animals or groups of animals must be carried out as quickly as possible to stop the spread of disease. . This means that some breeders are aware of the importance of biosecurity, separating sick and healthy animals, so that the risk of disease spreading will not spread easily.

Have a health program with veterinary supervision

Veterinary supervision is a very important part of biosecurity for breederss. According to (Naipospos, 2003). Intense involvement of the veterinarian is required in anticipating possibilities the entry of disease from outside the region or the emergence of an outbreak of infectious animal disease with emergency preparedness management. Likewise, the involvement of veterinarians in every stage and component that builds the chain of supplying ingredients for consumption. This aims to find out what the condition of the chickens in a farm is. Based on table 1, it shows that the majority of breeders in East Banggae District, Majene Regency, implement health programs with veterinary supervision, namely 70.6%. This means that breederss have realized the importance of biosecurity by implementing health programs.

Always carry out early detection, whether the chicken is sick or not

Early detection is a process of examining or examining animals using certain methods and techniques. This aims to see the condition of the chickens in a cage. Based on table 1, it shows that the number of people who carry out early detection is 100 %. The application of biosecurity is intended to prevent transmission of sick/dead chickens from healthy chickens around them. Based on the application of biosecurity to sick/dead chickens from each farm (Trijaya 2017). Judging from this percentage, breeders in East Banggae District, Majene Regency, have all implemented chicken detection regularly.

There is regular vaccination on the farm

Vaccination is one of the efforts made to prevent disease. Vaccination is one of the efforts to prevent virus attacks, according to the nature of the life of the infectious agent, vaccines are classified into two, namely: the first group is an active vaccine containing a weakened virus and functions as a stimulus for the formation of local immunity on the mucosal surface more quickly, this vaccine includes active vaccine, live vaccine (Poudel *et al* ., 2020). Based on table 4.1, it shows that vaccination is 100%. This means that breederss in East Banggae District, Majene Regency, are aware of the importance of vaccination in raising chickens for immunity. Rangga Tabbu, (2000) added that prevention of this disease is done by vaccination with an existing schedule. The vaccine used is the ND vaccine from the la sota strain. (Rangga Tabbu, 2000).

Table 1. Percentage of Respondents' Knowledge of the Level of Implementation of Isolation on layer chickens in East Banggae District, Majene Regency

No	Indicator	Answer Respondent		Score 1 (%)	Score 0 (%)
		Yes	No		
1	The distance between the cage location and the resident's house is a minimum of 1000 meters	1	16	5.9%	94.1%
2	The existence of a dividing fence between the farm and the external environment	7	12	41.2%	58.8%
3	There is a separation between the cage and the residence	14	3	82.4%	17.6%
4	There is a Separation between Sick Animals and Healthy Animals	17	0	100%	0%
5	Has a Health program with veterinary supervision	12	5	70.6%	29.4%
6	Always carry out early detection, whether the chicken is sick or not	17	0	100%	0%
7	There is regular vaccination on the farm	17	0	100%	0%
8	Maintenance management with an all in all out system	17	0	100%	0%
	Average Amount	102	36	75%	27.3%

Source: Primary data (2022)

Maintenance management with an all in out system

Isolation measures include; maintaining a minimum distance between poultry farms of around 400-1000 meters, caging poultry in a controlled environment, making separation screens to keep livestock kept in cages and other animals outside (wild birds, dogs, cats, rats etc.), making fences around farms to control human and other animal traffic, making warning signs, separating birds based on species because waterfowl act as carriers of the bird flu virus, and implementing an all in all out management system (Direktorat Pembinaan Sekolah Menengah Kejuruan, 2014).

Based on the table above, it shows that all breeders in East Banggae District, Majene Regency implement an all in out system maintenance. You can see the results of the research above with a percentage of 100%. This means that breeders realize the importance of maintenance using an all in out system.

2. Level of Sanitation Implementation

Sanitation is an action to control disease through cleanliness. Sanitation must be carried out regularly in order to obtain a clean, hygienic and healthy environment (Sudarmono, 2003). Sanitation aims to prevent the development of disease or cut the life cycle of microorganisms that are detrimental to the health of chickens so that the cage, equipment and environment remain clean and sterile. The percentage of respondents regarding the level of implementation of sanitation in laying hen cages in East Banggae District Majene Regency can be seen in table 2 .

Table 2. Percentage of Respondents' Knowledge on the Level of Sanitation Implementation on layer chickens in East Banggae District, Majene Regency

No	Indicator	Answer Respondent		Score 1 (%)	Score 0 (%)
		Yes	No		
1	Disinfect the cage before DOC enters	2	15	11.8%	88.3%
2	Regularly disinfect feed and drinking water areas	12	5	70.6%	29.5%
3	Clean the cage and its surroundings regularly	11	6	64.8%	35.3%
4	Equipment entering the cage is always clean	12	5	70.6%	29.5%
5	Regularly Disinfect Egg Racks and Cage Staff Clothes	5	12	29.5%	70.6%
6	There is feed control	17	0	100%	0%
7	There is water control	17	0	100%	0%
8	There is control of production waste (remnants) and dead chickens	17	0	100%	0%
	Average Amount		43	68.4%	31.7%

Source: Primary data

Disinfect the cage before DOC enters

The coop is a place for chickens to live, so it must always be sterile. Before DOC enters the cage, it must be disinfected first so that it does not cause disease. This aims to prevent the spread of disease agents. Symptoms that arise include the chicken suddenly losing its appetite and looking lethargic, coughing, snoring, sneezing, swelling in the infraorbital sinus area, pale, dull feather color and in several locations adhesions occur, especially around the anus, nervous incoordination and white liquid stool. Transmission occurs through direct contact between healthy chickens and sick chickens, cage equipment, places to eat and drink, humans, hatching eggs or infected *Day Old Chicks (DOC) (Tabbu, 2000).*

It can be seen in table 4.2 that the number of those implementing cage desinfection before DOC enters is 11.8%. Prevention of this disease can be

done in various ways, starting from the simplest method, namely not buying DOC from unknown producers and sanitizing the cage with disinfection or CRD free and maintaining environmental health both inside and around the cage (Suprijatna, 2005) . This percentage is very low because there are only 2 breeders in the East Banggae subdistrict who actually take DOC for maintenance.

Regularly disinfect feed and drinking water areas

Places for feeding and drinking water are things that must be paid attention to because chickens need food and drink all the time. In places where food is often found there are lumps and mold, which can cause disease in chickens. Likewise with drinking water, we know that the main need for chickens is drinking water to survive. It is very important to clean the feed area and drinking water to maintain the sterility and health of the chickens so as not to cause disease agents. Based on the table above, it is known that all breeders in East Banggae District, Majene Regency implement regular disinfection of feed and drinking water areas. Data shows that the number of regular disinfections of feed and drinking water areas is 100%. This means that all breeders are aware of the importance of cleaning feed and drinking water areas regularly so that they remain clean and do not cause illness.

Clean the cage and its surroundings regularly

Cage sanitation is very important in laying hen farming. By spraying disinfectant around the coop, it will minimize the occurrence of disease in the chickens. Based on the table above, it can be seen that the majority of breeders in East

Bangge District clean the cages and their surroundings regularly.

Thorough washing of cages and disinfection between each juvenile age group is highly recommended. Cages and equipment should be thoroughly cleaned from top to bottom and disinfected after each flock is moved from its original cage and before a new flock is started. Partial cage washing is only carried out in laying cages and equipment after the flock has been moved from its original place to a new place (Rusny 2013).

The data above shows that the number who clean the cage and its surroundings regularly is 64.8%. The coop as a place for chickens to live must always be kept clean so that the chickens live comfortably and avoid disease. The area around the cage is also clean, such as grass, plants and places that can cause the growth of disease agents . Therefore, cage workers must regularly clean the cage and its surroundings . According to (Deptan RI, 2008) cages, feed/drinking areas, remaining cage bedding/litter and cage waste are cleaned regularly. This means that breeders have implemented and are aware of the importance of maintaining cage cleanliness.

Equipment entering the cage is always clean

The application of biosecurity for equipment entering the cage is always clean in East Banggae District, which means washing the cage and disinfecting it and the equipment must be cleaned thoroughly from top to bottom and disinfected. It can be seen in table 4.2 above with a percentage of 70.6%. This is because breeders clean the tools, floors and roofs with disinfectant enough to kill the germs in the cage, while thorough cleaning is carried out in each part of the cage every period.

This is in accordance with the opinion of Hadi (2001) that washing cages and cage equipment must be cleaned thoroughly from top to bottom including: a) Cleaning cage equipment down to the bottom of the cage, b) All roofs, curtains, feeders and drinkers. This means that breeders have implemented and are aware of the importance of keeping cages and equipment clean.

Regularly Disinfect Egg Racks and Cage Staff Clothes

Egg racks and cage personnel's clothing must always be disinfected when entering the cage because they are directly related to the farm, egg racks purchased outside the farm may carry diseases from outside. So it becomes necessary for disinfection. Based on the table above, it can be seen that breederss in East Banggae District still lack regular disinfection of egg racks and cage staff.

Table 2 shows that 29.5% implemented it. Basically, egg racks that come from outside the farm cannot and are strictly prohibited from re-entering the farm. This aims to prevent external pathogenic agents from entering the farm through the egg rack. Egg racks that have been moved many times from one farm to another are certainly an important source of pathogenic agents. According to (Hadi, 2003) states that disease agents are carried through dust, feathers or wings, and dirt (manure) on equipment and other facilities such as trucks, chicken coops, egg containers. This means that breederss are not aware of the importance of regularly disinfecting egg racks and cage staff's clothing. However, in this case breeders still use shelves made of paper, making it difficult to carry out disinfection.

There is feed control

Feed can have a huge influence in implementing biosecurity to support the successful production of layer chickens. Lack of feed for layer chickens has a direct effect on the decline in egg production, making it very detrimental for laying hen breeders. The available feed must be guaranteed to be available and of good quality so that the livestock produce according to their genetic potential. Feeding for layer chickens aims to meet nutritional needs so they can produce optimally (Yupi, 2011).

Based on the application of biosecurity to feed in each farm, it can be seen in table 4.2 that the data shows a percentage of 100%, it can be seen that the farms in East Banggae District have implemented biosecurity to the feed that will be given to the chickens they raise.

There is water control

Water is the main source of disease transmission apart from food and air. Therefore, breederss in East Banggae District carry out drinking water quality checks which can be seen in table 4.2 showing that 100% of breederss carry out cultural water control checks to test the level of hygiene of chicken drinking water.

Layer chickens in the layer phase really need sufficient drinking water. Drinking water is given ad *libitum* (drinking water is given for 24 hours without limitation). In layer phase layer chickens, the amount of drinking water needed is 161-226 ml/head/day (Hy-line, 2016).

There is control of production waste (remnants) and dead chickens

Apart from implementing good biosecurity, handling production waste can also affect the condition of the livestock environment and the surrounding community. Chicken farm waste is in the form of feces, leftover feed, water from cleaning livestock which causes odors. This odor-causing compound can easily form in anaerobic conditions such as piles of wet manure. This compound can be smelled easily even in very small concentrations. The smell comes from the ammonia gas (NH3) content. high levels and *hydrogen sulfide gas (H2S), dimethyl sulfide, carbon 17 disulfide and mercaptan* (Rachmawati, 2010). Poultry waste in East Baggae District is handled well, as can be seen in table 4.2, where 100% of all breeders in East Baggae District have handled it waste properly. Breederss in East Banggae District, Majene Regency, use poultry waste as plant fertilizer.

3. Level of Implementation of Traffic Control

Traffic Supervision. Traffic control measures include: monitoring measures for visitors, breeders not lending cage equipment, breeders not taking poultry to neighboring farms/cages, and disinfection of visitors leaving or entering the cage area. The research results can be seen in table 3 below

Table 3.Percentage of Respondents' Knowledge in the Level of Implementation of Controlling traffic on layer chickens in East Banggae District, Majene Regency

No	Indicator	Answer Respondent		Score 1 (%)	Score 0 (%)
		Yes	No		
1	Has a fence and lock	5	12	29.3%	70.6%
2	There is disinfection of visitors/staff who enter	0	17	0%	100%
3	Disinfection of vehicles and equipment before entering	0	17	0%	100%
4	Has a shower and changing clothes for guests	0	17	0%	100%
5	Employees must wear work clothes specifically for use on farms	0	17	0%	100%
6	Employees must wear clean footwear	0	17	0%	100%
7	Do not share cage equipment with other breeders	17	0	100%	0%
8	There are birds roaming around the drum	12	5	70.6%	23.9%
9	Extermination of insects, mice, wild birds or other nuisance animals	7	10	41.2%	58.9%
	Average Amount	41	112	26.8%	73.3%

Source : Primary data

Has a fence and lock

The poultry housing method implemented by breederss in East Banggae District is part of what supports the biosecurity function. Method Poultry cages have fences and the key observed in this research is the way the birds are placed in the cage closed/fenced environment or free to roam in an open environment.

Acquire poultry in closed pens or fenced environments. In East Banggae District, it was recorded that 29.3% of breederss kept poultry in closed cages/fenced environments and the rest left the poultry in a free environment without fences so that the birds could roam freely.

There is disinfection of visitors/staff who enter

Every visitor who enters the livestock area does not disinfect it first. Based on the table above, it is known that the application of disinfection to visitors/staff entering the farm in East Banggae District shows that 0% do not carry out disinfection first. The spread of feces as a medium for disease transmission can occur as a result of officers/visitors monitoring more than half of the farm area in one day and not disinfecting the equipment and vehicles used. Risks can also occur for visitors based on the frequency of visits to the farm more than one a

day, besides that the spread of pathogenic agents in livestock areas can occur through fomites (Brennan *et all* ., 2008).

Every officer/visitor who wants to enter the farming area must not spray it with disinfectant. The purpose of using this disinfectant is to kill pathogenic microorganisms that may be carried by vehicles, employees/staff/visitors (Direktorat Pembinaan Sekolah Menengah Kejuruan, 2014). This means that breeders have not implemented it due to lack of care and equipment Disinfection breeders are not aware of this and do not apply it in their livestock areas.

Disinfection of vehicles and equipment before entering

Every vehicle and equipment that will enter the farm area must spray the vehicle with disinfectant because it is susceptible to carrying disease agents from outside the farm. According to (Deptan RI, 2008), there are strict restrictions on the entry and exit of workers/guests and vehicles from or at the farm location. Every person entering or leaving the farm must wash their hands with soap or disinfectant.

Based on table 3 it can be seen that disinfection of vehicles and equipment before entering in East Banggae District is not implemented at a percentage of 0%. This means that breederss do not implement this and are not aware of the importance of disinfecting vehicles and equipment.

Has a shower and changing clothes for guests

Bathing places and clothes are one of the most important aspects of biosecurity because clothes worn outside can carry disease agents. Based on table 4.3, it can be seen that none of the breeders have a place to shower and change clothes for guests. Data shows that the percentage that provides a shower and change of clothes for guests is 0%. This means that breeders are not yet aware of the importance of having a toilet and changing clothes for guests who will enter the farm area so that disease is not contaminated in the livestock.

Employees must wear special work clothes for use on the farm

Traffic arrangements where all visitors who come must change into special clothes and wear boots before entering the livestock area. This is in accordance with the opinion of Buhman (2017) who states that traffic control is an action to prevent the transmission of diseases carried by animals and visitors. Based on table 3, livestock breederss in the East Banggae sub-district, Majene Regency do not apply special work clothes for use in animal husbandry with a percentage of 0%. This means that breeders do not realize the importance of wearing special clothing when entering the coop so that the chickens are not contaminated with disease .

Employees must wear clean footwear

Traffic control where all visitors who come must clean their hands and footwear before entering the livestock pen is the most important part of biosecurity. This is in accordance with the opinion of Buhman (2017) who states that traffic control is an action to prevent the transmission of diseases carried by means of transportation, animals and visitors. Based on table 4.3, it can be seen that breeders in East Banggae District, Maajene Regency, do not wear clean footwear when entering the cage area. Data shows that the percentage who wear clean footwear is 0%. This means that breederss do not realize the importance of wearing clean footwear when entering the cage so that they do not carry disease because every employee and visitor who enters the farm has chickens with disease.

Do not share cage equipment with other breeders

Cage equipment used in the cage must not be moved around the cage to reduce the spread of disease. Based on the table above, it can be seen that breeders in the East Pride subdistrict, Majene Regency, do not lend cage equipment to other breeders at a percentage of 100%. This means that breeders realize the importance of not lending cage equipment to other breeders so that disease does not spread.

Cage equipment used in the cage must not be moved around the cage to reduce the spread of disease. Based on the table above, it can be seen that East Banggae District does not lend cage equipment to other breeders with a 100% presentation. The cage equipment used is not allowed to leave the farm area because it will result in the spread of disease. Every worker or person in a food business unit is responsible for keeping everything clean and sanitary. Effective cleaning of equipment reduces the opportunity for contamination during preparation, storage and serving. Cleaning means removing visible dirt from the surface of equipment and materials.

Sanitary means healthy or hygienic. This involves reducing the number of pathogenic microorganisms on the surfaces of equipment and materials to levels that are safe for health. Something that is sanitary has no risk to human

health (Mc Swane et al. 2000). This is what breeders in East Banggae District implement, and the breeders in this case already have their own cage equipment so they don't need to lend their equipment.

There are birds roaming around the drum

It is known that most breederss place poultry in closed cages or fenced environments. In East Banggae District, it is recorded in the table above that 70.6% of breederss keep poultry in closed cages/fenced environments and the rest leave the poultry in a free environment without fences so that the birds can roam freely. Having birds roaming around the cage will increase the risk of disease entering the farm. This is in accordance with the opinion of Mappanganro *et al* (2018) that wild birds become disease agents when they are on farms, so this is important to eradicate.

Extermination of insects, mice, wild birds or other nuisance animals

Nuisance animals are disease-carrying agents that are dangerous to livestock and must be eradicated. This aims to prevent the spread of disease agents. Based on the table above, the majority of breeders in East Banggae District exterminate pest insects, rats, wild birds, etc. The data shows that the number who implement extermination is 41.2%. Nuisance animals such as insects, rats and wild birds become disease agents when on farms, so it is important to eradicate them. According to (Ministry of Health , 2008) it is stated that preventing the entry and exit of mice (rodentia), insects or other birds such as wild birds which can act as vectors of disease into livestock locations. Hadi, (2003) added that disease agents can enter by being carried by wild birds, predators (beetles), rodents (rats), flies, ticks, mites and other insects.

CONCLUSION

Based on the results of the research that has been carried out, it was concluded that the level of application of biosecurity in laying hen farms in Banggae Timur District, Majene Regency, namely the level of application of isolation, corresponds to a percentage of 75%. The implementation of livestock sanitation in East Banggae District is in accordance with the percentage of 68.4%. The percentage of livestock sanitation in East Banggae District is sufficient. Meanwhile, traffic control on chicken farms in East Banggae District does not match the percentage of 22.4%. of the total number of indicators, namely 339.1%. So layer chickens in Majene district, especially in East Bangge district, are not suitable.

SUGGESTIONS

Re-research is needed to determine the impact on egg production and disease incidence. so that breederss pay more attention to biosecurity so that disease does not easily enter the farm.

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