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Analysis of Operational Risk Management of Broiler Farms Closed House Systems

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ABSTRACT

Broiler farming is one of the businesses that people are interested in, especially people in rural areas who still have sufficient land area to build a cage as a place for raising chickens. This is because chicken meat is a food commodity that is still in demand in every community. Running a business in the field of broiler farming certainly requires capital, although the required capital can be minimized by establishing a nucleus-plasma partnership with companies engaged in chicken farming. Of course, the breeders hope that from the effort they make, they get maximum profit with the various simulations that have been carried out. The cage is an important environmental factor in the maintenance of broiler chickens, because the cage is a place for chickens to live and move so that its comfort determines productivity results. The closed house maintenance system is a maintenance system with a closed cage concept where the microclimate in the cage is adjusted according to needs. The advantages of closed house cages are more capacity or population, chickens are protected from physical disturbances, weather, pollution, and disease. However, the closed house system also has drawbacks, especially in terms of investment and high operating expenses. This study will analyze operational risk management on closed house system farms with a case study of livestock in Lamongan Regency. The results of this study are expected to be used as a basis for mitigation actions that must be taken so that risks can be minimized. 3 (three) risks with the highest RPN value are the calculation of harvest yields does not match daily recordings. High chicken mortality at a time when harvesting IP is very far from expectations. Meanwhile, the proposed mitigation measures are to provide strict sanctions if fraud cases are found by certain persons, provide more counseling it would be better to provide knowledge to the caged chicks on how to better manage the cage, and to increase understanding of disease outbreaks for PPL and caged chicks to determine appropriate treatment actions

Keyword : Closed House, Risk Management, Mitigation

1. INTRODUCTION

Broiler farming business is one form of investment that can be chosen by the community, this is because chicken meat is one of the food commodities favored by people of all ages and circles. According to data from the East Java Livestock Service, the amount of chicken meat production has increased from year to year. Recorded chicken meat production in East Java as much as 198,016,292 kg in 2014 increased to 270,881,906 kg in 2017 or an increase of about

36.8%. The production is not only produced by large broiler farming companies such as Japfa Group, Phokpand, and Wonokoyo Group but also from independent farms in several villages. Plasma farmers provide cages, carry out cultivation activities and the proceeds from the sale of chickens are handed over to the nucleus at a price that has been adjusted to the contents of the cooperation agreement contract (Fitriza, Haradi and Syahlani, 2012). There are many advantages that the core company gets from cooperation with partner breeders (Suwarta, Irham and Hartono, 2010). On average, the location of the farm is in a village that is a bit far from residential areas.

In the maintenance of broilers, many environmental factors affect, one of which is the cage. The cage is a place where chickens live and carry out their activities, so the comfort of the cage will affect productivity. In general, there are 2 (two) types of cages, namely closed houses and open houses. The closed house maintenance system is a maintenance system with a closed cage concept where the microclimate in the cage is adjusted according to needs. The advantages of closed house cages are more capacity or population, chickens are protected from physical disturbances, weather, pollution, and disease. However, the closed house system also has drawbacks, especially in terms of investment and high operating expenses (Susanti, 2018). Broiler production using closed house system is one of technological innovations which attempts to accommodate the fairly extreme weather changes, and is expected to minimize the adverse effects of the environment or climate change outside of the cage. (Hartono et all, 2015) With high operational costs, of course, there will also be a high risk of the possibility of maintenance risks that can result in losses, although it is said that a broiler farm business that uses a closed house system is more profitable than an opened house system with the same broiler population (Ismail et all, 2014)

Failure mode and effect analysis (FMEA) is a forward-looking risk-management technique used in various industries for promoting the reliability and safety of products, processes, structures, systems, and services. (WeiLo and Liou, 2018). The House of Risk model is a model that adopts the FMEA and HOQ methods developed by Pujawan and Geraldin (2009). FMEA is used for risk assessment and HOQ is used to prioritize which risk agents

need to be addressed first. and risk agents are identified and measured. The risk management phase is the phase where the selected risk agent from the first phase is assessed by handling or mitigating actions (Kristanto et all, 2014). The new technique is labeled the project risk FMEA (RFMEA). The RFMEA is a modification of the well-known process, product, and service FMEA technique. In order to use the FMEA format for projects, the detection value of the standard FMEA is modified slightly for use in the project environment. (Carbone & Tipped, 2015). The results of this study are expected to be used as a basis for mitigation actions that must be taken so that risks can be minimized. The output will be published in a national journal with the hope that it can be used as a poultry agribusiness system is a series of activities that unites natural resources, human resources, financial resources and technological resources to process poultry through a biological and industrial process to become a product that can be produced. fulfill human needs and desires (Kristanto et all, 2014). Core-Plasma Farms are farms where the nucleus provides livestock production facilities, technical and management guidance, accommodates and markets production. Plasma farmers provide cages, carry out cultivation activities and the proceeds from the sale of chickens are handed over to the nucleus at a price that has been adjusted to the contents of the cooperation agreement contract. literature for readers, especially farmers who run a closed house system.

2. METHODS

This research consists of 4 stages, namely:

Preparation phase

This stage consists of the formulation of problems and objectives, research studies consisting of literature studies and field studies and mapping of broiler maintenance operational activities.

Data Collection and Processing Stage

At this stage, operational risk identification is carried out based on the Supply Chain Operation Reference (SCOR) and the creation of a Failure Mode and Effect Analysis table

Analysis and Discussion Stage

At this stage, an analysis of the results of the calculation of the highest Risk Priority Number (RPN) is carried out and an analysis of preventive action.

Conclusion Stage

Drawing conclusions based on the formulation of the problem and the objectives that have been set in the research.

3. RESULT AND DISCUSSION

Farmer Data

The farms involved in this study are closed house farms in collaboration with PT. CA in the Core-Plasma Partnership. The breeders are:

1. Aris's Closed House Farm in Ds. Kemantren Kec. Paciran, Kab. Lamongan
2. Muh. Religion in Ds. Landeyan Kedungwaras, Kec. Kab. Lamongan

Operational Risk Identification Based on the Supply Chain Operation Reference (SCOR)

The constraints faced by plasma farmers will be identified in detail in 5 (five) core processes of SCOR from the side of Plasma Farming, namely:

1. Plan: That is the planning process before the chick in DOC is put into the cage. Breeders who are cooperating with the core company for the first time will be surveyed by PPL and Technical Support (TS) in the area. If all the requirements have been met, then plasma breeders are said to be eligible for chick in. Meanwhile, breeders who have collaborated before will receive an evaluation before chick-in is carried out for the next cycle. If the previous cycle's Performance Index (IP) was poor (<300), then there must be a Chick In Submission Memo (MPCI) from the region. Meanwhile, if the IP is bad 2 to 3 times in a row or the breeder commits fraud, the cooperation can not be extended anymore.

The average distance between cycles is 8 weeks (the maintenance period is added with cleaning time until the cage is ready for chick in. Previously, farmers were required to deposit a guarantee to the core company with a nominal value of Rp. 1,000,- per chicken. When the cage is declared ready for chick in, PPL will carry out setting chick in according to the capacity it has.

The obstacles faced at this stage include:

a. Cleaning time for ready chick in is not according to plan.

b. The deposited guarantee has not yet reached the unit administration so the chick in time is delayed

c. The cost needed to clean the cage swells

2. Source: That is the process of getting the needs for the chicken rearing process, including the DOC itself, feed, Vitamin and Chemical Drugs (OVK), and borrowing equipment such as curtains, fans, heaters, places to eat, and places to drink. PPL will do the setting when the supply of each of these needs will be sent.

The obstacles faced at this stage include:

a. DOC was not sent according to the info from PPL

b. Feed is not delivered according to schedule, resulting in shortages resulting in feed mutations from other plasma farmers. This mutation, of course, in addition to requiring extra energy, also causes transportation costs to arise

c. OVK not sent as needed

d. sarpronak delivery documents are not well documented

e. PPL response time to information on sarpronak needs from farmers

3. Make: That is the process of raising the chicken itself. In each cage there is always a worker who is usually called a "cage operator". The duties of the cage operator are to monitor the condition of the chickens and their environment at all times, provide food and water, and report the condition of the chickens to the farmers. What the cage operator needs to do according to the age of the chickens is to adjust the density of the cage by widening the cage (setting the curtain) and adjusting the temperature and humidity of the cage by setting the fan and heater. Unnatural deaths also need to be handled immediately because it is feared that a disease will infect other chickens. PPL will provide treatment according to the diagnosis that occurs.

The obstacles faced at this stage include:

a. The quality of the DOC sent does not match the document standard

b. Unnatural death rate due to disease

c. Operators are less responsive to changes in environmental conditions

d. Communication with PPL is not smooth

e. PPL does not respond quickly to problems that occur in the cage

f. Frauds were found, such as embezzlement of chickens and feed by certain individuals

g. IP does not meet the standards set by the core company which results in the evaluation of the collaboration.

4. Deliver: That is the process of taking chickens or the term is harvesting. Harvesting is carried out based on the planning carried out by the marketing department of the core company. Harvesting can be done by chicken slaughterhouses (RPA) who are members of the core company group or independent wholesalers which are then distributed to small traders.
The obstacles faced at this stage include:
a. The harvesting process may not be done at the same time, for example, if the BW is not suitable, then some harvesting can be done when the BW is in accordance with the demand from consumers. This causes farmers to incur additional costs because they have to provide additional labor to help the process of picking chickens
b. Found the difference between harvested chickens and daily reports of deaths

5. Return: That is the process of returning. The return in question is only limited to if the harvesting process is carried out by a wholesaler, then a chicken is found to be in a sick condition, then the chicken will be weighed and exchanged for a healthy chicken.

Failure Mode and Effect Analysis

Then, a Failure Mode and Effect Analysis table was created which displays the Risk Event (risk event), the Risk Agent (Risk Cause), the severity value, the occurrence, and the Risk Priority Number (RPN) value. The filling is done by brainstorming with the Field Extension Officer (PPL) PT. CA which is the core company. From the calculation of the RPN obtained 3 (three) highest values that must be a priority to seek mitigation actions.

Analysis of RPN Results and Mitigation Actions

The highest RPN value is in the Deliver process with a value of 512. There is a risk that the calculation of harvest yields does not match the daily recording, the alleged cause of this risk is someone who commits fraud by taking chickens before they are harvested, another allegation is the inaccuracy of cage children/PPL in recording daily deaths so that to be disproportionate to the reported number with reality. Mitigation actions taken include giving

strict sanctions if the same case is found so that there is a deterrent effect for the perpetrators and increasing the commitment of the drum children to work so that they record carefully.

The second highest RPN value is 448, namely in the Make process. There is a high risk of death of chickens at a time which is possible because the chicks are not responsive to the obstacles that occur. Chicken deaths can be caused by environmental factors and disease. For environmental factors such as temperature, humidity, density are factors that can be controlled regularly, so expect it to be detected when it first occurs. However, this cannot be achieved if the caged chicks are less responsive to these obstacles, causing high mortality at one time. Meanwhile, diseases that attack chickens should also be detected when chickens show symptoms so that they can be immediately treated with medication and vitamins. For this reason, the recommended mitigation action is to provide better counseling to provide knowledge to the cage children how to better manage the cage.

The third highest RPN value also occurs in the Make process with a value of 441. The risk that occurs is that the harvest IP value is very far from expectations. This is caused by many things. Because the calculation of IP is influenced by many factors, but what makes it far from expectations is usually a disease outbreak that attacks. It is still closely related to the risk of the second highest RPN value. For this reason, mitigation actions are also related to providing a good understanding of knowledge about several disease outbreaks that usually attack chickens adjusted to the ongoing season, so that PPL can determine what treatment should be given to treat the outbreak. Cage chicks also need to be given knowledge about the symptoms that arise so they can report to PPL and immediately take action to reduce mortality.

Meanwhile, the next highest RPN after the 3 (three) RPN values described above is the Make process, namely the temperature of the cage is not up to standard. As is known, a closed house system is a cage with a controlled environmental condition. Then the room temperature is determined by how the temperature control equipment works. It's not a major risk, but its value is high enough that mitigation measures need to be considered

4. CONCLUSIONS AND SUGGESTIONS

Conclusions

From the research results, it can be concluded that there are 18 (eighteen) operational risks that arise which are divided into 5 (five) core processes, with details of 4 (four) risks in the plan process, 5 (five) risks in the Source process, 6 (six) risks in the Make process, 2 (two)

risks in the Deliver process, and 1 (one) risk in the Retrn process. From the calculation results, it can be concluded that the 3 (three) risks that have the highest RPN value are:

1. The calculation of the harvest does not match the daily recording
2. High chicken mortality at a time
3. Harvest IP is very far from Expectation

Meanwhile, based on the results of the brainstorming, the proposed mitigation actions are:

1. Provide strict sanctions if fraud cases are found by certain individuals
2. Provide better counseling to provide knowledge to the cage children how to manage the cage better.
3. Increase understanding of disease outbreaks for PPL and caged chicks to determine appropriate treatment actions

Suggestions

Further research is needed to see the difference in operating costs with an open house system

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