

**IMPACT OF THE COVID-19 PANDEMIC ON POULTRY FEED DISTRIBUTION IN LIMA PULUH KOTA DISTRICT, WEST SUMATRA PROVINCE**

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**ABSTRACT**

Since the outbreak of the COVID-19 pandemic in Indonesia, on March 31, 2020, the government of the Republic of Indonesia has adopted a new policy known as PSBB (*Pembatasan Sosial Berskala Besar*) commonly known as "lockdown". Fulfillment of animal feed ingredients in West Sumatra Province which is still met from outside the province causes disruption of animal feed distribution during the PSBB. This research was conducted by interviewing 50 farmers during the PSBB policy. The data was collected from observations on maintenance, feed ingredients availability, as well as feed ingredients prices. According to the findings of this survey, there was a change in each variable. For example, in the variable transportation of chicken feed materials, 74% of respondents stated that it was smooth during PSBB and reduced by 56% during PSBB. Meanwhile, for the variable availability of chicken feed ingredients, 92% of respondents stated that when the PSBB was adopted, respondents' answers were reduced to 78%, and for the last variable, 24% of respondents stated that feed prices had climbed and treatment. In Indonesia, 76% of respondents said there was no change in prices before and after the PSBB policy was implemented in Lima Puluh Kota Regency, Province of West Sumatera.

**Keywords:** *distribution, pandemic, poultry feed, psbb*

**BACKGROUND**

COVID-19 is a newly discovered variant of the coronavirus that causes an extremely infectious virus. This epidemic started in December 2019 in Wuhan, China. In addition, this illness swiftly spread to many nations, including Indonesia, in early 2020. The spread of COVID-19 can spread from person to person, especially from people infected with the virus, through droplets from the nose and mouth that come out when coughing or exhaling. This virus rapidly spread around the world and caused a lot of problems in the economy, especially in the agriculture sector, where farmers and buyers can not really move around as easily. Thus, in order to help the agriculture industry during

the present COVID-19 epidemic, research on the effect of restricting the mobility of producers and purchasers is required to investigate further.

On March 11, 2020, the World Health Organization declared the spread of COVID-19 a pandemic situation. This pandemic has caused serious socioeconomic turmoil around the world, including in Indonesia. The coronavirus outbreak is increasing significantly day by day. Thus to prevent the spread of this virus, the Government of Indonesia is trying to break the chain of the spread of the coronavirus through several policies and regulations, including the Minister of Health Regulation No. 21 of 2020 concerning *Pembatasan Sosial Berskala Besar* (PSBB), which came into effect on March 31, 2020. PSBB is the application of restrictions on activities in Indonesia. Public places and self-quarantine at home allow local governments to restrict the movement of people and goods into and out of their respective areas provided they have obtained permission from the relevant ministries and the purpose of the PSBB is to prevent the spread of the COVID-19 virus. In West Sumatra itself, the PSBB was implemented on April 22, 2020.

One of the industries most impacted by the COVID-19 outbreak in the agriculture sector was the livestock industry. This is because COVID-19 makes it harder for people to move around the market and buy and sell products (Food Agriculture Organization of the United Nations, 2020). This pandemic has had a major impact on human life, including the livestock sector. Moreover, with the enactment of the PSBB which hampers human activities in general, the need for basic feed for livestock, especially poultry is also suspected to be disrupted because the majority of feed ingredients needed by poultry such as corn, bran, fish meal and so on have not been able to be produced by producers in the area. Province of West Sumatra so that in order to meet the needs of poultry farmers need to be met from neighboring provinces such as North Sumatra and Riau. Therefore, the impact of the COVID-19 pandemic on poultry feed distribution needs to be watched out for because Lima Puluh Kota Regency itself is the Regency with the largest poultry population in West Sumatra Province, based on BPS data in 2019 the total poultry population there was 7,474,471 chicken.

With the occurrence of obstacles in the distribution process of feed ingredients for poultry resulting in socio-economic dynamics among breeders, in economic principle the higher demand for a limited number of goods in the market will result in an increase in the price of these goods. Thus, as the price of feed ingredients goes up, farmers will have to raise the price of chicken meat and eggs. At the same time, the COVID-19 pandemic has caused many people to lose their jobs, which has decreased their purchasing power and made the economy even slower during the pandemic.

Therefore, from this explanation, the implementation of PSBB is suspected of having a major impact related to inhibiting the movement of goods and services, including poultry feed. Therefore, this study is intended to provide information regarding the distribution of poultry feed during the COVID-19 pandemic in Lima Puluh Kota Regency, West Sumatra Province. The initial hypothesis of this study was that the distribution of poultry feed in Lima Puluh Kota Regency, West Sumatra Province, was disrupted during the COVID-19 pandemic, which was marked by the implementation of the PSBB policy, with the smooth transportation, availability of feed ingredients, and high cost of feed ingredients serving as research variables.

## RESEARCH METHODS

This study was conducted using a survey method. This study was undertaken by interviewing poultry producers in the Lima Puluh Kote Regency Region of West Sumatra Province. The secondary data collected was information on the distribution of poultry feed seen from the variables of smooth transportation, availability of feed ingredients and prices of feed ingredients from before the COVID-19 pandemic (January-February 2020) until the implementation of PSBB, namely (March-June 2020) in Lima Puluh Kota Regency, West Sumatra Province.

Due to the fact that this study was undertaken during the COVID-19 pandemic, data from research variables that occurred before the pandemic was collected by conducting more in-depth interviews to evaluate and recall past occurrences or, in this instance, prior to the implementation of PSBB (large-scale social restrictions). The 50 farmers who participated in this study were required to have a poultry population of more than 100,000 heads. This is because poultry farming business actors with that scale are believed to have a greater impact on the COVID-19 pandemic due to the fact that the average business actor already has a privately owned mixer for processing feed ingredients, which necessitates a larger feed supply and then the selection of feed ingredients.

In this study, the sampling technique used was purposive sampling. Purposive random sampling itself is a sampling technique with certain considerations, as it is suitable for use in quantitative research, or research that does not generalize according to Sugiyono (2016).

The variables observed in this study were:

1. Transport speed. To find out how smoothly the feed transportation was during and before the PSBB, observations on the time span of poultry feed delivery were carried out with the following criteria:
  - a. Smooth: if the journey time is less than 24 hours.
  - b. Less smooth: if the journey time is more than 24 hours.
  - c. Not smooth: if the journey time is more than 2 x 24 hours.
2. Availability of feed ingredients. To find out the availability of feed ingredients during and before PSBB, observations on the availability of poultry feed are carried out with the following criteria:
  - a. Enough: if the feed ingredients needed by the farmer are available.
  - b. Not enough: if the feed ingredients needed by farmers are not available.
3. Prices of feed ingredients. To find out the changes in the price of feed ingredients during and before the PSBB, observations of the prices of poultry feed ingredients are carried out with the following criteria:
  - a. Increase: if the price of feed ingredients sold increases.
  - b. Decrease: if the price of feed ingredients sold decreases.
  - c. Constant: if the price of feed ingredients sold is the same between the time before and during the PSBB.

Answers from respondents who have been collected during the study will be grouped according to the required variables and displayed in tables so that the research results are more easily explained descriptively.

## RESULT AND DISCUSSION

### Transport Speed

The results of observations of 50 poultry farmers regarding the smooth distribution of poultry feed ingredients during and before the implementation of PSBB can be seen in Table 1.

**Table 1.** The Transport Speed of Poultry Feed Ingredients Before and During PSBB Implementation

Variable Transport Speed	Before PSBB (person)	Percentage (%)	During PSBB (person)	Percentage (%)
Smooth	37	74	28	56
Less smooth	10	20	12	24
Not smooth	3	6	10	20
Total	50	100	50	100

Source: Primary Data, 2020

The majority of farmers claimed that transportation was smooth before the PSBB policy and that it remained generally smooth throughout the PSBB policy, while the percentage of respondents who replied that transportation was classed as smooth decreased from 74% to 56%. Consequentially, it may be stated that the transportation of feed materials will continue to operate smoothly even amid widespread societal limitations. The COVID-19 pandemic has affected many things, because of the conditions and consequences as well as the regulations made by the government. This factor also indirectly affects the livestock sector, especially in the supply of feed ingredients and animal feed in West Sumatra. The results showed that there was no impact of the COVID-19 pandemic on the availability of feed ingredients/animal feed, at the distributor, retailer, and farmer levels. The impact of the pandemic affected transportation when the PSBB regulations were implemented, causing transportation to be less fast (more than one day). The impact at the trader level, from the time before and during the pandemic, there was a decrease in the price of local feed raw materials (maize, rice bran). The decline ranged from 15-20%, while the price of manufactured feed (concentrate) decreased by 5%. The people's purchasing power for livestock production during the COVID-19 pandemic has also decreased by 30-38%. Conditions returned to normal after there was a new normal rule issued by the government (Harmen, 2020).

For answers stating substandard and non-standard for each answer, 20% of respondents stated that before the implementation of the PSBB the transportation of feed ingredients was substandardly increased to 24% after the enactment of PSBB, while for substandard answers 6% of respondents stated that it was not smooth when the PSBB was implemented. Before the PSBB was implemented and increased to 20% of respondents stated that it was not smooth after the PSBB was implemented. In general, the results of this study are in accordance with the initial assumption which stated that the smooth rate of distribution of feed ingredients for poultry was disrupted during the COVID-19 pandemic due to the PSBB policy which disrupted the mobility of vehicles carrying feed raw materials. The majority of feed raw materials are still imported from outside the Lima Puluh Kota Regency, West Sumatra Province, experiencing delays until they arrive at the poultry shop.

The results of this study are in accordance with the former research from Budastra (2020) which states that the enactment of the PSBB policy causes restrictions on community activities and Impact of Covid-19 Pandemic on Poultry Feed Distribution (Ermanda et al., 2023)

access to transportation, resulting in a decrease in consumption and the number of products purchased by the public. Restrictions on transportation access in West Lombok Regency hinder the movement of poultry players in the distribution of chicken meat between cities, resulting in supply chain management disruptions. Covid-19 has disrupted the value chain of the business world, resulting in the temporary or permanent cessation of operations by a large number of firms in various industries and sizes. Tourism and transportation were the worst hit economic sectors in the West Lombok region, followed by commerce, manufacturing, and other industries (Budastra, 2020).

The impact of COVID-19 on the livestock sector is the disruption of the supply chain of seeds, feed and medicines, operations, distribution and marketing of products. The supply chain in poultry feed ingredients consists of various actors such as producers, related industries/businesses, transportation/logistics, storage as well as retail services. According to Sariözkan et al. (2021), the operation of the supply chain distribution sectors sequentially is very important in order to be able to connect producers with consumers in a sustainable manner, but with the implementation of activity restrictions such as travel restrictions between provinces even for feed ingredients that need to be met from foreign markets by carrying out the import process during the pandemic puts pressure and increases uncertainty for the sustainability of the poultry farming business.

In the case of the poultry farmer, ensuring the smooth process of moving goods between producers to consumers is one of the expectations of business actors because the timely delivery of these raw materials can ensure the continuity of their business as many products are found to decrease in quality rather than raw materials such as corn which occurred due to the accumulation of raw materials in the storage area due to the non-smooth movement of goods during the implementation of large-scale social restrictions. According to research conducted in Poland by Pawłowska et al (2022), the pandemic and the restrictions it has created are creating challenges in many areas of the economy, including agriculture. The application of stringent restrictions in many countries, including quarantines, social distancing, lockdowns or import/export restrictions, disruption of the hotel, restaurant and catering (HORECA) supply chains, and the closure of many types of activities, has impacted agricultural and food Serious challenges to market functioning.

### Availability of Feed Ingredients

The results of observations of 50 poultry farmers regarding the availability of poultry feed ingredients during and before the implementation of PSBB can be seen in Table 2.

**Table 2.** Availability of Poultry Feed Ingredients Before and During PSBB Implementation

Variable of Availability	Before PSBB (person)	Percentage (%)	During PSBB (person)	Percentage (%)
Enough	46	92	39	78
Not Enough	4	8	11	22
Total	50	100	50	100

Source: Primary Data, 2020

According to the observations made, before the PSBB, the majority of 92% of respondents stated that the variable availability of feed ingredients was still quite available, but the answers stated Impact of Covid-19 Pandemic on Poultry Feed Distribution (Ermanda et al., 2023)

that the availability of feed was still sufficiently decreased along with the PSBB policy until only 78% of respondents stated that the availability of feed ingredients was still sufficient. Regarding the availability of poultry feed ingredients before and during the adoption of PSBB, it has been said that it is adequate if farmers do not have to wait for feed to operate their businesses and vice versa.

Respondents' answers stating that the availability of poultry feed ingredients was insufficient prior to the enactment of PSBB was 8% and respondents' answers stating that there was insufficient availability of feed ingredients increased to 22% during the PSBB policy. With the availability of feed ingredients for poultry during the COVID-19 pandemic, especially after the implementation of large-scale social restrictions, which disrupted the sustainability of the poultry farming business, in theory, 70% of the largest input from the livestock business is feed problems. The pandemic which has limited community mobility and slowed the rate of feed distribution, has interrupted its availability, resulting in business continuity issues for the poultry farming industry, particularly due to the availability of feed inputs and the pricing being affected by the pandemic.

An important aspect of the poultry business is the availability of feed. The availability of feed is an important aspect of the commercial livestock business. Before the pandemic, the availability of feed was maintained because of the smooth distribution of feed. After the pandemic, the availability of animal feed is still well maintained but has an impact on feed distribution. This is due to the fact that PSBB has an effect on the distribution of feed ingredients, since the adoption of PSBB might hinder the distribution or transit of livestock feed from producers to distributors. If the supply of feed/feed ingredients can be completed in 1 x 24 hours, then transportation may be classified as seamless. However, as a result of the existence of the pandemic and the imposition of PSBB, transportation times that are normally 1x24 hours will now be 2x24 hours. The delayed supply of feed is a result of inadequate transportation. Indirectly, the flow of animal feed between provinces is also slightly impeded or not smooth, notably the transport of ingredients and animal feed, particularly for feed producers. Furthermore, transportation of animal feed/feed ingredients, particularly the manufacturer's feed, is hampered by each region's emergency/pandemic-related restrictions on resident entry (lockdown).

Previously the availability of agricultural raw materials including feed ingredients for poultry such as corn, rice bran and other cereals decreased in availability in the domestic market compared to the pre-pandemic period, where agricultural raw materials were more difficult to access for farmers as a source of food. Input material for the sustainability of their poultry business, causing fluctuations in the price of feed raw materials and resulting in an increase in the output price of poultry products, such as the increase in the price of meat and eggs. In addition, Khan et al. (2021) provided a statement that bolsters the findings of this study, stating that the unstable availability of feed ingredients, particularly those whose availability must be provided through the export-import process, has a significant impact on the continuation of the poultry farming industry due to the basic needs of large poultry feed, which causes its own crisis in the livestock subsector.

The distribution of all poultry business inputs such as feed and veterinary medicines is temporarily suspended with the aim and purpose of stopping the spread of the virus. According to research conducted by Pu & Zhong (2020), many poultry breeding farms encounter a lack of feed supply or even run out of feed to the point where some poultry farming companies prefer to kill the DOC. The impact of the disruption on these suppliers has also affected farmers, Sattar et al. (2021) Impact of Covid-19 Pandemic on Poultry Feed Distribution (Ermanda et al., 2023)

make a statement that some farmers report difficulty accessing feed and essential medicines, impacting their ability to continue farming. These difficulties also affected farmers when it came to the distribution of their goods, as restrictions on movement and increasing transportation costs disrupted normal business practices. Furthermore, Weersink et al (2020) stated the most direct impact of COVID-19 on livestock feed thus far has not been on the supply of feed in aggregate but rather on the availability and, subsequently, the cost of certain ingredients, such as dried distillers grain (DDGs) and from this statement. This is in accordance with the results of a study indicating that the availability of poultry feed has decreased during the COVID-19 pandemic.

### Prices of Feed Ingredients

The results of observations of 50 poultry farmers regarding the price of poultry feed ingredients during the PSBB can be seen in Table 3.

**Table 3.** Prices of Poultry Feed Ingredients Before and During PSBB

Variable of Price	During PSBB (person)	Percentage (%)
Increase	12	24
Decrease	0	0
Constant	38	76
Total	50	100

Source: Primary Data, 2020

From the observations made during the implementation of the PSBB policy, 24% of farmers in Lima Puluh Kota Regency, West Sumatra Province answered that the price of poultry feed ingredients has increased compared to before the PSBB policy. Meanwhile, 76% of farmers stated that there was no change in prices for poultry feed ingredients before and after the implementation of large-scale social restriction policies and none of farmers stated that poultry feed ingredients experienced a decrease in prices during PSBB policies. In line with research from Harmen (2020) which state that the increase in the price of poultry feed in the Lima Puluh Kota district is influenced by the obstruction of transportation of poultry feed ingredients. Most of the feed ingredients such as corn and bran come from several areas outside the Lima Puluh Kota Regency and factory feed which generally comes from North Sumatra.

Moreover, Kolluri et al. (2021) also mentioned that the ongoing COVID-19 pandemic in the world has a serious effect on the prices of poultry feed ingredients. Consequently, many farmers are encountering challenges due to the rising cost of agricultural raw materials that are the primary constituents of chicken feed (Kolluri et al., 2021). Moreover, during the COVID-19 pandemic, many farmers are forced to substitute or replace materials with those that are easier to obtain and deemed capable of meeting the needs of livestock. However, this results in a decrease in the quality of the livestock products sold, resulting in decreased purchasing power and income for farmers.

The price variable is one of the most concerning variables because the poultry business, especially layer poultry, is one of the businesses that require a stable supply of feed; therefore, if the feed supply is interrupted once, it will result in changes in feed prices that are quite volatile, thereby affecting the selling price in a way that farmers cannot control. This is different from the case with Impact of Covid-19 Pandemic on Poultry Feed Distribution (Ermanda et al., 2023)

broiler farming businesses, which majority have core and plasma business concepts where breeders and partner companies have entered into contract agreements at the beginning of the period, but it also does not rule out the possibility of partner companies to terminating contracts with farmers if they are deemed to be in default, especially during the COVID-19 pandemic where partner companies are more selective in determining partner breeders because they must consider the financial condition of the company which must remain stable despite the pandemic.

The results of research from Luckstead & Devadoss (2021), which examined the impact of the COVID-19 pandemic on the supply chain of the broiler business stated that the negative effect of the production sector in all supply chain sectors caused an increase in the price of input goods in the poultry farming business such as the price of feed and drug prices which also have an impact on the weakening of farmers' profits. A study by Yazdekhashti et al. (2021) about COVID-19 pandemic's effect on poultry industry in Mississippi who results showed that COVID-19 led to a shortage of feed ingredients and increased the price. Consequently, the production cost and selling prices were increased which imposed high pressure on poultry meat consumers. This study's results support prior findings that a relationship existed between the COVID-19 pandemic and changes in poultry feed prices since the disruption of the poultry feed supply chain led to price increases.

## CONCLUSION AND SUGGESTION

By paying attention to the results of observations that have been made to poultry farmers in Lima Puluh Kota Regency, West Sumatra Province, it can be concluded that from the variables, namely smooth transportation, availability of feed ingredients and prices in general, there are enough problems that can interfere with the distribution of poultry feed ingredients and have a direct impact on the continuity of poultry farming business. Therefore, the government needs to encourage the optimization of the functions of the logistics sector, especially in terms of providing infrastructure and other special facilities to support the distribution of animal feed. Incentives for the food supply chain logistics sector should be prioritized to ensure distribution in the poultry feed ingredients subsector as well as address the issue of availability of feed ingredients for farmers and maintain price stability.

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