1. Introduction

West Sumatra is one of the central production for laying hens in Indonesia. The existence of laying hens farming business has spread in various cities and districts in West Sumatra, including West Pasaman Regency. The population development of laying hens in this area is quite good, but it has not been able to meet the needs of eggs for the local community. The number of requests for purebred chicken eggs in West Pasaman Regency in 2018 was 38,441,861 kg, while the number of new production reached 1,344,112 kg [1]. The low egg production is due to the limited number of breeders, since there are only 10 farmers with a large enough business scale, while the rest are still at household scale that do not meet the economics scale. Meanwhile, West Pasaman Regency is the main producing area of maize for animal feed in West Sumatra with a percentage of 39% of the total production of West Sumatra, with a corn planting area of 64,532 ha[1]. Likewise, rice production was quite high in 2017 with a planted area of around 32,228.38 ha with a production of 139,795.76 tons [1]. Both of these food crops are sources of feed for poultry. With the availability of the main input for poultry feed in this area, it is expected that the poultry is developed, especially laying poultry, which is now still low in production.

The constraint in the development of laying hen farming business is due to the lack of knowledge and interest in the business of laying hens farming. In general, people plant oil palm so they are less interested in developing other businesses, besides that government policies are still not fully supporting...
the development of poultry farming. Supposedly, with the availability of abundant feed production inputs, the competitiveness of layer chicken farms will increase. Competitiveness is the ability of producers to produce a commodity at a fairly low cost in accordance with the price on the international market and obtain sufficient profit [2]. According to [3], the competitiveness of an industry, company or nation is determined by four main factors which include; input, domestic market, linkages between supporting industries and companies, strategy, structure and company competition. The point is the importance of innovation and technology in supporting industrial businesses that have competitive advantages.

According to [4], policies that affect the agricultural sector including livestock can be classified into three categories, namely macroeconomic policies, public investment policies and price policies. Investment policies that affect the agricultural sector are investments funded by the government in order to reduce production costs and increase human resource capacity. The investment policy in West Pasaman is to improve the skills of farmers with various trainings and policies to improve the health of human resources by providing various education to consumers. The price policy set by the government can be applied to inputs and outputs which cause differences in the prices of private and social inputs and outputs. According to [5], domestic price policies are still influenced by external factors, such as international agreements, policies related to agriculture by trading partners in Indonesia. The price policy aims to increase business efficiency as measured by the level of social benefits. The difference in social benefits before and after the existence of public investment policies shows an increase in social benefits. Successful public investment will increase the value of output and reduce input costs. A public investment in the form of research or technology will increase business results and business results and by itself will increase profits and lower costs [4].

This study aimed to analyze the extent of the financial benefits, economic benefits and competitiveness in laying hens farming business in West Pasaman Regency. How the effect of government policies in the development of laying hens is by using analytical tool of Policy Analysis Matrix. The results of this study are expected to open up public awareness to take advantage of the great potential of the animal feed to develop laying hen farming business to improve the regional economy. Besides, the government can evaluate the policy that has been issued.

2. Materials and Methods

Research was conducted through survey from July to September 2019, thus the data and information were directly obtained from the research respondent. The research respondents interviewed were 10 breeders chosen through census which was by choosing all existing laying hen breeders in West Pasaman District. The data obtained were then analyzed using Policy Analysis Matrix (PAM). According to [4], PAM Analysis is a tool that can be used to analyze the private and social benefit competitiveness (competitiveness and comparativeness) and the effect of government policy on the business. Assumptions used in PAM analysis were; 1) the calculation is based on the private cost which is the actual cost received by the producer and consumer or the cost after the policy is established; 2) Calculation is based on the social cost or the shadow price which is the price in the market condition of perfect competition or the actual price when there is no policy established. On tradable commodity, shadow price is the price in international market; 3) Output is tradable, while input can be either tradable or non-tradable; and 4) Positive and negative externality are assumed to remove each other. Formatting the title, authors and affiliations

3. Results and Discussion

West Pasaman is one of the Regencies in West Sumatra, Indonesia. West Pasaman Regency has an area of 3,887.77 km² consisting of 11 Districts, those are Gunung Tuleh Sub-District, Kinali Sub-District, Koto Balingka Sub-District, Lembah Melintang Sub-District, Luhak Nan Koto Sub-District, Pasaman Sub-District, Ranah Batahan Sub-District, Sasak Ranah Pasie Sub-District, Sungai Aur Sub-District, Sungai Beremas Sub-District, and Talamau Sub-District. The business of laying hens farming is spread across several Sub-Districts in West Pasaman, which are Sungai Aur Sub-District which has one breeder, Lembah Melintang Sub-District which has two breeders, Gunung Tuleh Sub-District which has one
breeder, Pasaman Sub-District which has three breeders and Kinali Sub-District which has three breeders [1].

3.1 Profile of Laying Hens Business in West Pasaman Regency

The business of laying hens farming has not yet developed in West Pasaman District, since there are only 10 breeders spread in several districts. Table 1 contains the name of the breeders, business location and business scale.

| Table 1. Name of the Breeders, business location and scale of Business in West Pasaman District |
|---|---|---|
| No | Breeder | Business Location (Sub-District) | Business Scale |
| 1 | Diteg Farm | Kinali | 180,000 |
| 2 | Romadon | Sungai Aur | 11,000 |
| 3 | Abdul | Lembah Melintang | 1,000 |
| 4 | Yarnis | Lembah Melintang | 1,500 |
| 5 | Marbon | Gunung Tuleh | 1,600 |
| 6 | Hj Khainur | Pasaman | 4,000 |
| 7 | Basri | Kinali | 4,500 |
| 8 | Nanda | Kinali | 5,600 |
| 9 | Buyung | Pasaman | 1,300 |
| 10 | Pak Yul | Pasaman | 1,000 |

Source: Data Processed

Based on Table 1, it can be seen that the business scale varies from 1,000 to 180,000 heads. Diteg Farm is the biggest business and has implemented modern farms, having 26 cages with a capacity of 7,000 each. This company also has a closed house system with a capacity of 32,000 birds and also has its own feed factory. Another farming with a capacity of 11,000 is located in Sungai Aur Sub-District with 7 stage cages with a capacity of 1,200 each. The rest are medium scale farmers, all breeders use battery cages. Diteg Farm is the first laying hens farming business established in West Pasaman. Because of its success, people became interested in getting involved in this business. With the guidance of the owner of Diteg Farm, several new businesses emerged. Therefore, all laying hens farming businesses in West Pasaman Regency use the same technical aspects ranging from DOC, feed, cages and equipment as well as even price. This condition occurred because the communication that exists between the breeders in West Pasaman is very good.

3.2 Policy Analysis Matrix

Based on the Policy Analysis Matrix, the performance of laying hens farming business can be presented in Table 2

| Table 2. Policy Analysis Matrix (PAM) on the Performance of Laying Hens Farming Business |
|---|---|---|---|
| Component | Revenue | Cost | Profit |
| | Tradable Input | Domestic Factor | |
| Private | 134,417,966.400 | 21,152,636.000 | 14,829,208.092 | 98,436,122.308 |
| Social | 120,480,115.122 | 17,918,416.590 | 14,829,208.092 | 87,732,490.440 |
| Divergence | 13,937,851.278 | 3,207,219.410 | 0 | 10,703,631.868 |

Source: Results of calculations for private and social budgets, processed

Based on Table 2 above, the research result can be explained according to the research objectives as follows:

3.2.1 Profitability of the Laying Hens Farming Business

- Private Profitability. Private profit is the profit received by the farmer (producer), while social benefit is the benefit received by people other than breeders such as corn suppliers, bran suppliers and DOC suppliers whose economy increases with the presence of laying hens farming business [6]. One of
the indicators of competitiveness from the commodity system based on technology, output value, input cost and policy transfer is private profitability [4]. PAM analysis on private profitability of IDR 98,436,122.308 indicated that the commodity system obtained profit over the normal cost. Company received profit because it can minimize the tradable input cost and domestic factor. The ability in minimizing the cost cannot be separated from the policy established by the government of West Pasaman Barat District starting from policy regarding output price. According to [7] that positive private profitable indicates that a business is financially feasible because it gives profit to the farmers. Private profit obtained was higher than the social profit obtained, which means that the business became more profitable when there was government intervention.

- **Social Profitability.** The social profitability of the Laying Hens farming business was IDR 87,732,490.440 which gave positive value, meaning that the business received profit from the normal cost in social cost. This is due to the presence of public investment which successfully provided marketing infrastructure to improve the output value and decrease the input cost. This means that the commodity system earned a return on normal costs in social prices which implies that the business of laying hens farming in West Pasaman District is capable of expansion, has a comparative advantage and is efficient at the level of social prices. The business of laying hens farming in West Pasaman District is quite efficient because the profit rate was calculated based on the efficiency price (the social price). This is due to successful public investments such as provision of infrastructure (road infrastructure, electricity, telecommunications, marketing infrastructure), research and technology. This will either increase the value of the output or decrease the cost of the input. According [8] that price which produces best resource allocation will make the highest profit. The reason is because the social opportunity cost from input used or output produced has considered the scarcity of the resource and the social profit.

**3.2.2 Analysis of the Competitiveness of the Laying Hens Farming Business in West Pasaman District**

Through the analysis of competitiveness and comparativeness, a business competitiveness can be determined. Ratio calculation from PAM table is needed to analyze the competitiveness and comparativeness as presented in Table 3.

**Table 3. Result of PAM Table Ratio Analysis Calculation on Laying Hens Farming Business in West Pasaman District, West Sumatra, Indonesia.**

| No | Ratio Indicator                              | Value    |
|----|---------------------------------------------|----------|
| 1  | Private Cost Ratio (PCR)                    | 0.120    |
| 2  | Domestic Resource Cost ratio (DRCR)         | 0.130    |
| 3  | Transfer Input (TI)                         | 3,234,219.410 |
| 4  | Nominal Protection Coefficient On Input (NPCI) | 1.180    |
| 5  | Transfer Faktor (TF)                        | 0.000    |
| 6  | Transfer Output (TO)                        | 13,937,851.278 |
| 7  | Nominal Protection Coefficient On Output (NPCO) | 1.110    |
| 8  | Net Transfer (NT)                           | 10,703,631.868 |
| 9  | Effective Protection Coefficient (EPC)      | 1.010    |
| 10 | Provitability Coefficient (PC)              | 1.122    |

**Source: PAM result, processed**

- **Competitiveness.** Competitiveness was calculated using PCR or private cost ratio obtained from private domestic factor cost divided by the private income reduced by private tradable input cost. Based on Table 3, PCR value obtained was 0.120 which is less than 1, indicating that the Laying Hens business in West Pasaman District was in efficient condition so that it has competitiveness. According to [6] PCR value indicates the ability of a business to pay the domestic factor input (land lease, workers’ payment, and capital) and still has competitiveness. Laying Hens farming business in West Pasaman District indicates that the business is efficient so that it is worth to be developed more. All tradable input and domestic factor were provided in adequate amount in this region. The
government must support this business development by providing subsidy, counselling and facilitating it with the input resource.

- Comparativeness. Comparativeness was measured by DRCR or Domestic Resource Cost Ratio value. Based on Table 3, the DRCR value was 0.130 which is less than 1, indicating that the Laying Hens farming business in this area has comparativeness. Rias and Dwi (2016)[8], said that the value of DRCR is an indicator of the ability of businesses to finance the cost of domestic factor inputs at social prices as an indicator of comparative advantage. A DRCR value less than 1 means that a business has a comparative advantage, is more efficient and is able to live without the help of government intervention. The smaller the value of the DRCR, the greater the profits obtained, and vice versa. PCR > DRC shows that the effort is supported by government policies that are able to increase the efficiency in production. These policies include policies related to input-output such as subsidies and taxes, which will be effective in increasing competitiveness.

3.2.3 The Effect of Government Policy

The analysis of government policy refers to the ratio calculation on PAM Table presented on Table 2.

- Policy on Input. (1) Transfer Input (TI). TI value was obtained from the private tradable input cost reduced by social tradable input cost. TI value showed that there were government policies applied on tradable inputs. Based on Table 2, the TI value was positive 3,234,219.410 which means that the input policy for the Laying Hens business in West Pasaman Regency caused the farmers to be able to pay tradable input higher on the private cost rather that the social cost. Based on [9] stated that positive TI value indicates the effect of input policies causing farmers to pay tradable inputs more expensive on private prices than social prices, meaning that the government protects the input producers. Farmers should be able to buy inputs at lower prices, but government policies on inputs lead to more expensive input prices. (2) Nominal Protection Coefficient on Input (NPCI) value was obtained from the cost of private tradable input cost divided by social tradable input cost. Based on Table 2, NPCI value obtained was 1.18 > 1 indicating that the government protected the tradable input farmers in the domestic market. According to [7] NPCI value > 1 meaning that domestic input costs were more expensive than the input costs at the world price level. It can caused by the absence of subsidies from the government, thus the farmers must pay higher tradable input costs, causing high costs production. This could also cause the main input DOCs which are still imported from abroad causes input prices to be high due to import taxes and import quota restrictions. According to [10], the value of NPCI > 1 indicates protection from the government for foreign input producers. This is due to government policies in the form of import duties (import taxes) and value added taxes for tradable inputs. (3) Transfer Factor (TF) value was obtained from the private domestic factor cost reduced by domestic social factors. TF value indicates the amount of subsidies to domestic factors. Based on Table 2, TF value obtained was IDR 0, indicating that there was no subsidy for domestic factors, due to the same domestic factor cost on both private and social level. For the domestic factor cost such as land, stables, equipment used at research area is the prevailing price in the area, so there is no international price or no shadow price. According to [4], domestic factor cost is treated differently from tradable input because there is no international price for domestic factor that should be used as social opportunity cost value. According to [7] the value of TF = 0 means that there was no government policy on domestic factors used by breeders.

- Policy on Output. (1) Transfer Output (TO) value was obtained from the private income reduced by social income. TO value showed that the government policy was applied to the output. Table 2 shows the output transfer value of 13,937,851.278 which means that the acceptance at the private level was higher than the social level, causing consumers to buy prices that are higher than the prices they should pay to producers. This number indicates that there was a government policy that protects output by setting a certain output price, which caused the private price of output received by producers to be higher than the price of social output so that farmers obtained higher income. According to [10], the difference between private and social prices in the Transfer Output value is due to the tax incurred for social output cost. (2) Nominal Protection Cost on Output (NPCO) value
was obtained from the private income divided by social income value. Table 2 presents the NPCO value obtained which was 1.11 > 1 showing that government policies have resulted in higher output prices in the local market compared to output prices in the international market (social prices), meaning that farmers received implicit subsidies. According to [4] the value of NPCO > 1, thus the market price (actual price) of output was higher than the social price. This is due to the existence of a government policy in the form of an egg import tax so that the price of domestic eggs is high. This condition provides

- Policy on Input-Output. (1) Net Transfer (NT) value was obtained from the value of private profits minus the value of social benefits. Table 2 presents that NT value obtained was 10,703,631.868 showing that the profit at the private level was higher than the profit at the social level. This means that government policy caused additional surpluses to producers in the form of import taxes applied to inputs and outputs so that losses to farmers can be avoided. This is in line with the opinion raised by [10] that the positive NT value indicates an increase in profits due to government policies in the form of import taxes (import duties on imported goods) on inputs and outputs that increase surpluses. Although the tax policy was not stipulated by the West Pasaman District government, but the central government's policy in terms of taxes will have an effect on local farmers. (2) Effective Protection Coefficient (EPC) was used to see to which extent the government policy protects the domestic products. The value of EPC was obtained from the value of private income minus private profit divided by the value of social income minus the value of social benefits. EPC value in the Laying Hens farming business was 1.01> 1 indicating that government policy was quite effective in protecting domestic producers. Breeders received profit of 101% more than they should. [7] stated that the value of EPC is a ratio that compares added value at the private level to the added value at the social price level, the value of EPC> 1 means that the policy on output and input prices is beneficial for breeders to continue developing their livestock business. This is in line with the opinion raised by [4], an EPC value > 1 indicates a positive incentive from government policy towards farmers (breeders). This shows that the government policy to protect domestic producers is quite effective by imposing an output import tax, so that it is as if farmers are getting subsidies from the government. Whereas in fact the government does not provide any subsidies to breeders of layer chickens in West Pasaman District, according to the NPCO value > 1 which indicates no subsidy. According to [10] the value of EPC> 1 shows that the government is effective in protecting producers with government policies in the form of import taxes (import duties for imported goods) on inputs and outputs. (3) Profitability Coefficient (PC) value was obtained from the result of the private profit value divided by social profit value which obtained 1.122 > 1, showing that government policy caused private profit to be higher than the social profits. This has implications for the amount of profit received by farmers if there are government policies such as grandparent stock import taxes, feed raw materials and output import taxes such as egg imports, according to the results of EPC calculations which show farmer income is higher when there is government policy. According to [4], if the PC number > 1, it shows the existence of policies that is able to increase the farmers' incomes. According to [10], applicable government policies such as import duty taxes on production inputs resulted in greater profits than without policies.

4. Conclusion

The laying hens farming business in West Pasaman Regency is profitable and financially efficient both in terms of private and economic profits, because the profit is greater than zero, obtaining a return on normal costs, which implies that the business of laying hens farming in West Pasaman Regency is capable of expansion, has power and is effective use of resources. It is assumed to be competitive from both competitiveness and comparativeness. Government policies on the input of laying hens farming business in West Pasaman District causes breeders to pay tradable inputs higher than social prices, due

Acknowledgments
I would like to express my gratitude to my fellow beloved students who has supported on implementing the survey to the breeder.

References
[1] Badan Pusat Statistik 2018 Badan Pusat Statistik Provinsi Sumatera Barat. 2018. Jumlah Produksi Jagung Kabupaten Pasaman Barat Tahun 2018. Pasaman Barat. Badan Pusat Statistik (Padang)
[2] Payaman /, Simanjuntak J and Simanjuntak P J Pengantar ekonomi sumber daya manusia
[3] Daryanto A 2009 Posisi daya saing pertanian Indonesia dan upaya peningkatannya
[4] Pearson S, Gotsch C and Bahri S 2005 Aplikasi policy analysis matrix pada pertanian Indonesia
[5] Pranolo T 2001 Status Beras Kondisi Petani dan Lembaga Pangan (Jakarta: Departemen Pertanian)
[6] Yuzaria D and Suryadi D. 2011 Analisis Tingkat Keuntungan, Keunggulan Kompetitif, Keunggulan Komparatif, dan Dampak Kebijakan Impor Pada Usaha Peternakan Sapi Potong di Provinsi Jawa Barat (The analysis of profitability, comparative advantage, competitive advantage and import policy impact on beef cattle fattening in west java) vol 11
[7] Mutmainah A E and Prihtanti T M 2018 Analisis Keunggulan komparatif dan kompetitif usaha ternak ayam ras pedaging di Kecamatan Musuk Kabupaten Boyolali 14 176–82
[8] Rias M I and Yuzaria D 2016 Profitabilitas ayam broiler sistim kontrak farming di Kabupaten Padang Pariaman
[9] Utama G . 2008 Tingkat Daya Saing, Profitabilitas dan Dampak Kebijakan Pemerintah Terhadap Usaha Ayam Petelur di Kabupaten Blitar (Surabaya: Fakultas Ekonomi dan Bisnis Universitas Airlangga)
[10] Mantau Z 2009 Analisis Keunggulan Komparatif dan kompetitif usaha tani jagung dan Padi di Kabupaten Bolaang Mangondow, Provinsi Sulawesi Utara.