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Estimation of Forage Productivity and Business Feasibility Analysis at the Integrated Agricultural Center of PT Arutmin Indonesia Site Asamasam

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KEYWORDS
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ABSTRACT
The purpose of this study is to support the development of cattle fattening business in the Integrated Agricultural Center (SPT) managed by PT Arutmin Indonesia. The research method used in this study is Field Work Practice (PKL) which is carried out at PT Arutmin Indonesia Site Asamasam, Simpang Empat Sungai Baru Village, Jorong District, Tanah Laut Regency, South Kalimantan Province. This street vendor lasts for three months, from March 4, 2024 to June 3, 2024. The results of this study show that the productivity of indigofera, sorghum, elephant grass and odot grass in SPT is 2.92 tons, 4.5 tons, 2.9 tons, and 0.278 tons respectively with a dry matter content of 4.08% respectively; 4,8%; 6,57%; and 7.48%. Based on the results of the feasibility analysis of the cattle fattening business in the tax return. The cattle fattening farm business in the SPT is feasible to run because it has a turnover of Rp. 400,000,000 with PP for 5 years and the company will break even if the BEP price is Rp. 15,321,525 and successfully sells 15 cows.

Introduction

PT Arutmin Indonesia is a company engaged in the mining of barubara which has a Special Mining Business License (IUPK) and is one of the National Vital Objects (OBTIVAS). PT Arutmin Indonesia currently manages several mines in several areas of South Kalimantan and one of them is the Asamasam Site. PT Arutmin Indonesia has been operating for a long time and is responsible for the community around the mine in the form of *Corporate Social Responsibility* (CSR) activities. One of the CSR activities carried out by the company is community development in the agricultural sector at the Integrated Agricultural Center (SPT) which is under the Department of *Community Development & External Affairs* (CDEA). SPT is an integrated agricultural facility that combines livestock and agriculture. Currently, in SPT there are simental types of cattle and forage cultivation in the form of sorghum, indigofera, elephant grass, and odot grass.

In the future, the company wants to develop a cattle fattening business by utilizing forage that will be cultivated on an area of 1.5 hectares as a source of forage for animal feed.

Animal feed is everything that can be given to livestock to support production and reproductive activities. One of the important factors in livestock development efforts is the guaranteed availability of quality feed throughout the year. Success in the livestock business depends on feed management, because the cost incurred for feed reaches 60-70%. For ruminant livestock, forage is the main source of feed. The types of forage that are commonly cultivated in Indonesia are grass and (Hastuti et al., 2011) *leguminosae*. The variation in forage availability depends on the location, weather, season, soil quality, and so on. Indonesia has a tropical climate, so the forage that grows must have the ability to adapt to the tropical climate and have certain characteristics. Also added is that tropical forage usually has a high crude fiber content, protein and phosphorus that quickly decrease, and various levels of anti-nutrients. Before developing a cattle fattening business in the tax return, it is necessary for the company to find out how much forage productivity is available, the composition of each type of forage on the tax return land, how many livestock can be accommodated, and how economical the cattle fattening activities are in the tax return (Nurlaha et al., 2014; Patriani & Apsari, 2021).

So, to answer this background, this Field Work Practice Report was prepared with the title "Estimation of Forage Productivity and Business Feasibility Analysis at PT Arutmin Site Asamasam's Tax Return". It is hoped that the existence of this Field Work Practice Report can answer the problems in the field and can help the company in achieving the goal of developing a cattle fattening business in the tax return.

The benefit of this research is to apply the knowledge gained during lectures in real life by solving problems in the field, especially in estimating the quality of forage for livestock and analyzing the feasibility of cattle fattening businesses in tax returns, as well as providing experience for authors about the world of work.

Research Methods

Field Work Practice (PKL) is carried out at PT Arutmin Indonesia Site Asamasam which is located in Simpang Empat Sungai Baru Village, Jorong District, Tanah Laut Regency, South Kalimantan Province. Data collection and case study projects are carried out in the SPT (SPT). This street vendor will be held for three months starting from March 4, 2024 to June 03, 2024.

In general, street vendor activities are carried out on weekdays Monday – Friday. The entry hours for street vendor activities start at 07.00 starting with toolbox meeting activities, then continue with their respective activities until the time to go home at 17.00. Every Tuesday sports activities are carried out with office employees and on Friday safety talk activities are carried out. The first and second weeks were carried out an introduction to the company's environment such as visits to the CSR House, SPT, and K3LK Induction offices. In the following week, the completion of case studies and the preparation of street vendor reports were carried out. Every few weeks, a presentation on the progress of street vendor activities in the company will be made and occasionally involved in supporting the activities of the CDIA Department.

The data collection technique used in this Field Work Practice is carried out by observation and study of related literature. Observation or direct observation of conditions in the field and recording the information needed. The literature study conducted in this case study is to find information or case studies related to this case study. Forage sampling analysis.

Results and Discussions

Fresh Productivity and Forage Dry Material Content in Tax Returns

Fresh Forage Productivity

There are four types of forage in the tax return, namely indigofera, sorghum, elephant grass, and odot grass. The four forages are types of forage that are adaptive to the environment and have high productivity. Each of these forages has a different harvest period according to its type. Indigofera has a harvest period of 45 days after the first harvest. Elephant grass and odot grass have a harvest period of 45 – 50 days after the first harvest, while sorghum has a relatively longer harvest period of 90 days. Based on the formulation of the existing problem, the recapitulation of forage productivity in the tax return is as follows.

Table 1 Recapitulation of Fresh Forage Productivity in Tax Returns

Forage	Parameters			
	P. Fresh (tonn/ha/yr)	P. Fresh (Tons/Ha/Harvest)	P. Actual (Tons/m2)	Land (m2)
Indigofera	194,4	24,3	2,92	450
Sorghum	116,4	29,1	4,5	1564
Elephant Grass	299,2	37,4	2,9	870
Odot Grass	212,8	26,6	0,278	280
Total	670,27	100,5	10,59	3.164
Flattening	167,56	25,12	2,64	791

Source: Results of primary data processing in 2024.

Caption: P (Productivity).

Table 1 above shows the number of forage productivity per year with a land area of 1 ha. Of the four types of forage, it can be seen that the highest productivity is found in elephant grass with an annual productivity of 299.2 tons/ha/yr, while the lowest productivity is found in odot grass which is 212.8 tons/ha/yr. The results of fresh forage productivity are reduced by a correction factor of 20%. The existence of the correction factor is intended to adjust the mistakes in the field. The errors in question are soil fertility factors, the number of dead plants, etc. The details of the productivity of each type of forage in the tax return are as follows.

Indigofera

The area of indigofera land in the tax return is 1203.75 m2, while in reality only 450 m2 of land is used. With a planting distance of 2 x 1.5 m2, the population of the existing indigofera clump is 141 trees with a total productivity of 1,029 kg or 1.02 tons. So the average productivity of indigofera per tree is 7.3 kg. It should be able to accommodate 401 indigofera trees with an estimated productivity of 2.92 tons of fresh forage with a land area of 1203.75 m2. This shows that there is still a potential land area of 753 m2 that has not been utilized to the maximum. With an existing land area of 450 m2, the existing planting distance can ideally accommodate 150 indigofera trees, but the actual situation in the field is only 141 indigofera trees. If calculated, the 753 m2 land can accommodate 250 indigofera trees with the same planting distance and based on the existing productivity data, it is assumed that it can produce 1.8 tons of fresh forage. If converted to 1 ha, based on the existing productivity, indigofera production is assumed to reach 24.3 tons/ha.

Based on research conducted by indigofera productivity with varying planting distances, the productivity was 32.61 tons/ha/year, 41.04 tons/ha/year, and 54.85 tons/ha/year, respectively. If it is assumed that in a year indigofera can be harvested 8 times, then in one harvest the productivity reaches 4.07 tons/ha/harvest, 5.1 tons/ha/harvest, and 6.8 tons/ha/harvest. This difference in productivity figures is due to the use of a planting distance of 1.5 m x 1 m in the study; 1 m x 1 m; 1 m x 0.5 m narrower than the planting distance on SPT land. This leads to a lack of space for the growth of twigs and leaves. Indigofera productivity is affected by planting distance. This is in accordance with (Ering et al., 2019) the statement that the influence of indigofera planting distance can increase its production because the more population that can be accommodated, the higher the productivity. The planting distance in forage cultivation needs to be considered because too many populations in forage land make there is competition for nutrients, water and sunlight. Compared to the case study conducted by indigofera harvesting with cutting intervals of 45 and 60 days consecutively, it produces fresh production of 150,300 g/tree/year and 326,900 g/tree/year with a planting distance of 1 m x 1 m, while according to the fresh production of indigofera with harvest intervals of 40 and 55 days produces 1,614 tons/ha and 1.98 tons/ha. This shows that the productivity of forage in SPT is much more than in previous case studies (Prayoga, 2018; Sambuaga et al., 2020).

The best planting distance for indigofera is 1 m x 1.5 m because at this planting distance it produces the highest production of fresh leaves, fresh stems and dry matter production of plants per tree. This is because at a planting distance of 1 m x 1.5 m there is no competition for nutrients, sunlight, and there is still room for twig growth. The optimal planting distance also allows plants to absorb enough sunlight for the photosynthesis process. Another factor that can be done to support plant growth is weed cleaning. Weed cleaning during growth also needs to be done to reduce nutrient competition between forage and growing weeds. Indigofera planting is carried out at the age of 90 days after planting and on the 40th day for the next harvest (Morip et al., 2020).

Sorghum

The productivity of sorghum in the SPT is assumed to reach 44.4 tons/ha/harvest based on the most optimal sampling results. If reduced by a correction factor of 20%, the productivity will be 35.5 tons/ha/harvest. The correction factors referred to here are the area on uncultivated land, infertile land, and the productivity is not ideal. From the productivity results, it can be calculated that an area of 1 m2 of sorghum land produces 3.5 kg of sorghum. On a land area of 1 ha, the clump capacity can accommodate 8,333 populations with a planting distance of 60 x 20 cm. With ideal conditions, the number of clumps and productivity results can be calculated with an area of 1 ha, the productivity reaches 29.1 tons. In reality, the land area in the tax return is 1564 m2. Based on the existing planting distance, the population that can accommodate is 1303 populations and the fresh productivity reaches 4.5 tons. The area of sorghum plots in SPT is only 1/6 part of 1 ha, if converted in an area of I ha, the productivity of sorghum forage only reaches 29.1 tons/ha< 44.4 tons/ha when compared to the ideal productivity.

Based on research (Prasetyarini & Sundana, 2022) conducted by sorghum production, it reached 4,878 tons $^{ha-1}$ and the results were given to livestock in the form of continuous silage with the addition of starch as an energy supplement for milk, showing that the content is almost the same as corn. (Iqbal et al, 2015) also added that the potential of sorghum as a source of forage for animal feed in a year reaches 13 tons/year. However, when compared to the research, the Numbu variety of sorghum produced 60.09 tons/ha

of fresh production while the CTY-33 variety produced 37.89 tons/ha. Productivity in the tax return is much lower. This can be caused by the application of a combination type of urea: TSP: KCL fertilizer twice to support sorghum growth, while in the sorghum tax return, manure and NPK pearl fertilizer are given once (Sriagtula et al., 2017).

Elephant Grass

The fresh productivity of elephant grass is assumed to reach 56.6 tons/ha based on the most optimal sampling results. The productivity result was reduced by 20% as a correction factor so that the yield reached 45.2 tons/ha. From this assumption, the productivity of elephant grass in the area per m2 can be calculated as much as 4.5 kg. On an area of 1 ha with a planting distance of 40 x 30 cm, the productivity can reach 37.4 tons with a population of 8,333 clumps in ideal conditions. In the actual situation, the land area in the tax return is 870 m2. Based on the existing planting distance, the population that can be accommodated is 656 clumps with the resulting forage productivity reaching 2.9 tons. The area of elephant grass is only one-tenth of 1 ha, if converted into the actual productivity result into a hectare of production, it touches 37.4 tons/ha. The productivity figure is still below the ideal productivity figure of 37.4>45.2 tons/ha. Based on the existing productivity results and the actual land area, the total fresh productivity of elephant grass is able to reach 23.2 tons. In one tofu of elephant grass can be harvested 8 times and in per year the productivity can reach 299.2 tons/ha/year.

According to the fresh productivity of elephant grass per year with a cutting age of 40, 50, and 60 days respectively is 83.80 tons/ha, 172.58 tons/ha, and 242.92 tons/ha and produces dry matter of 16.68 tons/ha, 34.34 tons/ha, and 48.34 tons/ha whereas, in the rainy season with a cutting age of 40, 50, and 60 after planting, it is able to produce a fresh forage weight of 8.38 tons/ha respectively, 13.81 tons/ha, and 14.58 tons/ha. When compared to the assumption of the estimated fresh productivity of forage based on the conversion result in an area of 1 ha in the tax return of 37.4 tons/ha, which per year is able to produce 299.2 tons/ha/year higher productivity of elephant grass in the tax return than the case study conducted by Anggraini et al, (2023). In the previous case study, the planting distance was 1 m x 1 m, too wide for elephant grass growth (Anggraini & Yulianto, 2023).

Odot Grass

The area of odot grass forage in the tax return is 280 m2 with a planting distance of 30 cm x 40 cm. Based on the most optimal sampling results, the productivity of odot grass reached 41.1 tons/ha. The productivity was reduced by a correction factor of 20% so that the productivity was 32.88 tons/ha. With this assumption, it can be concluded that the productivity of odot grass is 3.2 kg/m2. The ideal clump population that can be accommodated on 1 ha of land is 4,166 clumps. From the number of clumps, it can be calculated that the fresh production of forage is 13.3 tons in ideal conditions with the same planting distance. In the actual situation in the field, the area of odot grass is only 280 m2. The ideal population that can accommodate an area of 280 m2 is 116 clumps with the same planting distance. The productivity of fresh forage produced was 278.4 kg. Based on the productivity per m2 in the tax return, if converted to an area of 1 ha, the productivity yield only reaches 26.6 tons/ha<13.3 tons/ha of the ideal amount of productivity. In one year, odot grass can be harvested 8 times with an annual productivity of 212.8 tons/ha/year.

Based on research conducted by the fresh production of dwarf elephant grass, the highest is found in intensive tillage treatment with a planting distance of 50 x 50 cm with a productivity of 54.4 tons/ha, while the lowest productivity is found in the minimum

tillage treatment and planting distance of 50 x 70 cm with a productivity of 17.1 tons/ha. When compared to the productivity of odot grass in the tax return which is 26.6 tons/ha/harvest with previous research, the productivity of forage in the tax return land is still not optimal and the productivity yield is still smaller. Looking at the distance between the actual situation and the existing literature shows that there are factors that cause differences. One of the possibilities of these many factors is soil fertility, planting distance, and maintenance. Soil fertility greatly affects the productivity of forage because forage needs nutrients as nutrients for cell growth and division. He also added that the productivity of odot grass fed with compost fertilizer at a dose of 5 tons/ha with a planting distance of 90 x 90 cm and harvested at the age of 75 days produced fresh forage products of 24.08 tons/ha and the dry matter content (BK) produced reached 10.82 tons/ha. However, the case study conducted by showed the productivity of odot grass with a combination of manure and NPK with a planting distance of 75 x 35 cm reaching 8.84 kg/m^2 or 17.68 tons/ha (Hendarto et al., 2020; Ressie et al., 2018; Sarwanto, 2023). This result is lower when compared to the results of forage productivity in the tax return. To increase the productivity of odot grass in SPT, the existing planting distance can be widened to provide space for grass saplings to grow. The ideal planting distance for odot grass should be 1 m x 1 m according to the statement that the ideal distance for odot grass is 1 m x 1 m because it is the optimal distance so that there is no significant individual competition (Djorebe et al., 2022).

Forage Dry Material Analysis

Table 2 Analysis of Dry Material Content in Tax Return

Forage	Fresh Weight (gr)	Sun Dry Weight (gr)	Moisture Content BKU (%)	BKU Depreciation -> BK (%)
Indigofera	100	28	72	95,92
Sorghum	100	43	57	95,2
Elephant Grass	100	35	65	93,43
Odot Grass	100	57	43	92,52

Source: Results of primary data processing in 2024.

Description: BKU (Dry weight of air), BK (Dry material).

Based on table 2 above, it can be concluded that the BK content of forage is very low. This is due to the length of drying of feed forage. Before being in the oven, the forage samples were dried in the sun first for three days, then dried in an oven at 60°C for 24 hours. The samples put in the oven should be fresh after harvesting, but because the samples put in the oven are already in a dry state, this is the cause of the small BK content in the forage samples in the tax return. The content of BK palig is abundant in indigofera forage with a percentage of 95.92% and the lowest content is found in odot grass forage as much as 92.52%.

According to indigofera production with harvest intervals of 2, 3, and 4 months, it produces dry matter of 0.32 tons/ha, 0.77 tons/ha, and 1.94 tons/ha, respectively. dry matter productivity (BK) of sorghum planted on land without *sludge* produces 1.609 tons/ha, while sorghum planted on land with *sludge* producing 1,787 tons/ha (Ali et al., 2023). When compared to corn plants, the BK produced by sorghum is still larger than corn, which is 2,088 tons/ha in land without *sludge* and 2,270 in land with *sludge* (Yudhika et al., 2017). Based on the results of the research, the production of elephant grass dry matter with cutting intervals of 45, 50 and 60 days produced dry matter ± 19%

of the total productivity of 16.68 tons/ha, 34.34 tons/ha, and 48.34 tons/ha, respectively. also added that the BK content of mini elephant grass with various planting systems produces 2.42 – 6.7 tons/ha.

Composition of Forage Land in Tax Returns

The land area in the SPT (SPT) is 1.5 ha. This land is planned to be used as forage cultivation land. This cultivation activity is intended to support the cattle fattening business in the tax return. An illustration of the distribution of forage composition in the SPT can be seen in the following figure.

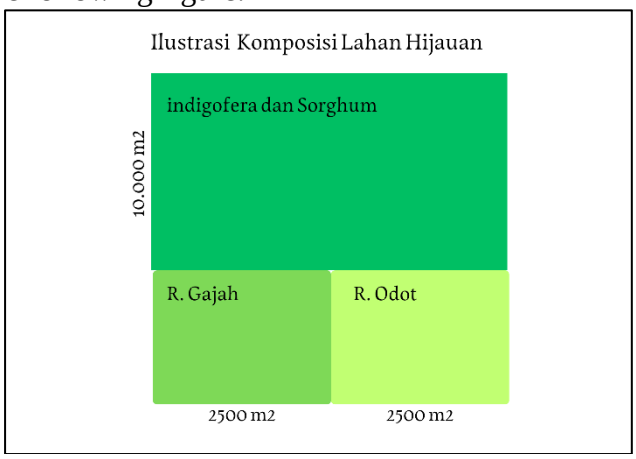

Figure 1 Illustration of forage land composition

(Source: Results of primary data processing 2024)

In Figure 1, it can be seen that sorghum and indigofera will be planted with the most optimal composition. From the two types of forage, the average production of the two forage was 26.59 tons/ha assuming productivity per square meter of 2.6 kg/m2. The two types of forage will be used as silage feed with the percentage that best suits the needs of ruminant livestock. The feed silage made is fermented for a minimum of 21 days before being given to livestock. The purpose of silage is for the preservation of feed. In addition to extending the shelf life, it is also an alternative when forage productivity decreases. In an effort to develop the cattle fattening business by utilizing available forage and optimizing the cultivation of forage for animal feed in SPT. So a simple formulation of silage feed derived from sorghum and indigofera was prepared. Based on the results of my teammate's case study in silage feed analyzed by the BSPJI 2024 Miscellaneous Commodity Laboratory, it shows that the nutritional content of P3 water content is 4.25%; ash content 5.59%; PK 13.44%; LK 7.58%; Decree 38.21%; KH 22.06%; phosphorus 0.17%; calcium 0.57%; cal 210.22/100 gr. From the results of the analysis of the nutrient content, the best and representative silage formulation for fattening cattle was obtained, namely sorghum 40% and indigofera 60%. So the composition of forage land that can be applied in the tax return can be seen in the following table 5.3.2.

Table 3 Composition of Forage Land in Tax Returns

Treatment	Sorghum (m2)	TPS (Kg)	Indigo (m2)	TPI (Kg)	LT (m2)	SL (m2)
P1	6.078	21.272	1.297	5.318	7.375	2.625
P2	4.558	15.954	2.594	10.636	7.152	2.848
P3	3.039	10.636	3.891	15.954	6.930	3.070
P4	1.519	5.318	5.188	21.272	6.708	3.292

Source: Results of primary data processing in 2024.

Description: TPS (sorghum productivity target to be achieved), TPI (indigofera productivity target to be achieved), LT (area of land used), SL (remaining unused land).

Based on the results of the accumulation of land composition in table 5.3.2, the division of land area for sorghum forage is 3,039 m2 and 3,891^{m2} of indigofera forage. With this land area, it is expected that the productivity obtained from sorghum and elephant grass is 10,636 kg and 15,954 kg respectively. From the cultivation of the two types of forage, the total land used is 6,930 m2, the remaining unused land is 3,070 m2. The land can be used for the cultivation of elephant grass and odot grass. Because the two types of forage have high productivity and are preferred by livestock. If the rest of the land is planted with elephant grass and odot, then the productivity can be assumed to be 6,907 kg (6.9 tons) and 4,912 kg (4.9 tons) respectively.

In the accumulation of land use of this tax return, there is still an area of 1/2 ha that will be used for the cultivation of elephant grass and odot grass. With a land area of 2500 m2 each and the existing planting distance, the productivity of elephant grass and odot grass forage can be estimated at 9.37 tons and 6.66 tons, respectively. With this total productivity, the area of elephant grass can accommodate 10 cows with a BB of 200 kg, while the odot grass can accommodate 8 cows with a BB of 200 kg. The reason why indigofera is not used to fill the remaining vacant land is because legume plants are known to have a high tannin content. Because the high tannin content can inhibit the digestibility of livestock. According to Ahmed et al, (2018) tannin content below 5% does not affect animals and has the potential to prevent protein degradation in rumen and improve feed efficiency and ruminant productivity. According to Krisna et al, (2018) another obstacle in giving indigofera to livestock is the taste that is not liked by livestock so that in giving it must be mixed with other forage.

Optimal Capacity of Land Return

The optimal capacity that can be accommodated on SPT land if based on productivity per hectare using the provision for livestock forage needs per day is equal to 10% of its body weight intended for 200 kg of BB cattle, in accordance with the statement that the daily needs of the cow are 10% of its body weight. So, the results of the calculation of the capacity on the land return can be seen in the following table: (Keraf, 2017)

Table 4 Livestock Capacity in Tax Returns.

Forage	Productivity (ton/ha)	Number of livestock (Tail)	Era (Day)
Indigofera	24,3	27	45
Sorghum	29,1	16	45
Elephant grass	37,4	41	45
Odot grass	26,6	29	45

Source: Results of primary data processing in 2024.

From table 4, it can be seen that the optimal carrying capacity of each type of forage is based on forage needs in a period of 45 days. Based on the table above, elephant grass is the forage that can accommodate the largest number of livestock, which is 41 heads, and sorghum is the forage that can accommodate the least number of livestock, which is 16 heads. Basically, sorghum plants have a harvest time of ±90 days, but to equalize the harvest time span of each type of forage, the existing productivity is divided into two harvest periods to form a cycle as shown in the table above.

Table 5 Livestock Capacity in the Actual State in the Tax Return.

Forage	P. Actual (Tons/m2)	Number of livestock (tail)	Era (day)
Indigofera	2,92	3	45
Sorghum	4,5	2	45
Elephant grass	2,9	3	45
Odot grass	0,278	1	13

Source: Results of primary data processing in 2024.

In table 5, it can be known the land carrying capacity of the tax return with actual productivity. In the table, it can be seen that the optimal number of cattle that can be accommodated on the SPT land based on productivity and actual land area is 10 cows with a fresh forage requirement of 20 kg per day. In the table above, it can be seen that sorghum has the greatest productivity, which is 4.5 tons. With this productivity, livestock can accommodate as many as 4 heads, but, because the harvest time of sorghum is much longer than other types of forage, two planting periods are made to form a harvest cycle every 45 days. Therefore, the availability of existing feed is only able to live on half of the number of cows that should be.

Feasibility Analysis of Cattle Fattening Business

The cattle fattening business is one type of long-term livestock business that is quite promising. This fattening business is carried out by raising feeder cattle to reach a certain weight before finally being sold. Compared to the breeding business, the capital turnover in the cattle fattening business is faster. The business feasibility analysis in this case study uses the analysis of Break *Even Point* (BEP), *R/C Ratio*, and *Payback period* (PP) calculations. Therefore, the feasibility analysis of the cattle fattening business in the tax return is as follows.

Table 6 Investment Costs

	Cost Items	Sum	Unit	Nominal (Year)
Tool				
1	Tractor	1	Unit	315,000,000
2	Sickle	3	Fruit	450,000
3	Scales	1	Unit	165,000
4	Chopper Machine	1	Unit	7,000,000
5	Silo	20	Fruit	3,000,000
Building				
6	Hut	1	-	20,000,000
7	Cow Coop	1	-	58,778,000
8	Land Lease	2	Ha	6,000,000
Total Investment Cost				410,393,000

Source: Results of primary data processing in 2024.

In table 6, there is an analysis of the feasibility of the fattening business in the tax return. The business analysis is divided into two fattening periods per year with a period of six months for each period. Investment costs include the construction of cage and cottage infrastructure, as well as the purchase of equipment (tractors, agricultural tools, silos, and hopper machines *)* and land rental costs per year. So that the total investment cost incurred to run a cattle fattening business in the tax return is Rp. 410,393,000. The large investment cost in this business analysis is due to the purchase of a tractor which

costs up to three hundred million rupiah. Investment costs are costs that must be incurred so that the cattle fattening business process in the tax return can run smoothly.

Table 7 Total Receipts

	Cost Items	Sum	Unit	Nominal (Year)
Acceptance				
1	Beef cattle	20	Tail	20,000,0000
Total Admissions				400,000,000

Source: Results of primary data processing in 2024.

The total revenue that will be obtained in this business analysis is Rp. 400,000,000. The amount was obtained from the sale of 20 cows. Revenue is the amount of money that will be received by the company from the sale of products in the form of cattle. The income that will be obtained in this cattle fattening business is obtained from the sale of 20 cows a year.

Table 8 Fixed Costs

	Cost Items	Sum	Unit	Nominal (Year)
Tool				
1	Shrinkage Tool	-	-	16,545,000
2	Building Arrangement	-	-	5,918,000
Total Fixed Costs				22,463,000

Source: Results of primary data processing in 2024.

The fixed cost expenditure incurred for this business is Rp. 22,463,000 which is the cost incurred to carry out a business. Fixed costs are obtained from calculating the depreciation of equipment and building costs. The depreciation cost of tools (tractors, *chopper machines*, scales, and sickles) in this analysis is Rp. 16,545,000 and the depreciation cost of buildings which includes the depreciation of cage and cottage infrastructure is Rp. 5,918,000. The depreciation cost is calculated based on the estimated life of the goods or property, so that the price of the goods or property purchased at that time is obtained with the current price of the goods or property.

Table 9 Variable Costs

	Cost Items	Sum	Unit	Nominal (Year)
1	Forage Feed 1	1	Unit	14,505,000
2	Forage Feed 2	3	Fruit	43,040,000
3	Forage Seeds	-	-	8,422,500
4	Daily Labor	2	Person	45,000,000
5	Cattle Feed	20	Fruit	200,000,000
6	Vitamins and Medicines	1	Parcel	1,200,000
7	Other Fees	1	-	2,400,000
Total Variable Costs				314,567,500
Total Production Cost (TC)				337,030,500

Source: Results of primary data processing in 2024.

The total variable costs incurred for the cattle fattening business in this tax return are Rp. 314,567,500. From the table above, there is a distribution of forage feed 1 and 2. The cost of forage feed 1 is the cost incurred for the cultivation and maintenance of

fermented sorghum and indigofera feed with 3 harvest cycles per year. The cost of forage feed 2 is the cost of feed incurred for the cultivation and maintenance of forage of elephant grass and odot grass. In a year, forage 2 experiences eight harvest cycles. The calculation of forage feed includes maintenance costs, which include fuel costs for tractor operations, the purchase of forage seeds, organic fertilizers (goat cakes), and NPK pearl fertilizer. The fertilizer used in forage cultivation on SPT land is 300 kg/ha, which means that with a land area of 1.5 ha, the number of fertilizers used is 450. This is in line with a case study by (Pusparini et al., 2018) which the application of NPK fertilizer of 300 kg/ha produces the most optimal corn growth compared to other doses. The costs incurred for the purchase of forage seeds are in accordance with the needs of the initial composition that is used in the distribution of land composition. The daily labor cost incurred in a year is Rp. 45,000,000 for two employees who raise cows, so that the monthly wage earned by each employee is Rp. 1,850,000 with five hours of work. Other costs are budgeted for Rp. 200,000/month which is used for unexpected expenses. Based on this, the total production cost (TC) incurred in this business is Rp, 337,030,500. This amount is obtained from the total variable cost plus the fixed cost.

Table 10 Business Analysis in Tax Return

Business Analysis		
1	Net Profit (Year)	62,969,500
2	Net profit (Month)	5,247,458
3	R/C *Ratio*	1,2
4	BEP Results (Tail)	17
5	BEP Price (Rp)	16,851,525
6	PP (Year)	7

Source : Results of data processing in 2024.

In this business feasibility analysis, it is known that the cattle fattening business in the tax return is worth striving for because it is able to generate profits or profits in its implementation. The monthly net profit obtained in this cattle fattening business is Rp. 5,247,458 while the annual net profit obtained is Rp. 62,969,500. The R/C *Ratio* comparison also shows a figure of 1.2 which means that the development of this livestock business will experience profits. The company will reach a break-even point if it succeeds in selling 17 cows with a minimum selling price per head of Rp. 16,851,525. After the company is able to sell more than the target obtained, the company will make a profit. *The payback period* required by the company to return all investment costs incurred for the cattle fattening business in the tax return is seven years.

Conclusion

From some of the findings in this case study, it can be concluded that the productivity of indigofera, sorghum, elephant grass and odot grass in SPT was 2.92 tons, 4.5 tons, 2.9 tons, and 0.278 tons respectively with a dry matter content of 4.08% respectively; 4,8%; 6,57%; and 7.48%.

The composition of forage land distribution in the tax return is 3,039 m2 for sorghum and 3,891 m2 for indigofera, and 4,035 m2 each for elephant grass and odot grass. The composition of the land can be changed if the silage feed scale is to be enlarged and the existing silage formulation is appropriate and palatable for livestock.

The actual availability of indigofera forage in SPT can accommodate three heads, sorghum can accommodate two cattle, elephant grass can accommodate three cattle, and

odot grass can accommodate one cattle. So the number of livestock that can be accommodated optimally in the tax return is 10 livestock.

Based on the results of the feasibility analysis of the cattle fattening business in the tax return. The cattle fattening farm business in the SPT is feasible to run because it has a turnover of Rp. 400,000,000 with PP for 5 years and the company will break even if the BEP price is Rp. 15,321,525 and successfully sells 15 cows. Another reason why this business is said to be feasible is because the R/C Ratio shows a figure of 1.2. The net profit per month that will be obtained is Rp. 7,797,458 and the net profit per year reaches Rp. 93,569,500.

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