

Enhancement of Satya Budi Farm's Revenue through the Implementation of Complete Feed Technology with Direct Fed Microbials Supplementation

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ABSTRAK

This activity is a part of Creative Innovation programs for Vocational Partners which aims to increase the knowledge and skills of Satya Budi Farm partners in utilizing local feed ingredients and Direct Fed Microbials (DFM). Apart from that, this activity aims to increase Satya Budi Farm's income through the sale of cattle and feed. Descriptive and quantitative approaches are used in analyzing Satya Budi Farm's profits. The series of activities in this program are complete feed (CF) formulation training by prioritizing local feed ingredients, DFM training and production to increase feed efficiency, Business Analysis Calculation Method. The results of this activity show that Satya Budi Farm's profit for the 3 months before the program started was IDR. 2,006,644.8/head/month while the profit after the program runs is IDR. 2,712,327.4/head/month. The nutritional content increase after training programme. So, there is an increase in profit per head per month of 35.17%.

Kata kunci — Beef Cattle, Complete feed, Direct fed Microbials, Income, Profit



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1. Introduction

Lampung Province serves as a significant center for beef cattle production in Indonesia, with a population of 861,988 cattle [1]. This substantial number underscores the region's potential for expanding beef cattle production, presenting farmers with opportunities to enhance their output. The government is focused on augmenting beef cattle production to foster an inclusive economy. Moreover, there is increasing emphasis on the rising beef consumption and growing public awareness regarding the importance of animal protein [2]. Consequently, enhancing farmers' knowledge and expertise is crucial for improving the productivity of beef cattle enterprises. In Marga Kaya Village, Jati Agung, South Lampung, Satya Budi Farm (SBF) operates as a beef cattle enterprise. Established in 2016 with an initial herd of 14 cattle, SBF has since expanded its operations and currently manages 170 beef cattle housed in colony pens.

Beef cattle farming plays a significant role in meeting essential needs and generating regular income. According to Abidin [3], the management and maintenance of beef cattle are influenced by the objective of increasing household earnings. This assertion is supported by data on livestock capacity and revenue sources from beef cattle operations. Feed, being one of the most critical production factors in livestock farming, is also essential for effective beef cattle maintenance. Approximately 60-70% of the total production expenses are attributed to

feed costs [4]. Presently, a major challenge in developing local livestock farming is the utilization of local feed ingredients to fulfill the nutritional requirements of livestock. However, small-scale farmers encounter difficulties in formulating rations due to the suboptimal quality of local feed ingredients. Consequently, it is necessary to formulate rations using diverse raw materials to meet the livestock needs standards as per SNI.

Satya Budi Farm utilizes agricultural waste as feed. However, feed management at SBF has not incorporated technological advancements. Therefore, it is necessary to implement feed technology as a solution to increase business profitability. Feed processing

with complete feed technology and the provision of Direct fed Microbials (DFM) serve as an approach to enhance rumen fermentation efficiency and performance [5, 6]. The implementation of this technology is anticipated to increase business productivity and facilitate innovation diffusion to the livestock groups it supports.

2. Method

Training on Complete Feed (CF) Formulation and Practice by Prioritizing The Utilization of Local Feedstuff

The feed formulation is conducted by evaluating the adequacy of feed in terms of quantity and quality for beef cattle. This initiative aims to enhance the comprehension and proficiency of partners in developing CF formulas based on locally available feedstuff. The methodology employs discussion and participatory approaches, incorporating direct learning and practical application. The content presented encompasses complete feed formulations tailored to the physiological status of livestock and production objectives, addressing livestock nutritional requirements, and utilizing local feed resources.

Improving Feed Efficiency through DFM Education and Implementation

This initiative aims to enhance partners' comprehension and proficiency in utilizing DFM to improve feed efficiency. The material presented encompasses the function and advantages of DFM, types and dosages of administration, and techniques for incorporating DFM into feed.

Business Analysis Calculation Method

The business analysis calculation method is implemented utilizing the business investment analysis approach. This calculation aims to assess the prospects of an investment activity, which forms the basis for decision-making regarding whether a project should be accepted and continued or rejected [7]. The evaluation of increased income and profits is conducted through business profitability analysis calculations. This analysis examines the company's ability to generate profit and its relationship with the sale of total assets and capital.



Evaluation of program implementation

The evaluation of this program's implementation is assessed through an indicator of increased SBF partner income, comparing pre- and post-program data. Enhanced knowledge and skills are also observed during practical demonstrations and question-and-answer sessions.

3. Discussion

The prospects for beef cattle farms in Indonesia continue to improve. The demand for beef has increased concomitantly with population growth and societal advancement. Beef cattle farming in Lampung Province has been widely implemented at both industrial and small-scale levels. In operating these enterprises, farmers must account for various production cost components. The feed component represents a significant proportion of the production costs incurred during livestock maintenance at SBF. The utilization of technology in this program is analyzed based on the income profit levels of SBF partners.

Supporting data for this business analysis, derived from interview results, include capital expenditure and income calculations. These results are then compared with revenue calculations after the program has been operational for 3 months. The implementation of CF technology with DFM supplementation demonstrates significant benefits. Some advantages of the Complete Feed include comprehensive and balanced nutrition [8]. The implementation of Complete Feed technology minimizes selective feeding behavior in livestock due to the homogeneous mixture of feed components. Consequently, livestock production can be optimized. The results of profit analysis before and after the implementation of the program are presented in Table 1 and Table 2.

Table 1 Analysis of the Profit of Satya Budi Farm before the implementation of technology

Variables	Volume	Unit	Cost	Total Cost (IDR)
Expenditure				
Cow purchase	14	head	13800000	193200000
Feed cost	90	day	319788	28780920
Suplement cost	17	kg	60000	1020000

Work force	360	OH	2000	720000
Total				223720920
Income				
Cow sales	14	head	22000000	308000000
Total				308000000
Total profit				84279080
Profit (head/month)				2006644.8

The analysis of Table 1 indicates that SBF incurs expenses in the form of fixed costs from the procurement of seeds, feed, and labor amounting to Rp. 223,720,920,- with a singular revenue stream from cattle sales of Rp. 308,000,000. Based on the calculations conducted during the 3-month maintenance period utilizing 14 livestock, a profit of Rp. 2,006,644,- per livestock per month was realized.

Table 2 Analysis of the Profit of Satya Budi Farm After Technology Implementation

Variables	Volume	Unit	Cost	Total Cost (IDR)
Expenditure				
Cow purchase	14	head	13800000	193200000
Feed cost	90	day	187913.88	16912249.2
Work force	360	OH	2000	720000
DFM cost	2	kg	25000	50000
Feedstuff cost	6000	g	2200	13200000
Total				224082249
Income				
Cow sales	14	head	22000000	308000000
Feed sold	6000	kg	5000	30000000
Total				338000000
Total profit				113917751
Profit (head/month)				2712327.4

As evidenced by Table 2, Satya Budi Farm experienced an increase in income and profits following the implementation of complete feed technology with DFM supplementation. Feed is a critical factor in the production of fattening beef cattle [9]. Inefficient allocation of feed production factors can result in reduced profits or even economic losses for farmers, despite potentially yielding favorable production outcomes [10]. The most substantial expenditures for breeders are feed and labor costs. Feed variables and drug



utilization significantly influence the production of livestock products [11]. The increased income and profit for the partner were derived from the reduction in supplement costs, which were replaced by DFM supplementation. Additionally, a new income stream was generated through the sale of complete feed to the SBF partner fostered group.

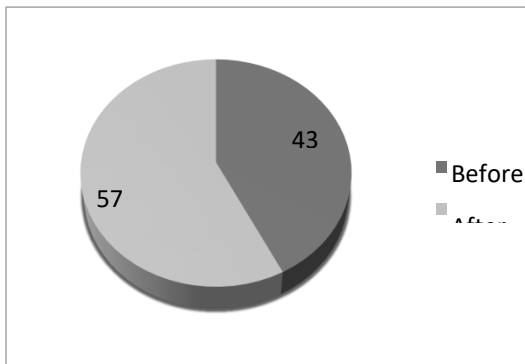


Figure 1 Comparison of the percentage of profits before and after implementation of the complete feed

Figure 1 illustrates that the percentage of profits obtained by Satya Budi Farm after the implementation of Complete Feed technology with DFM supplementation was 57%. This value is higher than the 43% observed before the implementation of the technology. The additional revenue from Complete Feed sales is a contributing factor to the increase in SBF partner business profits. In the production of complete feed, it is essential to consider not only the quality of its constituent materials but also the balanced nutritional content. The composition of feed ingredients and nutrient content must align with the requirements of the livestock. Furthermore, the formulation of complete feeds must take into account affordable pricing to attract consumers and generate greater [12].

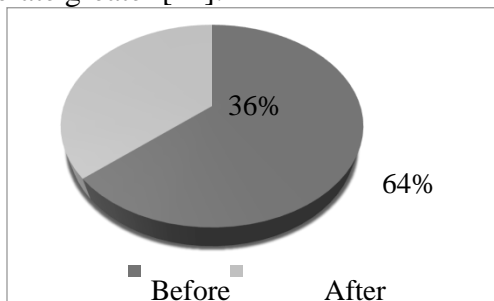


Figure 2 Comparison of the percentage of feed costs before and after the implementation of technology

Figure 2 illustrates that the percentage of production factors, as assessed from the feed costs utilized by Satya Budi Farm following the implementation of the Complete Feed with Direct-Fed Microbial (DFM) supplementation, is 36%. This value is lower than the 64% observed prior to implementation. The utilization of Complete Feed formulations with DFM supplementation has demonstrated cost-effectiveness and increased profitability in terms of the analysis of production factors at Satya Budi Farm. Furthermore, a successful production system is not solely dependent on production costs and income, but can be enhanced through various other factors [13]. In this context, the formulation and production of complete feed can serve as a novel source of revenue for SBF. The following is the nutritional content of complete feed before and after the training programme.

Table 3. Nutrient content of complete feed before and after training program

Nutrient content of Complete feed (%)	Before	After
Moisture	13,10	7,99
Dry matter	86,90	92,01
Ash	4,62	5,87
Crude protein	8,91	18,79
Eter extract	2,70	3,74
Crude fiber	16,11	17,28
BETN	67,66	54,32
TDN	67,96	70,18
NDF	65,86	58,11
ADF	43,31	27,98
Hemicellulose	22,55	30,13

Source : Laboratory Analysis, Department nutrition and feed technology, Institut Pertanian Bogor



Figure 3. Complete feed product (Source : personal documentation)

Optimal feed management is crucial for successful beef cattle fattening. The utilization of balanced rations, considering factors such as protein content, energy content, and feed additives, can significantly enhance production efficiency and profitability. However, specific feeding strategies may vary depending on local resources, economic conditions, and regulatory environments [14, 15]. The implementation of complete feed plus DFM technology provides feed with a balanced composition with the addition of DFM as a feed additive.

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5. Conclusion

Implementation of Complete Feed Technology with DFM supplementation in SBF partners resulted in an increase in income and profits, based on quantitative analysis of 57% of the total factors of production. Additionally, there was a decrease in production costs of 36%. These findings demonstrate that the complete feed implementation program with DFM supplementation effectively enhanced the economic benefits of the Satya Budi Farm business.

6. Reference

[1] Badan Pusat Statistik 2021. Provinsi Lampung Dalam Angka.

[2] Anari, O., Suryahadi, S and Pandjaitan, N, H. 2019. Strategi pengembangan ternak sapi potong untuk eningkatkan pendapatan petani Kabupaten Manokwari, Papua Barat. *Majanemen IKM ; Jurnal Manajemen Pengembangan Industri Kecil Menengah*. 13 (2). 109-115. <https://doi.org/10.29244/mikm.13.2.109-115>

[3] Abidin, Z. 2002. *Penggemukan Sapi Potong*. PT. Agro Media Pustaka. Jakarta.

[4] Afridayanti, N., Nurhayani, N and Junita, A. 2022. Manajemen pakan ternak sapi potong di kandang percobaan Program Studi Peternakan Fakultas Pertanian ; Seminar Lahan Suboptimal

ke – 10 Universitas Sriwijaya. 10 (1) ; 1000-1010

[5] Suryani, H., M. Zain, R.W.S. Ningrat and N. Jamarun, 2016. Supplementation of Direct Fed Microbial (DFM) on in vitro Fermentability and Degradability of Ammoniated Palm Frond. *Pakistan Journal of Nutrition*, 15: 89-94

[6] 6. Suryani H, Zain M, Ningrat RWS, Jamarun N, (2017). Effect dietary supplementation based on ammoniated palm frond with direct fed microbials and virgin coconut oil on the performance and methane production of Bali Cattle. *Pakistan Journal of Nutrition* 16 (8): 599-604. *Pakistan Journal of Nutrition*. <https://doi.org/10.3923/pjn.2017.599.604>

[7] 7. Kaswari, T., H. Suryani and F. Zevaya. 2021. Peningkatan pendapatan masyarakat pasca pandemic covid-19 melalui kegiatan pemberdayaan masyarakat untuk mewujudkan desa laboratorium terpadu di Kelurahan Olak Kemang. *e-Jurnal Ekonomi Sumberdaya dan Lingkungan*. 10(3):143-150. <http://dx.doi.org/10.22437/jels.v10i3.16297>

[8] (Daddy and Bira, 2021). Tahuk, P. K., and Bira, G. F. (2021). Aplikasi Complete feed pada Penggemukan Sapi Bali di Kelompok Tani Nek ' Mese Desa Usapinonot Timor Tengah Utara-NTT Complete feed Application for Fattening Bali Cattle in the Nek ' Mese Farmer Group , Usapinonot Village , North Central Timor-NTT. *Media Kontak Tani Ternak*, 3(3), 72–79.

[9] Maulidiah, Y., and Sunyigono, A. K. (2023). Faktor-faktor yang Mempengaruhi Pendapatan Usaha Peternakan Sapi Potong di Kecamatan Waru Kabupaten Pamekasan. *Agriscience*, 4(1),1–12. <https://doi.org/10.21107/agriscience.v4i1.15616>

[10] Suryaningsih, I,S., Rumetor, S, D., Supriyanto, S., and Warsono, I.U. 2022. Analisis faktor – faktor produksi usaha pengembangan sapi potong di Kabupaten Teluk Bituni. *Jurnal Ilmu Peternakan dan Veteriner Tropis*. 12 (91) : 81 -91. <https://doi.org/10.46549/jipvet.v12i1.225>

[11] Obeidat, B. S. (2021). Olive Cake in Livestock Nutrition. *Jordan Journal of*

[12] *Agricultural Sciences*, 17(3), 187–197. <https://doi.org/10.35516/jjas.v17i3.78>

[13] Mayulu, H., Suryanto, B., Sunarso, S., Chistiyanto, M., Ballo, F., and Refa:i. (2009). Feasibility of complete feed based on ammoniated fermented rice straw utilization on the beef cattle farming. *Journal of Indonesian Tropical Animal Agriculture*. 34 (1) ; 74-79



- [14] Knierim, U., Wicklow, D., Ivemeyer, S., and Möller, D. (2020). A Framework For The Socio-Economic Evaluation Of Rearing Systems Of Dairy Calves With Or Without Cow Contact. *Journal Of Dairy Research*, 87(S1), 128–132. <https://doi.org/10.1017/S0022029920000473>
- [15] Pfau, A. P., Shepherd, E. A., Martin, M. G., Myer, P. R., Ascolese, S., Mason, K. M., Egert-Mclean, A. M., & Voy, B. H. (2023). Beta-Adrenergic Agonists, Dietary Protein, and Rumen Bacterial Community Interactions in Beef Cattle: A Review. *Veterinary Sciences*, 10(9), 579. <https://doi.org/10.3390/vetsci10090579>
- [16] Saad, G., Sriati, S., & Maryadi, M. (2024). Smart Agribusiness through Analysis of Balinese Cattle Fattening Using Alternative Feed in Palembang, Indonesia. *Journal of Smart Agriculture and Environmental Technology*, 2(1), 23–29. <https://doi.org/10.60105/josaet.v2i1.50>

