

IMPLEMENTATION EFFECTIVENESS STUDY THE AQUAFEED SELF-SUFFICIENCY PROGRAM

Kajian Efektifitas Pelaksanaan Program Pakan Ikan Mandiri

Sari Rachmawati^{1*}, Novieanto Poernomo²

¹Fisheries Business Expert Polytecnic, ²Directorate General of Aquaculture

Cikaret Street No. 2 Cikaret, Bogor City, West Java 16132

*Corresponding author: sari.rachmawati0901@gmail.com

(Received November 12th 2025; Accepted December 9th 2025)

ABSTRACT

Fish feed is an important part of the fish farming business. Feed costs in fish farming reach 60-80% of production costs, especially in freshwater fish farming. Currently, feed prices have increased which has an impact on the profit margins of fish farming businesses carried out by fish farmers. To overcome this problem, the Ministry of Maritime Affairs and Fisheries implemented the aquafeed self sufficiency program through government assistance activities. To determine the effectiveness of the implementation of the independent fish food program, it is necessary to evaluate the program implementation which is measured based on the achievement of the activity output. The data in this research was obtained from recipients of the aquafeed self sufficiency program (machinery and feed raw materials) for 2023-2024. Distribution of fish feed machines and raw materials from 2023-2024 has distributed 84 packages of fish feed machines and fish feed raw materials to 84 aid recipients. Aid distribution activities in 2023 will be realized in 23 provinces and in 2024 will be realized in 18 provinces. And as many as 88% of aid recipient groups are actively engaged in feed production (falling into the effective category for the effectiveness of priority activities/government assistance). Based on the realization of activity output achievements, the Independent Fish Feed Program has been implemented well and effectively.

Keywords: Logic Model, Program Evaluation, Purposive Sampling

ABSTRAK

Pakan ikan merupakan bagian penting dalam usaha budidaya ikan. Biaya pakan dalam usaha budi daya ikan mencapai 60-80% dari biaya produksi, hal ini terutama pada usaha budi daya ikan air tawar. Saat ini harga pakan mengalami kenaikan yang berpengaruh terhadap margin keuntungan usaha budi daya ikan yang dilakukan oleh pembudidaya ikan. Untuk mengatasi permasalahan tersebut, Kementerian Kelautan dan Perikanan melakukan Program Pakan Ikan Mandiri melalui kegiatan bantuan pemerintah. Untuk mengetahui efektivitas pelaksanaan program pakan ikan mandiri, maka perlu dilakukan evaluasi pelaksanaan program yang diukur berdasarkan ketercapaian output kegiatan. Data dalam penelitian ini diperoleh dari penerima bantuan program pakan ikan mandiri (mesin dan bahan baku pakan) Tahun 2023-2024.

Kegiatan penyaluran bantuan mesin dan bahan baku pakan dari tahun 2023-2024 telah tersalurkan sebanyak 84 paket mesin pakan ikan dan bahan baku pakan ikan kepada 84 penerima bantuan. Kegiatan penyaluran bantuan pada tahun 2023 terealisasi di 23 provinsi dan tahun 2024 terealisasi di 18 provinsi. Dan sebanyak 88% kelompok penerima bantuan aktif melakukan produksi pakan (masuk dalam kategori efektif predikat efektifitas kegiatan prioritas/bantuan pemerintah). Berdasarkan realisasi capaian output kegiatan, Program Pakan Ikan Mandiri telah dilaksanakan dengan baik dan efektif.

Kata Kunci: Evaluasi Program, *Logic Model*, Purposive Sampling

INTRODUCTION

Fish feed is the most important and determining part in supporting the success of fish farming operations. The feed costs incurred by fish farmers constitute the largest component of production costs in fish farming operations, around 60–80%, especially for freshwater aquaculture (BPS, 2016). The current condition is that the price of commercial fish feed tends to experience an increase in price (Masyita *et al.*, 2025). The increase in fish feed prices will directly become a burden for fish farmers because it increases the production costs of fish farming operations which will affect the profit margin of fish farmers, especially small-scale farmers.

In order to face the above feed problems and encourage the independence of fish farmers to meet their feed needs, the Ministry of Marine Affairs and Fisheries implemented the independent fish-feed program. This program is regulated under Law Number 7 of 2016 concerning the Protection and Empowerment of Fishermen, Fish Farmers, and Salt Farmers. The Independent Fish-Feed Program can be mentioned as one of the efforts to provide protection to fish farmers by providing the necessary infrastructure and facilities in developing their businesses (DJPB, 2020).

This independent fish-feed program aims for fish farmers to have the ability to produce feed using the available local raw materials. This program is targeted to reduce feed costs, thereby increasing farmers' profit margins, increasing fish production capacity, and ensuring the sustainability of aquaculture operations.

Independent fish feed is fish feed that is produced individually or in groups by utilizing local raw materials available in the region so that production costs are cheaper (Nuryana *et al.*, 2023). Independent fish feed using local raw materials has long been practiced by fish farmers in Indonesia located in freshwater fish production centers such as Riau, Jambi, South Sumatra, and South Kalimantan. Local raw materials can be used to substitute imported raw materials, thereby reducing feed production costs (Limbu *et al.*, 2022; Samuel *et al.*, 2021). With proper feed-processing techniques, the use of local raw materials can reduce feed costs by up to 30% (Asmaida, 2018; Cholily *et al.*, 2025; Limbu, 2020; Wardono & Prabakusuma, 2016). With the reduction in costs, farmers' incomes also increase (Firdausya & Fauziyah, 2021).

The independent fish-feed program that has been implemented in previous years includes government assistance in the form of providing feed-processing machines and feed raw materials to fish-farmer groups. With this assistance, it is expected that farmers can produce independent fish feed by utilizing local raw materials available in their regions. The provision of capital assistance to farmers can also increase income, productivity, and community independence (Kiu, 2018).

Evaluation of program implementation is necessary to measure the effectiveness of the program's implementation (Manevska-Tasevska *et al.*, 2011; Refita, 2016). By conducting evaluations, strategies for program development and successful program implementation can be determined. Based on the above explanation, the purpose of this study is to evaluate the implementation of the independent fish-feed program measured based on the achievement of

activity outputs. The output indicators to be measured are the implementation and distribution of machine-and-feed-raw-material aid packages to beneficiaries and the utilization of the assistance by the beneficiaries.

METHOD

This research was carried out from January to March 2025 in districts/cities receiving assistance from the Independent Fish-Feed Program throughout Indonesia. The sampling technique used in this research was purposive sampling with the criteria of all locations receiving assistance from the Independent Fish-Feed Program in Indonesia.

The types of data used in this study are primary data and secondary data. Primary data were obtained from questionnaire responses from fish farmers receiving assistance in 2023–2024, both through direct collection and through Google Form responses. The number of districts/cities receiving assistance in 2023 was 40, while in 2024 it was 36. Secondary data in this article were obtained from journals, articles, and literature related to the study and data from relevant agencies such as the Ministry of Marine Affairs and Fisheries and the District/City Fisheries Offices.

The data-analysis method used is descriptive qualitative. To evaluate the implementation of the independent fish-feed program, descriptive qualitative analysis using the logic model was employed. The logic model is a graphical framework showing the relationship between program resources, activities, and desired outcomes, which also identifies the theories and assumptions underlying the program (Kaplan and Garrett 2005). According to OECD in Batstone (2011), the logic model shows the interaction between the identified needs or problems and the interventions required to solve them, where the relationship is illustrated with five general elements (Figure 1). This model explains the inputs used, activities, outputs, and outcomes expected from the program implementation. However, in this study, indicators for measuring the effectiveness of program implementation are measured based on the achievement of activity-output realization.

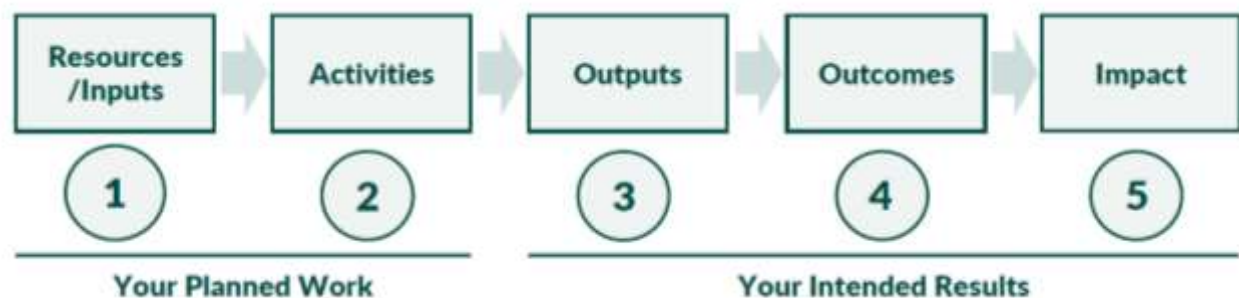


Figure 1 Elements of the logic model (W.K. Kellogg, 2001)

RESULTS

Activities supporting the implementation of the Independent Fish Feed Program include the distribution of independent fish feed facilities, including flour milling machines, feed molding machines, and feed raw materials. From 2023-2024, 84 packages of fish feed machines and fish feed raw materials were distributed to 84 recipient groups (Table 1).

Table 1. Number of Recipients and Types of Government Assistance for Independent Fish Feed in 2023-2024

No	Year	Target	Realization	Types of Assistance			
				Floating Printing Machine	Submersible Printing Machine	Floating Machine	Feed Raw Materials
1	2023	40	44	28	16	44	44
2	2024	40	40	19	21	40	40
Total				47	37	84	84

Independent fish feed facilities were distributed to 84 recipients across nearly all provinces in Indonesia (Table 2). Aid distribution was implemented in 23 provinces in 2023 and in 18 provinces in 2024.

Table 2. Distribution of Recipients of Independent Fish Feed Government Assistance in 2023-2024

No	Year	Spread		Aid Recipients
		Province	Regency/city	
1	2023	23	40	44
2	2024	18	36	40
Total				84

Based on reports and information received from aid recipients in 2023-2024, 84 aid recipient groups have reported and provided information regarding the use of aid and their feed production (Table 3).

Table 3. Availability of Information from Aid Recipients

Year	Number of Recipients aid	Information	
		Yes	No
2023	44	44	0
2024	40	40	0
Total	84	84	0
Reporting (%)		100	0

Based on data obtained from the 2023-2024 aid recipient group report, it is known that 74 aid recipient groups are actively producing feed and 10 groups are not actively producing (Table 4).

Table 4. Utilization of Government Assistance for Independent Fish Feed

No	Year	Number of Aid Recipients	Report	
			Active	Not active
1	2023	44	35	9
2	2024	40	39	1
Total		84	74	10

DISCUSSION

Input Program Pakan Ikan Mandiri

The availability of inputs will influence the success of the activity. The inputs of the Independent Fish Feed Program in this study are funding, institutional arrangements, and legal basis.

1. Funding

The funding source for the implementation of the Independent Fish Feed Program originates from the State Revenue and Expenditure Budget (APBN) of the Ministry of Marine Affairs and Fisheries. The activity implementation budget is listed in the Activity Plan and Budget of the Ministry/Agency (RKAKL) of the Work Unit of the Directorate General of Aquaculture for Fiscal Year 2023 and Fiscal Year 2024. The funding framework to support the implementation of the activities may change, influenced by economic and political factors. This budget allocation is crucial for achieving the activity indicators related to the distribution of assistance for independent fish feed facilities.

2. Institutional Arrangements

The institutions involved in the independent fish feed program are relevant governmental institutions or agencies, namely the Directorate General of Aquaculture, provincial and district/city Marine and Fisheries Offices, fisheries extension officers, and aid recipients. The central working group is responsible for disseminating information on the distribution of independent fish feed assistance, playing a role in the process of verifying prospective recipients, proposing and determining aid recipients, as well as monitoring and evaluation. The role of the relevant Offices is crucial in identifying and proposing, assisting in the verification process of prospective aid recipients, coaching, and monitoring and evaluation. Fisheries extension officers disseminate program information, assist in the verification of prospective recipients, and assist in preparing proposals. Aid recipients also have the task of submitting proposals and reporting the utilization of the assistance.

Recognizing that the role of independent fish feed is increasingly significant and involves various parties as mentioned above, the independent fish feed business actors consider it necessary to establish an association that accommodates business actors. In 2024, the Indonesian Association of Independent Fish Feed Producers (HIMPARI) was established. This organization is motivated to address various problems faced by independent fish feed business actors, particularly those related to business institutional arrangements, capital, and raw material supply. The organization has obtained legalization from the Ministry of Law and Human Rights of the Republic of Indonesia. Based on this legalization, the organization has begun to strengthen its membership and institutional structure.

3. Legal Basis

In order to encourage fish farmers to become self-reliant in meeting their feed needs, one of the initiatives is through the Independent Fish Feed Program. This program is governed by Law Number 7 of 2016 concerning the Protection and Empowerment of Fishermen, Fish Farmers, and Salt Farmers. The Independent Fish Feed Program can be regarded as an effort to provide protection to fish farmers by providing infrastructure and facilities required for developing their businesses.

Government assistance for the independent fish feed program is regulated in the Regulation of the Minister of Marine Affairs and Fisheries Number 19 of 2023 concerning the Distribution of Government Assistance within the Fisheries and Marine Sector. In addition to this Ministerial Regulation, the distribution of aid is regulated through the Regulation of the Director General of Aquaculture Number 269 of 2022 concerning Technical Guidelines for the Distribution of Feed-Making Machines and Raw Materials for Independent Feed for Fiscal

Year 2023, and the Regulation of the Director General of Aquaculture Number 395 of 2023 concerning Technical Guidelines for the Distribution of Feed-Making Machines and Raw Materials for Independent Feed for Fiscal Year 2024.

Independent Fish Feed Program Activities

Independent fish feed has long been developed within aquaculture communities in Indonesia, particularly in major fish-producing regions such as South Sumatra, Riau, Jambi, and South Kalimantan. Independent fish feed in the community emerged as a response to the persistent problem of fish feed, especially the high cost of commercial feed. The success of independent fish feed in freshwater aquaculture areas is mainly due to the use of local raw materials, which reduces feed costs, as well as the use of simple fish feed-making machines. In general, independent fish feed is widely used in catfish farming, but over time, various freshwater fish commodities have been cultivated using independent fish feed. The independent fish feed program implemented by the Ministry of Marine Affairs and Fisheries involves distributing feed-making machines and feed raw materials to fish farmer groups that meet the requirements based on the technical guidelines for the distribution of machines and feed raw materials. The feed-making machine assistance consists of a milling machine and a fish feed extruder (sinking or floating feed extruder). The raw materials provided include fish meal and soybean meal.

Each aid recipient receives one package consisting of a milling machine, a sinking/floating feed extruder, and feed raw materials. The machines distributed as government assistance are feed extruders and milling machines, with the expectation that they will improve the quality of independent fish feed compared to the common practice where all raw materials are directly processed using a sinking feed extruder. The inclusion of feed raw materials in the package aims to provide fish farmers with initial capital to start independent feed production. Based on the technical guidelines, aid recipients include community groups, customary community groups, non-governmental organizations, or religious institutions, preferably those with legal entity status, following organizational regulations and registered at the Ministry of Education and Culture, the Ministry of Research, Technology, and Higher Education, or the Ministry of Religious Affairs. Aid recipients are also required to have produced or intend to produce fish feed and conduct aquaculture activities, in addition to meeting other requirements specified in the technical guidelines.

Output of the Independent Fish Feed Program

The activities supporting the implementation of the Independent Fish Feed Program include distributing independent fish feed facilities such as milling machines, feed extruders, and feed raw materials. The output evaluated in the implementation of the program is the distribution and utilization of machine and raw material packages by the aid recipients. The output of distributed machine and raw material packages is obtained from the realization data of the assistance distribution. The details of the assistance include milling machines, feed extruders (floating/sinking), and raw materials (fish meal and soybean meal).

This output indicator is a measure of the success of the program's implementation. Therefore, the program's success is evaluated based on output achievement, i.e., the number of independent feed facility assistance packages distributed. From 2023 to 2024, a total of 84 feed machine and raw material packages were distributed to 84 recipient groups (Table 1). The distribution includes 47 floating feed extruders, 37 sinking feed extruders, 84 milling machines, and 84 raw material packages. Floating feed machines began to be distributed to recipients meeting specific criteria due to the need for particular technical skills in feed production and feed formulation.

Based on Table 1, the distribution realization aligns with the predetermined targets. Output indicators measured through distribution data reflect the efficiency of the activities. If the achievement matches the target, it indicates that the distribution has been carried out effectively and efficiently. Efficiency is assessed based on budget utilization. The independent fish feed facilities were distributed to 84 aid recipients across nearly all provinces in Indonesia (Table 2). Distribution in 2023 was realized in 23 provinces, and in 2024 in 18 provinces. The distribution locations include Aceh, North Sumatra, West Sumatra, Riau Islands, Riau, Bangka Belitung, Jambi, South Sumatra, Bengkulu, Lampung, Banten, West Java, Central Java, DI Yogyakarta, East Java, Bali, West Nusa Tenggara, East Nusa Tenggara, South Kalimantan, West Kalimantan, East Kalimantan, Central Kalimantan, North Kalimantan, North Sulawesi, West Sulawesi, Gorontalo, Central Sulawesi, South Sulawesi, North Maluku, and Papua.

Based on data from recipient groups in 2023–2024, 74 recipient groups remained active in feed production, while 10 groups were inactive (Table 3). Inactive groups faced constraints including: (i) limited availability and accessibility of quality local feed raw materials, (ii) suboptimal feed quality leading to high FCR, (iii) limited capital due to cash-based raw material purchasing systems, (iv) institutional and group dynamics, (v) damaged machines with no funds for repair, and (vi) cessation of aquaculture activities.

Output achievement related to aid utilization was obtained from monitoring and evaluation activities. Monitoring and evaluation are essential after the distribution of aid to determine the extent of usage. These activities allow the collection of relevant data so that progress can be monitored and assessed throughout the program cycle (Branigan *et al.*, 2021). Based on Table 3, in 2023–2024, a total of 74 aid recipients (88%) actively produced feed. The 88% activity rate is categorized as effective (80–90%) according to the performance classification of government priority programs (Inspectorate General of MMAF, 2023). This indicates that the program goals were achieved and continued monitoring is necessary to encourage sustained utilization.

The level of aid utilization is reflected by the average feed production, ranging from 50 kg to 12,000 kg per month. This wide range is due to most groups producing feed primarily to meet their own needs. Nevertheless, this demonstrates that the majority of recipient groups have benefited from the assistance. Based on the output realization, the Independent Fish Feed Program has been successfully implemented according to target. However, evaluations in other regions classify the implementation as suboptimal (Al Farizi *et al.*, 2025), likely due to differences in evaluation instruments.

CONCLUSION

The Independent Fish Feed Program has been successfully and effectively implemented. This is indicated by the achieved output realization: the distribution of aid and its utilization by recipient groups. A total of 84 packages were distributed to aid recipients throughout Indonesia in 2023–2024, meeting the respective annual targets.

ACKNOWLEDGMENTS

We would like to thank all parties who contributed to this research. Special appreciation goes to the Ministry of Marine Affairs and Fisheries, the Marine and Fisheries Offices at the district/city level, and the fisheries extension officers involved. We hope this research benefits all parties in supporting the advancement of aquaculture development.

REFERENCE

Al Farizi, W., Sari, M., & Elita, V. (2025). Efektivitas Program Pakan Mandiri di Kabupaten

- Tulungagung Jawa Timur. *Journal of Fisheries and Marine Research*, 9(2), 124–133. <https://doi.org/10.21776/ub.jfmr.2025.009.02.12>
- Amin, M., Taqwa, F. H., Yulisman, Y., Mukti, R. C., Rarassari, M. A., & Antika, R. M. (2020). Efektivitas Pemanfaatan Bahan Baku Lokal sebagai Pakan Ikan terhadap Peningkatan Produktivitas Budidaya Ikan Lele (*Clarias sp.*) di Desa Sakatiga, Kecamatan Indralaya, Kabupaten Ogan Ilir, Sumatera Selatan. *Journal of Aquaculture and Fish Health*, 9(3), 222–230. <https://doi.org/10.20473/jafh.v9i3.17969>
- Asmaida, A. (2018). Manfaat Ekonomi yang Diterima Petani Peserta Program Gerakan Pakan Ikan Mandiri (GERPARI) dalam Usaha Budidaya Ikan (Studi Kasus di Desa Jembatan Mas Kecamatan Pemayung Kabupaten Batanghari). *Jurnal Media Agribisnis*, 3(2), 48–56. <https://doi.org/10.33087/mea.v3i2.37>
- Badan Pusat Statistik (BPS). (2016). *Struktur Ongkos Rumah Tangga Usaha Budidaya Ikan 2014*. BPS.
- Batstone, C. (2011). *Derivation of Economic and Social Indicators for a Spatial Decision Support System to Evaluate the Impacts of Urban Development on Water Bodies in New Zealand*. <http://core.kmi.open.ac.uk/download/pdf/6699037.pdf>
- Branigan, R., Quinn, D., & Madden, C. (2021). *Framework for Policy Planning and Evaluation*. Minister for Children, Equality, Disability, Integration and Youth.
- Cholily, Y. M., Effendy, M., & Indrawan, R. F. (2025). Optimalisasi Pakan Ikan Mandiri melalui Teknologi Recirculating Aquaculture System (RAS) Berbantuan Solar Cell di Desa Parangargo. *Jurnal Inovasi dan Pemberdayaan Masyarakat*, 5(2), 826–837.
- Direktorat Jenderal Perikanan Budidaya (DJPB). (2020). *Rencana Strategis Tahun 2020–2024 Direktorat Jenderal Perikanan Budidaya*. DJPB. https://kkp.go.id/an-component/media/upload-gambar-pendukung/DJPB/Renstra_2020_-_2024/4_Renstra_DJPB_2020-2024.pdf
- Firdausya, R., & Fauziyah, E. (2021). Dampak Program Gerakan Pakan Mandiri terhadap Pendapatan dan Risiko Bisnis Usaha Budidaya Lele. *Agriscience*, 2(1), 219–238. <https://doi.org/10.21107/agriscience.v2i1.11319>
- Kiu, Y. M. (2018). Evaluasi Dampak Program Dana Pemberdayaan Ekonomi Masyarakat di Kelurahan Kayu Putih Kota Kupang. *Jurnal Analisis Kebijakan dan Pelayanan Publik*, 4(1), 1–13.
- Limbu, S. M. (2020). The Effects of On-Farm Produced Feeds on Growth, Survival, Yield and Feed Cost of Juvenile African Sharptooth Catfish (*Clarias gariepinus*). *Aquaculture and Fisheries*, 5(1), 58–64. <https://doi.org/10.1016/j.aaf.2019.07.002>
- Limbu, S. M., Luvanga, S. A., Opiyo, M. A., Shoko, A. P., Munyi, F. M., Ulotu, E. E., & John, J. O. (2022). Black Soldier Fly (*Hermetia illucens*, L.) Larvae Meal Improves Growth Performance, Feed Efficiency and Economic Returns of Nile Tilapia (*Oreochromis niloticus*, L.) Fry. *Aquaculture Fish and Fisheries*, 2(3), 167–178. <https://doi.org/10.1002/aff2.48>
- Manevska-Tasevska, G., Hansson, H., & Latruffe, L. (2011). Evaluating the Potential Effectiveness of Rural Development Programme Targets on Farms in FYR Macedonia – An Efficiency Study of Grape-Growing Family Farms. *Food Economics - Acta Agriculturae Scandinavica, Section C*, 8(3), 161–172. <https://doi.org/10.1080/16507541.2011.637734>
- Masyita, B., Gosari, B. A. J., Made, S., Baso, A., & Cangara, A. S. (2025). Evaluasi Program Nasional Gerakan Pakan Ikan Mandiri untuk Pembudidaya Perikanan di Kecamatan Panakkukang Kota Makassar. *Journal of Fisheries Socio-Economic*, 5(1), 1-10. <https://doi.org/10.35911/pongawa.v5i1.45487>
- Nuryana, Hermawan, A., & Supenti, L. (2023). Analisis Penyuluhan Pakan Mandiri terhadap Evaluasi Penyuluhan Pembudidaya Ikan di Kecamatan Tenjolaya Kabupaten Bogor.

- Prosiding Seminar Nasional Perikanan Indonesia*, 424–431. <https://doi.org/10.15578/psnp.14010>
- Rachmawati, S., Kusnadi, N., & Tinaprilla, N. (2023). Impact of Self-Sufficiency Fish Feed Program on the Fish Farming Business Performance. *Agrisocionomics: Jurnal Sosial Ekonomi Pertanian*, 7(3), 698–710. <https://doi.org/10.14710/agrisocionomics.v7i3.17728>
- Refita, Y. (2016). *Evaluasi Efektivitas dan Strategi Pengembangan Program Sarjana Membangun Desa* [Skripsi]. Institut Pertanian Bogor.
- Samuel, P. O., Sadiq, P. O., Ayanwale, A. V., Mohammed, A. Z., Victoria, V., & Chukwuemeka, I. (2021). Growth Performance of African Catfish *Clarias gariepinus* (Burchell, 1822) Fed with Varying Inclusion Levels of Watermelon (*Citrullus lanatus*) Bark. *Journal of Aquaculture and Fish Health*, 11(1), 115–124. <https://doi.org/10.20473/jafh.v11i1.28535>
- W.K. Kellogg Foundation. (2001). *W.K. Kellogg Foundation Logic Model Development Guide*.
- Wardono, B., & Prabakusuma, A. S. (2016). Analisis Usaha Pakan Ikan Mandiri (Kasus Pabrik Pakan Ikan Mandiri di Kabupaten Gunungkidul). *Jurnal Kebijakan Sosek KP*, 6(1), 75–85. <https://doi.org/10.15578/jksekp.v6i1.1610>