



Effectiveness of Independent Fish Feed Program in The District Sukabumi

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Received : August 15, 2024, Accepted : October 9, 2024

Abstract

Feed is a factor that significantly influences the production costs of aquaculture. The Government has established an independent feed program policy to help the community meet fish feed needs cheaply using local raw materials. This research aims to analyze the effectiveness of the independent feed program in the Sukabumi District. The evaluation carried out at the ministerial level on the success of the independent feed program is at the program output level, namely the distribution of independent feed infrastructure assistance. In this study, the program's success is measured not only on output but also based on five indicators that will assess the level of effectiveness. The research method used is quantitative descriptive, which describes the events and symptoms that occur due to the implementation of the independent feed program, in actuality, without any specific treatment, so that the picture of the program's effectiveness can be seen. Data collection was conducted directly through survey techniques using questionnaires. Groups of recipients of the independent feed program assistance in 2022 in Sukabumi District were a source of information determined by purposive sampling. The sample of respondents was then determined from group members selected randomly. The results of the research show that the level of effectiveness of the independent feed program in Sukabumi District based on the target accuracy indicator reached an average value of 85.71% in the very effective category; timeliness of 77.89% (quite effective); program literacy 82.93% (very effective); goal achievement 72.66% (quite effective); and actual impact 77.27% (quite effective). All indicators' average level of effectiveness is 79.29% in the quite effective category.

Keywords: Effectiveness; Independent Feed Program

1. Introduction

Sukabumi District has a vast potential inland fisheries water area consisting of 8,684 ha of still water ponds, 343 ha of swift water ponds, and 31,001 ha of fisheries rice fields (Sukmawani *et al.*, 2023). Such a large area of inland fisheries waters has the potential to develop aquaculture activities and make Sukabumi one of the centers of freshwater fish farming in West Java Province. However, the feed supply often needs to improve the development of fish farming activities. According to Asmaida and Rogayah (2019), the management of fish farming activities frequently needs to be improved in the provision of feed.

The availability of quality feed at low prices is still very limited, even though feed is the main component in fish farming production cost, reaching 60-80% (Wardono & Prabakusuma, 2016). This condition impacts freshwater fish farmers with medium—to low-scale businesses, who experience difficulty providing feed. The constraints farmers face in providing feed are caused by the high price of feed on the market.

Fish farmers generally fulfill the need for feed for their cultivation activities from commercial feed mills. Additionally, the dynamics of feed prices of commercial feed mills tend to increase and become

more expensive. The fluctuated change and increase in feed prices impact overall production costs, reducing the margin farmers earn.

Therefore, through the Directorate General of Aquaculture (DJPB) of the Ministry of Maritime Affairs and Fisheries (KKP), the Government accommodated a solution to overcome the constraints on providing feed in the community by establishing an independent feed program policy.

The Government encourages fish farmers to produce feed independently by providing assets such as machinery and raw materials. Considering the potential of Sukabumi District 2022, the Government distributed five packages to five groups of fish farmers (DJPB, 2022).

Implementing the independent feed program in Sukabumi District is expected to shape the fish farmer's community, especially groups receiving assistance for printing machine infrastructure and feed raw materials. Farmers are encouraged to produce fish feed independently to cut feed costs in their cultivation activities. Firdausya and Fauziyah (2021) explained that the feed cost in catfish farming in the Bangkalan Madura group of farmers can be minimized by providing feed independently by the group.

The realization of the independent feed program practice also has some limitations. The constraints of the independent feed actors include management and

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technical production operations. According to Rasidi and Haryadi (2016), mastery of these operational techniques can affect feed productivity at the actor level. Similarly, Rachmawati *et al.* (2023) mentioned that, in general, fish farmers still need to become more familiar with manufacturers' technology. Therefore, implementing the independent feed program in Sukabumi District must analyze its effectiveness to count the realization.

2. Theory

Feed in fish farming activities is a production input that contributes significantly to the operational cost structure, determines the level of efficiency and productivity of cultivation, and determines the waste load for the cultivation environment. According to Rachmawati *et al.* (2023), a critical need is an input component in fish farming activities. Aquaculture system feed requirements reach 60-80% of total production costs. According to Yunaidi *et al.* (2019), the costs required to meet feed needs in an aquaculture business, especially freshwater aquaculture, occupy 75% of total production costs. Rachmawati *et al.* (2023) also stated that feed-in production operational costs are substantial, at 40-60%.

Feed availability requires meeting the quality and quantity needed to support optimal fish growth during maintenance. Fish utilize feed intake for development and maintenance, replacing damaged body cells, maintaining health, supporting reproductive activities, and increasing endurance. Optimal fish growth can increase productivity and economically support business feasibility and sustainability.

One of the fulfillments of feed for fish farmers can be sourced from feed produced independently by the community. The Government has encouraged efforts to fulfill fish feed through the independent feed program, especially for small-scale fish farmers. The independent feed program launched by the Ministry of Maritime Affairs and Fisheries has been ongoing since 2015 (Rachmawati *et al.*, 2023). The level of effectiveness of the independent feed program in the community can be seen from the success of the program in achieving its goals. According to Vicky *et al.* (2018), the effectiveness of a program can be measured through a goal approach and a system approach.

There are four dimensions of the effectiveness of a program, namely (1) the accuracy of program targets, (2) program socialization, (3) program objectives, and ((4) program monitoring (Budiana, 2007 in (Rosliana

et al., 2020). According to Sutrisno (2010) and Fauziah *et al.* (2022), there are five indicators to assess the effectiveness of a program, namely (a) target accuracy, (b) timeliness, (c) program literacy, (d) goal achievement; (e) actual impact. A program is effective if all five indicators are by the objectives. Meanwhile, Fauziah *et al.* (2022) explained that the indicators of program effectiveness include three things, namely (1) goal achievement, (2) integration, and (3) adaptation.

3. Methods

3.1. Time and Location

The research was conducted from October 2023 to January 2024 in Sukabumi District, covering four sub-districts: Sukabumi, Cireunghas, Surade, and Ciracap.

3.2. Research Methods

The research method used was descriptive quantitative. Quantitative descriptive research describes the perceptions and conditions of implementing the independent feed program without any particular treatment so that the program's effectiveness can be seen. Data collection was carried out through the stages of site surveys, seeking access to data sources, determining the point of representation of the locus of the location of groups producing independent feed, determining respondents, interviews, distributing questionnaires, and data collection. Data and information were collected using research instruments, such as questionnaires distributed to respondents. Respondents came from groups determined by purposive sampling: five groups that received assistance from the KKP independent feed program in 2022. The groups included Tani Jaya, Kutamara, Tani Berkah, Barokah Cisarua Farm, and Berkah Sehati. Furthermore, respondents from group members were randomly selected. The total number of respondents was 45 people.

There are five indicators to assess the effectiveness of a program, namely (a) target accuracy, (b) timeliness, (c) program literacy, (d) goal achievement; (e) actual impact based on the measurement of the level of effectiveness by Sutrisno (2010) in Fauziyah (2022). Each indicator is used as a reference to determine the variables that will explore respondents' perceptions. Respondents' perceptions are measured using a 4-level Likert scale (0-3), which describes opinions strongly disagree (0), disagree (1), agree (2), and strongly agree (3) with each variable in each effectiveness indicator.

Table 1. Variables in each effectiveness indicator

Targeting Accuracy	Timeliness	Program literacy	Goal Achievement	Actual impact
- You are not a Government official and a member of the TNI/POLRI - There is an officer who identifies and verifies your group - You have a high interest in independent feed production activities - Most of the group members are fish farmers - You know how to produce feed	- Distribution of independent feed assistance is done on time - Submitting the proposal until assistance is received according to the scheduled time. - Some obstacles cause the distribution of assistance not to be on time - The independent feed production process is carried out from the time the assistance is handed over to the group, and technical assistance is provided	- You fully understand the objectives of the independent feed program. - You make efforts to produce feed independently with the existing assistance infrastructure - You complete other production infrastructure to support independent feed production activities. - If independent feed production is carried out continuously, your group's feed needs will be met, and independence will be formed. - In your opinion, independent feed production should use local raw materials. - In your opinion, the cost of independent feed production is relatively cheap	- Your group continuously produces independent feed. - Does your group make a regular schedule of independent feed production? - Are you directly involved in managing the group's independent feed? - Are you technically involved in producing the feed? - Your group produces independent feed for internal use/by group members themselves - Your group produces self-sustaining feed for distribution to farmers (sale) - Your group produces sinking-type self-feed according to the capacity of the existing molding machine - Your group produces floating-type self-feed according to the capacity of the existing molding machine. - The production of self-sustaining feed is following the capacity of the installed machine - You/your group produces feed for specific fish species - Your group produces independent feed using local raw material sources from your neighborhood in the Sukabumi region. - Your group produces feed using local raw materials outside the Sukabumi region. - The feed ingredients you need are always available - The feed ingredients you need are easy to obtain - The feed ingredients you need are relatively cheap and affordable	- Before the independent feed program in your area, your feed needs were met by manufactured feeds. - All feed needs for your cultivation activities come from independent feed production. - You can save money on the cost of purchasing manufactured feed - The cost you save can increase your income

The results of measuring the average value of respondents' perceptions were then analyzed for effectiveness. Data analysis of the measurement results on each indicator uses the effectiveness level

criteria based on Yuniastari *et al.* (2015). Respondents' perceptions of the effectiveness level indicators with a value of less than 40% stated that the program was very ineffective; a value of 40%-59.99%

indicates an ineffective category; slight effective if it reaches a value of 60%-79.99%; and a value of more than 80% indicates a very effective category, as shown in Table 2. as follows:

Table 2. Effectiveness Level Criteria

Effectiveness Level (%)	Criteria
<40.00	Very ineffective
40.00 - 59.99	Ineffective
60.00 - 79.99	Slightly effective
>80.00	Very effective

Source: (Yuniastari *et al.*, 2015)

4. Results and Discussion

4.1. Result

Based on the data analysis, implementing the independent feeding program in the beneficiary groups in Sukabumi District reached an average effectiveness rate of 79.29%, which is quite effective. Figure 2 shows the percentage value of each effectiveness level indicator.

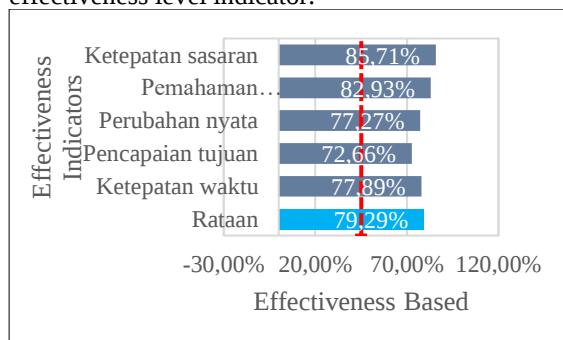


Figure 2 Level of the effectiveness of the independent feed program in Sukabumi District

The analysis results of the five variables of targeting accuracy reached an efficient level with an average value of 85.71% (Figure 3).

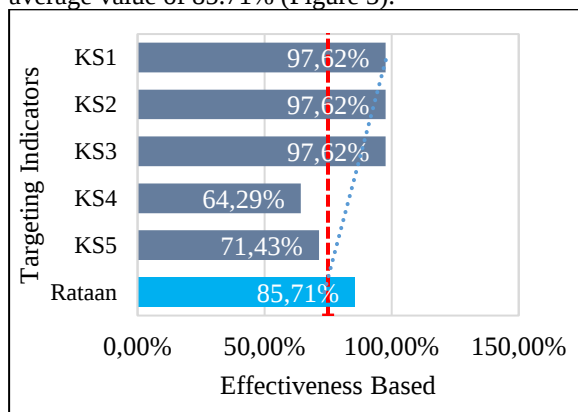


Figure 3 Effectiveness Based on Targeting Indicators

The results of the analysis of the level of effectiveness based on variables on the timeliness indicator amounted to 77.98% (Figure 4) with somewhat effective criteria.

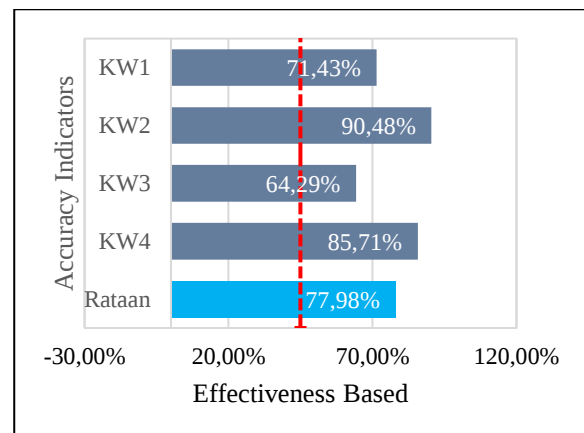


Figure 4. Effectiveness Based on Accuracy Indicators

The result of the analysis of the level of effectiveness based on variables on the indicator of program literacy is 82.93%, which is a very effective category.

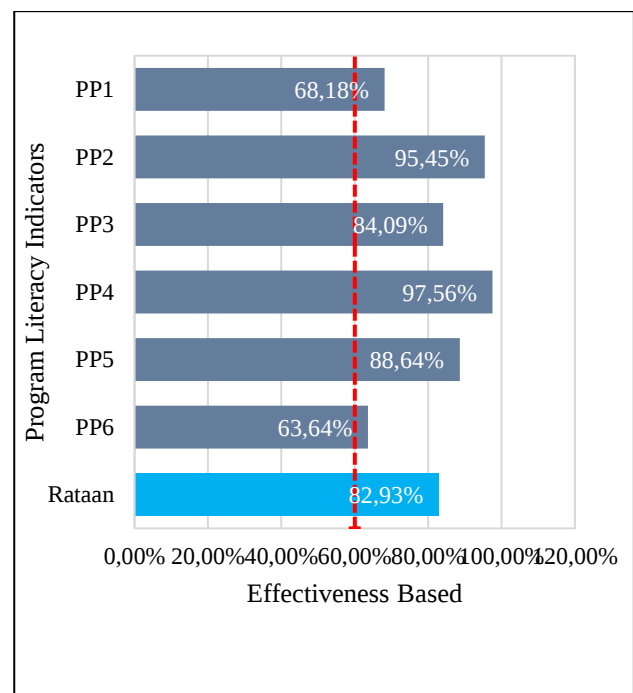


Figure 5. Effectiveness Based on Program Literacy Indicators

Based on the analysis of respondents' data who were given questions or statements on 15 variables of achieving goals, the effectiveness level value was 72.66% with a reasonably practical category, as shown in Figure 6.

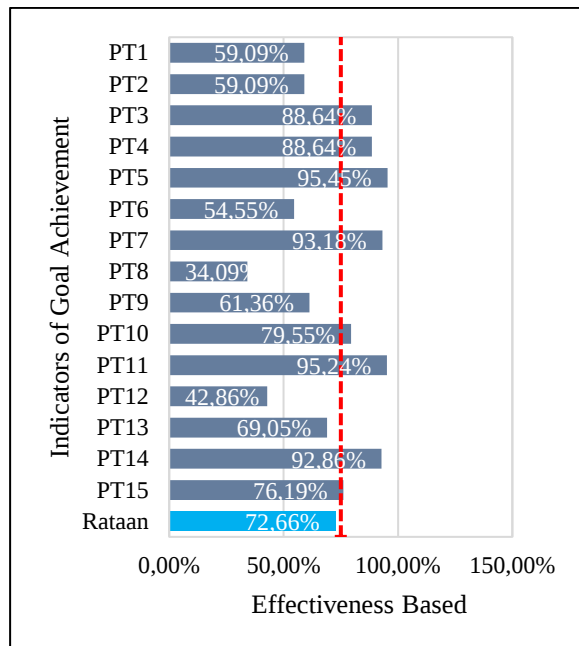


Figure 6: Effectiveness Based on Indicators of Goal Achievement

The indicator of the actual impact of implementing the independent feed program in Sukabumi District showed an adequate level of 77.27% (Figure 7).

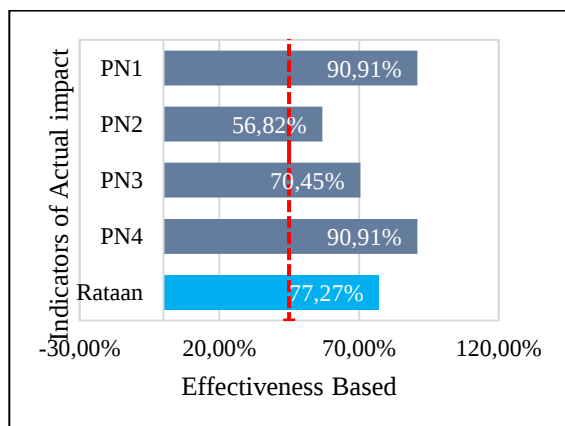


Figure 7: Effectiveness Based on Indicators of Actual impact

The independent feed program is a policy of the Ministry of Maritime Affairs and Fisheries (KKP) through the Directorate General of Aquaculture to overcome obstacles in providing cheap feed for fish farmers. The presence of an independent feed program is undoubtedly expected to encourage the passion of fish farmers and provide better profits. Establishing farmers' independence in providing low-cost feed can reduce the cost of fish production and make the cultivation business more profitable.

One way to implement way to implement the independent feed program policy in Sukabumi District in 2022 is to distribute fish feed production

infrastructure assistance to five community groups located in the Surade, Ciracap, Sukabumi, and Cireunghas sub-districts. The community groups receiving the assistance are fish farmers who produce feed (independent feed producers) and users of the feed they produce.

The implementation of the independent feed program in 2022 is regulated through the Director General of Aquaculture Regulation No.231/PER-DJPB/2021, which contains the Technical Guidelines for the Distribution of Fish Feed Making Machines and Fish Feed Raw Materials for Fiscal Year 2022. The technical guidelines regulate the mechanism for distributing assistance, the requirements for prospective beneficiaries, and the forms of assistance provided. The aid distribution mechanism involves a central team from DJPB assisted by the Sukabumi Regency Maritime and Fisheries Service and field instructors. The distributed aid consisted of feed machines, including milling machines, sinking feed machines, floating feed machines, and raw fish feed materials.

The results of this study indicate that the effectiveness of implementing the independent feed program in 2022 in Sukabumi District, based on an assessment of 5 indicators, reached a value of 79.29% in the moderately effective category. The evaluation of the five effectiveness indicators not only evaluates the output level or the amount of assistance distributed but also emphasizes the level of success in achieving the objectives of implementing the independent feed program in the cultivator community. The average value of 79.29% indicates that the cultivators who receive independent feed program assistance consider the program quite successful. The independent feed program has successfully responded well as an effort to form the independence of farmers in providing fish feed.

Previously, the success of the independent feed program in 2021 nationally was evaluated by the Ministry of Maritime Affairs and Fisheries at the output level and the effectiveness of the implementation of activities. The level of activity output is the achievement of the number of aid packages distributed to the community as the Main Performance Indicator (KPI). It has achieved realization according to the set KPI target. At the same time, the effectiveness of implementing priority / strategic activities is measured through 3 aspects, namely the achievement of goals, integrity, and adaptation. Nationally, the total effectiveness value of feed machine assistance in 2021 reached 84.17% in the excellent and effective category (DJPB, 2022). Compared to the national level of effectiveness in 2021, the value of the effectiveness level of the independent feed program in 2022 in Sukabumi District is lower. However, the test was conducted on different indicators, namely goal achievement, integrity, and adaptation. In this study, there are

various indicators, namely understanding the program timeliness, accuracy of targeting, and actual impacts apart from achieving goals.

4.2. Effectiveness Level Based on Target Accuracy

The targets of the independent feed program are community groups that meet the technical and institutional requirements as stated in the Regulation of the Directorate General of Aquaculture Number 231 of 2021 (DJPB, 2022). In terms of institutional provisions, it is indicated that beneficiaries can be in the form of general community groups, fish farmers, customary law groups, and educational/religious institutions with a minimum membership of 10 people and not from Government officials/Village officials/TNI/POLRI. The group has a legal entity or has a minimum legality of confirmation by the Local Government (Village).

Target accuracy is assessed through several variables that refer to the requirements in the technical guidelines. The community groups receiving assistance from the independent feed program in 2022 in Sukabumi District are, according to the provisions in the technical guidelines, considered very effective, reaching an average of 89.29% (Figure 3). Group members stated they were not Government officials/TNI POLRI with proof of their identity. The legality of the existence of the beneficiary group is expressed by a letter of inauguration from the local Village. The DJPB assistance channeling team has identified and verified the group so that the documents included have met the requirements.

Other variables assessed were group members' activities and interest in feed production activities. Some group members have activities in agriculture and fish farmers and are highly interested in the independent feed program but need to learn how to make feed. This variable is still considered quite effective at 64.29% and 71.43%. The target beneficiaries will be very effective if the group members are fish farmers who can produce feed, not just a high interest in the independent feed program.

Effectiveness can show whether a program's implementation is on target. According to Firmansyah and Fanida (2022), a program's targeting can affect achieving its goals. Thus, some group members who are not cultivators and cannot produce feed are two variables of program targets that can undoubtedly affect the achievement of program objectives.

4.3. Level of Effectiveness Based on Timeliness

The technical instructions state the stages and mechanisms for distributing independent feed program assistance. They start by submitting an application for assistance, identifying and verifying prospective beneficiaries, determining prospective recipient groups, delivering assistance to groups, and providing technical assistance for production

operations. Each stage is carried out from January to December of fiscal year 2022.

he group assessed the overall distribution of assistance within this time limit. The level of effectiveness of the variables that stated that the assistance was distributed according to the scheduled time to the beneficiary groups was quite adequate at 77.98% (Figure 4). The identification and verification of the submitted documents' suitability was carried out on time until they were determined as potential beneficiaries. The process was carried out by a team from the central working group (DJPB) and the Sukabumi District Marine and Fisheries Office, followed by the delivery of machinery and feed raw materials and technical assistance activities.

The program was implemented and completed within the scheduled time, and no obstacles prevented the machine or raw material assistance from being distributed. Each group of beneficiaries has received the stages of aid distribution according to the scheduled time. Several groups experience obstacles during document identification and verification but are still within the predetermined schedule. The level of effectiveness based on the timeliness indicator is an essential element in assessing program implementation (Firmansyah and Fanida, 2022). If it is by the scheduled time, implementing aid distribution can prevent the program from running backward.

4.4. Effectiveness Level Based on Program Literacy

Understanding the independent feed program policy is vital in assessing its effectiveness. Program literacy assessment determines the beneficiary group's knowledge and understanding of the objectives to be achieved from the implementation of the independent feed program. A correct understanding of a program can encourage groups to realize the goals and objectives to be achieved.

This understanding can be obtained from various sources, either directly or indirectly, through online and print media. For beneficiary groups to have a correct understanding of the program, it is necessary to conduct socialization by policymakers. Socialization has been carried out by a team from the Directorate General of Aquaculture when the beneficiary group is determined. The socialization of the independent feed program is expected to be a driving force for the group to achieve the set goals.

Based on the results of data analysis, the level of effectiveness based on program literacy is very effective at 82.93% (Figure 5). The high level of effectiveness in the program literacy indicator shows the Government's success in conducting socialization. The beneficiary groups can understand the objectives of the independent feed program implementation very effectively, meaning that the Government has undertaken program socialization properly and correctly. Several statements or questions as variables

that show attitudes about understanding the independent feed program were extracted from respondents. The beneficiary groups generally know and understand the importance of building independence in producing low-cost feed and state that they are willing to utilize the production infrastructure that has been distributed. In addition, they also understand the purpose of using local raw materials and other alternative materials in making independent feed. The beneficiary groups understand that independent feed is produced by themselves by utilizing local/alternative raw materials at a lower cost.

The socialization of the program can be understood and provide benefits to the beneficiary group so that they can produce feed independently. According to Amin *et al.* (2020), the results of their study on the effectiveness of the utilization of local raw materials in cultivators show that the provision of materials and practice of making feed is beneficial, in addition to increasing knowledge, it is also an encouragement for the community to make feed independently. Based on the results of the study by Ryanto *et al.* (2024) on the implementation of the independent feed program in Tulung Agung Regency, East Java, the understanding of the program by beneficiaries reached 100% due to the socialization and special training conducted by the Fisheries Service.

4.5. Level of Effectiveness Based on Goal Achievement

The effectiveness of a program can be indicated by its success in realizing its objectives; the more successful it is in achieving the goals, the more influential the program is. The purpose of implementing the independent feed program is to build independence in producing feed, produce cheap feed, and utilize local raw materials. Based on the results of data analysis, the level of effectiveness based on indicators of goal achievement in the beneficiary group obtained a value of 72.66% with a reasonably practical category.

A good understanding of the program should encourage achieving the goals. However, good knowledge by group members has yet to go hand in hand with efforts to produce feed on an ongoing basis. This is shown by the low level of productivity of the beneficiary groups in producing feed (Table 2). The feed created is still low and needs to be done regularly. A good understanding of the program is undoubtedly not enough knowledge, but it must be able to encourage the implementation of feed production activities.

The beneficiary groups have encountered various obstacles to achieving the objectives set out. The goal of building independence has yet to be completed because although they have been able to produce feed, the level of productivity and continuity could be

higher. Only 59.09% (Figure 6) of all beneficiary respondents stated that they carried out independent feed production regularly and continuously. Generally, groups produce feed only at the beginning of receiving raw material assistance. Four beneficiary groups have produced feed, although it has not been carried out regularly. One group (Berkah Sehati) has never produced feed due to constraints on the feed pellet machine.

Feed production activities are not continuous due to the absence of raw materials. Some groups are constrained by capital to provide raw materials for the next production period. Utilizing local raw materials that are easier to obtain and lower in cost should be a solution to the constraints faced by the groups. Available raw materials in the Surade and Ciracap areas include pipeline corn, cassava, salted fish powder, seaweed, and bran. The Tani Jaya group has utilized ground corn and salted fish powder as raw materials to produce its feed.

Meanwhile, the Kutamara Group has also utilized fish powder and seaweed. However, due to limited costs, they have yet to produce feed optimally according to the machine's capacity. The feed created is still relatively low compared to the installed machine capacity.

4.6. Effectiveness Level Based on Actual Impact

A program is said to be effective if it impacts actual impacts on program targets (Sutrisno, 2010 in Fauziah *et al.*, 2022). The actual impacts that are expected to occur in the group of beneficiaries of the independent feed program are the use of independent feed in fish farming activities both in whole and in part, the need for feed is not entirely met by commercial/manufactured feed, and fish farmers can reduce the cost of providing feed because they produce it at low cost and there is an increase in income.

The level of effectiveness based on the indicator of actual impact in the beneficiary group shows a somewhat effective category (77.27%). The existence of feed production activities indicates the actual effects that occur, and the results are used to meet the needs of feed in fish farming activities. The utilization of independent feed for fish farming activities that previously only used commercial/manufactured feed was carried out by the beneficiary groups Kutamara, Tani Jaya, Tani Berkah, and Barokah Cisarua Farm. The group has produced sinking-type feed for tilapia. Meanwhile, the Berkah Sehati group has been unable to produce feed due to a broken feed pellet machine. The feed produced by the groups is still relatively small compared to the capacity of the installed machine and is not continuous. Low productivity means that the availability of self-produced feed is limited, so the beneficiary groups have yet to be able to reduce costs to meet their feed needs. The groups

stated that they have yet to see the impact of low-cost feed on their income.

Meanwhile, based on a study conducted by Asmaidah and Rogayah (2019), significant changes occurred in fish farmers in Jembatan Mas Village, Pelayung Subdistrict, Batang Hari Regency who received independent feed program assistance with increased welfare, which measures explicitly income indicators. Low (68%) and medium (32%) welfare levels after the independent feed program changed significantly, with a medium welfare category of 72% due to increased income above the Regional Minimum Wage in the Batang Hari Regency area. The results of the study by Firdausya and Fauziyah (2021) also concluded the same thing, namely the effect of the use of independent feed on the income level of the NGO catfish farming business group in Bureh District, Bangkalan Regency, Madura.

5. Conclusion

Based on the results of this study, the independent feed program implemented in Sukabumi District is quite effective in terms of the average value of the effectiveness level of the five indicators. Indicators of targeting accuracy reached an efficient level; timeliness is quite compelling; program literacy is very effective; goal achievement is quite effective; and actual impacts are pretty effective. Programs that have been implemented quite effectively need to continue to be encouraged by the local Government, especially in the provision of raw feed materials, and it is recommended that human resources be improved through continuous technical assistance. In the next stage of implementing the independent feed program, it is necessary to study the sustainability aspects and their impact on increasing the productivity of medium and micro-scale farmers.

References

- Amin, M., Mukti, R.C., Taqwa, Yulisman, Madyasta Rarassari, 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. Program Studi Budidaya Perairan Fakultas Pertanian. Universitas Sriwijaya.
- Asmaida dan Rogayah, 2019. Dampak Program Gerakan Pakan Ikan Mandiri (GERPARI) terhadap Kesejahteraan Petani Ikan di Kelurahan Jembatan Emas Kecamatan Pelayung Kabupaten Batang Hari. Jurnal Ilmiah Universitas Batanghari Jambi, Vol. 19(3), pp.516-523. DOI 10.33087/jiubj.v 9i3.737.
- Direktorat Jenderal Perikanan Budidaya, 2022. Peraturan Direktorat Jenderal Perikanan Budidaya Nomor Petunjuk Teknis Penyaluran Bantuan Mesin Pembuat Pakan Ikan dan Bahan Baku Pakan Ikan Tahun Anggaran 2022. Kementerian Kelautan dan Perikanan. Jakarta
- [DJPB] Direktorat Jenderal Perikanan Budidaya, 2022. Laporan Kinerja Direktorat Jenderal Perikanan Budidaya Tahun 2022. Kementerian Kelautan dan Perikanan. Jakarta
- Fauziah, WR, Sugiarti, C., dan Ramdani, R., 2022. Efektivitas Program Wirausaha Pemuda Dalam Upaya Penurunan Angka Pengangguran Terbuka Di Kabupaten Tegal Pada Masa Pandemi Covid-19. Jurnal Manajemen Volume 14 Issue 2 Pages 367-375
- Firdausya dan Fauziyah, 2021. Dampak Program Gerakan Pakan Mandiri Terhadap Pendapatan Dan Risiko Bisnis Usaha Budidaya Lele. Program Studi Agribisnis, Fakultas Pertanian Universitas Trunojoyo Madura, Indonesia. Jurnal Agriscience, Volume 2 Nomor 1. <http://journal.trunojoyo.ac.id/agriscience>.
- Firmansyah dan Fanida, 2022. Efektivitas Penyaluran Bantuan Langsung Tunai Dana Desa (BLT-DD) Kepada Masyarakat Terdampak Covid-19 Di Desa Kepatihan Kabupaten Jombang. Jurnal Publika Volume 9 Nomor 5, p 261-272.
- Rachmawati, D., Samidjan, I., dan Yuniarti, T., 2023. Pengaruh Asam Amino Lisin Dalam Pakan Buatan Terhadap Efisiensi Pemanfaatan Pakan, Pertumbuhan, dan Kelulushidupan Lele Sangkuriang (*Clarias gariepinus* var. Sangkuriang) Stadia Pembesaran. Jurnal Ilmiah Perikanan dan Kelautan Volume 22 Nomor 1 hal 21-32.
- Rasidi, R., dan Haryadi, J., 2016. Evaluasi Kebijakan Pengembangan Pakan Mandiri. ejournal-balitbang.kkp.go.id.
- Riyanto, A., Rahardjo, S., Sulistyowati, L., 2024. Analisis Implementasi Kebijakan Pengembangan Pakan Mandiri Di Kabupaten Tulung Agung. Journal of Fisheries and Marine Research Vol.8 No.1(2024) 105-114.
- Roslina, N., 2020. Efektivitas Program Bantuan Pangan Non Tunai Berbasis E-Warong Di Desa Margamekar Kecamatan Sumedang Selatan. Skripsi. Fisip Unsap.
- Sukmawani R., Meilani, E.M., Astutiningsih, E.T., dan Milla, A.M., 2023. Komoditas Potensi Unggul Lokal Kabupaten Sukabumi Untuk Mendukung Ketahanan Pangan. Fakultas Pertanian, Universitas Muhammadiyah Sukabumi. Prosiding Seminar Nasional Hasil Penelitian Agribisnis VII. Volume 7, Nomor 1 Tahun 2023: 7- 12.
- Wardono dan Prabakusuma, 2016. Analisis Usaha Pakan Ikan Mandiri Di Kabupaten Gunungkidul. Jurnal Kebijakan Sosek Kelautan dan Perikanan, Volume 6 Nomor 1: 75-85.
- Yunaidi, Y., Rahmanta, AP, & Wibowo, A., 2019. Aplikasi Pakan Pelet Buatan Untuk Peningkatan Produktivitas Budidaya Ikan Air Tawar. Jurnal

Pemberdayaan: Publikasi Hasil Pengabdian
Kepada Masyarakat, 3(1), 45–54.
<https://doi.org/10.12928/jp.v3i1.621>
Yuniastari, L.A.K., dan Wiyati, N.S.K., 2015.
Pengukuran Tingkat Efektivitas Dan Efisiensi

Sistem E Research STIKOM Bali. Konferensi
Nasional Sistem & Informatika Volume 9