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THE ROLE OF COUNSELLORS IN EMPOWERING DAIRY FARMERS IN THE SOUTHERN BANDUNG LIVESTOCK COOPERATIVE (A CASE STUDY ON DAIRY FARMER GROUPS IN TPK CIPANAS, MARGAMUKTI VILLAGE, PANGALENGAN DISTRICT, BANDUNG REGENCY)

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ABSTRACT

The purpose of this research is to determine the role of extension workers, the empowerment of dairy farmers, and the relationship between the role of extension workers and the empowerment of dairy farmers in TPK Cipanas. The research was conducted in December at TPK Cipanas, Margamukti Village, Pangalengan District, Bandung Regency. The research method involved a survey of 40 respondents using proportional random sampling. The data obtained were analyzed using Spearman's Rank Correlation. The research results indicated that 1) the role of extension workers was in the moderate category (38.4%) and 2) the empowerment of farmers was in the moderate category (34.8%). Furthermore, there was a positive and moderately strong relationship between the role of extension workers and the empowerment of farmers with a Spearman's Rank Correlation value (r_s = 0.607).

KEYWORDS *Extension Officer's Role, Farmer Empowerment, Dairy Cattle*

INTRODUCTION

West Java is one of the provinces in Indonesia with the third-highest population of dairy cows. According to data from 2022, there has been an increase in the population of dairy cows in West Java from 119,915 heads in the previous year to

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120,749 heads (BPS, 2022). The working area of the Southern Bandung Livestock Cooperative (KPBS) Pangalengan encompasses one of the areas with the largest population of dairy cows. KPBS Pangalengan is divided into 24 regional commissariats, 189 dairy farmer groups, and 37 Cooperative Service Points (TPK). The number of members of KPBS Pangalengan reaches 2,500 farmers with a total of 6,000 dairy cows. Additionally, KPBS Pangalengan actively implements extension programs to support development in the livestock subsector, especially in the development of dairy farming.

The development of the livestock subsector can be realized if its human resources have good competence. Quality farmers are the main capital for development in the livestock subsector because farmers are the actors who directly carry out livestock activities. The improvement of farmer quality can be optimized through community empowerment such as livestock extension.

The role of extension workers has a very important impact on creating quality farmers. Through the learning process, it is hoped that extension workers can raise awareness and change farmer behavior towards a more positive direction. The goal is for farmers to become more empowered and prosperous.

The presence of extension workers for farmers is a bridge in the learning process and facilitates farmers so that the process of innovation adoption by farmers can be easier. The role of an extension worker can be seen from several indicators, such as acting as a facilitator, motivator, and catalyst according to their targets. Extension activities in TPK Cipanas have been conducted with a frequency of once every 3 months by 2 extension officers. In practice, extension workers of KPBS Pangalengan who are assigned to TPK Cipanas have the function of bridging the needs of farmers with existing knowledge and resources, encouraging and motivating farmers to implement better practices, assisting in communication processes and decision-making within livestock groups, and organizing training. Some extension activities in TPK Cipanas include extension related to disease prevention during the PMK pandemic, how to use a chopper to cut feed, and the adoption of digitalization innovations in livestock existing in TPK Cipanas, namely the Milk Collection Point.

The success of extension workers in carrying out their roles cannot be separated from the individual or group of extension workers themselves. One of them is the quality of service provided to farmers. Good service will create empowerment within farmers. Farmer empowerment can be measured from farmers as managers, livestock caretakers, and autonomous individuals. If these three dimensions can be fulfilled, then the success of the farmer's role in increasing farmer empowerment can be known.

This study aims to identify several problems that arise in TPK Cipanas, Margamukti Village, Pangalengan District, Bandung Regency. First, focus on the role of extension workers towards dairy farmers in the area, followed by an assessment of the level of empowerment of the farmers. In addition, the study also observes how the relationship between the role of extension workers and the empowerment of dairy farmers in that location. With the established objectives, this study can

provide valuable contributions in several aspects. For academics, the results of this study can be an important reference for future studies on the role of extension workers and the empowerment of dairy farmers in TPK Cipanas. Meanwhile, for extension workers, this study can be a useful source of knowledge to improve the quality of extension, especially in that area. Finally, for the extension organizing agencies in the research location, the results of this study can be a guide for planning future extension activities. This study was conducted in December 2023, with data collection mainly at the Cooperative Service Points (TPK) Cipanas located in Margamukti Village, Pangalengan District, Bandung Regency, West Java Province.

The empowerment of farmers includes their ability to master and implement technical aspects as well as skills in decision-making related to livestock farming. The aspects of farmer empowerment can be observed through their roles in livestock maintenance, where they understand the technical aspects of dairy cow maintenance, farmers as managers in decision-making to achieve business success, and empowerment as autonomous individuals who can maintain their rights, especially in the context of groups. With this background, the author is interested in conducting research entitled "The Role of Extension Workers in the Empowerment of Dairy Farmers in the Southern Bandung Livestock Cooperative (A Case Study on Dairy Farmer Groups in TPK Cipanas, Margamukti Village, Pangalengan District, Bandung Regency)," with the hope of knowing the level of the role of extension workers, farmer empowerment, and the relationship between the role of extension workers and farmer empowerment.

RESEARCH METHOD

The object of this research is the role of extension workers and farmer empowerment, with the research subject focusing on farmers in TPK Cipanas, Margamukti Village, Pangalengan District, Bandung Regency. The research method used is a survey with a quantitative approach, involving the use of questionnaires as a data collection tool. The research was conducted in TPK Cipanas considering its strategic location and the frequency of routine extension programs. Research respondents were selected proportionally based on the random sampling method. Data collection was carried out through primary and secondary methods, with research instruments tested for validity and reliability. Variables in this study are divided into independent variables (the role of extension workers) and dependent variables (farmer empowerment), which will then be analyzed using descriptive analysis techniques and Spearman's Rank correlation. Additionally, hypotheses will be tested by comparing the P-Value with the significance level α (0.05) to identify the relationship between the role of extension workers and farmer empowerment.

RESULT AND DISCUSSION

General Conditions of the Research Area

Margamukti Village, located in Pangalengan District, Bandung Regency, has geographical conditions conducive to dairy farming. This area has suitable air temperatures, appropriate elevations, and sufficient rainfall. There are 24 regional

commissariats with 189 dairy farmer groups and 37 Cooperative Service Points (TPK) as the main focus. The population of Margamukti Village is 14,994 people, with the majority aged over 30 years old. Approximately 61.1% of the population has a high school education or equivalent, while the number of farmers in this village reaches 713 people. TPK Cipanas, as one of the cooperative service points in this village, has 6 groups with a total of 231 farmers. Farmers in TPK Cipanas generally come from the ranks of smallholder farmers, who have limitations in resources such as land and capital. They implement a husbandry system that includes reproduction, feeding, milking, housing, and equipment management. The Southern Bandung Livestock Cooperative (KPBS) Pangalengan supports farmer empowerment by organizing extension programs every three months, conducted by one extension worker using group discussion and demonstration methods.

Respondent Identities

The identities of respondents in this study, who are 40 members of TPK Cipanas, reflect various common characteristics. Primary data from respondents are used to obtain information about age, formal education, farming experience, and livestock ownership. Based on age, the majority of respondents fall within the range of 41-60 years old, with 20 people or 50%, while those over 60 years old are only 3 people or 7.5%. The productive age group, between 18 and 40 years old, consists of 17 people or 42.5%. People with a last formal education level of junior high school or equivalent dominate the majority of respondents, with 22 people or 55%, while only 1 person or 2.5% has a college education. Formal education plays an important role in the adoption of innovations from extension activities, where higher levels of education tend to facilitate innovation acceptance. This is in line with previous research findings and indicates that formal education influences farmers' abilities and ways of thinking, which in turn affect their work productivity.

Farming Experience

Farming experience is an important aspect in dairy farming as it can influence the quality of farm management. The table of respondents' farming experience in TPK Cipanas shows variation in the length of farming experience. The majority of respondents, 16 people or 40%, have farming experience ranging from 21-30 years, while the fewest respondents with experience of 1-10 years, 7 people or 17.5%. Farming experience has a significant impact on farmers' ability to make decisions and handle issues in livestock farming. In the literature, it is explained that farming experience is essential for success in livestock farming. The longer someone has experience, the higher their skills and quality. Farmers' mindset can be influenced by their level of experience, where farmers with longer experience tend to be more open to innovations offered by extension workers.

Livestock Ownership

Ownership of dairy cattle is a key factor in livestock farming as it directly affects milk production and economic value. In this study, livestock ownership in

TPK Cipanas was classified into three scales: small (1-3 heads), medium (4-6 heads), and large (>7 heads). The results of the table show that the majority of respondents have a large-scale operation, with more than 7 dairy cows, comprising 22 people or 55%. The variation in the number of livestock is influenced by the capacity and strategies of each farmer. Farmers in TPK Cipanas tend to have large-scale operations because they have adequate land and rely on farming as their main source of income. Some farmers also implement profit-sharing systems, which can encourage ownership of many livestock and large-scale operations. The scale of ownership of dairy cattle greatly influences farmers' income, where the larger the scale of operation, the higher the potential income that can be obtained.

The role of extension workers

Extension workers are individuals who have the responsibility to influence the decision-making process carried out by extension participants so that they adopt innovations. According to Rahmawati, et al. (2019), the performance of extension workers is considered good, if they can facilitate farmers in their livestock business process, post-harvest management to the absorption of final products by the market. Extension workers are able to inspire, guide, and guide farmers to manage their businesses independently, through roles as facilitators, motivators, and catalysts. The results of respondents' assessment of the role of extension workers in TPK Cipanas can be seen in the following table.

Table 1. Level of Extension Role in TPK Cipanas

No.	Description	The Role of Extension Workers (%)		
		High	**Medium**	**Low**
1.	Facilitator	29,4	33,1	37,5
2.	Motivator	33,7	35,0	31,3
3.	Catalyzer	31,3	52,5	16,2
	Total	**30,9**	**38,4**	**30,6**

Based on the data in table 1, it can be seen that the role of extension workers in TPK Cipanas can mostly be categorized in the medium category (38.4%). This is due to limited facilities related to information sources and technology. Farmers face limitations in finding information and technology, which results in them only getting information through extension activities. In addition, the lack of role of extension workers in facilitating the development of group facilities is also an important factor that affects the assessment of extension workers. Although extension workers make observations regarding the needs of facilities in groups, there is rarely an effort to map and provide direction to groups to submit requests for facilities to existing resources.

The role of extension workers as facilitators

The role of extension workers as facilitators has the nature of supporting the smooth learning process of farmers (Yunasaf and Tasripin, 2011). Assessment of the role of extension workers as facilitators involves improving group structure, facilitating interaction with information and technology sources, assisting in planning group activities, and supporting the development of group facilities.

Therefore, extension workers need to ensure that farmers' learning takes place smoothly and effectively in managing their livestock business. The following details can be found in Table 2.

Table 2. Level of Extension Role as Facilitator

No.	Description	The Role as Facilitator (%)		
		High	**Medium**	**Low**
1.	Facilitate refinement of group structure	47,5	32,5	20,0
2.	Facilitate communication with information sources and technology	17,5	27,5	55,0
3.	Facilitate the preparation of group activity plans	32,5	47,5	20,0
4.	Facilitate the development of group facilities	20,0	25,0	55,0
	Role as facilitator	**29,4**	**33,1**	**37,5**

In Table 2, it can be seen that the role of the extension worker as a facilitator is categorized as low (37.5%). This assessment is influenced by the low role of the extension worker in facilitating the development of group facilities (55%). According to Government Regulation Number 6 (2013), the facilities referred to are seeds/livestock breeds, feed, livestock tools and machinery, as well as animal medicines. The facilities provided by the extension workers are still limited and representative, with only a few farmers able to access such facilities, such as grass cutting tools (choppers) and waste processing equipment (biogas). Nevertheless, the extension workers have made efforts to facilitate facilities related to concentrated feed.

Additionally, the role of the extension worker in facilitating communication with sources of information and technology receives a low score (55%). Farmers can only obtain information through extension activities or by directly asking the extension worker. The importance of the extension worker's role in facilitating information sources, such as reading materials, training, and digital information sources as additional teaching materials for farmers, is crucial. The extension worker's support for the use of technology, such as livestock management applications for recording health, reproduction, and milk production data, is considered important by farmers to maintain the sustainability of their livestock business. The majority of farmers in the field have smartphones, which are currently only used to communicate with other group members or extension workers, and to access KPBS applications to view monthly milk production records. With this optimization, farmers can be more independent in seeking the information and technology they need.

The role of extension workers as motivators

The role of extension workers as motivators includes efforts to revive enthusiasm and provide encouragement to farmers, so that they become more

motivated and able to overcome various challenges in their livestock business. According to Siregar and Tri (2010), stated that as an extension worker who is responsible for influencing someone in achieving their goals, IQ (Intelligence Quotient) and motivational factors are needed.

The motivational factor referred to in this context is the drive or desire arising from one's attitude in dealing with certain situations. This factor has an important role in encouraging individuals or societies to achieve the desired goals. Therefore, the ability of extension workers to understand and stimulate motivation in their targets is the key to carrying out extension duties effectively.

Assessment of the role of extension workers as motivators involves the efforts of extension workers in encouraging periodic and continuous meetings and developing the ability to express opinions. The following details can be found in Table 3.

Table 3. Level of Extension Worker's Role as a Motivator

No.	Description	Role as a Motivator (%)		
		High	**Medium**	**Low**
1.	Encourage periodic and ongoing meetings	25,0	32,5	42,5
2.	Development of the ability to express opinions	42,5	37,5	20
	Role as motivator	**33,8**	**35,0**	**31,2**

Table 3 shows that the role of the extension worker as a facilitator is in the moderate category (35%). This indicates that the extension worker is capable enough in performing their role as a motivator for farmers. This aspect includes how the extension worker educates about the importance of meetings within the group and motivates and organizes meeting agendas. Additionally, the extension worker approaches farmers openly, holds discussions, and provides opportunities for farmers to express their opinions. According to Amanah (2006), motivation is considered an essential element in driving human action. Therefore, extension workers are expected to have the ability to motivate their targets.

The first aspect of the extension worker's role as a motivator is to encourage regular and sustainable meetings. These meetings play a very important role as they provide opportunities for group members to communicate, share information, and discuss issues relevant to the group. Regular and sustainable meetings enable interaction among group members, unify the group's vision and mission, and address issues together. The sustainability of meetings also has the potential to improve coordination, strengthen cooperation, and enhance efficiency in achieving common goals. However, the aspect of encouraging regular and sustainable meetings received a low score (42.5%), this is because a routine schedule has not been established by the extension worker, and meetings tend to only occur when there are issues within the group. Another factor contributing to the low assessment of this aspect is the decrease in farmer motivation due to livestock deaths post-PMK pandemic, resulting in ineffective meeting implementation.

The second aspect of the extension worker's role as a motivator is the development of the ability to express opinions. This ability plays an important role for farmers in the group, as it can create active participation, encourage the formation of ideas and solutions, facilitate information exchange, support appropriate decision-making, and increase individual involvement in discussion forums. The assessment of the aspect of developing the ability to express opinions shows a high score (42.5%), indicating that the extension worker successfully motivates farmers to dare to express their opinions. The open approach adopted by the extension worker creates an environment where farmers feel comfortable expressing their opinions or aspirations in discussions.

Additionally, the extension worker sometimes holds open discussions and provides opportunities for farmers to express their opinions, motivating farmers to dare to express their opinions. This is consistent with Tanjungsari, Sunarru, and Endang's (2016) statement that the role of extension workers in helping farmers form healthy opinions and make good decisions by communicating and providing needed information.

The role of extension workers as catalysts

The role of extension workers as catalysts can be interpreted as efforts made by extension workers to accelerate the adoption of innovations, so that extension participants can feel the benefits of adopting these innovations to increase their business productivity. Assessment of the role of extension workers as catalysts is measured through extension workers' communication with groups and members as well as training organizers. The following details can be found in Table 4.

Table 4. Level of Extension Worker's Role as a Catalyst

No.	Description	Role as a Catalyst (%)		
		High	**Medium**	**Low**
1.	Establish communication with groups and members	22,5	52,5	25
2.	Training organizers	40	52,5	7,5
Role as a Catalyst		**31,3**	**52,5**	**16,2**

In the table, the role of extension workers is rated to be in the medium category (52.5%). This is due to the ability of extension workers to establish good communication with groups and members (52.5%) and their ability as training providers (52.5%). According to Tanjungsari, et al (2016), the role of extension workers in helping farmers form opinions and make good decisions through communication and information. The willingness of extension workers to meet and interact with farmers is considered key to strengthening positive relationships. The openness and affordability of extension workers during counseling is considered an important factor to create effective communication. According to Kaddi (2014), a good relationship between extension workers and targets is needed because the task of extension workers is to affect change. However, some respondents stated that

extension workers have not made regular meeting schedules, so communication occurs only when meeting outside the meeting schedule or counseling.

In addition, the role of extension workers as training providers is also considered important. Respondents stated that extension workers were able to identify the needs of farmers, design training activities and organize groups. According to some respondents, extension workers are able to identify the needs of farmers, design training activities, and organize them in groups.

Farmer Empowerment

The empowerment of dairy farmers can be interpreted as conditions that reflect the skills of farmers to develop their potential in livestock business. According to Yunasaf (2008) the empowerment of farmers can be seen in their role as managers, livestock keepers and autonomous individuals so that they can become quality agricultural business actors.

Table 5. Level of Farmer Empowerment at TPK Cipanas

No.	Description	Farmer Empowerment (%)		
		High	**Medium**	**Low**
1.	Manager	19,2	45,0	35,8
2.	Livestock Keeper	26,5	41,5	32,0
3.	Individual Otonom	41,3	26,2	32,5
Total		**32,0**	**34,8**	**33,2**

Based on the data in the table, most members of the dairy farmer group in TPK Cipanas (amounting to 34.8%) are classified in the medium category. This shows that the members of the group have acquired quite good technical skills in livestock practice, and are able to manage their livestock business effectively to achieve profitable results. Yunasaf's opinion (2008) describes empowered farmers as individuals who have good management skills and are independent.

Empowered farmers are defined as individuals who are actively involved in livestock cultivation activities with the aim of achieving optimal productivity. In addition, empowered farmers are expected to be able to manage their business well to achieve development, progress, and profit. Therefore, the placement of group members in the medium category reflects an adequate level of technical skills and managerial ability in running a dairy business.

Empowerment of breeders as managers

The empowerment of farmers as managers includes the level of development of farmers' ability to make decisions in order to achieve the success of their livestock business (Mauludin et al., 2012). The empowerment aspect of farmers as managers is assessed based on three characteristics, namely the details of business goals, prioritization of business development, and learning development efforts.

Table 6. Farmer Empowerment Level as Manager

No.	Description	As Manager (%)		
		High	**Medium**	**Low**

1.	Breakdown of business objectives	5,0	40,0	55,0
2.	Preparation of business development priorities	22,5	55,0	22,5
3.	Learning development	30,0	40,0	30,0
As Manager (%)		**19,2**	**45,0**	**35,8**

Based on Table 6, it can be seen that the empowerment of farmers as managers is in the moderate category at 45%. This assessment indicates that farmers have sufficient abilities in performing their role as managers in their livestock business. According to Nurlina (2011), farmers are considered managers because all livestock production activities depend on the farmers' personal qualities such as knowledge, skills, and awareness in developing the farmers' spirit. Several aspects that are assessed include farmers' ability to identify production cost inputs, provide appropriate feed, and keep records related to their dairy farming efforts. Additionally, farmers are also evaluated on their ability to allocate profits for the development of their livestock business. The willingness to continue learning and asking questions during extension activities reflects farmers' eagerness to develop knowledge and skills related to their dairy farming endeavors.

The first characteristic of farmer empowerment as managers is the detailing of their business objectives. Respondents rated this aspect low at 55%, indicating that farmers have not been able to carry out the detailing of their business objectives. Most respondents still do not pay attention to the composition of the feed given to their livestock, thus affecting the quality and quantity of their dairy cow milk production. Additionally, farmers still rely on KPBS applications for recording, so there is no more comprehensive recording regarding their businesses such as purchases of seeds, deaths, marriages, births, livestock pedigrees, vaccinations, and treatments. However, a small portion has been able to identify production cost inputs, such as feed, healthcare, equipment, and hygiene. According to Fitrah (2013), farmers as managers must direct profit-oriented business components. Profit is the main goal of every business endeavor. In addition to obtaining profits, managers must also be able to manage expenditure costs, which are used as a reference to meet needs.

The second characteristic of farmer empowerment as managers is prioritizing business development. Respondents rated this aspect as moderate at 55%, indicating that farmers are capable of prioritizing their business development. Livestock business development is one of the goals pursued by a manager. Managers play a role in organizing and deciding the course of business. As a manager, business development is certainly planned and pursued. The expanding scale of business is expected to meet basic needs and fulfill desired needs. According to Rusdiana (2009), one of the increases in scale in the dairy cattle farming sector is the increase in the number of breeding dairy cows kept, both during lactation and when not

lactating (dry cows). Most respondents have allocated profits for their business development such as buying seeds/calves and husbandry equipment. However, post-PMK pandemic, farmers sometimes do not get profits, so most farmers have not been able to develop their businesses.

The third characteristic of farmer empowerment as managers is learning development. Respondents rated this aspect as moderate at 40%, indicating that farmers are aware of learning for business development through extension activities and training provided by related agencies (Cooperatives, Livestock groups, Extension workers, Extension centers, Livestock Services, etc.) and actively ask questions if there are things that are not yet known about their dairy farming endeavors.

The empowerment of farmers as livestock keepers

Empowerment as a livestock keeper is seen from the ability to carry out livestock business by mastering the technical aspects of livestock farming (Sulistyati, 2011). The empowerment of farmers as livestock keepers is assessed from five characteristics, namely reproductive management, animal feed, maintenance, cages and equipment as well as handling results and productivity.

Table 7. Level of Empowerment of Farmers as Livestock Keepers

No.	Description	As a livestock keeper (%)		
		Tinggi	**Sedang**	**Rendah**
1.	Reproduction management	45	30	25
2.	Fodder management	22,5	27,5	50,0
3.	Fodder management	12,5	75,0	12,5
4.	Cage and equipment management	15,0	62,5	22,5
5.	Management results and productivity	0,0	17,5	82,5
As a Livestock Keeper		**19,0**	**42,5**	**38,5**

Based on Table 7, it can be seen that the empowerment of farmers as livestock caretakers is in the moderate category at 42.5%, indicating that the respondents have been sufficiently able to care for their livestock. This aspect includes how they manage reproduction, maintenance, feeding, housing and equipment, as well as handling the results and productivity of their dairy farming efforts.

The first aspect of farmer empowerment as livestock caretakers is reproduction management, which is rated as high (45%). This indicates that the respondents are capable of managing reproduction. Most respondents are aware of the signs of cows in heat, such as the 3B (sniffing, bellowing, mounting), restlessness, decreased appetite, and specific vocalizations. Additionally, most respondents already have knowledge about important factors in selecting cattle breeds, including lineage with good milk production quality and quantity, good appearance proportions (not skinny, straight legs with sufficient width), and the recommended age criteria for female cattle breeds of about 1.5 years with a body weight of around 300 kg and

male cattle breeds of about 2 years with a body weight of around 350 kg. This is in line with Suherman (2008), where farmers can select and choose breeds sufficiently, based on milk production capability, lineage, and visual appearance. However, most farmers still lack knowledge of the signs of pregnancy in cows, so mating or artificial insemination processes are sometimes done more than once.

The second aspect of farmer empowerment as livestock caretakers is feed management, which is rated low at 50%. This indicates that respondents have not been able to manage feed properly. Most respondents do not implement optimal feeding methods, as farmers still use feeding methods based on estimation. Excessive forage feeding can cause an increase in fiber content, making it difficult for feed to be digested (Utomo and Miranti, 2010). According to Laryska & Nurhajati (2013), forage is given in amounts of 10-15% and concentrate at 1.5-3% of the animal's body weight. The ratio of forage and concentrate feeding for lactating dairy cows to achieve high milk production while maintaining its fat content is with a forage ratio of 60% and concentrate ratio of 40%. However, some farmers also try to use additional feed sources such as rice straw, rice bran, copra meal, and tofu waste.

The third aspect of farmer empowerment as livestock caretakers is maintenance management, which is in the moderate category (75%). This indicates that respondents have the ability to carry out maintenance procedures. Most respondents are able to carry out good maintenance methods, such as cleaning the barn regularly, at least twice a day in the morning and afternoon before milking is done. Milking is done regularly, twice a day, using the manual whole hand method with all fingers. However, some farmers have not kept records related to seed purchases, deaths, marriages, births, livestock pedigrees, vaccinations, and treatments. This recording is very important to monitor livestock business development.

The fourth aspect of farmer empowerment as livestock caretakers is handling results and productivity management, which is in the moderate category (62.5%). This indicates that respondents have the ability to carry out pen management and equipment management well. Most respondents are able to manage barns and equipment well, including barn construction categorized as good, equipped with ventilation to ensure air circulation and light entry, as well as drainage systems to channel livestock waste to waste storage areas. In addition, feeding and drinking facilities are also available.

Moreover, most respondents are equipped with adequate equipment, divided into two categories: equipment for barn management and equipment for milking processes. Barn management equipment includes brooms, brushes, ropes, shovels, rubber carpets, clean water storage containers, and buckets. Meanwhile, milking equipment involves milk cans, strainers, Vaseline, towels, stools, milk funnels, and milking rooms. However, it was found that most farmers pay less attention to the

efficiency of barn usage, where some have a large livestock population but have small barns, and vice versa.

The fifth aspect of farmer empowerment as livestock caretakers is handling results and productivity management, which is rated as low (82.5%). This assessment result reflects the respondents' ability to effectively manage handling results and productivity. Most respondents are able to carry out handling results and productivity procedures well. Before milking cows, barns and equipment are routinely cleaned, the first milk is discarded, and the milk is strained before being placed in milk cans for further cooling in clean milk rooms.

However, post-PMK pandemic, most farmers face a decrease in milk production, with an average production of less than 14 liters/head/day. This has led to a decrease in milk processing activities, such as making tofu, yogurt, and caramel, which were previously often done by farmers, now being rarely done.

The empowerment of breeders as autonomous individuals

The empowerment of farmers as autonomous individuals is the level of development of farmers' capabilities to be more critical in fighting for and implementing their rights as members of the cooperative. (Firdaus, et al., 2021). The empowerment of breeders as managers is assessed from two characteristics, namely openness, innovation, and courage to express opinions.

Table 8. Level of Empowerment of Breeders as Autonomous Individuals

No.	Description	As an autonomous individual (%)		
		Tinggi	**Sedang**	**Rendah**
1.	Openness to innovation	12,5	25	62,5
2.	Courage to submit an opinion	27,5	57,5	15
As an autonomous individual		**20,0**	**41,3**	**38,7**

Based on table 8, it can be seen that the empowerment of breeders as autonomous individuals is in the medium category of 41.3%, this shows that respondents have been quite capable as autonomous individuals. This aspect includes how open respondents are to innovation and implement it as well as courage in expressing opinions or views on things that are issues or subject of conversation.

The first aspect of the empowerment of farmers as autonomous individuals is the openness of innovation which is in the low category (62.5%). This shows that most respondents have not been open and implemented an innovation, because the facilities provided are still representative, only a few farmers can access the innovation, such as lawn mowers (Chooper) and waste treatment equipment (biogas) owned by a small number of farmers.

The second aspect of the farmer's empowerment as an autonomous individual is the courage to express opinions that are in the medium category (57.5%). This shows that most respondents dare to express their opinions, because extension workers always provide opportunities for farmers to express their opinions or views regarding matters that are issues or subject of discussion. So that farmers feel compelled to argue in every meeting or group discussion.

The relationship between the role of extension workers and the empowerment of dairy farmers at TPK Cipanas, Margamukti Village, Pangalengan District, Bandung Regency

Based on the calculation of the *Spearman Rank correlation analysis*, the relationship between the role of extension workers and the empowerment of farmers is as follows:

Table 17. The Relationship between the Role of Extension Workers and Farmer Empowerment

No.	Description	Farmer Satisfaction Correlation Value	The Value of Significance	Degree of Correlation Closeness (Guiford)
1.	The Role of Extension Workers	0,607**	0,001	Quite tightly

Description: (**) Significance at level 0.01 (1-tailed)

Table 17 illustrates the calculation results using the SPSS application using the *Spearman Rank correlation method* between the role of extension workers (X) and the empowerment of farmers (Y). The calculation results show a coefficient of 0.607. According to Guilford's rule, a correlation value of 0.607 indicates a fairly close relationship between the two variables, with a significance value of 0.001. A significance lower than 0.05 indicates that there is a significant correlation between the role of extension workers and the empowerment of farmers.

With a significant value of 0.001 which is less than 0.05, it rejects H0 and accepts H1, which indicates a relationship between the role of extension workers and the empowerment of farmers. This can be interpreted that there is a unidirectional relationship between the two variables, where the higher the role of extension workers, the higher the empowerment of farmers.

The close relationship between the role of extension workers and the empowerment of farmers is due to the ability of extension workers to develop farmers' opinion skills. The open communication approach applied by extension workers creates a supportive environment for farmers to voice their opinions or aspirations in various discussion forums. The willingness of extension workers to hold meetings and interact directly with farmers and organize training provides opportunities for extension workers to recognize the needs of farmers, design training programs, and implement them in groups. In line with research by Yunasaf & Ginting (2016) which states that the role of extension workers has a significant influence on the empowerment of farmers. The presence of extension workers through their role as reformer agents is still needed to help increase the competitiveness of dairy farmers. Thus, it can be concluded that the role of

extension workers has a positive and quite close relationship with the empowerment of farmers.

CONCLUSION

Based on the results and discussion, it can be concluded that the role of extension workers at TPK Cipanas, Margamukti Village, Pangalengan District, Bandung Regency is classified as medium, reaching 38.4%. Meanwhile, the empowerment of dairy farmers in the location is also classified as medium, reaching 34.8%. Research also shows a positive and quite close relationship between the role of extension workers and the empowerment of farmers. Based on these results, several suggestions can be put forward. First, it is necessary to increase the role of extension workers as facilitators with a focus on facilitating communication with information and technology sources, as well as developing group facilities to support increasing the productivity of farmers' businesses. Second, it is necessary to increase the role of extension workers as motivators by encouraging periodic and continuous meetings. This can be done through preparing a meeting schedule and providing motivation to farmers to be actively involved in these activities.

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