

Performance of Agricultural Extension Workers in Implementing Urban Agriculture Programs in Banyumanik District, Semarang City, Indonesia

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ABSTRACT. Urban farming is one of the alternatives to eliminate the impacts of the conversion of agricultural land. However, implementing urban farming activities requires various preparations, including the role of agricultural extension workers. The extension worker can make significant contributions to raise public awareness of the importance of urban farming. This study determines the performance level of extension workers in the preparation, implementation, and evaluation of urban farming extension programs in BPP Kramas, Banyumanik district. This research employed a descriptive analysis approach by using a Likert scale. The results indicate that the performance level of extension workers in extension preparation, extension implementation, evaluation, and reporting are in the high category, with an average percentage achievement of 96%. It means that the urban farming program in Kramas Banyumanik district had been done well according to the formulated plan.

Keywords: *extension workers, farmer group, performance, urban farming, Semarang*

JEL Classification: O18, Q15, Q16

INTRODUCTION

Agriculture has a vital role in the development of the economy in Indonesia. The agricultural sector remains to posit as the main livelihood for most of Indonesia's population. According to the Central Statistics Agency (BPS, 2019) the labor force in agriculture, forestry, and fisheries sector is 38.1 million people or approximately 14.4 % of the 129.3 million total labor force. This potential of the labor force is essential in agricultural development planning and national economic transformation.

Meanwhile, agricultural development faces problems related to the conversion of farmlands. The area of land for agriculture, in general, has

decreased due to land conversion. Especially in Java, the conversion of paddy field to non-agricultural land tends to increase. It will have a negative impact on the sustainability of agricultural development. It happens because efforts to develop agricultural land outside Java have not been able to compensate for the loss of agricultural food production in Java due to the conversion of agricultural land (Winoto, 1995). The impact of shifting the function of paddy fields to non-agricultural uses not only reduces agricultural production but also influences changes in socio-economic, cultural, and political orientation in people's lives. Thus, some urban residents responded by conducting agricultural activities around their settlements. It creates positive opportunities around urban areas, specifically the use of abandoned land for agricultural business activities.

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Urban agriculture is the cultivation of food crops that is carried out in or around the urban environment by utilizing the house yard or narrow land. Urban farming can be a beneficial impact on social-economic life and environmental sustainability. An urban agriculture activity has several functions, such as: (i) producing food productions, helping households meet food needs, (ii) contributing to the role of decarbonization by reducing CO² emissions and reducing the impact of the building environment (iii) creating urban beauty and shaping the public landscape of the city environment (Abdullah, Dirawan, & Pertiwi, 2017). Based on that condition, urban farming can create ways to reduce the impact of land conversion and support the government in developing urban agriculture programs by the Indonesian people.

On the other hand, urban agricultural activities can be linked to the promotion of a lifestyle back to nature. As such, viewpoints and lifestyles of urban agriculture require proper understanding and implementation. This cannot be carried out by farmers alone but requires guidance from an extension agency. Farmers are guided by extension staff through a counseling program. Urban farming programs have been implemented in various regions in Indonesia. One of them is in Semarang city, precisely in Banyumanik district by the Extension Center of Banyumanik district. One of the public targets of the program is the farmer group. Farmer group is formed due to having similar interests, needs, and goals to improve and develop farming (Prasetyo, Safitri, & Hidayat, 2019).

A good counseling program requires supports from competent workers. The instructor plays an essential role as a facilitator, a motivator, a liaison officer between the government and researchers, as a teacher, an information carrier, a good listener, a work helper, a program manager, a group worker, a boundary guardian, a promoter, a local leader, a consultant, a protector and institutional builder (Lionberger & Gwin, 1982; Sabir, Sugiyanto, Sukesi, & Yuliati, 2018). It is expected that the role of the instructor will be successful in the farming business.

The performance of extension workers influences the success of the urban farming program. A good instructor performance will increase the ability of farmers to manage their

farming businesses and to raise public awareness of the importance of urban farming. The performance of the instructor shows the achievement of their work. Mangkunegara (2012) said that performance is a work performance in carrying out tasks and responsibilities within a certain period that has been achieved by the public.

The role of an instructor, therefore, becomes very vital in supporting the urban farming program. This is a concern in the present study, to answer the research questions, how the performance of extension workers to oversee the activities of farmer groups in the urban farming program.

This study aims to study the level of performance of agricultural extension workers in the preparation, implementation, and evaluation of urban farming programs in Banyumanik district, Semarang city.

RESEARCH METHOD

This research was conducted in the working area of the Kramas Agricultural Counseling Office (BPP, *Balai Penyuluh Pertanian*), Banyumanik district, Semarang city, Central Java province, Indonesia. The research used descriptive methods to describe and analyze the level of instructor performance in the implementation of urban agriculture programs. Nazir (1985) said that descriptive research is a study to find facts and can be interpreted appropriately. These facts or phenomena are explained by scoring, employing a measurement with a Likert Scale. Likert scale is a measurement of variables based on the category of sequential responses (ordinal scale).

Respondents in this study were 21 people, comprising five instructors and 16 farmers. Determination of respondents was done purposively with the consideration that they were extension agents who were actively involved in the urban agricultural extension programs; and farmers who actively participated in urban agriculture programs.

The assessment of the performance of extension workers is based on three main indicators, including program preparation, program implementation, and program evaluation and reporting. The agricultural extension worker performance was measured using an ordinal score

in three answers, each representing the response of high (3), moderate (2), and low (1).

The indicators for the preparation of extension programs had the following parameters, including (a) making a map of the area and agroecosystem, (b) guidance for extension workers (assistance and coaching) to develop a Definitive Plan for Group Needs (RDKK, *Rencana Definitif Kebutuhan Kelompok*), (c) involvement of extension workers in preparation of agricultural extension programs in agriculture villages and districts; and (d) preparing annual agricultural extension work plans.

The indicators for the implementation of the extension program were (a) the implementation of dissemination of materials based on the needs of farmers, (b) the application of counseling methods in the form of group and personal visits, (c) the application of counseling using the demonstration method, and (d) the application of counseling methods in communication media.

Finally, evaluating the implementation of the extension services and making reports on the application of the agricultural extension were the parameters of the evaluation and reporting indicators.

RESULT AND DISCUSSION

Urban Farming Program Framework

Urban farming program is the implementation of Semarang Mayor Regulation No. 18 of 2014 concerning the Semarang City Regional Development Work Plan (RKPD, *Rencana Kerja Pemerintah Daerah*) in 2015. It states that the Banyumanik District, Gunung Pati District, and Mijen District became tourism/ recreation areas. It also functioned as research and development centers for urban agriculture. Furthermore, urban agriculture is one of the focuses in the medium term of the regional development plan as stipulated in Perda No. 6 of 2016 concerning Semarang City Mid-Term Regional Development Plan (RPJMD, *Rencana Pembangunan Jangka Menengah Daerah*) 2016-2021. Urban farming programs are the agricultural activities carried out in urban areas by utilizing available resources. The coordinator of the urban agriculture program for the Banyumanik district area, Mr. Sunardi, said:

"In urban areas, there are many lands that are owned an abandoned landlord (not utilized by owner), for this reason, we implement the urban farming program so the urban communities can utilize these lands for agricultural activities even though the land size is not too large."

The high population in an urban area creates density and crowds by houses, public facilities, or other buildings. However, in urban areas, it is also often found that certain lands are not utilized. The urban agriculture program is designed to use that kind of lands.

The Dahlia farmer group is one of the farmer groups participating in an urban agriculture program. They utilize 300 m² of land that has not been used by its owner for 5 years. It becomes an urban farming demonstration plot. As stated by (Hermawan, 2012) that environmental aspects, in this case, the utilization of the abandoned land becomes one aspect in the implementation of urban farming activities.

Urban agriculture is not limited to the utilization of abandoned land. Moreover, urban agriculture is expected to fulfill the people's needs for food, especially for the household itself. Mr. Triyono, a member of extension workers, said:

"From the land that has been utilized, it will produce agricultural products that can be consumed by the household themselves, and if possible this can even be sold."

The utilization of abandoned land for agricultural activities will produce agricultural products for household consumption needs, or subsequently can be marketed to the community. The agricultural demonstration plot cultivated by the Dahlia farmer group was originally abandoned land. The farmer groups cultivated the land for vegetables, fish, and ornamental plants. The vegetable and fish products were usually consumed by group members themselves, while the ornamental plants were sold to other people even though the amount was not significant. This condition confirms the study from Hariyanto (2010), who stated that urban farming could help people to fulfill their consumption and can increase the income of urban farmers.

The Performance of Extension Workers

Human resources are essential factors for organizational performance. Human resources have a function to drive the organization with all its potential. As such, extension workers as a human resource in the extension organization have the main role in achieving the organization's goals. The performance of extension workers is one form of utilizing the potential of human resources. The valuation of extension workers' performance depends on the ability of each worker. This can be seen from how they prepare, implement, and evaluate the extension activities.

The performance of the extension worker in carrying out the task depends on their ability. (Hernanda, Fatchiya, & Sarma, 2015) explained that the extension worker performance could be observed from how they prepare, implement, and evaluate the extension activities. The results of the study show that the performance of Banyumanik's extension workers for performing the urban farming programs is at the high category with an average total of 38.49 or 96% of the total maximum score of 30. The measurement of indicators is presented in Table 1.

Table 1. Agricultural Extension Workers Performance in the Urban Farming Program at BPP Kramas, Banyumanik District

No	Parameters	Maximum Score	Achieved Score	Percentage %
<u>Preparation of the Extension Program</u>				
a	The extension workers make a map of the area and agro-ecosystem	3	3	100
b	The extension workers guide (escorts and assistance) the preparation of a Definitive Plan for Group Needs (RDKK)	3	3	100
c	The extension workers take part in the preparation of village and district agricultural extension programs	3	2.8	93
d	The extension workers make an annual agricultural extension work plan	3	3	100
	Total	12	11.8	98
<u>Implementation of the Program</u>				
a	The implementation of dissemination of materials according to farmer needs	3	3	100
b	The application of extension methods in the form of group and personal visit	3	3	100
c	The application of extension with the demonstration method	3	2.8	93
d	The application of extension methods in communication media	3	3	100
	Total	12	11.8	98
<u>The Evaluation and Reports</u>				
a	Evaluating the implementation of agricultural extension	3	2.7	90
b	Making reports on implementing agricultural extension	3	2.5	83
	Total	6	5.2	87
Total All Parameters		30	28.8	96

Preparation of Extension Program

The score of agricultural extension preparation in this study is 11.80, with a percentage of 98.3%, in the high category. This condition was caused by extension workers who carried out the creation of potential work areas, monographs, and work plans as outlined in the extension program. The extension program is a systematically written statement about planning for agricultural extension activities that describe the current situation, objectives, problems, and plans, which are done

participatory to support the goal's achievement of agricultural development program (Hubeis, 2007).

The preparation of the agricultural extension program in Kramas BPP began with a meeting between farmer group and extension workers in each village to find the potential data, major commodities, and problems that were faced by farmers. Then, they compiled the data into the Village Activity Plan (RKD, *Rencana Kegiatan Desa*) and Group Activity Plan farmer (RKK, *Rencana Kegiatan Kecamatan*).

The prepared program must be agreed by the farmers and the extension workers and it must be known by the village government. Afterward, it was discussed again in *Musrembang* at the village level until the discussion continues at the district level. Then, the discussion on district level program regarding the village extension programs was recapitulated. The problems found then were arranged based on the priority level. The result of recapitulation became a draft of an agricultural extension program at the district level. The discussion of the draft Agricultural Education Program was carried out repeatedly until the best agreement achieved by the discussion team. Thus, the instructor realizes that the extension program will be done smoothly when the extension is prepared well. As said by (Herawati & Pulungan, 2006) that good and mature counseling preparation is beneficial during the implementation of counseling later.

Implementation of Program

The implementation of the agricultural extension program is a direct action based on the agricultural extension program that has been prepared and established. According to Bahua, Jahi, Asngari, Saleh, & Purnaba (2010), implementing an extension program is needed to determine the material that will be delivered, the methods used, the time and place of the program's implementation, who will do it and to whom the program intended.

The score of the implementation of the extension program in this study is 11.8 with a percentage of 98.3%, in the high category. This discussion was focused on what material of urban agriculture programs and the methods used by extension workers.

a. The material of the extension program

The selection of materials by extension agents was based on the results of the analysis and identification of situations experienced by farmer groups. The instructor said that the materials compiled and delivered by the instructor during counseling must be related to the development and sustainability of urban farming itself. Regarding the presented material, Mr. Sunardi said:

"To determine the materials that will be delivered, first of all, we look at the situations needed by farmers. Sometimes we also ask the farmers themselves to provide a statement to us so that we can arrange the priority materials."

The farmers will certainly be happier and accept the extension material when the material is appropriate as needed. It is necessary to identify the needs of the farmers, then compile them into the extension materials. The agricultural extension workers often came to the Dahlia farmer's demo plot to see things that were still lacking and also often discussed with the farmers about the obstacles faced in implementing the urban agriculture. This is similar to Yunasaf (2011) who said that the preparation of extension material must involve the farmers themselves because the material contains messages for making the benefits for them. Furthermore, Ms. Triyas, an extension worker member who compiled the material said:

"Of course, the material we deliver must be based on what is needed by farmers; therefore we do those things."

It was in line with Sadono (2008), the delivered material in the extension activities should be useful to solve farmers' problems which based on the experienced by farmers and the integration of one material to whole materials. That statement is proved by the teaching materials, which is given continuously in fostering groups in Dahlia's farmer group, in which it was formed in early 2019. In addition, the instructor also provided materials on aquaculture systems that could be applied to urban agriculture, such as hydroponics, aquaponics, and hydrognoses.

b. The method of the extension program

Agricultural extension methods are ways to deliver extension materials for farmers to reach the agenda's goal. Various methods can be done by the extension workers depending on the more effective method that is suitable for the characteristics of the farmers themselves. Concerning the methods used in the extension program, Mr. Sunardi said:

"The method uses direct communication, so the direct meeting between extension workers and farmers can happen. There are also indirect meetings by means of Whatsapp group that has members counselors and members of farmer groups."

The best method must be chosen so that the extension message is delivered properly. Urban farming extension activities in the Dahlia farmer group were done directly on the farm demonstration plot belonging to the farmer group, or at the home of one of the group members. The extension workers and the farmer group members also utilized a Whatsapp group that was created to continue the coordination between the extension workers and the groups at any time. On the other hand, the incorrect method cannot be absorbed well by farmers, so the intentions and objectives that delivered by the extension workers cannot reach the planned goal.

Through the method applied by the extension office, all participants, including the members of the farmer group and the extension worker, had the opportunity to express their opinions. Based on Prasetyo, Safitri, & Hidayat (2017), both the direct (face to face communication) and indirect method (indirect communication) can be applied by the instructor to communicate the extension material. Prasetyo et al. (2019) states that face-to-face communication, also known as interpersonal communication and dialogic communication, enables all parties to communicate experiences and expect the responses from other parties. The instructor can also develop extension methods based on extension activities in the agricultural demonstration plot or at the home of one of the members of the farmer group. The extension materials were presented using power point slide, or in short videos regarding the extension materials. The instructor also provided a visual model to facilitate them. Thus, the extension materials were easily accepted and clearly understood by farmers. Ms. Tryas said that:

"We also provide props when we do counseling, so the farmers can understand easily. If visual models are not available, they are given supporting media containing the delivered materials, such as booklets or leaflets."

Teaching methods using visual models became essential in counseling activities. This was very helpful for the farmers to absorb information. Some farmers can absorb information just by watching or reading. Other farmers must practice firsthand, or should observe and implement directly. When the extension workers taught the material, for example,

hydroponics innovations, the instructors brought props to the farmers. Then, the farmers were invited to learn and apply the props directly. Besides, when the instructors taught how to make compost, they also prepared compost as the props and also provided leaflets containing steps for formulating compost. The extension workers did this because the farmers found it easier to understand when they saw and practiced it directly. According to Sajow, Sondakh, Legrans, & Lainawa (2014), props are useful to comprehend easier and to attract the attention of the targets.

c. Evaluation program

An evaluation is carried out to identify the weaknesses or strengths during the process of implementing a program, and how far the achievements can be obtained during the extension program. The valuation and reporting scores in this study are in high category, having a score of 5.20, or 86.7% as the percentage. It can happen because the results of counseling display the same result as the plans as prepared before. In the preparation, all steps were written in annual work plans of the extension program. In addition, the evaluation can be carried out while the program is running or at the end of the program implementation. As said by Mr. Sunardi about program evaluation conducted at BPP Kramas:

"For the evaluation, we also received records from the community who participated in the agricultural programs, which things that need to be addressed and improved. We often discuss these matters with farmers. At the end of the year, we will also conduct an evaluation together with the instructor and related parties on what targets that have been achieved during the year of the program."

The evaluation is a baseline to determine what the next step should be done, what needs to be improved, and what needs to be maintained for the sustainability of the program. Evaluation is not only limited to the perspective of the instructor but also needs by the farmers themselves who should implement the program directly. The evaluation of the urban farming program by the extension workers was done while the program was still running through direct discussions with the farmers on the Dahlia urban farmer groups in the agricultural demonstration plot. The instructor will also conduct all the evaluations at the end of the

year so that the later steps can be drawn up. As the stated by Prasetyo & Agustina (2019), evaluations can be carried out while the program is still running (formative) and when the program has been completed (summative).

CONCLUSION AND SUGGESTION

The indicators of the level's performance of agricultural extension workers in BPP Kramas, Banyumanik District, are divided into three categories, including extension preparation, extension implementation, and evaluation and reporting. The analysis shows that all indicators achieved a high score, with an average total of 38.49 or 96% of the total maximum score of 30. This score indicates that agricultural extension activities in supporting urban farming in Banyumanik District have been effectively carried out. In addition, the activities of urban farming' extension have been done appropriately as the written agenda.

The farmer groups in Banyumanik district were very open-minded with programs made by the agricultural extension workers. The agricultural extension workers at BPP Kramas could formulate urban farming extension programs which were suitable to the conditions of the farmers groups. The farmers were very enthusiastic in following the direction of the agricultural extension workers.

The present study suggests that extension workers can maintain their performance in the field in applying all the extension programs. For the sustainability of the urban farming program, future research is required to analyze the benefit of the urban farming program to the farmers so that they can know how far the positive impact of the program for the farmers.

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