

Motivation of Farmer Group Members in Implementing an Urban Farming Program in Yogyakarta

Aris Slamet Widodo^{1,*}, Meita India Wardha¹, Norsida Man², and Agatha Zenobia Rachman¹

¹ Department of Agribusiness, Universitas Muhammadiyah Yogyakarta, Jl. Brawijaya, Tamantirto, Kasihan, Bantul, Yogyakarta, Indonesia

² Department of Agribusiness and Bioresource Economic, Serdang, Selangor, Darul Ehsan, Universiti Putra Malaysia, Malaysia

Abstract. Yogyakarta residents are enthusiastic about joining farmer groups utilizing urban yards by executing the Lorong Sayur (vegetable alley) program. Members of the farmer groups realize the potential for expanding urban farming in confined spaces like narrow alleys and other such locations. This study aims to determine the level of motivation and the factors affecting the motivation of urban farmer group members in implementing the Lorong Sayur program in Yogyakarta. The research was purposively conducted in Yogyakarta, precisely in the Districts of Umbulharjo, Danurejan, and Kotagede. Fifty-five respondents were selected using multistage random sampling. Both primary and secondary data, obtained through interviews utilizing questionnaires, observation, and documentation, were employed. The data were analyzed using a Likert scale and Spearman's rank correlation coefficient. Three needs from Clayton Alderfer's ERG theory have been proven to predict motivation: the need for existence fell in the medium category, and both the needs for relatedness and growth belonged to the high category. Spearman's rank correlation coefficient discovered that income, frequency of counseling attendance, the agricultural extension workers' role, and the role of farmer group leaders were all significantly related to urban farmer group members' motivation to implement the Lorong Sayur program.

1 Introduction

Increasingly dense cities are predicted to lessen the availability of green space [1]. The rapid growth of the urban population and the availability of green space have contributed to urban farming dynamics [2]. The health sector is taking notice of urban farming as a potential infrastructure component [3]. Lowered greenhouse gas emissions, improved microclimate, enhanced water management, healthy dietary habits, and reduced stress are all due to urban farming [4]. Accordingly, urban farming is promoted as having many potential benefits, including greening cities, boosting biodiversity, utilizing space, and reducing food miles [5].

* Corresponding author: aris.sw@umy.ac.id

Several cities in Indonesia are among the numerous worldwide that have implemented urban farming practices [6]. One of them is urban farming practiced in Yogyakarta. The people of Yogyakarta have little choice but to engage in urban farming due to the city's rapidly expanding population and the narrow land. They utilize the available little real estate, including the narrow land on the terraces, alleys of residential areas, vacant land, and rooftops [7]. It aims to provide green space amid densely populated settlements and meet the food needs of the urban community [8].

With more and more urban farmer groups springing up to cultivate food in city yards, urban farming is gaining momentum and becoming increasingly feasible [9]. In 2022, 267 farmer groups existed in Yogyakarta, as the city's Agricultural Extension Center reported. This large number of farmer groups utilizing urban yards indirectly demonstrates the enthusiasm and motivation of the people to participate in such an endeavor. The *lorong sayur* (vegetable alley) program is implemented in Yogyakarta as part of an effort to utilize urban yards.

The Agriculture and Food Service of Yogyakarta has attempted to foster greater food security for the urban community and revitalize the shrinking open green space by instituting the vegetable alley program. Since most urban community settlements are built on tiny areas of land that go into even narrower alleys, the vegetable alley is a popular urban agriculture that appeals to this demographic. Yogyakarta's rapid physical development and its nicknames as a student city and a tourism city have prompted efforts to establish this vegetable alley [10]. It is worth noting that the people of Yogyakarta, especially those affiliated with farmer groups, have been the ones to implement the vegetable alley program. As asserted by Tur Arya Warih, the Head of Ngampilan District, it has been intensively carried out since 2019 when the Environment Agency (DLH) of Yogyakarta activated vegetable alley activities to meet food needs and expand green areas on narrow land in the city's settlements [11].

The vegetable alley program in Yogyakarta is run with assistance from the government and universities for urban farmer groups, raising awareness and exploring the potential of local resources. It has led to Yogyakarta's farmer group members realizing that the city's numerous narrow alleys and passages offer prime real estate for developing urban farming. Therefore, they are incentivized to engage in vertical farming, which can add aesthetic value and green the environment by growing vegetables in narrow alleys [8]. Nonetheless, it might not be easy to maintain community participation in urban farming [12]. This study aims to determine how motivated urban farmer group members are to implement the vegetable alley program in Yogyakarta and what factors contribute to motivate urban farmer group members in implementing the vegetable alley program in Yogyakarta.

2 Method

This study employed a descriptive quantitative method. It is a problem-solving method that can describe the level of motivation of urban farmer group members and the factors associated with their motivation in implementing the vegetable alley program. This research was carried out purposively in Yogyakarta because it is the only municipality in the Special Region of Yogyakarta to actively engage in urban farming through the vegetable alley program, precisely in the Districts of Umbulharjo, Danurejan, and Kotagede. Multistage random sampling was applied to gather 55 respondents being members of urban farmer groups.

Both primary and secondary data were utilized. Members of urban farmer groups in Yogyakarta were surveyed using a Likert scale, and their motivation levels for implementing the vegetable alley program were determined using descriptive analysis to acquire an average score based on three categories of motivation under Clayton Alderfer's ERG theory: low,

medium, and high. Meanwhile, statistical analysis utilizing Spearman's rank correlation coefficient was performed to identify which factors were mostly associated with farmer group members' motivation to implement the vegetable alley program, thereby reaching the research objectives.

3 Results and discussion

3.1 Vegetable alley program in Yogyakarta

The vegetable alley program is among the many programs undertaken by Yogyakarta's Agriculture and Food Service in the food sector. It was established by the food sector with the assistance of the Agricultural Extension Center as a technical implementation unit from the Agriculture and Food Service of Yogyakarta. It aims to escalate the food security of the people of Yogyakarta, especially in helping to meet vegetable needs. It has been implemented using vacant land, especially on walls alongside residential alleyways. Members of urban farmer groups in Yogyakarta, both men and women, ran this program. Coordination, group meetings, technical guidance, providing assistance, the implementation stage, and the assistance stage by the Agricultural Extension Center were all part of the program.

Members of urban farmer groups implemented the vegetable alley program by growing vegetables in various containers, including wall planters, pots, polybags, and recycled materials such as used bottles, gallons, and other used goods. Vegetable plants, such as mustard greens, kale, spinach, celery, and shallots, have been planted on wall planters attached to the walls of residents' houses at the alley's entrance as part of the execution of the program. Moreover, fruit plants, ornamental plants, and biopharmaceuticals could also be discovered along the alleys of urban residential streets. In executing the program, members of urban farmer groups grew the plants in stages or vertically. However, the planting system was typically adjusted to the way plants grew. Naturally, the program's plantings were tailored to the preferences of each farmer group.

Each farmer group made their plant selections based on several criteria, including easy maintenance, a relatively short time from planting to harvest, and widely consumed food. Soil and animal manure were commonly applied for planting. There were two types of farmer groups in preparing planting media: those who made their own from raw materials and those who directly purchased ready-to-use planting media from agricultural shops around the city. Apart from planting, several other tasks were conducted, such as maintenance, harvesting and marketing around the city. The Agricultural Extension Center has assisted each farmer group at least once a month.

3.2 Motivation of urban farmer group members in implementing the vegetable alley program in Yogyakarta

Table 1 reveals that the average score for ERG motivation, based on the need for existence, was 16.58, placing it in the moderate motivation category. However, the need for existence received the lowest average score in the ERG theory of motivation compared to motivation based on the need for relatedness and the need for growth. Both the need for relatedness and the need for growth contributed to the high level of motivation, as seen by their average scores of 19.71 and 20.95, respectively. It should be noted that the need for growth acquired the highest average ERG motivation score in this study. Overall, it appeared that a highly motivated subset of urban farmer group members in Yogyakarta has been working to put the vegetable alley program into action. An in-depth analysis of each motivation can be explained using the ERG theory.

Table 1. ERG Motivation of Urban Farmer Group Members in Implementing the Vegetable Alley Program

No.	ERG Motivation	Total Average Score	Motivation Category
1.	Existence	16.58	Moderate
2.	Relatedness	19.71	High
3.	Growth	20.95	High
Total		19.05	High

Category Description:

- a. Low motivation = 5 – 11.7
- b. Moderate motivation = 11.8 – 18.5
- c. High motivation = 18.6 - 25

Obtaining an average score of 16.58 for the need for existence, the motivation of urban farmer groups fell into the moderate category. It demonstrates that urban farmer group members in Yogyakarta have not been entirely motivated to implement the vegetable alley program to fulfill the need for an existence that could support their survival, such as meeting physical needs. It occurred when the available land area and production capacity failed to meet the needs of urban farmer group members.

The need for relatedness acquired an average score of 19.71; thereby, the motivation of urban farmer group members belonged to the high category. It signifies that members of urban farmer groups in Yogyakarta have been highly motivated to execute the vegetable alley program to satisfy their need for relatedness as social beings. The need for farmer group members' relations could be fulfilled, motivating them to implement the vegetable alley program. As part of a community-based urban farming program, residents of an area worked together as volunteers to practice urban farming in vacant spaces and other residential areas [13]. Indirectly, it might be attributed to the success of a farming group's efforts to build positive relations with both its internal and external stakeholders.

Members of urban farmer groups are considered urban people since many have moved from rural to urban areas, satisfying the higher motivation for the need for relatedness. According to [14], one feature of the social structure of urban society is a voluntary association, implying that everyone living in cities can associate themselves with community groups at their own will. Furthermore, based on the socio-culture of urban society, it is known that previously urban society was an agrarian society in which relations were established between people because of a friendly attitude illustrating a sense of togetherness, mutual care, and mutual cooperation. Naturally, it is basic for members of urban farmer groups to fulfill the need for relatedness to motivate themselves in implementing the alley program in Yogyakarta.

An average score of 20.95 for the need for growth positioned the motivation of urban farmer group members in the high category. It illustrates that urban farmer group members have been greatly motivated to run the vegetable alley program in response to the city's demand for expansion. Farmer group learning activities, such as socialization and training from the Agricultural Extension Center, self-help extension agents, and internal members of farmer groups, were evidence of this.

The direct practice was an implementation that put into practice the knowledge gained from extension activities and technical guidance in the form of training capable of improving the skills of members of urban farmer groups in farming through the vegetable alley program. The strong desire of urban farmer group members to enhance their potential and quality has been depicted in their high motivation in implementing the vegetable alley program. Demands to work, a lack of other employment to earn social assistance from other parties, a healthy work environment, and the ability to learn from past farming experiences affecting product quality and work all motivated farmers to continue farming [15].

3.3 Factors associated with the motivation of urban farmer group members in implementing the vegetable alley program in Yogyakarta

Table 2 exhibits several factors with an insignificant relationship with the motivation of urban farmer group members in implementing the vegetable alley program, encompassing age, education, and the role of information media. In contrast, factors with a significant relationship with the motivation of urban farmer group members in implementing the vegetable alley program covered income, frequency of attending counseling, the role of farmer group leaders, and the role of agricultural extension.

Table 2. The Relationship between Factors and the Motivation of Members of Urban Farmer Groups in Implementing the Vegetable Alley Program in Yogyakarta

Factors	Existence Motivation		Relatedness Motivation		Growth Motivation		ERG Motivation	
	Rs	Sig.	Rs	Sig.	Rs	Sig.	Rs	Sig.
Age	0.067	0.625	0.031	0.822	-0.066	0.634	0.006	0.967
Education	-0.144	0.293	-0.048	0.729	-0.208	0.127	-0.209	0.125
Income	0.107	0.436	-0.297*	0.039	0.171	0.213	0.023	0.869
Frequency of attending counseling	-0.059	0.667	-0.364**	0.006	-0.165	0.230	-0.264	0.052
The role of farmer group leaders	0.006	0.967	0.260	0.055	0.401**	0.002	0.296*	0.028
The role of agricultural extension	0.043	0.757	0.301*	0.026	-0.078	0.569	0.100	0.468
The role of information media	0.107	0.436	-0.003	0.982	0.119	0.388	0.081	0.559

Description:

** Significant at α 1% (0.01)

* Significant at α 5% (0.05)

3.3.1 Income

One of the internal factors examined was income. Spearman's rank correlation coefficient test unveiled a statistically significant relationship between income and motivation based on the need for relatedness. A Spearman's rank correlation coefficient value of -0.297 indicates a weak relationship and an opposite direction between the two variables.

The importance of both internal and external communication within farmer groups was directly related to income. The higher the income farmer group members earned, the weaker the social relations. High-income members tended to be more discerning in whom they spent time due to their elevated socioeconomic status and limited leisure activities. Due to this issue, the efforts of farmer group members in implementing the vegetable alley program were altered.

Therefore, it is safe to assert that income significantly affected motivation based on the need for relatedness. It is in line with the findings of Dewi [16], discovering differences in the way of work of high- and low-income farmers, which motivated them to engage in farming to meet the needs of their relations both within and outside farmer groups. Directly, urban farming increased community welfare by bolstering the community's capacity to do so and providing business capital support [17].

3.3.2 The frequency of attending counseling

One of the internal factors considered in this study was the frequency of attending counseling. Counseling has been proven to have a significant relationship with motivation for the need for a relationship (relatedness), as determined by the results of Spearman's rank correlation coefficient test. Moreover, the test result of -0.364 implies a weak relationship and an opposite direction between counseling and motivation based on the need for relatedness.

Members of urban farmer groups implementing the vegetable alley program were significantly more motivated to do so when they received regular counseling, with that motivation being based on the need for the relatedness among members. Since members of urban farmer groups frequently interacted with both extension agents and fellow members, the more frequently they participated in extension activities, the more relations and information they had on the knowledge and skills to develop their farming business. Inevitably, it was tied to the importance of feeling connected to others.

Most members of urban farmer groups only attended offline counseling sessions between once to three times a year at best. Hence, the intended goal of having group members feel more connected to one another through regular counseling sessions has yet to be fully achieved. It was due to a lack of social relations among urban farmer group members when participating in counseling, which could lead to misunderstandings and differences in perceptions of practicing the vegetable alley program. It could unknowingly reduce the sense of familiarity and relationship between one another, impacting the performance of members of urban farmer groups.

3.3.3 The role of farmer group leaders

The role of farmer group leaders was one of the external factors analyzed. The Spearman's rank correlation coefficient test between the role of farmer group leaders and motivation based on the need for growth obtained a value of 0.401, implying a sufficiently strong relationship between the two variables, with the relationship being directed in only one direction.

Concerning the need for growth, farmer group leaders played a crucial role in motivating group members to participate in the vegetable alley program. The more increasing the role of farmer group leaders, the higher the motivation of urban farmer group members to meet their needs for growth. For example, the position of farmer group leaders was crucial to the success of the vegetable alley program. The high enthusiasm of farmer group leaders to motivate, encourage, remind, and educate their members would certainly increase their curiosity, which in turn triggered their desire to implement the vegetable alley program as a means of channeling hobbies to help them reach their full agricultural potential. It certainly broadened the knowledge and skills of urban farmer group members in running the vegetable alley program.

The Spearman's rank correlation coefficient test between the role of farmer group leaders and ERG motivation yielded a value of 0.296, signifying a weak relationship and a direction consistent with ERG motivation. However, a significant relationship existed between the role of farmer group leaders and ERG motivation. The need for growth was the only ERG motivation with a significant relationship. In other words, only growth-need-based motivation and ERG motivation were significantly related to the role of farmer group leaders.

3.3.4 The role of agricultural extension workers

One of the external factors, the role of agricultural extension, was examined. The Spearman's rank correlation coefficient test revealed a significant relationship between the role of

agricultural extension workers and motivation based on the need for relatedness. Moreover, Spearman's rank correlation coefficient yielded a value of 0.301, indicating a weak relationship and a direction consistent with the motivation for the need for relatedness.

Agricultural extension agents certainly contributed greatly to strengthening the relationship among members of farmer groups. Interaction between extension agents and members of farmer groups and fellow group members could arise due to the agricultural extension's activities. This interaction occurred because agricultural extension agents held consultation sessions with questions, answers, and discussions regarding the material conveyed in extension activities. The more active the agricultural extension agents in a farmer group, the more active the response of the farmer group members to the agricultural extension agents and among fellow members.

Interacting with one another was a natural result of participating in extension activities, fostering a sense of sociality among members of farmer groups. They could discuss with fellow members the appropriate steps to put the extension results into practice. By engaging in cooperative activities, members of these urban farmer groups could foster a sense of empathy for one another and speed up the rollout of the vegetable alley program. Therefore, the role of agricultural extension workers was significantly correlated with the relatedness of members of urban farmer groups in administering the vegetable alley program.

4 Conclusion

The results and discussion of research regarding the motivation of urban group members in implementing the vegetable alley program in Yogyakarta led to the following conclusions.

1. Using Clayton Alderfer's ERG theory, it can be seen that the members of urban farmer groups in Yogyakarta were highly motivated to carry out the vegetable alley program, with the need for existence falling into the medium category, and both the need for relatedness and the need for growth belonging to the high category. In other words, the vegetable alley program received strong support among members of urban farmer groups.
2. Members of urban farmer groups were highly motivated to put the alley program into practice due to the following factors.
 - a. The need for relatedness as a driver of motivation was weakly related to income.
 - b. The need for relatedness as a source of motivation possessed a weak relationship with the frequency of attending counseling.
 - c. The role of leaders of the farmer groups had a sufficiently strong relationship with motivation based on the need for growth but a weak one with ERG motivation.
 - d. The need for relatedness as a source of motivation was weakly related to the role of agricultural extension workers.

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