

# Perceptions Of Farmer Group Members Towards The Implementation Of The Vegetable Alley In Yogyakarta City

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**Abstract.** Yogyakarta City is one of the areas that implements vegetable alleys to meet people's food needs. However, in its implementation there are obstacles to the lack of participation of farmer group members. The study aims to determine the perception of the members of the farmer group towards the implementation of the vegetable aisle, and the factors related to the perception of the members of the farmer group towards the implementation of the vegetable aisle. The research was conducted in the Districts of Umbulharjo, Danurejan and Kotagede. In each sub-district, 4 farmer groups were taken and each farmer group was taken by 5 farmers so that a total of 60 respondents. Data obtained through interviews with a questionnaire. Data analysis used descriptive analysis and spearman rank correlation analysis. The research results show that the perception of farmer group members towards the vegetable aisle from technical and economic aspects is quite good, while from health, aesthetics and environmental aspects it is good. It is recommended that members of farmer groups participate more actively in the implementation of vegetable aisles.

## 1 Introduction

Urban farming is one of the most developed agriculture in various countries. Urban agriculture is considered to contribute to increasing food security among low-income people in urban areas in developing countries [1]. Indonesia is a country that has begun to develop urban agriculture. Agriculture in urban areas makes more use of narrow land such as yards around the house with certain commodities such as vegetables, fruits and medicines [2].

Narrow land use in urban areas is based on the decreasing productive agricultural land due to industrialization. Under these circumstances, people began to use their yards around their homes as an alternative to carry out agricultural activities [3]. On the one hand, the increase in population in urban areas has an effect on increasing the need for food in the region [4].

In urban areas, this type of agriculture has been implemented by involving the community

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in various ways [5]. The development of the urban agricultural sector in order to meet human needs also needs to be supported by the availability of adequate land. Over time, the availability of productive land for agricultural activities is decreasing. Land conversion is a normal phenomenon in the development of a city, but it becomes a problem when there is conversion on productive land [6]. The conversion of agricultural land functions has an adverse impact on the ecological balance as well as soil fertility so that it affects farmers' income [7]. The conversion of productive agricultural land also has an impact on the productivity of the food produced. [8].

Through farmer groups, it is hoped that good agriculture, maximum farming and welfare for farming families can be realized [9]. The existence of farmer groups in an area can help solve farmer problems that cannot be solved individually [10]. So that an agricultural problem can be solved together.

Problems related to the lack of productive land, especially in urban areas, have made farmer groups take the initiative in developing urban agriculture with various systems. One of the urban agriculture that is starting to be developed is through the vegetable alley. The hallway garden program in the city of Makassar can beautify the appearance of the hallways and increase public awareness about the importance of a clean and well-organized hallway environment [11]. In addition, community empowerment related to the vegetable aisle also increases knowledge, skills, and community participation in utilizing used goods into containers or pots [12].

The city of Yogyakarta is one of the areas where people who are members of farmer groups have started implementing urban farming through the vegetable alley. Of the 14 districts in the city of Yogyakarta, there are 267 farmer groups. The largest area is Umbulharjo District with 50 farmer groups. Urban agriculture through the vegetable aisle is quite successful, especially to meet the daily needs of vegetables both for self-consumption and for sale to other parties. Although many vegetable alleys have been developed, there are still several obstacles in its implementation such as the inconvenience of drivers passing through the alleys, pests and diseases in plants, watering problems, and the lack of participation from farmer group members to continue to be consistent in caring for and utilizing the vegetable alleys. From this situation, it is necessary to know the perceptions of farmer group members regarding the implementation of the vegetable alley and what factors are related to the perceptions of farmer group members regarding the implementation of the vegetable alley in the City of Yogyakarta. The aims of the study were (1) to determine the perceptions of farmer group members regarding the implementation of the vegetable alley in the City of Yogyakarta, and (2) to analyze the factors related to the perceptions of group members towards the implementation of the vegetable alley in the City of Yogyakarta.

## **2 Research Method**

### **2.1 Research Object and Sampling Technique**

The method used is a quantitative descriptive method [13,14,15,16]. Descriptive research is research conducted by seeking information related to existing symptoms, then clearly explaining the objectives to be achieved, planning how to approach it by collecting data to make reports. Quantitative descriptive method is a method that can describe the perceptions of farmer group members and factors related to the perceptions of farmer group members in implementing the vegetable alley in Yogyakarta City.

This research was conducted in Yogyakarta City, where the location was chosen because Yogyakarta City is the only city in the Special Region of Yogyakarta that implements urban

agriculture. For the research location, three sub-districts in Yogyakarta City were chosen which had the largest number of farmer groups, namely Umbulharjo District, Danurejan District, Kotagede District and 4 farmer groups were taken from each sub-district, while the determination of the farmer groups was carried out randomly. Each farmer group was taken deliberately by 5 farmers.

## 2.2 Data Analysis Technique

In this study, descriptive analysis was used to describe the perceptions of farmer group members and factors related to farmer group members' perceptions of the implementation of the vegetable alley. To find out the factors related to farmers' perceptions of the implementation of the vegetable alley, Spearman's rank analysis was used.

The perception of farmer group members towards the vegetable aisle in each aspect is divided into three classes, namely not good, good enough, and good. In each aspect, it uses the highest score of 25 and the lowest score of 5. Categories are measured using the interval formula as follows :

$$\text{Intervals} = \frac{\sum \text{Highest Score} - \sum \text{Lowest Score}}{\sum \text{Category}} \quad (1)$$

$$\text{Intervals} = \frac{25 - 5}{3} = 6.67$$

**Table 1.** Classification Table of Categories of Farmer Group Members' Perceptions of Vegetable Alley in Yogyakarta City

Indicator	Score Range	Categories		
		Bad	Good enough	Good
Technical	5 – 25	5.00 – 11.67	>11.67 – 18.33	>18.33 – 25.00
Economics	5 – 25	5.00 – 11.67	>11.67 – 18.33	>18.33 – 25.00
Health	5 – 25	5.00 – 11.67	>11.67 – 18.33	>18.33 – 25.00
Aesthetic	5 – 25	5.00 – 11.67	>11.67 – 18.33	>18.33 – 25.00
Social	5 – 25	5.00 – 11.67	>11.67 – 18.33	>18.33 – 25.00
Environment	5 – 25	5.00 – 11.67	>11.67 – 18.33	>18.33 – 25.00

To determine the factor age, level of education, farming experience, income, chairman role, extension role, and participation of farmer group members related to farmers' perceptions of the implementation of the vegetable aisle, spearman rank analysis was used. Analysis is supported by SPSS.16 software. The formula for the Spearman Rank Correlation Test is used as follows:

$$rs = 1 - \frac{6\sum d^2}{n(n^2-1)} \quad (2)$$

Information:

- rs : Spearman Rank Coefficient
- d : Ranking differences between variables
- n : Number of Samples

In knowing the existence of a relationship after getting a correlation value, adjusted to the interval category below :

**Table 2.** Correlation Coefficient Value Interval Table

Correlation Coefficient Value Interval	The Power of Relationships
0.000 – 0.199	Very weak
0.200 – 0.399	Low
0.400 – 0.599	Keep
0.600 – 0.799	Strong
0.800– 1.000	Very Powerful

### 3 Results and Discussion

#### 3.1 Perceptions of Farmer Group Members on the Implementation of Vegetable Alleys in the City of Yogyakarta

Members of the farmer group have different views on the vegetable alley. The perception of farmer group members towards the vegetable alley is seen from several aspects, namely technical, economic, health, aesthetic, social and environmental aspects. The results of indicators on technical, economic, health, aesthetic, social and environmental aspects can be seen in table 3.

**Table 3.** Perceptions of Farmer Group Members on Alley Vegetables in the City of Yogyakarta

No	Indicator	Range	Score Acquisition	Category
1	Technical	5.00 – 25.00	18.17	Pretty good
2	Economy	5.00 – 25.00	15.58	Pretty good
3	Health	5.00 – 25.00	20.90	Good
4	Aesthetics	5.00 – 25.00	19.20	Good
5	Social	5.00 – 25.00	20.32	Good
6	Environment	5.00 – 25.00	20.43	Good
	<b>Amount</b>		115.30	
	<b>Average</b>		<b>19.21</b>	<b>Good</b>

Based on Table 3, it can be seen that the perception of farmer group members towards the vegetable alley in the technical and economic aspects is quite good. Members of the farmer groups are of the opinion that the technical aspects of the vegetable alley can be carried out well even though there are several obstacles in its implementation such as the less than optimal results from planting and maintaining plants from annoying pests [17]. Meanwhile, the economic aspect of the farmer group members considers that the implementation of the vegetable alley is sufficient to affect the economy, especially the demand for vegetables. This is in accordance with a study entitled "Urban Agriculture: The Role of Knowledge Among Farmers in Malaysia" which suggests that urban agriculture plays an important role in providing better quality and food security by increasing living standards, employment and economic status of urban communities in Malaysia [18, 19, 20, 21]. Members of farmer groups can take advantage of the crops from the vegetable aisle thereby helping to reduce their household expenses for food needs even on a small scale. Apart from that, crops from the vegetable alley can be sold, thereby generating income that can be used for the development of the vegetable alley, even though the sales from the vegetable alley cannot personally increase the income of the members of the farmer group. These results are

not in line with the results of the study [11]. in the Economic Study of the Loose program in Makassar which stated that there were differences regarding the income of members of farmer groups after implementing the Lorong Garden Program. The research shows that the Lorong Garden Program can increase the average income of members of the Women Farmer Group.

The perception of farmer group members towards the vegetable alley in terms of health, aesthetics, social and environmental aspects is good. Members of farmer groups get benefits such as ensuring the quality of the plants they produce and being able to meet nutritional needs and affect the psychology of the people around the environment. Through the implementation of vegetable alleys, it can add to the beauty of the surrounding environment, especially in urban areas with limited land area. The use of various techniques in planting is also a special attraction and is one of the innovations in cultivating plants. These results are in line with research [22] in the Lorong Garden and Sustainable Development for Lorong Women in Makassar City which states that the community feels the benefits of the Lorong Garden Program in terms of aesthetics, namely by making the environment in the hallways more attractive and colorful. The vegetable alley encourages the community's desire to arrange narrow land into alleys that have aesthetic value which can be seen from the arrangement of plants in the alleys [23]. In the social aspect, the implementation of the vegetable alley can establish good relations between group members and other groups who also carry out the vegetable alley. From this good relationship, we can establish cooperation and improve each other's skills as well as carry out discussions in the development of vegetable alleys. Vegetable alley can create togetherness among people. Through the vegetable alley, the community is able to innovate in making use of urban yards, such as using used goods in the form of bottles and used banners as potting media for the vegetable alley [24].

While the environmental aspect of implementing vegetable alleys can make narrow alleys and alleys in urban areas more comfortable and also beneficial for the surrounding community. The existence of a vegetable aisle is also able to reduce waste by using it as a place to plant. These results are in line with research [22] which states that the existence of the Loose program makes the alley area that previously had garbage scattered to cause odor into a cleaner hallway. The implementation of the vegetable aisle is a way to improve the quality of limited land and the environment. With quality living environment conditions can bring a positive influence to the community in the environment [25]. In general, the perception of farmer group members towards the vegetable alley in Yogyakarta City is good. Members of farmer groups benefit from the implementation of the vegetable aisle. The benefits obtained range from adding insight and skills in farming activities, health benefits, economic benefits in the development of group vegetable aisles, social benefits between group members and other parties, and the creation of a more comfortable environment.

### **3.2 Factors Associated with Perceptions of Farmer Group Members on the Implementation of Vegetable Alleys in the City of Yogyakarta**

Analysis of the factors related to the perceptions of farmer group members towards the vegetable alley in Yogyakarta City uses Spearman's Rank Correlation Coefficient Test with SPSS.16. The following are the results of the Spearman rank correlation test.

**Table 4.** The results of Spearman's Rank Correlation Test Analysis on the factors related to the Perceptions of Farmer Group Members

Criteria	Technical	Economy	Health	Aesthetics	Social	Environment
<b>Age</b>						
Rs	-0.229	0.093	-0.041	-0.054	0.029	-0.032
Sig.	0.079	0.478	0.755	0.682	0.824	0.805
<b>Level of education</b>						
Rs	-0.239	-0.063	0.017	0.172	0.144	-0.037
Sig.	0.066	0.634	0.895	0.188	0.274	0.780
<b>Farming experience</b>						
Rs	0.134	-0.234	-0.008	0.050	-0.057	-0.237
Sig.	0.306	0.072	0.949	0.706	0.665	0.069
<b>Income</b>						
Rs	-0.199	-0.143	-0.088	-0.018	-0.170	0.115
Sig.	0.128	0.277	0.506	0.889	0.194	0.380
<b>Chairman role</b>						
Rs	0.114	-0.028	0.091	0.285*	0.325*	0.056
Sig.	0.388	0.830	0.488	0.027	0.011	0.670
<b>Extension role</b>						
Rs	0.141	0.002	-0.093	0.023	0.074	-0.039
Sig.	0.283	0.987	0.480	0.863	0.576	0.765
<b>Participation of farmer group members</b>						
Rs	0.261*	0.164	0.261*	0.167	0.492**	0.025
Sig.	0.044	0.212	0.044	0.202	0.000	0.848

Information :

\* : significant on  $\alpha$  5% (0.05)\*\* : significant on  $\alpha$  1% (0.01)

### 3.2.1 Age

Based on table 4, it shows that the age factor has no significant relationship with the perceptions of farmer group members towards the vegetable alley in all aspects, both technical, economic, health, aesthetic, social, and environmental aspects. These results are in line with studies [8, 26, 27] which state that there is no real relationship between age and farmers' perceptions. Even though the age of the members of the farmer group is still classified as productive, this does not affect them in giving their perceptions of the implementation of the vegetable alley. Members of farmer groups of various ages can still carry out the vegetable aisle.

### 3.2.2 Level of education

Based on table 4, it shows that there is no significant relationship with the level of education factor with the perceptions of farmer group members towards the vegetable alley in all aspects, both technical, economic, health, aesthetic, social, and environmental aspects. These results are in line with studies [8, 26, 27]) which state that education level has no real relationship with farmers' perceptions. Differences in the educational background of the

members of the farmer group did not affect them in giving their perceptions of the implementation of the vegetable alley. This also shows that all members of farmer groups with different educational backgrounds can carry out the vegetable alley.

### 3.2.3 Farming experience

Based on Table 4, it shows that there is no significant relationship with the farming experience factor with the perceptions of farmer group members regarding the implementation of the vegetable alley in all aspects, both technical, economic, health, aesthetic, social, and environmental aspects. These results are in line with research [26] which states that farming experience has no real relationship with farmer perceptions. Even though most of the members of the farmer group had farming experience of less than nine years, namely 81.67%, this did not affect them in giving perceptions regarding the vegetable aisle. The results show that all members of the farmer group with different lengths of farming experience can still carry out the vegetable aisle. They can share information and experiences to develop the vegetable aisle.

### 3.2.4 Income

Based on Table 4, it shows that the income factor does not have a significant relationship with all aspects, both technical, economic, health, aesthetic, social, and environmental aspects. These results indicate that differences in income among farmer group members do not affect them in giving perceptions of the implementation of the vegetable alley. Members of farmer groups with different incomes can still carry out the vegetable aisle.

### 3.2.5 Chairman role

Based on Table 4, it shows that the role of chairman has a significant relationship with aesthetic aspects and social aspects. The factor of the chairman's role with the perceptions of farmer group members towards the vegetable alley on the aesthetic and social aspects has a low strength relationship. A positive correlation value means that it shows a unidirectional relationship, meaning that the better the role of the chairman, the better the aesthetics of the vegetable aisle as well as the social aspect. Meetings held between groups in each region where the chairman often represented the group leaders obtained more information regarding the implementation of vegetable alleys in other farmer groups. The information and knowledge gained can be applied in their farmer groups to make the vegetable alley better. The head of the farmer group who coordinates the implementation of the alley also determines the innovations that will be applied to the vegetable alley. The chairman as a leader in farmer groups plays a role in increasing togetherness among members. The activeness of the chairman in farmer groups will influence its members to be able to establish cooperation. If the chairman is less active in coordinating the group, then the implementation of the vegetable alley will be less than optimal. In implementing the vegetable alley, several members of the farmer group also followed the decisions and directions of the chairman. The role of the chairman in farmer groups is as an organizer, communicator, and facilitator in increasing the ability of farmers to carry out ushatani activities [28].

Meanwhile, for other aspects such as technical, economic, health and environmental aspects, there is no relationship with the role of the chairperson. The role of the chairman has no real relationship with the perceptions of farmer group members towards the vegetable alley in a technical aspect. On the economic aspect, selling produce from the vegetable aisle

is carried out jointly, not only on the basis of the chairman's role. On the health aspect, group members benefit from the nutrition of the vegetables they grow. On the environmental aspect, the members of the farmer groups themselves can feel the environmental changes from the implementation of the vegetable lorong.

### 3.2.6 Extension role

Based on Table 4, it shows that there is no significant relationship with the farmer group members' perceptions of the implementation of the vegetable alley in all aspects, including technical, economic, health, aesthetic, social, and environmental aspects. Even though the extension worker assisted in terms of training, consulting regarding the problems faced by the group, this did not affect the members of the farmer group in giving their perceptions of the implementation of the vegetable alley. The role of extension workers in agriculture must be in the right position, wherein the implementation of assistance or counseling to farmer groups is effective and efficient [29].

### 3.2.7 Participation of farmer group members

Based on Table 4, it shows that the participation factor of farmer group members has a significant relationship with the perceptions of farmer group members towards the vegetable alley in technical, health and aesthetic aspects. The technical aspect shows a positive value, so that the relationship is one-way, meaning that the more often farmer group members participate in the implementation of the vegetable alley, the better their perception of the technical aspects will be. Members of farmer groups who often participate in the implementation of the vegetable alley will have a better understanding of the cultivation techniques carried out in the vegetable alley. On the Health aspect because the members of the farmer group will know about the health benefits they get from implementing the vegetable alley if they participate in activities in the vegetable alley. Participation is a person's contribution both mentally and emotionally to participate in making a contribution in an effort to achieve goals [30]. The more frequently members of farmer groups participate in vegetable alley activities, the better the perception of farmer group members on the health aspect will be. While the social aspect due to togetherness among members of the farmer group will be better if the members of the farmer group participate in the implementation of the vegetable alley. In this case, the interaction between fellow members of the farmer group will influence them in life even outside the implementation of the vegetable alley. Members of farmer groups who often carry out activities together will help other members if a problem occurs.

Meanwhile, the participation factors of farmer group members that have no relationship with the perceptions of farmer group members towards the vegetable alley are economic, aesthetic, and environmental aspects. So it can be said that the intensity of farmer group members in participating in the implementation of the vegetable alley does not affect their perceptions of the economic, aesthetic and environmental aspects. The results of the interviews show that the perceptions of group members towards the economy, aesthetics and the environment are the same. According to them economically it can increase income, aesthetically it can beautify and make the environment greener.

## 4 Conclusions and Recommendations

### 4.1 Conclusions

Based on the results of research that has been done regarding the perceptions of farmer group members towards vegetable alleys in the City of Yogyakarta, the following conclusions are obtained:



1. Perceptions of farmer group members regarding the vegetable aisle in the City of Yogyakarta are seen from several aspects, namely economic, health, aesthetics, social and environment. From these aspects, the perceptions of farmer group members regarding the vegetable alley in the city of Yogyakarta in terms of technical and economic aspects are in the fairly good category, while for the health, aesthetic, social and environmental aspects they are in the good category. Overall, the perception of farmer group members towards the vegetable alley in the city of Yogyakarta is in the good category.
2. Based on Spearman's rank correlation analysis regarding factors related to farmer group members' perceptions of the vegetable aisle, the result is that the leader's role factor has a significant relationship with aesthetic and social aspects, as well as the participation factor of farmer group members which has a significant relationship with technical, health aspects, and social.

#### **4.2. Recommendations**

1. Based on the results of the study, it was found that the perceptions of farmer group members regarding the implementation of vegetable alleys in the economic aspect have the smallest value, this can be input for farmer groups implementing alleys to be able to increase vegetable production so that yields can help the economy of farmer group members better Again.
2. Based on the research results, it was found that the participation of farmer group members with technical aspects and health aspects had the smallest relationship, this could be input for farmer group members to more actively participate in the implementation of the vegetable alley.

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