# Food yard program in urban and rural areas of South Kalimantan

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**Abstract.** The participation of community groups that receive P2L programs affects the success of the program. The research aims to find out: 1) The participation level of rural and urban communities in the P2L at South Kalimantan. 2) The differences in the participation level communities in P2L. 3) The factor that affected the community participation in P2L. Determination of respondents through simple random sampling based on Krejcie and Morgan's table. The data were analyzed descriptively using Mann Whitney Wilcoxon to determine the difference in the participation level of the communities and Spearman rank correlation to determine factors related to community participation. This research showed that 1) The participation level of communities in the P2L program was in the high category. 2) The score of community groups' participation in rural areas was higher than in urban areas, but there is no significant difference between participation in those communities. 3) Factors related to the participation of community groups in the P2L in community areas were education level, knowledge and skills of plant cultivation, family food sources, size of the home yard, family income, and risk-taking activities. In contrast, the factor of understanding the P2L only related to community participation in urban areas.

## 1 Introduction

National food security and food independence must start from the household level. Rachman [1] state that the availability of sufficient food nationally or regionally is necessary for national food security. Food fulfilment at the household or individual level can be done through poverty alleviation efforts, income distribution, and increased food production capacity. Sumaryanto [2] states that increasing food production capacity can be solved by increasing the common area for producing food.

Various government policies were issued to increase food production. The government also builds public awareness to consume diverse, nutritious, balanced, and safe (B2SA) foods for health. Utilization of the home yard for food production has an opportunity to be carried out because it is according to the culture of the Indonesian people. Still, in general, it has not been used optimally as a productive resource by urban and rural communities. Various

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reasons lead to the underutilization of the yard, such as not understanding the cultivation technique of plants, fish, or livestock, the narrow yard, the limited activity time, et cetera.

The government has issued various policies to encourage people to obtain food in sufficient quantity and variety, including the program of yard optimization through the Ministry of Agriculture. The Agricultural Research and Development Agency supported the food diversification policy and yard optimization by initiating the Sustainable Food House Area Model (m-KRPL) program in every district/city of Indonesia in 2011. The Ministry of Agriculture then gave a mandate to the Food Security Agency (BKP) to develop the utilization of yards with the KRPL concept in rural and urban areas of Indonesia in 2013.

Yard optimization activities with the KRPL / P2L method are one of the activities that can be carried out during the COVID-19 pandemic to prevent food shortages at the household level [3]. The KRPL program is an effort by the government to improve the ability of the community in agricultural activities, food self-sufficiency to meet the diverse, nutritious and healthy food needs of families, and ensure sustainability in providing safe food for each individual [4]. The fulfilment of family food from using yard land through the KRPL / P2L program is very appropriate if it is carried out sustainably. It will reduce the people's consumption costs and increase income, ultimately increasing the community's welfare and a place of plant preservation [5]. The KRPL program changed to the Sustainable Food Yard (P2L) program in 2020 to expand the beneficiaries and yard utilization.

Urban agriculture is one of the solutions to make it easier to access food and support the household economy. It is also one of the household food security activities to overcome the increase in food prices during the Covid-19 pandemic. Based on the benefits obtained, the government needs to support the sustainability of urban agriculture programs, especially in expanding urban farming implementers [6]. Agriculture in the yard is a way to produce and distribute foodstuffs during the Covid-19 pandemic and build family food security [7].

The P2L program was also developed in rural and urban areas in all regencies/cities of South Kalimantan. As implementers of the P2L program, several community groups were chosen because of the positive response from community groups and local stakeholders (district/city governments), the suitability of local government policies and programs, and the adequate accessibility of P2L activities. In addition, the P2L program was expected to encourage the community to play an active role in improving food security at the family level to increase food diversification and sustainably balanced nutrition for all family members.

Farmers' participation in agricultural planning is important for successful sustainable agricultural development [8]. The participation of community groups that receive P2L programs greatly affects the success of the program. It is because they are directly and actively involved in P2L activities to achieve the objectives of the activities. Therefore, it was essential to know the participation of community groups in the P2L program and the expected factors related to community participation in the P2L program in urban and rural areas in South Kalimantan.

Based on the description above, the research aims: (1) To determine the participation of rural and urban communities in the P2L program at South Kalimantan. (2) Differences in the level of participation of rural and urban communities in the P2L program at South Kalimantan. (3) Factors related to community participation in P2L programs. The research results will be considered for developing the next P2L program according to the location to achieve the program objectives.

## 2 Method

The research location was determined purposively in the urban and rural areas of South Kalimantan's P2L program development. Those were: the City of Banjarbaru and

Banjarmasin; District of Banjar, Tanah Laut, Tanah Bumbu, Hulu Sungai Utara, Tapin, and Barito Kuala. The study (Table 1) was conducted from September to November 2021.

Research data in the form of primary and secondary data. Primary data was obtained by the survey method, namely directly interviewing selected respondents (sample) based on a list of questions that had been prepared. Secondary data were obtained from the literature, agencies, or other institutions related to the research material.

Respondents were taken by simple random sampling at the research location based on the table of *Krejcie and Morgan* [9]. As many as 76 people from 95 in 4 groups implemented the P2L program in urban areas, and 86 people from 110 in 4 groups implemented the P2L programs in rural areas (Table 1).

**Table 1**. Selected research locations.

| No | P2L program in urban area of South Kalimantan | P2L program in rural area of South Kalimantan |
|---|---|---|
| 1. | Women Farmers Group (KWT) of Pesona Indah, Sungai Ulin Village, Banjarbaru Utara District,Banjarbaru City | Women Farmers Group (KWT) of Mustika Makmur Desa Mustika VIllage. Kuranci District, Tanah Bumbu Regency |
| 2. | Women Farmers Group (KWT) of Hijau Daun, Belitung Utara Village, West Banjarmasin District, Banjarmasin City | Women Farmers Group (KWT) of Serai Wangi, Cahaya Baru Village, Jajangkit District, Barito Kuala Regency |
| 3. | Women Farmers Group (KWT) of Mekar Sari Kel.Karang Taruna Kec.Pelaihari Kab.Tanah Laut | Women Farmers Group (KWT) of Mawar, Rantau Kurau Hilir Village, Sungai Pandan District, Hulu Sungai Utara District |
| 4. | Women Farmers Group (KWT) of Cahaya Abdi Persada, Cempaka Village, Cempaka District, Banjarbaru City | Women Farmers Group (KWT) of Aglonema, Center Serawi Village, Binuang District, Tapin Regency |
| Total Implementer | 95 implementers of P2L program | 110 implementers of P2L program |
| Total Sample | 76 Respondent | 86 Respondent |

Limitation of understanding, measurement, and classification of factors related to community participation at the time of the survey for the independent variable (X):

a. Education (X1), indicating the level of formal education achieved by the respondent, is measured in years and classified into high, medium, and low.
b. Knowledge/skills about cultivating plants or other commodities (X2) indicates knowledge or skills in plant cultivation known by respondents and classified into high, medium, and low.
c. The understanding of the P2L program (X3) shows the respondents' understanding of the meaning of the program, the objectives and benefits of this activity, the scope of activity, the P2L organization, and the sources and methods of accountability for the activity budget. The data are classified into high, medium, and low.
d. The most common way to obtain family food sources (X4) is the household habit of obtaining food sources to be cooked/consumed by all family members, classified as

harvested from own garden + bought and cooked by themselves (high), purchased food at the seller and self-cooked (medium), buy ready to eat food (low).

e. The area of the yard (X5) is the area of the household's yard used to cultivate a plant as a food source, measured in m2, and classified into large, medium, and narrow.
f. Income (X6) is the income the respondent obtained from his family within one year, expressed in rupiah value, and classified into high, medium, and low.
g. Courage to take the risk of activities (X7) is the courage to carry out the activities according to the technical instructions of the P2L program against the failure risks of the farming business in the yard and the enthusiasm to try again until it is successful. Therefore, it is classified into high, medium, and low.

The dependent variable (Y) is the participation level of community groups in implementing the P2L program. A score measured their participation or involvement in yard optimization activities with the P2L concept. There were two stages of participation: Participation while implementing the P2L program and participation while obtaining the benefits of the P2L program. Participating in the program was the involvement of community group members to achieve the P2L program objectives. In contrast, participation in the program benefited from community group members' involvement in implementing technological innovations for optimizing the yard and enjoying the results.

Participation of community group members was measured by adding up all scores. The lowest total score is 0, and the highest score is 31. The participation was put into two classes based on the Sturges formula [10], those are low (0 - 15,5) and high (15.6 - 31,0).

The research data were analyzed descriptively. First, the hypothesis was tested with non-parametric statistics, namely Mann Whitney Wilcoxon / MWW, to determine the difference in the participation level of rural and urban communities in the P2L program, and the Spearman rank correlation was used to determine factors related to community participation in P2L program.

## 3 Result and discussion

Table 2 shows respondents' participation in the P2L program was in the high category. It means they are quite active in P2L program activities to optimize their yards as a family food source.

**Table 2.** Scores of respondents' participation in P2L programs in South Kalimantan.

| Respondent Participant | The average score of respondents who implemented P2L in urban areas | The average respondents who implemented P2L in rural areas |
|---|---|---|
| Stages of implementing the P2L program:<br>• Extension and training<br>• Coaching of community group institutional<br>Stages of obtaining benefits from the P2L program:<br>• Implementing technological innovations to optimize yards in a nursery, group gardens, and household gardens<br>• Postharvest and marketing of yard products | **22,19** | **25,67** |

Although the community groups in metropolitan, urban, and rural areas differ, their participation in daily social activities in the community is no significant difference [11]. The level of participation in developing community-based urban agriculture is said to be high, as seen from their activeness in various stages of urban agricultural activities [12].

Community participation at the implementation stage of the P2L program was the involvement of community group members in efforts to achieve the goals of the P2L program, which were: (1) Participated in extension and training about program concepts and objectives, the technological innovation of plant seeding and cultivation, post-harvest and marketing of products. (2) Followed the institutional development of community groups so that activities continue. Participation at the stage of obtaining program benefits was the involvement of community group members in implementing technological innovations for optimizing home gardens in (1) Building nurseries and group gardens, as well as conducting plant nurseries in nurseries and collaboratively cultivating plants in group gardens, (2) Cultivating plants in the yard of each community group member's house, (3) Performing post-harvest and consuming the results of the yard, and marketing if the product of the yard exceeds the consumption needs of the family. Respondents feel the innovations developed in the P2L program benefit because knowledge and skills about plant cultivation increase. In addition, the results of plant cultivation in the yard can fulfil part of the family's food and nutritional needs and increase family income if any products from the yard are sold.

The average number of respondents' scores shows that the participation value of community groups implementing P2L programs in urban areas is lower than in rural areas. Still, based on the Mann-Whitney Wilcoxon test results, there is no significant difference between the two research locations at an error level of 5%. It means there is no significant difference between the participation of community groups in P2L program activities in urban and rural areas of South Kalimantan, even though the average score of respondents' participation in rural areas is higher than in urban areas.

P2L implementers in rural and urban areas participated in extension and training on innovation in technology optimization of the yard. Group institutional development is also provided by extension workers or the district and provincial technical team 3-4 times a month. Implementers from rural areas were attended by almost all members of the P2L program, while in urban areas, sometimes only 70-80% of the group members attended. Some people in urban areas work or have other activities outside the home on weekdays, so they can only be involved in activities on days off. The same thing also happened when working together to build a nursery, the process of seeding and cultivating plants in group gardens (plot demonstration).

The participation of P2L implementers in urban and rural plant cultivation in the home yard was also high. However, the type and number of plants in rural areas are more than in urban areas. In addition, implementers from rural areas were quite familiar with plant cultivation techniques because it was part of their job as farmers who carried out plant cultivation as daily activity on farmland. On the other hand, most of the yards in urban areas are narrower than those in rural areas, so the space for plant cultivation is limited. Moreover, people in urban areas have less time to plant cultivation because of other working activities. The observations show that the participation of community groups in the P2L program was active and responsible. It caused the optimization of the yard to be smoother and was more beneficial for them.

One of the determining actors for the achievement of community development is the participation of the community in the development program because the community is the main actor in the implementation of the development program as stated in Law No. 6 of 2014 article 68 paragraph 2e that "The community is obliged to participate in all village/city activities". There is community participation, development becomes more targeted by the community's needs, its implementation is more effective and efficient, and the community

feels ownership of the development program [13]. Attracting the participation of the younger generation to get involved in agricultural programs to address concerns over food security is a challenge or something that all developing countries need to act on today due to their declining interest in agriculture [14].

The results of testing the factors related to the participation of community groups in the P2L program in rural and urban areas of South Kalimantan at the research location are shown in Table 3.

**Table 3.** The analysis of the relationship between the independent variable (X) and the dependent variable (Y).

| Variable X | Variable Y | Rs of Urban Area | Rs of Rural Area | Significance of Urban | Significance of Rural |
|---|---|---|---|---|---|
| Education Level | Participation of urban and rural community groups in P2L programs at South Kalimantan | 0.836 | 0.880 | 6.790* | 8.116* |
| Knowledge and skills about cultivating plants | | 0.838 | 0.876 | 6.804* | 8.080* |
| The understanding of the P2L program | | 0.857 | -0.834 | 6.959* | -7.689$^{tn}$ |
| Source of family food | | 0.938 | 0.766 | 7.614* | 7.067* |
| The area of the yard | | 0.830 | 0.892 | 6.740* | 8.228* |
| Family Income | | 0.902 | 0.928 | 7.321* | 8.557* |
| Risk-taking activity | | 1.168 | 0.840 | 9.486* | 7.744* |

Note: *) Significantly related at the 95% level; tn) Not significantly related at the 95% level

Table 3 shows that factors of formal education, knowledge, and skills about plant cultivation, how families obtain sources of food for their needs, size of yard area, family income, and the courage to take risks were closely related to the participation of implementers in P2L programs in urban and rural areas. In contrast, the understanding of the P2L program is only closely related to participation in the urban area. The decision of community groups in rural areas to participate in P2L program activities is not determined by whether they understand the government program but rather by their awareness of the benefits of the P2L program. The yard area also supports plant cultivation, which aligns with their work. The data showed that the higher the understanding of the P2L program (objectives, scope, funding sources, and program organizational structure) did not determine the participation in the P2L program. According to the research [4], of which nine factors are suspected to affect the effectiveness of the KRPL program in Banda Aceh, three factors that significantly affect the increase in the effectiveness of the KRP program need to be improved, namely the motivation factor to the community, technology for optimizing the use of yard land, and the intensity of counselling/assistance.

Implementers of the P2L program stated that they had received many benefits from the P2L program activities that they participated in, such as increased knowledge and skills about technological innovations in land management and plant cultivation in their yards. Moreover, some family food sources were available in their yard, and the home environment became more organized and beautiful. It showed that the community already understands and has felt the benefits of the P2L program developed by their government, thus encouraging the community to participate more in the P2L program. P2L program implementers with a high level of education hope to have better knowledge, insight, and understanding of the P2L program and then be motivated to support the sustainable P2L program and transmit it to other communities.

External factors that influence the optimization of the KRPL/P2L program are the intensity of counselling, the availability of production facilities and the involvement of members in the group. Internal factors affecting the optimization of the KRPL program are formal education, family income and cosmopolitanism. Motivation has a strong influence on implementing the KRPL program. The higher the intensity of counselling, the availability of production facilities and the more optimal the involvement of members in the group [15]. The participation of farmers and the institutional struggle of farmer groups in agricultural programs positively impact the independence of farmers in farming and obtaining food [16].

The participation of community groups in the implementation of P2L in urban and rural areas of South Kalimantan is closely related to their income level in one year. The average income in urban areas (is IDR 87,000,000- per year). It was higher than in rural areas (IDR 45,000.000- per year). It showed that the higher the income did not mean the higher the participation in the P2L program or vice versa.

The habits of community groups who implement P2L in urban areas in obtaining family food sources tend to buy fresh ingredients and then process them or buy ready-to-eat ones. In contrast, the group in rural areas mostly takes food from gardens. Even though they have different food sources, they still participate in P2L activities. It shows that the easiness of obtaining family food sources does not reduce the spirit of participation in the P2L program.

Based on the area of the yard although the size of the yard area and the use of the yard were different, community groups in urban and rural areas still participated in the P2L program. Yards in rural areas are more straightforward than in urban areas, generally only for plant cultivation. The function of the yard in urban and rural areas has begun to change over time. The changes in family consumption patterns and the rise of instant or ready-to-eat foods became the reason.

To increase urban community participation in urban farming activities and their sustainability is to address factors that hinder people's interest in crop cultivation activities on urban lands, such as knowledge of managing narrow land and low crop cultivation. Limited crop management time [17].If the community is involved from the beginning of planning the preparation of urban agriculture programs, it will encourage the community to participate in the implementation/management of urban agricultural activities to monitor and evaluate the program [18].

The results also show that community groups that implement P2L in urban and rural areas of South Kalimantan are generally not afraid of failure in cultivating plants in their home yard. On the contrary, they even dare to take risks and remain eager to try again if they fail, so it can be stated that the higher their courage to take risks, the greater their participation in the P2L program.

## 4 Conclusions

1. Participation of community groups in P2L programs in urban and rural South Kalimantan at the research location is in the high category.
2. There is no significant difference between the participation level of community groups in the P2L program in urban and rural areas of South Kalimantan. However, the average number of community groups' participation in rural areas is higher than in urban areas.
3. Factors related to the participation of community groups in the P2L program in urban and rural areas of South Kalimantan were education, knowledge, skills of plant cultivation, family food sources, the size of the home yard, family income, and risk-taking activities. In contrast, the factor of understanding the P2L program was only related to community participation in urban areas, not in rural areas.

The participation of community groups in urban and rural areas of South Kalimantan in the P2L program must be maintained and supported by the relevant agencies/institutions to sustain and benefit the community.

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