

Research article

Crop production: grains, legumes, fruits, vegetables, flowers, cotton: Sustainable agriculture

The Role of Farmer Women in Realizing Household Food Security in Tangerang District (Case Studies in the District Kronjo)

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Abstract: The existence of women in the household has a strategic position, especially in maintaining family food security. A woman plays an important role in organizing and selecting food materials to be processed into family food. This study aims to determine: (1) The condition of women's household food security farmers in the district Kronjo, Tangerang Regency; (2) Factors influencing the role of women farmers in realizing food security at the household level in the District Kronjo, Tangerang Regency; (3) Factors influencing the pattern of food diversification in Kronjo, Tangerang Regency. This research was conducted in 3 villages that is village Pasilian, Kronjo Village, and Village Pagedangan Ilir. Data were collected from 85 female farmers using simple random sampling and data analysis using regression analysis with the Ordinary Least Square (OLS) method. The results showed that the level of family food security in the Kronjo sub-district was included in the food security category food (73.77%), while those included in food insecurity are 32.23%. Factors that influence the role of women farmers in achieving food security at the household level in the District Kronjo, Tangerang Regency, are household income, female farmer income, number of families, education level, and access information. Factors influencing the pattern of food diversification in District Kronjo, Tangerang Regency, are the price of rice; the number of family members; income family; and level of education.

Keywords: the role of women; food security; women farmers

农民妇女在坦格朗区实现家庭粮食安全中的作用 (克朗乔区案例研究)

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摘要:

女性在家庭中的存在具有战略地位，尤其是在维护家庭粮食安全方面。妇女在组织和选择要加工成家庭食品的食品材料方面发挥着重要作用。本研究旨在确定：(1)唐格朗摄政酒店克朗乔地区女性家庭粮食安全农民的状况；(2)影响女性农民在坦格朗摄政区克朗乔区实现家庭粮食安全方面的

Received: July 14, 2022 / Revised: August 11, 2022 / Accepted: September 2, 2022 / Published: September 30, 2022

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作用的因素；(3)影响当格朗摄政区克龙乔食物多样化模式的因素。这项研究在3个村庄进行，即巴西利亚村、克龙乔村和伊利尔佩丹甘村。使用简单随机抽样和使用普通最小二乘法(OLS)方法进行回归分析的数据分析从85名女性农民中收集数据。结果表明，克龙乔街道家庭粮食安全水平被纳入粮食安全类别食品(73.77%)，而被纳入粮食不安全类别的为32.23%。影响女性农民在坦格朗摄政区克龙乔区实现家庭粮食安全方面的作用的因素是家庭收入、女性农民收入、家庭数量、教育水平和获取信息。影响当格朗摄政区克龙乔区食品多样化模式的因素是大米价格；家庭成员人数；收入家庭；和教育水平。

关键词：妇女的作用；食品安全；女农民

1 Introduction

Endurance food is food fulfillment condition for the country until the individual, which is reflected from the availability of enough food, good total quality, safe, diverse, nutritious, evenly distributed, and affordable as well as no contrary with religion, belief, and culture community, for could live healthy, active, and productive by sustainable^[1]. Destination end from endurance food is increase well-being humans who can be seen from fulfillment right somebody on food. However, unfortunately, not all public could fulfill their needs for food.

Endurance food was implemented with a notice of three components: (a). The availability of sufficient and equitable food; (b). Affordability of effective and efficient food; and (c). Consumption of diverse and nutritious food balanced. However, the condition is still far from the reality^[2]. Until September 2009, about 14.98% of the world's population was deficient in food (undernourishment), where the average per day is more out of 13,350 people died consequence hunger. For the availability of food easy and affordable both at the global and national levels and even for regional needs, it is hoped that all populations could be free from hungry and lacking nutrition.

^[3] revealed three factors that influence endurance food: (a) pattern consume food, (b) level of knowledge population, and (c) level of income (GDP). Income level in life relates to the power to buy public food. Food affordability is close to the level of community income needed for decent life in the residence area. Need for worthy life is translated as the amount of the rupiah that can fulfill food consumption needs equivalent to 2,200 calories a day^[2].

The level of income received, House ladder, is the amount of money that could be utilized to fulfill the need, the moresmall ratio between income with expenses made household, can be considered the level of poverty. Poverty and

resilience food are two mutually related phenomena. This condition, vulnerable endurance food, becomes poverty source because the poor have no endurance food. Because of that, poor farmers and resilience food are not inseparable, but interact.

In a culture of patriarchy, where women play a central role in arranging management and welfare, House ladder, woman's ability for mother household for organizing and filling food with good ingredients is the main role. However, when income received by the family is limited, most women are affected because they are responsible for the family well-being^[4]. One reason is that endurance food is part of their reproductive role. Reality describes the function of the family as a unit of consumption, reproduction, and protection, generally imposed on women; therefore, the woman (mother household) always attempted to give the best in endurance food and nutrition House ladder by the whole, not limiting herself only to her children.

Effort approach to endurance food and nutrition, House ladder, is conducted with many activities: cultivation of plant food in the yard, food procurement, collection, exchange, preparation, processing, and distribution. Almost all activities are duties of women in the countryside. To access resources, and food, women allow doing an activity as Duty the main thing is in the family. However, thereby, environmental and social factors often become obstacles for women to access resources for activities; so, in preparing system food, many face serious problems, especially in fulfilling the need for standard family food. It could result in bad condition of nutrition provided for families and children^[2,5].

Endurance food is reflected in the family from the availability of food that can be sufficient for a positive consumption level, and no will affects nutritional status. When the endurance food in family is ok, the availability of food is sufficient. If endurance food is bad, it will result in stunting

(bad nutrition) on members of the family^[6,7].

Studies initially conducted at the level of the House ladder show that a rising income and availability of food result in a decreased level of hunger. At home poor ladder, food expenses will be bigger than non-food expenditure; this will affect the nutrition. In determination of endurance food House stairs as a developed concept^[8], the family endurance food contains carbohydrates, protein, and fat. Fulfillment of nutrition obtained from food consumed will determine the level of welfare. The more Mark food consumed, the higher the level of energy, nutrition, and protein consumption. Access to food House ladder depends on whether the House ladder has enough income to buy food at the current price, or has enough land or another source for farming the food needed^[2,5].

Based on the above description, this study examines: (a) Conditions of endurance food House ladder from woman farmers in Tangerang Regency; (b) Influencing factors role woman farmer in consumption ingredient food for use realize endurance food at level House stairs in Tangerang Regency; and (c) influencing factors expenditure ingredient food at level House ladder woman farmers in Tangerang Regency. The research location is in the District Kronjo developing a sustainable food program in Tangerang Regency.

2 Research Methodology

2.1 Research Location

The study was conducted in the district Kronjo, Tangerang Regency, taking respondents from three villages that are Village Pasilian, Village Kronjo, and Village Pagedngan Ilir. These villages run a sustainable food program that is built directly by the officers' agriculture (BPP Kronjo). Taking samples was conducted with the method of simple random sampling. This study involved respondents from 85 houses, ladder farmers. The respondent in the study is a sexy woman, already married, who becomes the head of a family and/or member family, is over 17 years old, and is included as a sustainable food program member (P2L).

2.2 Research Methods

By the condition of endurance food House ladder, woman farmers could know the endurance food use degree^[8,9]. This indicator is estimated with counting total type food or group food consumed by the group House ladder, where

the survey was conducted. ^[9] classifies food into seven groups or types. The seventh group food is (1) grains, roots, and tubers; (2) nuts; (3) product livestock: (4) meat, fish, and eggs; (5) oils and fats; (6) fruits; and (7) vegetable.

^[8] divide the degrees of endurance of food into three: a) High if the consumption of food > 6; b) Medium when consumption of food is 4.5 – 6; c) Low when the consumption of food < 4.5. ^[9] shares two degrees of endurance food: a) Prone food, if consumption food < 5,6; b) Hold on food when consumption food 5,6.

To understand the role of a woman farmer in the consumption of food ingredients at the level, House ladder used multiple linear regression analysis. The linear regression model used in this study was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \mathcal{E} \quad (1)$$

where:

Y = consumption of food ingredients at level House household (Rp/capita/year);

β_0 = constant intercept;

β_1 = parameter coefficient (X = 1,2,3,4,5);

X1 = income House stairs (Rp/year);

X2 = revenue woman farmer (Rp/year);

X3 = age woman (year);

X4 = women's education (years);

X5 = total member family (soul);

X6 = land area yard (Ha);

X7 = access information.

The factors that influence expenditure on food ingredient tree at level House stairs in Tangerang Regency are used as the following model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mathcal{E} \quad (2)$$

where:

Y = expenditure ingredient food at level House ladder *i* (Rp/capita/year);

β_0 = constant intercept;

β_1 = parameter coefficient (X = 1,2,3,4);

X1 = rice price (Rp/year);

X2 = price of materials food other (Rp/year);

X3 = income House stairs (Rp/year);

X4 = education (years).

3 Results and Discussion

3.1 Respondent Profile

Information about the characteristics of the House ladder is very urgent for describing the condition of the actual House ladder before the link with degrees of endurance food House stairs. Characteristics of House ladder woman farmer in the district Kronjo are presented in Tab. 1.

Tab. 1 Characteristics of House Ladder farmers in the District Kronjo, 2021 (Processed primary data, 2021)

No	Characteristics	Average	Minimum	Maximum
1	Age			
	Husband	48.4	29	88
	Wife	43.6	26	75
2	Formal Education (Years)			
	Husband	7.5	6	17
	Wife	5.5	5	12
3	Income House Stairs (Rp/month)			
	Husband	1,750,500	0	3,500,000
	Wife	750,000	0	3,800,000
	House Ladder	975,000	0	3,800,000
4	Amount of RT members (person)	3.70	2	7
5	Housing conditions (%)			
	Non-Permanent		10.60	
	Semi-Permanent		27.05	
	Permanent		62.35	
6	Mastery Area Land Farming (Ha)	0.17	0.05	0.3

Woman farmer's average age is included in the category of productive age. According to ^[9], the population aged productive is the population aged 15–64 years. Productive age relates to social or economical activity that can be done by women farmers. The age head of the family is also dominated by the group age productive like case age woman the farmer. Productive age closely relates to physical ability and the ability to decide so that woman farmers could think more rationally to increase endurance food House stairs.

The education of the average woman farmers in the District Kronjo is still low. Most women farmers in the District Kronjo are only elementary school graduates. There are also women farmers who do not once have an education school base. View from long education shows that the average length of an educated woman farmer in the district Kronjo is 5.50 years. This means that the average woman farmer in the district Kronjo has no complete education basic namely SD. Related to the level of education owned so respondents with abilities and patterns think women farm inside House the stairs in taking decisions, especially those related to endurance food House stairs.

The higher the education of women farmers, the more rational decisions they take about pattern consumption House stairs, especially to maintain endurance food House stairs. The lower the education of women farmers, the less brave they are in deciding on the pattern of consumption of food in the House stairs. Women farmers with low education accept the existing conditions, so the pattern of food households is not planned to let alone to be controlled well. The pattern of food (eating) that is applied is more based on the ability to buy ingredient food without thinking about its quality.

Access House ladder to food very influenced by income House stairs. According to ^[10,12] income House ladder could be made indicator of endurance food House ladder because income is the main key for the House ladder for access to food, however, otherwise, income House, not even a high ladder become guarantee that pattern food family is good too. The average income of House ladder farmers in the district Kronjo is IDR 975,000. If you see from nominal income, the value is already relatively big for life finance of the family woman farmers in the District Kronjo; especially the condition of economy at the moment is relatively difficult, where food is very expensive and there is a persistent experience of price enhancement from time to time. The contribution of woman farmers to income House ladder could see from big income woman farmers. The average income of woman farmers in the district Kronjo is IDR 750,000. Most of the women farmers in the District of Kronjo work as laborers on farms and do other jobs like making wet cakes, which could add income to House stairs. ^[12] say that contributions income cash on house ladder could be made as a source of enhancing authority or power of women in deciding for family food pattern. This gives understanding that woman (wife) employment and income is a reflection of freedom economy, and woman contributions to income House ladder will improve home status stairs. Jobs owned by women will also increase social contacts of women who will increase their social capital, which will ultimately improve the status of females against their husbands (males).

Amount member House stairs will also take effect to pattern consumption food that is run by House stairs. The more family members, the more the food consumption need. If income House ladder permanent However total member

family big, then a woman farmer must think how the method allocates relative income a little it so that it can sufficient consumption House ladder for whole member his family. The average number of family farmers in the district Kronjo is 4 people. If you see from family members, the burden of family woman farmers in the District Kronjo, including from a small family, to determine endurance food House stairs is not too heavy.

The conditions of the houses (residences) owned by the families in the Kronjo District are generally included in the category of permanent housing suitable for habitation and protect their inhabitants. However, there are still few houses that are still semi-permanent, and some of their houses are still close to sometimes livestock. In some cases, there are still houses that are attached to the cattle pens. In such conditions, a house that does not meet health standards may even disrupt the health level of its occupants so that they are prone to disease.

For public village Mastery, lah farming as backup ingredient food is size-level prosperity family good land alone nor arable land, sustainable food program as in the idea of the Ministry of Agriculture as part of family endurance food strategy, where activity planting could be done. Mastery land used for farming by women farmers in the District Kronjo comprises average area of 0.17 Ha and is generally in the form of yard for farming vegetables. Through the P2L program needs family will vegetables part could be fulfilled independent, so capable of reducing the expenditure on family in consume vegetables.

3.2 Diversity of Food Endurance Levels in House Ladder of Women Farmers in the District Kronjo

Salim^[2,13] states that, from side outcomes, consumption of food is the entry point for evaluating the performance of endurance food House ladder. Food consumption is converted into total food or group food consumed by the home stairs. Degrees of endurance food could be seen from various aspects, one of them is indicator of food degrees classified by ^[8,9], who measure degrees of endurance food based on total ingredient food or group food consumed by home stairs. The consumption of food House ladder is shared into seven categories, namely: (1) grains, roots, and tubers; (2) nuts; (3) product livestock; (4) meat, fish, and eggs; (5) oils and fats; (6) fruits; and (7) vegetables. Group average food consumed by home ladder woman farmers in District Kronjo is 5.64 (Tab. 2).

In District Kronjo generally, group food that is not consumed by House ladder farmers is the products of livestock and fruits. They think that the second type of food is expensive, and their income is not sufficient for buying group ingredient food, especially cattle products. They consume only fruits from their yard.

Tab. 2 Degree of endurance food House Stairs of women farmers in the District Kronjo, 2021 (Processed primary data, 2021)

Endurance Food	Results
Group average food consumed	5.64
Degrees of endurance food (%) ¹	
• Height (> 6)	31.77
• Medium (4.5 – 6)	62.35
• Low (< 4.5)	5.88
Degrees of endurance food (%) ²	
Prone (< 5,6)	25.23
Hold (5,6)	74.77

¹ Based on the classification of ^[8]

² Based on ^[11]

Degrees of endurance food House ladder from women farmers in the district Kronjo belong to the moderate category (62.35%), and only 5.88% are included in low category. It means that ingredient food consumed by a household or group is not sufficient in five kinds. In low group, this only consumes grains, roots, tubers, nuts, oils, fats, meat fish, eggs, and vegetables. Based on these data, it is also seen that large part of family woman farmers in the district Kronjo is included in the category of stand food (74.77%), while that included vulnerable food around 25.23%.

3.3 The Role of Women Farmers in the Consumption of Ingredient Food to Realize Endurance Food at Home-Level Stairs in the District Kronjo

The role of women in arranging pattern food family very urgent in effort consumption of ingredient food at level House stairs, remember that in hand woman or a mother ingredient food planned, processed and prepared as avoidance for his family. The allocated budget for planning, processing, preparing, and serving ingredient food becomes a basis for a woman (mother House stairs) to restore the quality and quantity of food that will be consumed by the family.

The results of data analysis are obtained by combining the variables of House ladder income, woman income, age women, educated woman, the number of the members of House stairs, information access, which is an influential indicator of the role of women in preparing the family pattern of food consumption and an indicator of the family endurance food. The

regression coefficient value is 0.674 (67.4%), while the rest of 0.326 (32.6%) is influenced by factors outside the model.

House ladder income shows significant influence on consumption of ingredient food at level House ladder with a positive connection. That is, increase income House ladder will increase by real diversity House ladder in consumption ingredient the food. The higher the income House ladder, the higher the income

allocated for food.

Income woman farmers show significant influence on consumption of ingredient food at level House with a positive connection. That is, increasing the income of woman farmers will increase the real diversity of House ladder in the consumption of ingredient food House stairs. Existence income woman farmers so will give a contribution to income House stairs that are life will impact consumption of food House stairs.

Tab. 3 The role of women farmers in the consumption of ingredient food at Home-Level Stairs in the District Kronjo, Tangerang Regency, in 2021 (Processed primary data analysis, 2021)

No	Variable	Unstandardized Coefficients		Standardized Beta Coefficients	T-Count	Sig.
		B	Std. Error			
1	Constant	10,048	1.575		6379	0.000
2	Household income	0.156	0.182	0.104	1,858*	0.394
3	Income woman	0.025	0.104	0.028	2,236**	0.029
4	Age woman	-0.090	0.301	-0.032	1,299 ^{ns}	0.766
5	Women's education	0.294	0.132	0.251	0.827 ^{ns}	0.814
6	Amount RT member	0.418	0.211	0.232	1984**	0.051
7	Land area farming	-0.220	0.078	0.017	-1,631 *	0.009
8	Access information	0.101	0.166	0.697	0.891 ^{ns}	0.551
	R ² _				0.674	
	F- Count				4,167 ***	

*** Significant at level 99% confidence

** Significant at level 95% confidence

* Significant at level 90% confidence

The number of the members of House ladder shows a significant influence on consumption of ingredient food at the level of House ladder with connection positive. It means that increase total member the family will increase by real consumption of ingredients food at level House stairs.

Land area shows a significant influence on consumption of ingredient food House ladder, with a negative relationship. This shows that the existence toddler on something House ladder will give influence on the consumption of food at the level House ladder where a Mother will notice diverse consumption the food for her still child toddler. Age women, education women, and access to information do not show significant influence on the consumption of food at level House stairs.

3.4 Factors Influencing Expenditure Ingredient Food Principal at Home-Level Stairs in the District Kronjo

The regression analysis result on goods price tree (Tab. 4) shows that the variables of rice price, other food price, income of House stairs, number of the family members, and education together influence the pattern food expenditure tree of 0.651 (65.1%), while the remaining of 0.349 (34.9%) is influenced by other factors outside the model.

Rice price shows significant influence on

expenditure ingredient food tree at level House ladder with a positive relationship. This means that the increased price of rice will increase by real expenditure for ingredient food tree at the level House stairs. This is because rice is an ingredient food tree society, so an increased price of rice will cause an increased expenditure on ingredient food tree at level House stairs. Other food price though has a real relationship, but the direction is negative. This means that increasing the price of other food does not result in an increased family expenditure for the ingredient food, like for the consumption of vegetables available through P2L activities.

Tab. 4 shows that the level of household income has a significant relationship to the level of household expenditure, higher level of income received - House stairs, then the level of household expenditure for ingredient food is also increasing; this in line with ^[10,13,14], according to whom, increased family income contributes to the improvement of marked prosperity with obtaining better pattern of food provided for the family.

Thereby, it is the same with the total number of members of House stairs that become a dependent family, which shows a significant influence on the ingredient food expenditure tree at the level of House ladder with a positive relationship. This means that an increase in the total number of members of the family will be

influenced by a real increase in expenditure on ingredient food at the level House stairs. This occurred because the more members of House ladder consume ingredient food, the more the expenditure for the provision of ingredient food.

The level of education experienced by a person will determine the capacity of the person concerned, the higher the education, the individual's capacity for food will also be better. The education level of women, especially female farmers in the Kronjo sub-district, based on the

correlation coefficient value, has a coefficient of 0.154 and has a very significant effect with a positive direction on expenditure, especially in providing food at the household level. This means that the higher the education level of women farmers, the consumption of family food ingredients also increases in the food served by the family, both in terms of quality and variety of food ingredients needed by the family. So that the family's food needs will be of higher quality according to what the body needs.

Tab. 4 Factors influencing expenditure on ingredient food at Home-Level Stairs in the District Kronjo, 2021 (Processed primary data analysis, 2021)

No	Variable	Unstandardized Coefficients		Standardized Beta Coefficients	T-Count	Sig.
		B	Std. Error			
1	Constant	1.469	.400		3.669	.000
2	Rice price	.158	.041	.141	3,837**	.000
3	Material and other food price	-.153	.073	.893	1,712*	.000
4	Income House ladder	.152	.096	.288	7,447***	.000
5	Amount member House ladder	.429	.088	.243	4.869***	.000
6	Education	.154	.095	.223	5.436***	.000
	R2 _				.651	
	F- Count				5,167 ***	

*** Significant at level 99% confidence

** Significant at level 95% confidence

* Significant at level 90% confidence

Other food prices (Tab. 4) have a significant relationship with the family expenditure. However, the direction is negative, which means that goods and other foods are only complementary in the pattern family food. This is in line with consumption patterns that are carried out in a family that only consumes five kinds: grains, roots, and tubers; nuts; oils and fats; meat, fish, and eggs; vegetables.

4 Conclusions

The level of food security of female farmer households in Kronjo District, Tangerang Regency, is in the food security category with a

value of 74.77% while households vulnerable to food are 25.23%. The pattern of food consumption of farming families is directly influenced by the level of household income, the level of income of women farmers, the number of family members, the level of education and access to information. Meanwhile, the amount of household expenditure on meeting food needs is affected by the price of rice; household income; number of family members; and education level. Local food diversification patterns that are in accordance with land conditions need to be encouraged so that food does not depend only on rice.

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