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Food Security Assessment of Smallholder Households Based on Resilience Capacity Index (RCI) in Gondang District, Mojokerto Regency

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ABSTRACT

Food security has a crucial role in maintaining the sustainability of smallholder households that are vulnerable to climate and economic shocks. This study aims to describe the food security conditions of smallholder households, measure the level of food security, and formulate strategies to increase food security in smallholder households in Gondang District, Mojokerto Regency. The study used a quantitative descriptive method, with 43 respondents determined by purposive sampling. Food security level measurement was conducted using the Resilience Capacity Index (RCI). The results of the study show that the level of food security of smallholder households is in the very vulnerable category (RCI index was 34.66%). These conditions reflect limited adaptive capacity, assets, access to basic services and social safety nets. Food security for smallholder households can be achieved through an integrated approach that includes increasing the adaptive capacity of farmers, optimizing and diversifying productive assets, equitable access to basic services, and strengthening social safety nets.

Keywords: Food Security, Resilience Capacity Index, Small Farmer Households

INTRODUCTION

Food security is one of the main pillars in national development can sustain the quality of human resources through nutrition and health, maintain economic stability by controlling prices and supply, and strengthen state sovereignty from import dependence (Yudianti *et al*., 2023). Food security is not only a matter of the availability of production, but also access, utilization, and distribution stability that concerns the livelihoods of all people (Viona *et al*., 2025;Badan Pangan Nasional, 2025).

The agricultural sector plays a strategic role in food security, as it directly determines food availability (FAO, 2021). The importance of agriculture in supporting food security, faced with the condition of farmers in Indonesia which shows vulnerability. BPS, (2023) recorded 17,251,432 farmers or around 62% of the total land-user farmers in Indonesia are classified as small farmers with limited land ownership. This phenomenon has become a problem for agriculture in Indonesia. Despite having a role as the backbone of agriculture due to its dominating numbers, this group is actually in a vulnerable position with low income levels (Abidin, 2024).

Mojokerto Regency is one of the strategic agricultural areas in East Java Province with an active land area of 45,030 ha (BPS, 2024). Theoretically, the existence of large farmland can be an important capital in maintaining potential food availability at the regional level (Viana *et al*., 2022). However, such conditions do not automatically guarantee food security and high income at the farmer household level (Vernando *et al*., 2022). Home Farmers often face challenges that can disrupt access and utilization of food, such as dependence on

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the rainy season, pest and plant disease attacks, lack of commodity diversification, fluctuations in production input prices, and limited access to technology and market information. These factors collectively affect the ability to meet sustainable and stable food needs (Nupus *et al*., 2024;Amin *et al*., 2024).

Similar conditions occurred in Gondang District which has a land area of 2,766 ha (BPS, 2024). As a sub-district with the main livelihood base of the agricultural sector, Gondang District has relatively stable market access due to the intervention of crop absorption by Bulog and is supported by the existence of active farmer groups (Budianto, 2025:BPS, 2024b). However, agricultural patterns in this region are still dominated by small-scale farming businesses. There are 4,261 farmers in Gondang District who are classified as small farmers who are characterized by narrow land ownership (<0.5 ha), limited capital and technology, and dependence on family labor (Halim & Faisal, 2022;BPS, 2023). Based on the explanation of the local agricultural extension worker, agriculture in this sub-district is dominated by a monoculture farming system of rice crops, influenced by uncertain climatic conditions, farmers face fluctuations in input and output prices, and the frequency of pest attacks that tend to increase (BAPPEDA Kabupaten Mojokerto, 2023)

This condition is suspected to cause vulnerability to farmers' food security. The concept of food security includes four main dimensions, namely availability, access, utilization, and stability (Clapp *et al*., 2022;Manikas *et al*., 2023;Moradian *et al*., 2023). These four dimensions emphasize that food fulfillment is not only measured by the amount of production, but also by the ability of the community to obtain, utilize and maintain food supply in a sustainable manner. In its development, the concept of food security was developed to measure the level of vulnerability of food security, known as Resilience Capacity Index (RCI) (FAO, 2021).

Approach RCI is relevant because it is able to assess household food security in the long term. RCI measures households' ability to cope with various shocks through indicators *adaptive capacity, assests, access to basic services, and social safety nets* (Terefe *et al*., 2025). *Resilience Capacity Index* (RCI) has context-specific properties and can be adjusted to field conditions, RCI indicators can be modified according to data availability and local characteristics. This allows for more accurate and representative measurements of food security, especially in rural areas with limited infrastructure and resources. Through RCI, food security conditions can be comprehensively described by paying attention to the ability of households to face, adjust and recover from various agricultural shocks (FAO, 2016;FAO, 2020). In contrast to several household food security measures that have been widely implemented, such as *Household Food Insecurity Access Scale* (HFIAS). This method uses the basis of household perceptions, and only assesses the dimensions of short-term food access Coates *et al*, (2007). In addition to HFIAS, there are *Food Consumption Score* (FCS). Methods of assessing food security based on variations in food consumption over a given period (World Food Programme, 2008). Based on the above background, this study aims to describe the food security conditions of smallholder households, analyze the level of food security and formulate strategies to increase food security in smallholder households in Gondang District.

RESEARCH METHODS

This research was carried out in Gondang District, Mojokerto Regency which was selected by *Purposive* Considering that the sub-district is dominated by smallholder farmers who

are vulnerable to shocks such as price fluctuations to uncertain climate change (Habibah & Ansori, 2021). There are three selected villages, namely Centong, Jatidukuh, and Bening. Village elections are also carried out in a systematic manner *Purposive* considering the largest area and agricultural land in Gondang District (BPS, 2024b;Pemerintah Kabupaten Mojokerto, 2024)

This research is a quantitative descriptive research using primary data. The respondents in this study were 43 farmers, which were determined using the Cochran's formula. The number of samples taken in Centong, Jatidukuh and Bening Villages was 15 each; 13; and 15 smallholder households. The sampling method is purposive sampling. The analysis method used in this food security research is Resilience Capacity Index (RCI) (Moradian *et al*., 2023;Terefe *et al*., 2025;Odozi *et al*., 2022;Egamberdiev *et al*., 2023). While the indicators can be seen in Table 1.

Table 1
RCI Measurement Indicator

Indicator	Parameters	Unit of Measure
Adaptive Capacity		
Head of Household Education (AC1)	No School/Elementary School	0-6
	Junior High School	7-9
	High School/Equivalent	10-12
	D3/S1/S2	13-18
Income Diversification (AC2)	Only 1 source of income	1
	2 sources (e.g. farming + selling produce)	2
	≥3 sources (e.g. farming, trading, livestock)	3
Income Source Outside Farming (AC3)	Trader, Employee, Livestock, Civil Servant, Others	Unit
Farming Experience (AC4)	Years	Years
Crop Diversification (AC5)	Medical Plants, Food Crops, Horticultural Crops, Plantation Crops, Others	Unit
Access Information (AC6)	No access	1
	Limited access	2
	Active access to 2+ media & training	3
Economic Mobility (AC7)	Unable to work outside the village	1
	Seasonal mobility (e.g. labor migration)	2
	Can switch business sectors / flexible work	3
Assets Indicator (AST)		
Land Area (AST1)	<0.5 ha	ha
Small Livestock (AST2)	None/<1	Tail
	1–3	
	>3	
	None/<1	Tail

Large Livestock Numbers(AST3)	1–3 >3	
Production Assets (AST4)	No farming tools 1–2 tools >2 full tools	Units
Residence (AST5)	Semi-permanent/unsuitable house Simple livable house Permanent/well-structured houses	1 2 3
Access to Basic Services *(ABS)* Indicator		
Access to Clean Water (ABS1)	No reliable sources Occasional/remote access Regular and close access	1 2 3
Healthcare (ABS2)	Distance >10 km, not accessible Affordable with difficulty Close and easy to reach	Km
Access to Education (ABS3)	No school within 5 km There are but few facilities. A well-equipped and accessible school	1 2 3
Market Access (ABS4)	No Market/Very Far Weekly market Daily Market	1 2 3
Social Safety Nets *(SSN)* Indicator		
Formal Assistance (SSN1)	Never received help Have received but not regularly Receive routines	1 2 3
Community Support (SSN2)	Inactive in the community Passive active (occasionally) Active & can support the community	1 2 3
Help Family/Neighbors (SSN3)	No social connections Limited relationships There is a strong social network	1 2 3
Social Participation (SSN4)	☐ Arisan ☐ Village Cooperative ☐ Study Group ☐ PKK ☐ Farmer Group ☐ Karang Taruna ☐ Financial Management Unit (UPT Village) ☐ Co-Processing Group ☐ Joint Marketing Groups ☐ Others	Units

Sources : (FAO, 2016; Moradian *et al*., 2023; Mondal *et al*., 2023;Dawid *et al*., 2023 ; Abebe, 2025).

The calculation of the RCI value is obtained through the following stages:

1. Data Normalization, each indicator has a different unit (e.g.IDR (Indonesian Rupiah), number of family members, social participation score, etc.). *Min–Max Normalization method*:

$$xi^{v} = \frac{xi - xi_{min}}{x_{\max - xi_{min}}} \quad \text{..... (1)}$$

Description:
xi^{v} : indicator value after normalization (scale 0–1)
x_i : the original value of the respondent's i-i indicator
$x_{i_{min}}$: minimum score of the first indicator of all respondents
$x_{i_{max}}$: the maximum value of the ith indicator from all respondents

2. Weighting each indicator carried out by experts. The Head of the Mojokerto Regency Food Security Service was selected as an expert. Weighting was carried out using the pair-way comparison method.
3. Calculate the RCI score with the following formula.
   RCI = $\left[\sum_{i=1}^{4} Wi.Xi\right] x\ 100$ ..... (2)

Remarks: Wi is the result of weighting of indicators carried out by experts in this case *adaptive capacity* (0.5), *assets* (0.3), *access to basic services* (0.15) and *social safety nets* (0.05). Xi is the normalization value for each sub indicator.
The RCI score is in the range of 0-100. so that the final score of the RCI is multiplied by 100. RCI score criteria (80–100=Very Resilient), (60–79=Resistant), (40–59=Vulnerable) and (<40=Very Vulnerable).

RESULTS AND DISCUSSION

Overview of the Food Security Conditions of Small Farmers Households in Gondang District

The results of the RCI analysis show that the food security conditions of smallholder households narrowly between individuals, as shown by the minimum, maximum, mean, and standard deviation values of each parameter listed in Table 2. This shows that in general, the conditions of smallholder households in the study site are relatively the same.

The adaptive capacity indicator shows that average of farmers education is elementary school education. Based on findings in the field, this is due to economic limitations to continue higher education. This is in line with research Andale *et al*. (2024) which states that the factors that cause children to drop out of school, including the economic condition of their parents, environmental factors, and the lack of parental motivation to encourage children to continue their education. Other findings show that in general, smallholders in Gondang District do not diversify their income and economic mobility are limited or do not have a side job. This condition shows that most of the respondents are completely dependent on one main economic activity as farmers and only a small percentage of respondents have additional jobs. Based on findings in the field, this income diversification inequality occurs due to differences in education and non-agricultural skills possessed by farmers. In line with research Nababan *et al*. (2023) and Polimango *et al.*, (2025) which states that the factors that affect the diversification of livelihoods are education.

The plant diversification parameters show that most small farmers in Gondang District only cultivate one type of crop, namely food crops such as rice or corn. The results of findings in the field show that the dominance of food crop farming is influenced by the availability of good water and irrigation sources. This condition causes farmers to prefer to only plant crops that are in accordance with the existing irrigation system. Switching to

other commodities has the consequence of additional costs that must be incurred, so it is a consideration for farmers not to diversify crops more widely. In line with research Khafid *et al*. (2024) which states that the transition from paddy to non-paddy crops requires additional costs (water infrastructure, equipment, labor) and there is a threat of economic uncertainty.

Table 1
Overview of Small Farmer Households in Gondang District

Parameters	Min	Max	Mean	St. Dev
Head of Household Education (AC.1)	2	12	6.53	2.91
Diversification of Farmers' Income (AC.2)	0	1	0.21	0.41
Sources of Income Outside Farmers/Family Members (AC.3)	0	2	0.65	0.69
Farming Experience (AC.4)	10	63	44.42	11.60
Plant Diversification (AC.5)	1	2	1.05	0.21
Access to Information (AC.6)	0	3	1.47	0.70
Economic Mobility (AC.7)	1	3	1.49	0.86
Land Area (AST.1)	0.05	0.49	0.32	0.15
Number of Small Livestock/Poultry (AST.2)	0	50	3.72	10.98
Large Livestock/Ruminants (AST.3)	0	15	1.07	2.69
Production Assets (AST.4)	2	4	2.93	0.51
Residence (AST.5)	1	3	2.00	0.31
Access to Clean Water (ABS.1)	2	3	2.30	0.46
Healthcare (ABS.2)	3	4	3.30	0.46
Access to Education (ABS.3)	2	3	2.35	0.48
Market Access (ABS.4)	1	3	2.00	0.85
Formal Assistance (SSN.1)	1	3	1.44	0.73
Community Support (SSN.2)	1	3	1.70	0.56
Relative/Neighbor Assistance (SSN.3)	1	3	1.53	0.55
Social Participation (SSN.4)	0	2	0.74	0.62

The information access parameters provide an overview that in general, small farmers in Gondang District only rely on one access to information, namely agricultural extension workers. However, the range of access to information from 0 to 3 indicates that there are farmers who do not have access to information and who have access to more than one type of information. The second group is relatively small, so it does not have an impact on the massive dissemination of information. Based on findings in the field, this condition occurs due to the fact that many farmers are old age with a low level of education so that they are less able to adopt technology. These findings are in line with research Zahara *et al*. (2024) shows that education has a significant impact on the adoption of technological innovations by farmers.

The asset indicator consists of several parameters, one of which is the parameters of small and large livestock ownership. In general, small farmers in

Gondang District only raise a few small livestock or poultry, especially chickens which function as a reserve of household assets and can be sold at any time to meet urgent needs. However, the very large standard deviation (10.98) indicates a very wide variation between farmers. This means that there are farmer households that do not have livestock at all and there are farmer households that raise large numbers of livestock. These differences can reflect variations in capital capabilities, maintenance space, risk management strategies, and economic preferences of each farmer household (Batulante & Kenedi, 2024).

Another parameter is production assets. In general, the production assets owned by farmers include hoes, scythes and sprayers which are basic agricultural tools. However, the value range of 2 to 4 units indicates that farmers have only two basic tools and who have additional high-tech agricultural tools, such as tractors. The number of these groups is relatively small. Based on findings in the field, farmers' asset ownership is influenced by economic conditions, investment courage and the area of agricultural land cultivated. Research Lubis. (2024) which states that the ownership of mechanical assets is influenced by the area of land and resources owned by farmers. While based on the parameter four dwellings that show in general smallholders in Gondang District It has a semi-permanent residence characterized by brick walls and a tile roof. Relatively small standard deviation, which reflects narrow variations between farmers so that it can be concluded that the conditions of residence owned by farmers are not significantly different.

The access to basic service indicator is measured using 4 parameters. Based on the parameters of access to clean water, it shows that most small farmers in Gondang District have around two sources of access to clean water, namely wells and rivers. The combination of these two sources reflects relatively adequate access conditions for basic domestic needs, although their quality and continuity may vary between regions. In addition, based on the parameters of health services, small farmers in Gondang District are able to access around three types of health services, namely clinics, posyandu, and health centers. The relatively low standard deviation value (0.46) indicates that most respondents have similar health care access conditions. While The education access parameters have a value range of 2 to 3 with a mean of 2.35 and a standard deviation of 0.48. The mean value shows that in general, small farmers in Gondang District are able to access 2 educational services, namely elementary and junior high schools. This is in line with research Princess *et al.* (2025) stating that access to education in rural areas faces structural problems, including the availability of distant secondary schools.

Market access parameters are important because they are directly related to the process of input-input and output transactions carried out by farmers. It has a value range of 1 to 3 with a mean of 2.00 and a standard deviation of 0.85. Most farmers have market access conditions that are not significantly different, namely weekly market access. Based on findings in the field, Gondang District only has one small market located near the sub-district office. Geographical conditions and considerable distance between villages cause some villages to experience limited access to the central market so that there are villages that hold markets in certain periods, such as weekly markets. This is an alternative effort to meet local needs and reduce the burden of travel to the central market.

The social safety nets indicator was assessed using 4 parameters of formal assistance, neighbor assistance, community support and social participation. Based on the parameters of formal and neighboring assistance, most

farmers admitted that they had never received formal assistance. Based on findings in the field, this condition shows that there is a limited reach of formal programs for small farmer groups in the region. This condition is caused by administrative constraints, inaccuracy of targets, and the lack of information received by farmers about available programs (Purbaningrum & Adinugraha, 2024). Meanwhile, the parameters of neighbor assistance have a score range of 1 to 3. This indicates that there are still farmers who have or tend to often get help from neighbors. However, the number of these groups is relatively small. According to research Meka & Nahak. (2022) neighbor assistance as a horizontal network and cooperatives as a vertical network can help farmers in the midst of a crisis situation that hits agricultural businesses. Meanwhile, the results of the measurement of participation parameters show that in general, small farmers participate in 1 social activity (farmer group). Based on findings in the field, farmers choose to join farmer groups not only to obtain information related to agricultural activities, but also to make it easier to get fertilizer subsidies. In line with research Baga *et al*. (2023) which states that farmer group membership allows farmers to get access to agricultural fertilizers/inputs more easily than non-members.

Food Security Levels in the RCI Index

The results of the analysis using RCI showed that the value of the RCI index was 34.66%. This means that in general, smallholders in Gondang District have long-term food security at a very vulnerable level. Some of the contributing indicators include, namely assets that have the highest contribution of 17%. These findings indicate that the ownership and control of assets, in the form of land, means of production, residence, large and small livestock, are the main foundation of smallholder households in maintaining productivity and economic stability. Assets act as material resources that provide flexibility in the face of climate and economic shocks, choosing more efficient production strategies and long-term investment tools for farmers. Research Mondal *et al*. (2023) states that *Assets* and *adaptive capacity* has a greater role in increasing the resilience of farmers.

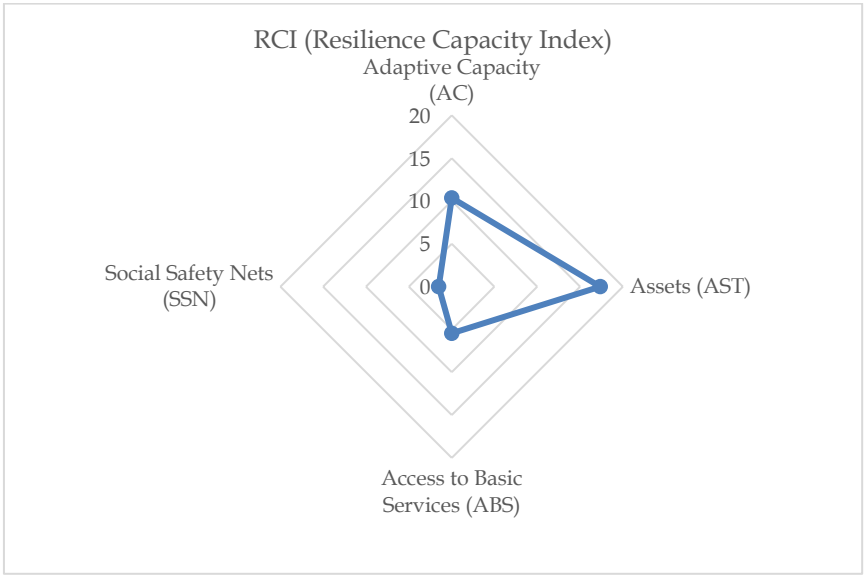


Figure 1
Indicator Distribution on the Overall RCI

Indicator *adaptive capacity* occupying the second position with the highest contribution in shaping the resilience of smallholder households of 10%. This value shows that farmers have a relatively good adaptive capacity. *Adaptive capacity* reflects the extent to which households are able to respond, adapt and develop new strategies to sustain agricultural sustainability. The contribution of this indicator confirms the importance of adaptive power in dealing with shocks, such as climate change to the economy. Research Egamberdiev *et al*. (2023) states that *adaptive capacity* is the factor with the highest significant value on household resilience and research Mondal *et al*. (2023) mentions that *adaptive capacity* is the most important factor in increasing the level of resilience at the family and community level.

Indicator *access to basic services* Contributing 5% shows that access to basic services is still very limited, but still has a role in shaping household resilience. These limitations indicate that small farmer households in Gondang District have basic access that is not optimal in supporting survival and agricultural activities. However, basic access such as access to clean water, education, health services and existing markets remain supporting factors for farmers in Face and respond to possible health and agricultural risks. Research Mondal *et al*., (2023) declare that access to basic services is limited and inadequate. However, this indicator remains one of the key factors in increasing household resilience.

Indicator *Social Safety Nets* has the lowest contribution value of 2%. These low values indicate that social safety nets, such as community support, formal assistance, neighbor/sibling assistance and social participation, have not provided a significant role in supporting farmers' resilience. This condition is caused by the uneven distribution of aid to assistance that is not used by farmers in helping to reduce the impact of climate and economic shocks. The low contribution of this indicator confirms that farmer households depend on internal strength, as opposed to external support. Research Purbaningrum & Adinugraha. (2024) states that improper aid targeting not only threatens the sustainability of social assistance programs, but also harms the integrity and public trust in the government.

Strategies to Improve Food Security Based on RCI Findings

Based on the results of the RCI analysis, there are parameters with the highest and lowest values in each indicator as well as the highest and lowest indicators overall. Findings like these are important, as they show areas of strength and weakness in farmers' household food security so that they can be the basis for policy recommendations. The parameters with the highest values are positioned as superior potentials that need to be maintained and optimized. Meanwhile, the parameters with the lowest values are prioritized as intervention areas because they have great urgency for improvement. This approach is used to produce a more focused, relevant, and applicative policy direction (Fachrudin, 2021).

On Indicator *adaptive capacity,* Farming experience parameters show the highest RCI value. This means that this parameter is an important capital that can be maintained and optimized. Optimization can be carried out through risk management training, field demonstrations, and comparative study programs between farmer groups, both inside and outside the sub-district to improve adaptability. In line with research Lestari & Oktoriana. (2024) which states that efforts to improve farmers' skills can be carried out through plot demonstrations (demonstration plots),

comparative studies and field schools. Research Silviah. (2024) mentioned that risk management training helps farmers recognize potential risks early and formulate strategic steps to anticipate various threats to agriculture. Meanwhile, the low RCI value of crop diversification parameters indicates the need for policy encouragement to expand the types of commodities that farmers cultivate. Efforts that can be made include the provision of saprodi assistance (farmers can transfer financing), agronomic assistance, and strengthening market access for new commodities. In line with research Abidin. (2024) which states that the policy of assisting cultivation techniques and agricultural technology is one of the policies that can be carried out in an effort to strengthen smallholders to support food security. Furthermore, research Shodiq *et al*. (2022) mentioned that several efforts are considered to be able to increase farmers' income and reduce production costs, including modernization of cultivation systems, implementation of agricultural sector subsidy policies, provision of saprodi support (seeds, fertilizers, pesticides), increasing access to and agricultural infrastructure, and implementing diversification strategies.

Strategies that can be carried out based on Indicators *Assets* In the land area parameter is an increase in the intensity of extension and assistance programs related to intensification and more efficient plant patterns. These recommendations are strengthened by research Suryanto *et al*. (2024) which states that extension and intensification assistance can contribute to increasing rice productivity and agricultural land use efficiency. Conversely, the low value of RCIs in the parameters of large livestock ownership indicates the need for capital support for diversification of non-land assets. Local governments through agricultural institutions can also support to facilitate livestock credit assistance programs, livestock management training, and farmers integrate crops and livestock to increase income. The recommendation is strengthened by Zaki *et al*. (2024) which states that a comprehensive training model that combines technical materials with managerial skills has been proven to result in improved welfare for farmers. Furthermore, research Nurcholis *et al*. (2025) stated that the People's Business Credit Scheme (KUR) for livestock can be used as a financing solution, because capital problems are still the biggest challenge for small farmers. In addition, research Utami & Rangkuti. (2021) stated that the integration between farming and livestock plays a role in increasing income, because the cost efficiency produced can reduce the burden of expenses and strengthen farmers' income.

Indicator-based strategy *access to basic services* with market access parameters, it can be done through improving market infrastructure by the local government, maintaining the continuity of regular and weekly markets, and optimizing the existence of regular markets through partnerships with traders so that farmers are able to sell their crops at more favorable prices. The recommendations are in line with research Faturochman et al., (2025) which states that improving market infrastructure is one of the strategies to improve the welfare of farmers and the sustainability of traditional markets is important, as it supports the local economy. The above strategy recommendations are also in line with the research Cele & Mudhara. (2021), which states that farmers who participate in the market or sell their crops to the market have a higher chance of achieving food security. On the contrary, the low value in the health service parameters indicates the need for improvement. Efforts that can be made include the addition of village-level health facilities and mobility of health services (Anggraini, 2023). Meanwhile, efforts that can be made for access to

clean water include: river clean movement and sanitation education, livestock waste treatment education, irrigation infrastructure development, utilization efficiency by regulating irrigation schedules as has been done in some villages. These recommendations are strengthened by research (Auliya & Ikaningtyas, 2025) which states that increasing the availability of clean water can be realized through programs to strengthen sanitation facilities, as well as clean environment management by involving cross-party cooperation and active education to the community. Next Sumarta *et al*. (2025) stated that the Clean River Program (Prokasih) is a solution step in restoring the function of rivers that have decreased in quality due to the pressure of human activities. The above recommendations are also strengthened by the results of the research Nguru et al. (2025) which states that education and training in livestock waste treatment are useful to reduce environmental, soil, water and air pollution. Meanwhile, the recommendations for irrigation arrangements are strengthened by research Chai & Zeng, (2021) and Putra & Salsabila, (2025). Their research results show that the application of rotational irrigation increases the ability of a region to adapt to water availability pressures, while ensuring that the distribution of water for agricultural purposes takes place effectively and fairly in the midst of limited water resources.

On Indicators *Social Safety Nets*, the social opt-in parameter that indicates the highest RCI value. This means that local social networks are strong enough that they can be used as communication channels and instruments for organizing farmers (Harahap *et al*, 2023). Efforts that can be made include maintaining the sustainability of meetings or regular discussions of members (Suparman *et al*., 2021), and increase the activeness of farmers in activities provided by extension workers (Chodijah & Suma, 2023). On the other hand, the low RCI value in the formal aid parameter indicates that farmers' access to government assistance is limited and therefore needs to be improved. Efforts that can be made include increasing program socialization, administrative assistance, simplifying procedures, differentiating distribution and data collection staff, and improving the bureaucratic structure (Sholikhati., 2023;Ariansyah *et al*., 2025).

CONCLUSION

Based on the results and discussion, it can be concluded that based on RCI indicators, the food security conditions of smallholder households in Gondang District tend to be homogeneous. In addition, the overall level of food security is in the very vulnerable category. Several parameters show a good value as the strength of food security of farmer households, including farming experience in the *adaptive capacity* indicator, land area in the *asset* indicator, market access in the *access to basic services* indicator and farmers' social participation in the *social safety net indicator.* This parameter is a priority for optimization strategy recommendations. On the other hand, parameters that show low values for farmers' household food security, including crop diversification in the adaptive capacity indicator, large livestock ownership in the asset indicator, access to clean water and health services in the access to basic services indicator, and formal assistance in the social safety net indicator. This parameter is a recommendation for strategies to increase food security. Based on the results of the study, food security for smallholder households in Gondang District can be carried out through an integrated approach that includes increasing the adaptive capacity of farmers, optimizing and diversifying productive assets, equitable access to

basic services, and strengthening social safety nets. The strategy must be supported by continuous assistance, strengthening farmer institutions, improving formal aid governance, and cross-sector collaboration.

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