SIMBAN : Sumber Informasi Manajemen Bisnis dan Akuntansi
Volume 3, Number 1, 2026
E-ISSN: 3123-5956
DOI: https://doi.org/10.65788/simban.v3i1.100
Indexed by Google Scholar:
https://scholar.google.com/citations?hl=id&user=qScjVQIAAAAJ

HOME GARDENS AND FOOD SECURITY: AN ECONOMIC ANALYSIS IN LAMDINGIN, BANDA ACEH

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Abstract: This study analyzes the utilization of homegarden land in Lamdingin Village, Kuta Alam Sub-District, Banda Aceh City, as a strategy to enhance household food security and economic resilience. The research objectives are: (1) to identify the potential of homegardens as sources of food and income, (2) to evaluate community knowledge and skills in their management, and (3) to reveal major constraints and propose alternative solutions. A descriptive approach was employed, utilizing a survey method targeting households owning homegardens. Data collected encompassed homegarden characteristics, cultivated commodity types, utilization of produce (for consumption and/or sale), and technical and non-technical barriers. Findings indicate substantial potential for homegarden development through the cultivation of vegetables, fruits, and small livestock, supporting family nutritional needs and generating supplementary income. However, utilization remains limited due to constrained land availability, inadequate technical knowledge, scarcity of production inputs, and disruptions from pests and plant diseases.
Keywords: Homegarden land; Household food security; Vegetables; Fruits; Household agribusiness

Abstrak: Penelitian ini menganalisis pemanfaatan lahan pekarangan rumah di Desa Lamdingin, Kecamatan Kuta Alam, Kota Banda Aceh, sebagai upaya penguatan ketahanan pangan dan ekonomi keluarga. Tujuan penelitian adalah: (1) mengidentifikasi potensi pekarangan sebagai sumber pangan dan pendapatan, (2) mengevaluasi pengetahuan serta keterampilan masyarakat dalam pengelolaannya, dan (3) mengungkap kendala utama serta alternatif solusi. Pendekatan yang digunakan bersifat deskriptif dengan metode survei pada rumah tangga pemilik pekarangan. Data yang dikumpulkan meliputi karakteristik pekarangan, jenis komoditas yang dibudidayakan, pemanfaatan hasil (konsumsi dan/atau penjualan), serta hambatan teknis dan nonteknis. Hasil menunjukkan bahwa pekarangan memiliki potensi besar untuk dikembangkan melalui budidaya sayuran, buah-buahan, dan ternak kecil yang mendukung pemenuhan gizi keluarga dan memberikan tambahan pendapatan. Namun, pemanfaatannya masih terbatas akibat sempitnya lahan, keterbatasan pengetahuan teknis, minimnya sarana produksi, serta gangguan hama dan penyakit tanaman.

Kata Kunci: Lahan pekarangan; Ketahanan Pangan Keluarga; Sayur-mayur; Buah-buahan; Agribisnis Rumah Tangga

Introduction

Homegarden land represents a key farm business unit surrounding the household, playing a vital role in meeting family food and nutritional needs (Suwono, 2012)[1]. Homegardens can be planted with diverse commodities such as vegetables, fruits, medicinal plants, and ornamentals, which offer both economic value and nutritional benefits (Riah, 2005)[2]. In the literature, homegardens are even termed "living granaries," "living shops," and "living pharmacies" due to their multifaceted functions for households in both rural and urban settings (Riah, 2005; Arifin et al., 2007)[3].

Effective utilization of homegarden land can fulfill a portion of household food needs through the cultivation of corn, tubers, vegetables, and fruits, while also generating additional income during production surpluses (Hariyadi, 2013; Marhalim, 2015)[4]. Indonesia's tropical climate strongly supports the development of various horticultural commodities in homegardens, making the agribusiness potential of household-level operations on limited land substantial (Sismihardjo, 2008)[5]. Marhalim's (2015)[6] study demonstrates that intensive and integrated homegarden management can make a tangible contribution to household economic income.

On the other hand, homegarden utilization is also linked to strengthening household food security through the empowerment of local potentials around residential areas (Hidayati et al., 2018). Homegarden enterprises managed according to their potential can contribute 7–45% to family income while providing food staples, vegetables, fruits, spices, and medicinal plants (Hidayat, 2013)[7]. Homegardens represent a promising agroecosystem for supporting household economic self-sufficiency and meeting local market demands (Kurnianingsih et al., 2015; Marhalim, 2015)[8].

In recent years, household food security has gained prominence, particularly among vulnerable groups in developing regions. Global studies indicate that disruptions in food supply chains, price increases, and economic pressures can rapidly reduce household access to nutritious food, necessitating strengthened local food production around residential areas—including homegardens and urban agriculture (Altieri, 2019[9]; Galhena et al., 2020)[10]. Home gardening and

1 Suwono. (2012). Sustainable Food House Area (RPL) Program of the Ministry of Agriculture and SIKIB Bantul Regency. Retrieved March 2, 2018, from http://bkppp.bantulkab.go.id/

2 Riah. (2005). Pemanfaatan lahan pekarangan [Home garden utilization]. Penebar Swadaya.

3 Arifin, M., et al. (2007). Homestead plot survey on Java. Department of Landscape Architecture & Rural Development Institute (RDI).

5 Sismihardjo. (2008). Agronomic study of fruit and vegetable crops in home-garden agroforestry structures in Bogor, Puncak, and Cianjur (Master's thesis, Institut Pertanian Bogor).

6 Marhalim. (2015). The economic contribution of home gardens to household income in Rambah Samo Village, Rokan Hulu Regency. Faculty of Agriculture, Universitas Pasir Pangaraian.

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9 Altieri, M. A., Nicholls, C. I., Henao, A., & Lana, M. A. (2020). Agroecology and the design of climate change-resilient farming systems. Agronomy for Sustainable Development, 40(3), 1–13.

10 Galhena, D. H., Freed, R., & Maredia, K. M. (2020). Home gardening and urban agriculture for enhancing food security and nutrition in developing countries. Food Security, 12(4), 1–15.

urban agriculture are identified as key strategies for enhancing the availability and access to fresh food at the household level amid uncertainties in global food systems (Suwardi et. al)[11].

The Indonesian context reveals similar urgency. Panjaitan et al. (2024)[12] report that tens of millions of Indonesians still face food insecurity, particularly low-income households highly sensitive to food price shocks and supply disruptions. In response, the government has developed the Sustainable Food Homegarden (P2L) program and various household food garden initiatives to optimize homegarden land for providing nutritious food and boosting family income. These programs underscore that homegardens are not merely supplemental spaces around the home but integral components of local food systems that strengthen food availability, access, and utilization at the household level.

Recent studies also demonstrate a positive correlation between homegarden utilization and household food security literacy and practices. Research in Serang City, for instance, found that mothers' food security literacy through homegarden use was in the "very good" category and associated with the availability of nutritious food in households (Siti Nurbaisy et al., 2021)[13]. A recent review of household food gardening programs in Indonesia affirms homegardens' tangible contributions to the pillars of food availability, access, and utilization, although program sustainability remains a challenge (The Contribution of Home Food Gardening Program to Household Food Security in Indonesia, 2021)[14]. These findings reinforce the relevance of this study, which examines homegarden land utilization in Lamdingin Village as part of food security strategies and household economic strengthening in urban areas.

Lamdingin Village, Kuta Alam Sub-District, Banda Aceh City, is an urban area that still retains homegarden land around residents' homes. Observations indicate that homegarden utilization in this village remains relatively limited and not yet optimally managed to support household food security and economic resilience. Some homegardens are left idle or used minimally, leaving their full economic and nutritional potentials largely untapped.

This research aims to: identify the potential of homegarden land utilization in supporting food needs and boosting household economies in Lamdingin Village; analyze community understanding and skills in exploiting homegarden land; identify constraints and barriers faced by the community in homegarden utilization and formulate alternative solutions. Practically, the findings are expected to provide inputs for village governments, universities, and other stakeholders in designing empowerment programs based on homegarden utilization to strengthen food security and improve household welfare.

Methods

This study adopts a descriptive approach using a survey method targeting households owning homegarden land in Lamdingin Village, Kuta Alam Sub-District, Banda Aceh City. The research location was purposively selected due to the village's retained homegarden areas with potential for household food security development. Respondents were selected from households meeting

[11] Suwardi, A. B., Navia, Z. I., Mubarak, A., & Mardudi, M. (2023). Diversity of home garden plants and their contribution to promoting sustainable livelihoods for local communities living near Serbajadi protected forest in Aceh Timur region, Indonesia. Biological Agriculture & Horticulture, 39(3), 170-182.

[12] Panjaitan, F., et al. (2024). Sustainable home gardens for food security in Indonesia. Journal of Tropical Agriculture and Food Systems, 5(1), 15–27.

[13] Siti Nurbaisy, S., et al. (2021). Household food security literacy among housewives through home-garden utilization in Serang City. DIMAMU: Jurnal Pengabdian Kepada Masyarakat, 2(2), 45–54.

[14] The Contribution of Home Food Gardening Program to Household Food Security in Indonesia: A Review. (2021). WSEAS Transactions on Environment and Development, 17, 525–536.

the criteria of possessing homegarden land, permanent residency in the village, and willingness to be interviewed. Primary data were collected through structured questionnaires, direct observations of homegarden conditions, in-depth interviews with key informants, and photographic documentation of activities, while secondary data were sourced from village profiles and relevant literature. The information gathered encompassed household and homegarden characteristics, types of cultivated commodities, purposes and patterns of output utilization (for consumption and/or sale), as well as technical and non-technical constraints in management. All data were analyzed descriptively, both quantitatively and qualitatively, to delineate the potential, utilization levels, and barriers of homegarden land as a supporter of household food security and economic resilience.

Results and Discussion

Homegarden Land Utilization Potential

Observation results indicate that homegarden land owned by Lamdingin Village residents holds substantial potential for developing household-scale farming enterprises. Some homegardens have been utilized for cultivating vegetables such as mustard greens, water spinach, and chilies, along with several fruit varieties, while others remain underoptimized. This situation signals opportunities for enhancing homegarden utilization through improved spatial planning and appropriate commodity selection.

Homegarden land utilization for vegetable and fruit production contributes to meeting family nutritional needs, as most output is allocated for household consumption. When production exceeds demand, surplus can be sold to generate additional income, consistent with Marhalim's (2015)[15] findings that homegardens serve as supplementary household income sources. This potential would expand further if communities adopt efficient cultivation techniques, such as multilayer planting, pot-based cropping, and utilization of previously idle land corners

These findings align with Arifin et al. (2007)[16] and Kurnianingsih et al. (2015)[17], who emphasize that homegardens represent promising land for cultivating diverse commodities with both nutritional and economic value. Consequently, developing homegarden agribusiness in Lamdingin Village can serve as a strategic approach to strengthening urban household food security by leveraging local resources.

Community Understanding and Skills

Community understanding of homegarden land's importance for household food security and economic resilience is generally emerging, though technical cultivation skills remain limited. Most residents practice simple farming based on traditional knowledge without adopting more efficient and sustainable techniques, such as planned organic fertilization, integrated pest management, and crop rotation.

Training and extension activities conducted in the village play a crucial role in enhancing knowledge and skills. Materials covered include the significance of homegarden utilization for

[15] Marhalim. (2015). The economic contribution of home gardens to household income in Rambah Samo Village, Rokan Hulu Regency. Faculty of Agriculture, Universitas Pasir Pangaraian.

[16] Arifin, M., et al. (2007). Homestead plot survey on Java. Department of Landscape Architecture & Rural Development Institute (RDI).

[17] Kurnianingsih, A., Nusyirwan, A., Setyati, E. D., & Syawal, Y. (2015). Optimization of home gardens through medicinal aloe vera cultivation in Purna Jaya Village, Indralaya Utara District, Ogan Ilir Regency. Jurnal Pengabdian Sriwijaya, 21–24.

food security, techniques for cultivating vegetables and fruits on limited land, seed selection, and environmentally friendly pest and disease control. Direct field accompaniment enables residents to practice learned techniques, facilitating smoother innovation adoption.

This pattern aligns with findings from Hidayati et al. (2018)[18], which demonstrate that utilizing limited land through vertical farming systems and simple technologies succeeds when accompanied by adequate extension and training programs. Capacity building not only impacts technical cultivation aspects but also fosters attitudinal and perceptual shifts, recognizing homegarden land as an economically valuable asset warranting more serious management

Constraints and Alternative Solutions

Identification results reveal several primary constraints in homegarden land utilization in Lamdingin Village. The first constraint is limited land area, particularly among households in densely built environments. This spatial limitation leads residents to perceive insufficient land for meaningful cultivation enterprises

The identification results indicate several key constraints in the utilization of home gardens in Lamdingin Village. The first constraint is the limited land area, particularly for households located in environments with relatively high building density. This spatial limitation leads community members to perceive that they do not have sufficient land for meaningful cultivation activities.

The proposed solution is the adoption of cultivation technologies suitable for small spaces, such as vertical gardening, tiered pot rack systems, and simple hydroponic methods, as recommended by Hidayati et al. (2018)[19]. This approach enables the use of vertical space and narrow corners, allowing plant production to remain optimized despite limited land availability.

The second constraint is the lack of knowledge and technical skills related to effective and environmentally friendly cultivation practices. Many households do not yet understand proper seed selection, growing media management, fertilization techniques, and appropriate pest and disease control methods. To address this issue, continuous training and extension programs with practical and easily applicable materials are required. The use of organic pesticides and companion planting represents one alternative that can reduce dependence on chemical pesticides while lowering production costs.

The third constraint is the frequent occurrence of pest and disease attacks reported by the community. Limited knowledge of integrated pest management has resulted in crop damage and reduced garden productivity. Control efforts may include crop rotation, the use of botanical pesticides, proper garden sanitation, and the selection of more pest- and disease-resistant varieties.

In addition to technical constraints, non-technical challenges also exist, including limited capital for acquiring production inputs and restricted market access for households with surplus production. In this context, institutional support from village authorities and higher education institutions becomes crucial, for example through the establishment of home-garden farmer

[18] Hidayati, N., Rosawanti, P., Arfianto, F., & Hanafi, N. (2018). Utilization of small land areas for vegetable cultivation using vertical gardening systems. PengabdianMu: Jurnal Ilmiah Pengabdian Kepada Masyarakat, 3(1), 40–46.

[19] Hidayati, N., Rosawanti, P., Arfianto, F., & Hanafi, N. (2018). Utilization of small land areas for vegetable cultivation using vertical gardening systems. PengabdianMu: Jurnal Ilmiah Pengabdian Kepada Masyarakat, 3(1), 40–46.

groups, facilitation of access to small-scale production inputs, and the development of local marketing networks.

Overall, the findings of this study reinforce those of Marhalim (2015)[20] and Kurnianingsih et al. (2015)[21], indicating that home-garden utilization can serve as an important component of household economic improvement strategies, provided it is supported by capacity building, access to inputs, and the strengthening of local institutions.

Conclusion

Home gardens in Lamdingin Village possess considerable potential to be utilized for the cultivation of vegetables, fruits, and small livestock, which can support household food security while contributing to improvements in household economic conditions.

Community awareness regarding the importance of home-garden utilization has begun to develop; however, technical cultivation skills still need to be strengthened. Training activities, extension programs, and technical assistance have proven to play an important role in enhancing community capacity to manage home gardens more productively (Steinberg, et al)[22]. The main constraints in home-garden utilization include limited land area, insufficient technical knowledge, limited production inputs, and pest and disease attacks. Recommended alternative solutions include the adoption of small-space cultivation technologies (vertical gardening, hydroponics, pots or rack systems), the use of organic pesticides and integrated pest management, continuous education and training, as well as strengthened institutional support and improved market access for households.

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