

**STUDY SOCIAL MAPPING OF SORGHUM FARMING POTENTIAL IN
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Abstract

This study aims to: 1) find out how the social mapping of sorghum farming potential in Pohuwato Regency is carried out; 2) to analyze what... factor -factor Which influence the potential of sorghum farming in Pohuwato Regency. This research was conducted in Pohuwato Regency from May to October 2025 with 8 informants. The research method used was a qualitative method with data collection techniques through observation, in-depth interviews, and documentation. The results of the study, analyzed using NVivo 12 Pro software, showed that the perception of sorghum farmers in Pohuwato Regency was generally positive, although they still face major obstacles in the form of unclear markets and selling prices. The economic potential of sorghum is considered better than that of corn if price and market problems are resolved.

Keywords: Social Mapping Study of Sorghum Farming Potential



INTRODUCTION

Sorghum become Wrong One product food Which own opportunity big to be developed in Indonesia. In Africa and several regions in Asia, sorghum is a source of food main for people living in the area with low rainfall. In addition, sorghum is known to have high adaptability to marginal land, including critical land (Usnawiyah , *et al .* , 2021:47) The adaptability of sorghum plants is very broad, starting from lowlands to highlands, so it is very suitable for development throughout Indonesia (Sihaloho , *et al .* , 2024:5499) . Wijayanti , *et al.*, (2016) stated that sorghum cultivation in Indonesia is still limited. This is because the problem with sorghum farming development at the farmer level is that it is not yet intensively managed. To address this issue, holistic management of the sorghum production system is needed, related to the region, the comparative competitive advantage of sorghum compared to other food crops, and social and industrial aspects (Murdaningsih & Uran, 2021:24) . Therefore, public outreach is necessary due to the lack of understanding regarding sorghum production. plant sorghum can inhibit its spread (Rachman et al., 2023:262) . The potential for sorghum cultivation is a foundation for Indonesia to continue developing this crop, especially in areas with dry and less fertile conditions. Sorghum as an innovation can increase crop diversity. food and reduce dependence on imports (Wijayanti , *et al .* , 2016:180) .

Effort improvement productivity in The agricultural sector can ensure that the community's food needs are met optimally, while at the same time contribute in create various opportunity Work new. Besides that, initiative This play a role important in reduce level poverty, Because a more efficient agricultural sector can increase the income of farmers and workers involved in it (Nadi , *et al .* , 2024:501) . Sorghum has the ability to survive in dry conditions and is resistant to pests and diseases. These advantages make sorghum highly potential for development, especially in facing the challenges of drought caused by current climate change (Yuanita, 2020:1) .

Innovation cultivation plant sorghum Still classified as new in Province Gorontalo. However, limited public knowledge about sorghum can hinder its optimal distribution. Mapping social potential is crucial for understanding local social conditions, as each community has different social conditions, which can lead to different problems and needs. Community development is crucial for achieving community well-being (Gunawan & Sutrisno, 2021:94) . Nuryati , *et al.* , (2020:2) stated that social mapping can provide a comprehensive picture of the mapped location, which includes the actors who play a role in the social relations process, social networks, the strengths and interests of each actor in community



life. Community development is very necessary to overcome various social problems that occur or to develop the potential of a village (Gunawan & Sutrisno, 2021). Mapping is generally carried out to see potential opportunities that can be developed within community groups. Fadhli & Annisa, (2024:118) argue that conducting social mapping has a very significant role in efforts to understand the social situation of the local community. In this regard, a social mapping study was conducted on the potential of Sorghum Farming to obtain a comprehensive picture of the mapped location.

In Pohuwato Regency, they began introducing sorghum crops in 2023. According to farmers, since the start of the dry season, they have been reluctant to take the risk of planting sorghum, and since 2024, sorghum has been discontinued. Therefore, social mapping is being conducted to provide opportunities for the community to develop sorghum farming. In particular, the government's role and efforts to support sorghum varieties to become superior varieties compared to corn are crucial. Therefore, farmers are currently awaiting clearer information regarding the potential for further sorghum development.

LITERATURE REVIEW

Social Mapping of Farming

According to research by Nuryati, *et al.*, (2020:2), social mapping is a very important activity to be carried out in order to understand the social conditions of local communities, because each community has different problems and needs that can result in the community having different problems and needs. Social potential mapping can be seen as one approach in community development which (Twelvetrees & Twelvetrees, 1991) defines as "the process of assisting ordinary people to improve their own communities by undertaking collective actions. As an approach, mapping is heavily influenced by the science of social geography research (Arnu, *et al.*, 2020:140).

According to research by Bahrudin, *et al.*, 2013, social mapping can provide description comprehensive from location Which mapped, Which covering the actor who play a role in process relation social, network social, strength And the interests of each actor in community life, especially in improving community living conditions, existing social problems including the existence of vulnerable groups, as well as available potential, both natural, human, financial, infrastructure and social capital. Social mapping itself is an effort to identify and understand social structures (individual institutional systems) and the relationship between institutions or individuals in a particular social environment (Effendi, *et al.*, 2020:62). Social mapping is a systematic process of



depicting society and involves collecting data and information about society, including the profile and social problems that exist in the community concerned. Netting, *et al.*, (1993) explain that social mapping is also called social profiling or creating a profile of a community, which is useful for helping and understanding changes in society (Nuryati, *et al.*, 2020:2).

Sorghum Farming

According to research by Kumaladevi & Sunaryanto, (2019:57) agricultural science is defined as a science that studies how farmers operate and combine various production factors such as land, labor and capital as the basis for how farmers choose the type and size of agricultural business branches in the form of crops or livestock so as to provide maximum results.

According to research by Suratiyah (2006), farming is a farming business that manages and coordinates production factors in the form of land and the surrounding nature as capital so as to provide the best possible benefits (Normansyah, *et al.*, 2014). The value of sorghum farming is still less competitive than other crops. And economically, sorghum has not been proven to bring prosperity to farmers (Fitriyaningsih, *et al.*, 2022). Therefore, it is necessary to introduce and socialize the benefits of sorghum to farmers, especially farmer groups. Farmers need to know that sorghum offers various advantages compared to other crops, including its ability to adapt well to various environmental conditions, its resistance to drought, and its efficiency in fertilizer use (Tolinggi, *et al.*, 2025:35).

research and development of sorghum plants is still very limited, even in a way general product sorghum Not yet so popular in society. Even though sorghum own potential big For can cultivated And commercially developed because it has wide adaptability, high productivity, need input relatively more A little, stand to pest And disease plants, and are more tolerant of marginal conditions (drought, salinity and acidic soil) (Badriyah, 2024:61). Technology adoption rates tend to be low, and government support for sorghum cultivation is also low. Regional governments are focusing on cultivating rice and corn in accordance with the Central Government program.

Social Characteristics of Farmers

This study considers demographic factors (age and education), socioeconomic factors (land area, income, and social capital such as cooperative networks and mutual assistance), and farming experience that influence decisions in agricultural activities. Most farmers still focus on agricultural products to meet family needs, although now many are starting to shift to farming for sale or commercial purposes. Farmers also actively join farmer groups to share



experiences, knowledge, and support one another. Rural communities are generally communities that utilize natural resources in the agricultural sector, where rural communities have traditionally carried out activities in the agricultural sector (Rosyid & Rudiarto, 2014:75). In this context, the development of local food cultures is important, such as sorghum crops (Meo et al., 2023:988).

Potential for developing sorghum plants

In developing countries, sorghum is often considered a crop for low-income farmers, as its cultivation requires little capital, has low productivity, and its grain is used as a primary food source. In Indonesia, there is significant potential for sorghum development, particularly in areas with little rainfall or dry areas with limited rainfall. According to the Research Center Land and Agroclimate (1998), dry land in Indonesia Enough extensive, and if the government can convert idle land into agricultural land, sorghum can grow well as long as planting is adjusted to the availability of soil moisture (Dutta, 2017) .

Sorghum is source food Which own Power adaptation wide and need input agriculture Which more low compared to plant other foods (Murdaningsih & Uran, 2021:23) . Plant This own diverse Benefits, not only as a food ingredient but also as animal feed. In the food sector, sorghum can be processed into various products, such as rice, bread, noodles, cookies, cakes, and other snacks. Furthermore, sorghum can also be fermented into beer or wine, indicating a broad market potential for the crop.

Sorghum Which taken from sap the stem, can used in The sugar industry, while the seeds can be processed into bioethanol for fuel. Furthermore, starch from sorghum seeds is used as a raw material in industry, and biomass waste from the harvest can be used for biogas production. This proves that sorghum has many uses that are often time No utilized in a way optimal. If in 6 - 15 year future sorghum can developed as supplement food main besides rice and as a component of animal feed, this would be a crucial step in reviving the sorghum crop, which has so far received little attention. Between 1990 and 2010, the area harvested for sorghum in Indonesia was only around 25,000 hectares and was not even recorded in FAO statistics (Dutta, 2017:1) .

RESEARCH METHOD

A qualitative approach reveals what exists in a natural state because it aligns with the reality on the ground. Qualitative research examines the meaning behind the facts found more deeply (Saleh, 2017) . Qualitative data is data that is explained and described in sentence form. The qualitative research in question includes



information related to a social mapping study of sorghum farming potential in Pohuwato Regency. The method used was a qualitative descriptive method. Purposive sampling technique is a technique for determining and taking samples determined by researchers with certain considerations (Maharani & Bernard, 2018). From the results of observations in this study, a total of 8 informants were farmers who had cultivated sorghum plants in Pohuwato Regency. The informant selection method used a sampling process (saturated sampling). In this study, data analysis was carried out using Thematic analysis using Nvivo 12 Software.

RESULTS AND DISCUSSION

Sorghum in Gorontalo Province

Sorghum belongs to the Gramineae family and grows well in tropical and subtropical regions. Sorghum is not yet widely known in Gorontalo Province (Saman et al., 2024:396). Sorghum is known as a plant that can grow on marginal land. This plant has several advantages, including resistance to hot conditions and does not require intensive fertilization. Based on these advantages, sorghum can be harvested up to three times in a single planting season. Geographically, Gorontalo Province has quite extensive agricultural land, including rice fields and dry land spread across five districts and one city. Since 2021, sorghum plants have begun to be cultivated in several areas, such as Bone Bolango Regency and Gorontalo Regency. Gorontalo Province's relatively hot climate makes sorghum highly suitable for cultivation. This crop adapts to a variety of ecological conditions, remaining productive even in environments less conducive to other grain crops. Sorghum was chosen as an indicator crop because it is a new commodity being developed in Gorontalo Province. Therefore, various trials and treatments, including the use of organic fertilizer made from rice husks, are required to determine its growth potential and response under various soil conditions. (Bahri, et al., nd. 2023).

Sorghum crops in Gorontalo Province are spread across four administrative regions: Pohuwato, Boalemo, Gorontalo, and Bone Bolango Regencies. Cultivation is generally carried out on wetlands, with most farmers cultivating their own land. The average cultivated area ranges from 0.1 to 2 hectares. In practice, farmers face a variety of complex challenges. One major obstacle is the rising cost of production inputs, such as seeds, fertilizers, pesticides, labor costs, land rent, and other operational costs. These price increases increase total production costs, which ultimately can reduce farmers' incomes. Furthermore,



pests and plant diseases pose a serious threat, reducing productivity and even potentially leading to crop failure.

Social Mapping of Sorghum Farming Potential in Pohuwato Regency

Community empowerment is key to improving the local economy through productive means, providing high added value, better meeting needs, improving well-being, and potentially enabling participation in development (Matofani & Rahaju, 2023) . Community empowerment is crucial because, yet, many people still live in poverty. Community empowerment is an alternative model intended to achieve prosperity.

Therefore, the government must address the needs and aspirations of the community. Farmers are a key group in need of welfare attention (Meo et al., 2023) . In this context, developing local food crops is crucial, such as sorghum cultivation in Pohuwato Regency. Sorghum, with its potential for use in everything from fruit to leaves, and bioethanol sap, can contribute to food security.

The potential for sorghum development in Pohuwato Regency is very high. Most of Taluditi District is dryland. The average value of sorghum given by informants in the criteria for determining farm profitability is 1-2 tons. This indicates that the economic profitability of sorghum cultivation is relatively low compared to rice and corn. This explains that sorghum cultivation carries a small farming risk due to its relatively low market potential compared to other food commodities (Syafuruddin et al., 2017) .

The social mapping study of sorghum farming potential in Pohuwato Regency, according to the codes in the analysis results using Nvivo, can be described as follows:

1. Enthusiasm
2. Hope
3. Obstacle
4. Superiority
5. Economic Potential
6. Farmers' Perceptions
7. Sorghum Cultivation
8. Content of sogum plants
9. Institutions and support
10. Production
11. Experience
12. Women's Participation
13. Solution



Hierarchical Tree Map Diagram

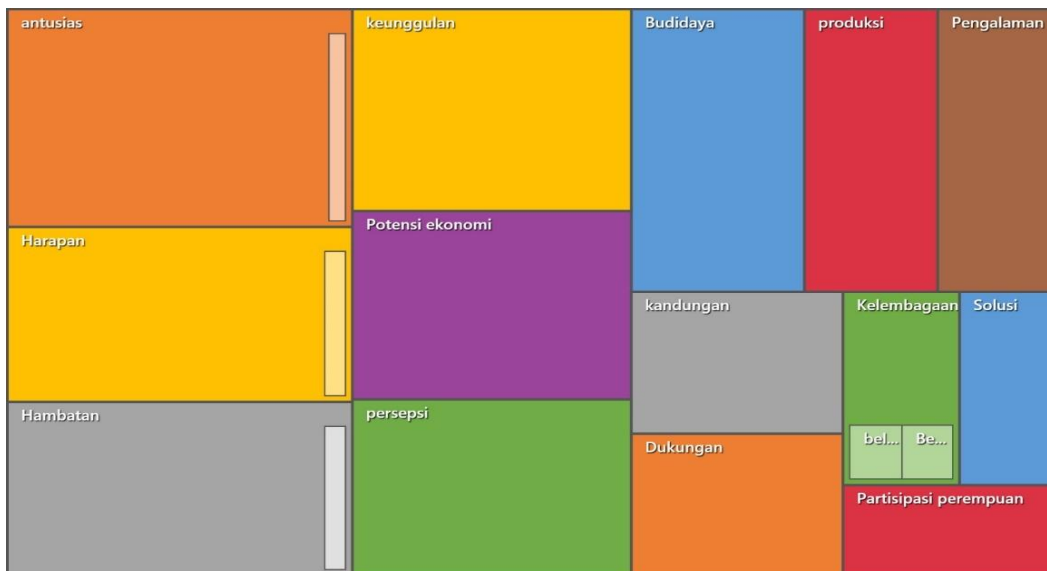
Hierarchical tree map diagram Similar to *word clouds* , *tree maps* convey similar information. In this visualization, the boxes get smaller as you move to the right.

sorgum	masyarakat	lebih	tinggi	lahan	potensi	budiday	nilai	makan	pupuk	dukung	masih	agroind	kelomp	jurnal
				panen	belum	tentang	lokal	program	pemer	memb	organ	salah	analisis	batan
	hasil	memiliki	pertanian					namun	proses	harga	banya	ekonol	jagung	terkait
				peneliti	tubuh	infiltrasi	serta		yaitu	utama	kandung	tepung	teknol	beber
	produk	terhadap	bahan	genotipe	kegiatan	pengola	varieta		pelatih	kepad	ketaha	sudah	merek	altern
		petani	sorghum	meningk	peningk	pasar	indone	usahata	tahun	manis		daerah	pernal	berbal
pangan	pengemban	produksi	sehingga	sumber	tanah	kabupa	menan	sistem	dikem	penge		kecam	pemas	digun
												penda	lamab	jumlah
														lantara
														divers

Based on the description of the table above, this shows that the word with the largest box is the word that appears most frequently in the research data, while a smaller box indicates a word that appears less frequently.

Hierarchy Chart Diagram

A hierarchy chart is a diagram that displays hierarchical data in rectangular or circular form with various dimensions.



Based on the analysis results using Nvivo 12 pro above, the hierarchy chart has a different portion of words. It can be seen that the topic that received the



largest response from informants is **Enthusiasm**, referring to community activities that have great enthusiasm, especially farmers in cultivating sorghum plants. Starting from curiosity and finding out the advantages of sorghum, so that enthusiasm arose to try new crops in the form of sorghum. **Hope**, referring to a hope of farmers and even the community in Pohuwato Regency to the Government in Gorontalo Province so that the sorghum market can exist in Gorontalo Province, even the selling price of sorghum must be stable as well as the selling price of corn. However, there are obstacles that exist **Obstacles**, according to the results of interviews, the obstacles faced by sorghum farmers refer to the sorghum market and also the selling price, there are several obstacles besides prices and markets including flooded land and pests that attack sorghum fruit. However, the most dominant obstacles based on the interview results are the absence of a sorghum market and inappropriate prices. and that is part of the factors that influence the potential for sorghum development in Pohuwato Regency.

Advantages, seen in terms of the advantages of sorghum is certainly superior to other food crops, where sorghum has the advantage of 1 time planting 3 times harvest and is resistant to dry season which makes sorghum superior to corn. So many people are curious about sorghum plants. As for **Economic Potential**, seen from the existing advantages, sorghum has greater economic potential compared to other food crops, because sorghum has the advantage of 1 time planting 3 times harvest is more profitable compared to corn which only has 1 harvest. So, the economic potential of sorghum is greater if the price and market are clear. As for one of the farmers who processes sorghum into popcorn and sells it for Rp. 100.00 from this initiative can be an economic potential. Some farmers have different **perceptions**, according to the public perception, sorghum is worthy of cultivation because sorghum is very easy to care for and can grow on marginal land. Seen in terms of **Cultivation**, based on the results of interviews with 8 informants they said that sorghum cultivation is the same as corn cultivation, where from the planting process to harvest is the same, only the location of the fruit is different. Sorghum cultivation is very easy and does not require fertilizer, as it can produce large yields without it. **Sorghum** is rich in nutrients, including protein, fiber, B vitamins, and minerals such as magnesium, iron, phosphorus, and potassium. Sorghum is also a good source of carbohydrates, especially starch, soluble sugars, and fiber. The sap produced from sorghum stalks can be used as beethanol. **Support** : Based on interviews, government support initially existed, but only in the form of training and support in the form of sorghum hulling machines. However, farmers are still awaiting



further support in the form of markets and sorghum selling prices, which are still unclear.

Production, seen from the existing production based on the results of interviews with 8 informants, their average production is below and was sold at a price of Rp. 300,000 / 1kg. With this price, farmers experience losses because the production results do not match the initial capital used to cultivate sorghum. **Institutional**, as for institutions in the form of support from the local government (Village Government) that supports sorghum cultivation. **Experience**, the experience of farmers, some of them have participated in training outside the area and there are some of their experiences promoting sorghum on social media so that they get a positive response from various parties. **Women's Participation**, the role of women in cultivating sorghum is quite large starting from the planting process to harvest and per day they are paid according to their work. **Solutions**, solutions that can be provided by farmers and even the local community are that they are still willing to develop sorghum if the market potential and also the selling price of sorghum already exist and are clear in Gorontalo Province.

CONCLUSION

1. Social mapping of sorghum farming potential in Pohuwato Regency The results of the study show that sorghum farming in Pohuwato Regency has quite large development potential, as seen from the enthusiasm of the community, the superiority of sorghum, and the involvement of women in the cultivation process to post-harvest which makes sorghum have great potential for development.
2. Based on the results of the study, it can be concluded that the factors that influence the potential of sorghum farming in Pohuwato Regency can be concluded that the potential for sorghum development is still hampered by several factors, including limited farmer knowledge (searching for market information), unclear market access, low prices offered and unsustainable policy support, and a lack of processing facilities. Thus, although sorghum has the prospect of becoming a superior regional commodity, its success is highly dependent on increasing farmer capacity, strengthening institutions, and continuous support from the government and related partners.



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