

LOCAL WISDOM OF THEKELAN FARMERS IN GETASAN DISTRICT, SEMARANG REGENCY

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ABSTRACT

The local wisdom of farmers is created based on the long experience of predecessors related to the problems of the agricultural system and the environment to gain maximum results without destroying the balance of nature. The local wisdom of farmers is closely related to traditional perspectives, obedience to local customs and culture, and knowledge of virtues related to ethics and morals. One of the people in Indonesia who do farming activities with the implementation of local wisdom is the Thekelan farmer. They apply local wisdom in farming according to the teachings passed down from generation to generation by their ancestors. The location of Thekelan farmers is in Thekelan Village, Getasan District, Semarang Regency. For Thekelan farmers, being a farmer is full of dignity, as evidenced in various traditional rituals expressing gratitude for their profession. From the point of view of the agribusiness subsystems, local wisdom still applied by Thekelan farmers by the utilization of livestock waste, application of four types of intercropping system, and doing traditional pamongan ceremonies with offerings in the form of “thowok” as a form of offering and gratitude to nature.

Keywords: *agribusiness, local wisdom, thekelan, traditional ceremonies*

BACKGROUND

The agricultural sector plays an important role in creating jobs and supporting life for rural communities and a small portion of urban communities. Indonesia has a total population of 267.7 million people, and 77 million work in the agricultural sector, spread across villages and cities (Indonesia Statistic Center, 2018). Based on those data, it can be concluded that Indonesia is included as a country with 28.79% of the population working in the agricultural sector, either as farmers or employees of agricultural companies. It is not surprising that Indonesia is called an agricultural country because the majority of the population depends on the agricultural sector.

Several groups of farmers in Central Java still follow to their local wisdom. For example, *srinthil* tobacco farmers on the hillside of Mount Sumbing, Temanggung, Central Java. The implementation of the *srinthil* farmer's customs and culture is summarized in *kejawen* (Javanese culture). This behaviour is a form of gratitude to God, who has provided income for their families, blessings for the land, and blessings for the village where they live. Apart from *srinthil* tobacco farmers who apply their local wisdom, traditional Samin farmers in Blora, Central Java, up to now, also still follow their local wisdom.

The farmer gets his knowledge from the village's ancestors and then passes it down from generation to generation. The ancestors of Indonesian people are thick with customs. They have

formed a concept in which local knowledge guides actions and behaviour, especially towards the natural surroundings and the environment (Siswadi et al., 2011). Farmers carrying out their farming believe that farming behaviour is closely related to nature, the environment and customs; because agricultural activities are very dependent on nature, farmers believe that they must respect nature. This is with foundation but has been obtained from various experiences of their ancestors and cultural influences, which are then referred to as local wisdom.

Farmer's local wisdom is built based on long experience and learning from local farmers regarding the problems of agricultural systems and the environment in achieving maximum agricultural yields without destroying them. According to Beckford and Barker in Utomo et al. (2020), local wisdom is adaptive, dynamic and holistic. The behaviour of respecting the environment through nature conservation is fading because various ways are considered more effective and efficient in line with the times and technology, even though they have to destroy nature and ignore local wisdom. As a result, farmers, slowly abandon local wisdom passed down from generation to generation. The existence of local wisdom has only become a story in society.

An issue related to the depletion of farmers' local wisdom is an interesting topic of discussion. People are often faced with a dilemma between abandoning local wisdom or maintaining it. This is even more interesting when viewed from the perspective of the four agribusiness subsystems: infrastructure, on-farm, processing, and marketing. The four pillars can become a point of view in viewing the local wisdom of farmers in an area, and this is because the four subsystems are mandatory phases in farming activities. Contrary to the phenomenon described in the community, Thekelan farmers in Getasan District, Semarang Regency, are a large part of the community group whose farming activities still adhere to local wisdom.

Thekelan farmers have more effective technology in the agricultural sector, such as carrot cleaning machines, tobacco chopping tools, and spraying plants with an automatic sprayer, although some still use manual sprays. Thekelan farmers are a society with limited life with less access to higher education. Thekelan farmers are choose to protect their ancestral heritage. They belong to a low social class. However, they are brave and can prove that humans are creatures born of culture. Even the Thekelan farmers dared to take action that the ancestral heritage was a precious relic.

RESEARCH METHODS

The data collection method was carried out through observation, interviews, data recapitulation, documentation in the study and description of the local wisdom system of farmers in Thekelan Village, Getasan District, Semarang Regency. Observations were carried out in two ways: researcher involved and not involved in observation. Observation was involved by participating in a series of activities or traditional rituals carried out by farmers as well as observing from the outside all the activities of farmers. Data were obtained from several informants whose determination was carried out by *snowball sampling*. According to Hasan et al. (2003), *snowball sampling* is used so that the data collected and obtained by researchers is more complete and richer so that the information obtained.

The technique of determining informants was carried out by collecting data about several members of the population. Then each individual was asked to provide information and appoint other population members (Babbie, 2007). The informants obtained 11 people, with the first informant, the Head of Thekelan farmers, followed by traditional elders, member of farmer groups, heads of cadet

groups, youth farmers in Thekelan. Data analysis techniques were then carried out by creating grouping categories in systematically compiling data. According to Miles and Huberman (1994), qualitative data analysis techniques include data reduction, simplification, selection, and the focus process of processing raw data into meaningful information. The final stage was followed by data reduction and grouping of statements with the results of data interpretation and conclusion.

RESULT AND DISCUSSION

Local Wisdom as a Support for Sustainable Agriculture in Thekelan

Sustainable agriculture has indirectly become a big goal for Thekelan farmers in the onslaught of chemical-based agricultural products. Various real negative impacts of using chemicals have been felt in several fields in Thekelan due to experiments using excessive doses of chemicals, such as the decreasing of soil nutrients, drought, pests, crop failure, and plants that do not bear fruit. This was fatal for farmers. For Thekelan farmers, this infliction was used as a lesson on the importance of protecting the environment for their survival and farming activities. Based on field conditions, the pests at several points in Thekelan farmers fields have strong immunity, and they realized the excessive use of insecticides causes this. In addition to pest problems, pesticides at several points in the fields have reduced the fertility of the environment and soil and reduced productivity in their farming.

Responsive to these negative impacts, Thekelan farmers took the initiative to slowly reduce the intensity of using chemical products by returned to their ancestral guidelines, the guidelines on utilizing local wisdom. Local wisdom is a cultural heritage of implementation that can be used as a source of information for the planning and managing land, territories and natural resources (Eyporsson and Thuestad, 2015). The local wisdom of Thekelan farmers indirectly supports sustainable agricultural development because, in its implementation, it always pays attention to aspects of nature, society and economics combined with an integrated farming system (SPT). This follows the opinion of Munasinghe (1993), which states that the three dimensions of sustainable agriculture are: the sustainability of economic business (profit), the sustainability of human social life (people), and the sustainability of natural ecology (planet). The system will be explained into several aspects based on guidelines from sustainable agriculture, and these aspects are described as follows:

Economy

The demographic conditions influence sustainable agriculture among Thekelan farmers. Their village located on a mountain slope with an altitude of 1600 meters above sea level. It will also have an impact on the farmer's cultivation patterns. Most of farmers choose to farm horticulture such as chilli, lettuce, mustard greens, carrots and tobacco. On the other hand, Thekelan farmers also raise cattle and goats. Almost every farmer in Thekelan Village has at least one livestock in their household. This behaviour was taught by their predecessors and is still being carried out today because it is considered profitable raising livestock. It will have an impact on emphasizing spending on basic fertilizer because farmers can use manure that has been processed and fermented to be used as basic fertilizer for their fields. In this case, Thekelan farmers are proven to be able to carry out an integrated pattern between horticulture and livestock.

There is another tenet from their predecessors in the form of a crop intercropping system, namely through a combination of intercropped tobacco with chilli and fennel plants. This is

implemented to reduce the impact of losses if there are fluctuations in the selling price of tobacco commodities. Preventive action in anticipation of this price was one of the right steps for Thekelan farmers. Some of the selected plants in the intercropping have close harvest time intervals. This was done so that every interval of harvest time, farmers can received harvest income. Meanwhile, fennel commodities around the fields are planted because fennel plants quickly adapt and can reproduce freely. In line with Budiwati (2018), fennel plants can fully adapt and reproduce freely in the mountains of Java even though they come from areas that have four seasons in Europe because the structure of fennel plants is adaptive.

Social

Efforts to realize sustainable agriculture encourage Thekelan farmers in agricultural development to be oriented towards the people and social welfare, according to Budiasa (2011), which states that sustainable agricultural development is oriented towards increasing the income and welfare of the farming community in general through increasing balanced agricultural production. The local wisdom of Thekelan farmers played a major role in social aspects, such as rituals before planting and after harvest, which farmers carry out with the hope of prosperity in their agricultural sector. This was inseparable from the role of traditional elders as cultural leaders in among Thekelan farmers.

Thekelan traditional elders lead rituals with their local culture, Javanese culture, which was desired in the customary agenda every year. Based on interviews with informants, every farmer in Thekelan had a choice of belief. Therefore it is not surprising that Thekelan Village had three religions but still maintains tolerance with one umbrella of belief, namely *kejawen*. This impacts cultural values and norms in which the community is a society classified as sensitive and closely related to their culture. According to Agatha (2016), the norms and cultural values today are influenced by local wisdom and have been part of the system since ancient times. Local wisdom in the form of traditional rituals is also a means of gathering for communities to exchange up-to-date information related to the world of agriculture, parenting, village agendas, and various ongoing events outside the village.

The customary agenda positively impacts the farmers community, where residents socialize and are familiar with one another. This makes it easier for local institutions such as youth organizations, village officials, and farmer groups when an agenda requires large numbers of people. Based on the conditions in the field, the community responded swiftly to the call and voluntarily gathered at one point for further coordination. The social role of farmer groups was considered important in the utilization of local wisdom in Thekelan Village. With the existence of farmer groups, the agricultural agenda had a structured and systematic common thread. This was reflected in community service activities which have the value and substance of cooperation, and work for hand in hand. An example of cooperation in agriculture were the activities of the planting season and harvest season. The existence of farmer groups was expected to have an impact on farmers community to be able to improve the agricultural sector among Thekelan farmer. According to Prasetyo et al. (2019), farmer groups are agricultural institutions that are formed because they have the same goals, needs, and visions for the improvement and development of farming.

Environment

Environmental aspects in Thekelan Village are considered positive by the existence of agricultural development. This is because maintaining environmental aspects will simultaneously

maintain biodiversity, which can impact the surrounding environment's carrying capacity to supply nutrients to the soil in the fields, water flow. This is supported by the Mount Merbabu National Park (TNGMb) regulation, which prohibited for flora and fauna hunting in area of Mount Merbabu.

Those regulations had positively impact the environmental ecosystem and increased natural resources. If the mountain forest area is maintained and remains natural without any negative interference from the surrounding community, the losses incurred by the farmers will be minimized. For example, water flow from soil resources is maintained because the community participates in preventing illegal deforestation. This is in line with Satmoko et al. (2019), which state that forests are a natural resource that has an important role in human survival in terms of ecological, economic and social aspects. Another effort made by Thekelan farmers is the implementation of semi-organic farming, by combining organic and un-organic fertilizer.

Thekelan farming occurred because of a dilemma regarding pest pressure which has just been resolved. On the other hand, farmers are still trying to reduce the use of chemicals by slowly switching to organic systems. Organic farming is a method of crop production that focuses on protecting the environment. Kardinan (2016), organic farming is a major step in realizing an optimal and sustainable agroecosystem that is socially, ecologically, economically and ethically sustainable. The application of organic farming to the environment is accompanied by local wisdom, which participates in maintaining the stability of the environment and nature in Thekelan area. This is evidenced by the packaging of agricultural products using woven bamboo, the stoves used still use wood fuel.

Implementation of Thekelan Farmers' Local Wisdom and How It Is Related from the Agribusiness Subsystem

There are various kinds of Thekelan farmers' local wisdom in every agribusiness subsystem. This local wisdom is assessed from the point of view of agro-input, agro-production, agro-marketing and agro-supporting. According to Arifin and Biba (2017), the agribusiness subsystem is a unified agribusiness element that interacts with each other to achieve common goals with the effectiveness of the input and output of agribusiness products through planned process control. Thekelan farmers used their local wisdom as a guide in cultivating their crops because they are considered more efficient, environmentally friendly and preserving the culture their ancestors passed down. Based on field observations, local wisdom had positively impacts agricultural sustainability in Thekelan because the local wisdom of Thekelan farmers taught them to return to organic systems and reduce excessive chemicals in order to give time for nature to improve itself. The impact of implementing the local wisdom of Thekelan farmers can be viewed from the four simplified agribusiness subsystems in the following table 1.

Table 1. Farming Diversification in terms of the Four Agribusiness Subsystems

Informant	Business Diversification	Economy				Social				Environment			
		I	P	M	S	I	P	M	S	I	P	M	S
1	Horticulture	-	+	-	±	+	+	+	+	-	±	+	+
2	Horticulture-Plantation-Livestock	+	+	±	+	+	+	+	+	±	+	+	+
3	Horticulture -Livestock	+	+	±	+	+	+	+	+	+	+	+	+
4	Horticulture -Livestock	+	+	±	+	+	+	+	+	+	+	+	+
5	Horticulture	-	-	+	+	+	+	+	+	-	-	+	+
6	Horticulture	-	-	+	+	+	+	+	+	-	-	+	+
7	Horticulture-Livestock	+	+	±	-	+	+	+	+	+	+	+	+
8	Horticulture	-	+	-	±	+	+	+	+	-	±	+	+
9	Horticulture-Livestock	+	+	±	-	+	+	+	+	+	+	+	+
10	Horticulture-Livestock	+	+	±	-	+	+	+	+	+	+	+	+
11	Horticulture-Livestock	+	+	±	-	+	+	+	+	+	+	+	+

Source: Primary Data Processed, 2021

Information:

- I : Agroinput
 - P : Agroproduction
 - M : Agromarketing
 - S : Agrosupporting
 - +
 - ±
 -
- + : Application of local wisdom ranges from 70-100%
 ± : Application of local wisdom ranges from 41-69%
 - : Application of local wisdom 10-40%

Based on Table 1, the business diversification results of the eleven informants include plantation-horticulture-livestock. All informants had a horticulture business. Seven out of eleven informants applied integrated horticulture-livestock, and one out of eleven informants had integrated horticulture-plantation-livestock. Based on the data, each informant had different priorities for applying local wisdom values to each agribusiness subsystem in supporting their agriculture. However, it can be seen that the application of local wisdom values among Thekelan farmers had achieved a (+) value of 78% in each of its subsystems, with the acquisition of the application of local wisdom had the biggest impact on social aspects where the entire implementation of agribusiness involves local wisdom, followed by environmental aspects related to agro marketing and agro supporting. Concerning the application of local wisdom, there were several subsystems with the application of medium local wisdom, which are denoted by (±) with a value of 9.2%. It means that most of them were in the economic aspects of the agro-marketing subsystem, while Thekelan farmers hardly implemented the application of local wisdom which denoted by (-) with a value of 13.8%.

Based on those data, most of the farming behaviour carried out by Thekelan farmers. It was inseparable from local wisdom. This is not applied to just one field but to various business diversifications. This local wisdom-based agricultural system was implemented because of the farmers' initiative and the knowledge their predecessors had passed down. Meliono (2011) explained the cultural context in Indonesia as a form of ethnic expression from which a group of people or individuals take action, behave, and produce certain works. This agricultural system can be explained

by long learning and had experienced ups and downs in achieving effective and efficient farming paths.

The Flow of Farming Activities in Thekelan Village

The Horticulture-Livestock integrated farming system was carried out by Thekelan farmers to minimize waste, using chemicals such as chemical fertilizers and pesticides and maximizing manure obtained from livestock manure such as goats, cows and chickens. The flow of the integrated agricultural system in Thekelan Village can be described as follows:

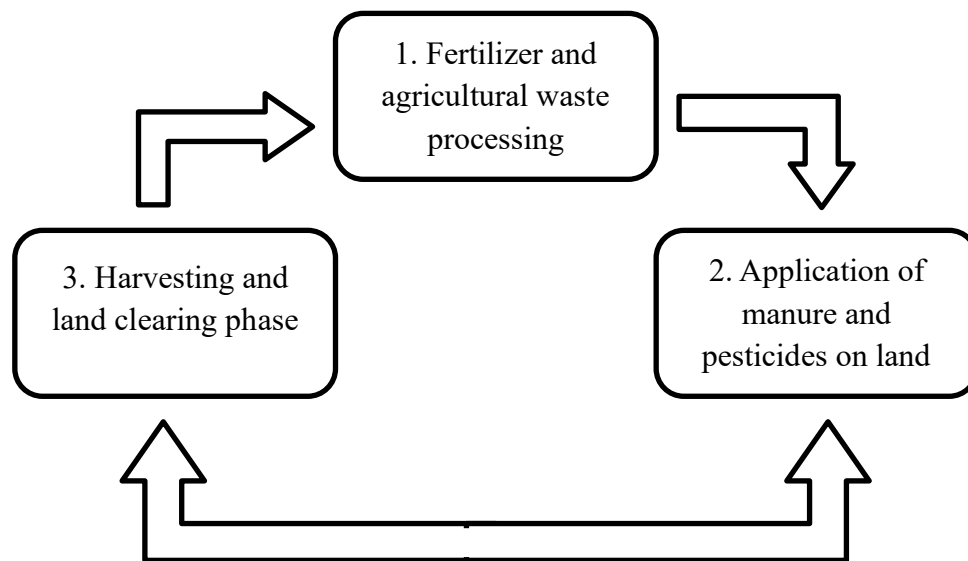


Figure 1. The Flow of Farming Activities in Thekelan Village

Based on Figure 1, fertilizer processing was the first to be carried out by Thekelan farmers, who were classified as agro-input processes. In this process, fertilizer was processed from livestock products by fermenting it simultaneously with agricultural waste. The process of fermenting manure was classified traditionally, by letting livestock manure and agricultural waste in the open area (generally in livestock pens) at room temperature and not allowed to be exposed to rainwater. They believe this was the most effective form of bacterial decomposition by aerobic systems. Furthermore, the livestock manure can dry, cool to room temperature, and does not smelled. In this condition, Thekelan farmers believe that livestock manure and agricultural waste were ready to become fertilizer to be applied in the fields.

The next process was agroproduction. The agroproduction process in Thekelan Village was carried out uniquely and separately. Thekelan farmers tend to pray to their ancestors and carry out ritual offerings or “thowok” (as agricultural offerings) in their fields. Some farmers carry out rituals in their homes. This ritual was believed to expedite farming activities, giving blessings and abundant sustenance. This offering ritual had existed since the time of their ancestors and was still maintained today.



Figure 2. Planting Offerings

After carrying out the ritual, Thekelan farmers apply fertilizer by mixing it in the fields with soil, and some use husk charcoal as a nutrient enhancer. This mixing is done manually with a hoe. In general, Thekelan farmers do it with mutual cooperation or they mentioned it as a “*sambatan*”. *Sambatan* or mutual cooperation were carried out in various agricultural agendas, such as during the planting and harvest seasons, involving relatives, neighbours and those closest to them.

After the fertilizer was mixed with the soil, it is left for approximately seven days for the bacterial adaptation phase and even the distribution of soil nutrients. For seven days, Thekelan farmers prepare the seeds to be planted, generally horticulture such as chilli. Most Thekelan farmers plant seeds come from personally formulated seeds. These are obtained from previous varieties that they thought are superior and made in ways that their predecessors have taught, such as drying the seeds in direct sunlight and obligatory on the roof of the house. Furthermore, the seeds were sorted into seeds, and the seeds that look promising compared to the others will get priority for planting. The planting is only sometimes homogeneous. Thekelan farmers tend to plant commodities in intercropping.

Commodities often combined with other intercropping systems were chillies with green onions, cauliflower with mustard greens, and oranges with tobacco. There is one type of plantation crop that is being cultivated in Thekelan Village, namely coffee. Planting coffee commodities used an intercropping system of spring onions and jipan pumpkins. Thekelan farmers had various choices in plant commodities. Fluctuating market prices influence these differences. This intercropping system was profitable from an economic point of view for farmers because it can cut spending on one commodity and minimize the risk of disease and pests. The third process was the harvesting and land-clearing phase, which is included in *agro-marketing*. During this phase, Thekelan farmers perform a harvest offering ritual. This ritual was carried out by inviting traditional elders to their respective residences and presenting offerings to their ancestors.



Figure 3. Harvest Offerings

Based on Figure 3. it can be seen that there are harvest offerings. This was a form of prayer for Thekelan farmers so that they are given maximum profit in farming. These offerings were also intended so that during farming activities, it helped to avoid bad things and events that farmers did not expect. Farmer refer to these planting offerings and house offerings as “*thowok*”. Materials used in rituals can generally be found around Thekelan area. Farmers tend to process and manufacture several materials independently based on field conditions. After the materials have been collected, a “*pamongan ceremony*” will be carried out, which will be attended by the farmer as the executor of the ritual and the traditional village elders. The form of the “*pamongan*” is the local wisdom of Thekelan Village. The practice was aimed at being positive from a local point of view. In line with Vandebroek et al. in Utomo et al. (2020), local wisdom is a combination of knowledge, beliefs, traditions, practices, and groups with local viewpoints held by the community relating to creatures, nature, and the environment. The “*pamongan*” ceremony indirectly involves traditional executors in contact with nature because it is grateful for and maintains the traditions of its predecessors. This ritual was the local wisdom of farmers in fulfilling their beliefs. Thekelan farmers believe that this process from “*Pamongan*” can fulfil their physical and spiritual life needs.

After the ritual is complete, the “*thowok*” is then taken to the fields for the field ritual. After carrying out the field ritual, then the Thekelan farmers carry out the *sambatan*. *Sambatan* at harvest time were relatively carried out and usually are carried out with high intensity. *Sambatan* were announced in the farmer group meeting agenda at least three days in advance so the community can mark the day the splice will be carried out. This farmer group association had various benefits, including the dissemination of information. This follows Prasetyo et al. (2019) statement that farmer group meetings were not just a means for group leaders to convey information related to agriculture but also a forum for members to exchange agricultural information and experiences and solve problems members face in these farmer groups.

Field observations indicate that *sambatan* during the harvest season can occur up to three to four times a week. After the crops have been harvested, the fields were cleared of agricultural waste, which will be processed together with livestock manure for fertilizer. At the same time, agricultural products were collected and cleaned in one location, namely a shower or spring, before being packaged. The packaging of agricultural produce in Thekelan area is unique and unusual because it uses woven bamboo from the surrounding environment.

They have been using woven bamboo for a long time. This was chosen because apart from being cheap and environmentally friendly, woven bamboo was also strong enough to support agricultural produce of up to 70 kilograms per container. After the agricultural products were packed,

the distribution process was carried out to collectors with the stages of sorting goods, weighing agricultural products, distributing them to the market, and making cash payments to Thekelan farmers. Conditions show that collectors in Thekelan area are Thekelan people themselves. During the implementation of their farming activities, Thekelan farmers receive information via the internet, mass media, and various information through farmer group forums. They were monitored by the Agricultural Extension Center (BPP) of Getasan District. It can be concluded that *agro supporting* plays an important role in agriculture in Thekelan Village. During its implementation, Thekelan farmers try to suppress the use of chemicals with an orientation towards sustainable agriculture. This follows Munasinghe (1993), who states that the three dimensions of sustainable agriculture are: sustainability of economic business (profit), sustainability of human social life (people), and sustainability of natural ecology (planet).

The local wisdom of Thekelan farmers will continue to be practised and become a farming guide for Thekelan farmers. This is because Thekelan farmers are aware of the balance they must maintain. Like farmers in general, dilemmas related to the economy and finances of farming families inevitably occur and cannot be avoided. However, by utilizing this local wisdom, Thekelan farmers are slowly being able to switch from conventional, chemical-based farming towards a sustainable agricultural development orientation. According to Widjajanto et al. (2021), sustainable agriculture is agriculture that can meet the needs of present generations without compromising the ability of future generations to meet their own needs. Thekelan farmers know the importance of the agricultural sector as their main source of livelihood. Therefore, they are trying to maintain and optimize the agricultural sector in Thekelan area.

CONCLUSION AND SUGGESTION

Local wisdom among Thekelan farmers is a tradition of high noble value. In this research, the local wisdom of Thekelan farmers is seen from the four agribusiness subsystems, which include agro-input, agro production, agro marketing, and agro supporting. The four subsystems can bring Thekelan farmers into more sustainable agricultural development by involving three aspects, namely (1) economic, (2) social, and (3) environmental. This is manifested by tangible results in tobacco breeding, maintenance, and processing, which were carried out with the grip of local traditions. The integrated system of farming-livestock is evidenced by the utilization of livestock waste, an integrated agricultural system in the form of horticulture-plantation, an emphasis on the intensity of the use of chemical fertilizers, and the preservation of local customs and culture. and conservation efforts. This is manifested in the form of community efforts to adjust the progress of the times to local wisdom. With the development of the times and technology that is increasingly massive as it is now, it can open insights for farmers to continue to learn and maintain this important cultural asset, especially the local wisdom of the farmers.

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