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Modernization and Local Wisdom in the Agricultural System: The Case of Samin Indigenous Community in Baturejo Village, Pati Regency, Central Java

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ABSTRACT

Agricultural modernization is a change in agricultural patterns from traditional to modern methods. The Samin Indigenous Community is one whose main livelihood depends on agriculture. This study aims to analyze the existence of the local wisdom of the Samin Indigenous Community in Baturejo Village, Sukolilo District, and Regency in the current agricultural modernization. This study used mixed methods and a combination of qualitative and quantitative methods. Qualitative data were obtained by conducting in-depth interviews with informants selected by snowball sampling, observation, and documentation. Quantitative data were obtained using a survey method for 30 respondents selected by accidental sampling. The encounter between agricultural modernization and local wisdom creates three conditions for the local wisdom of samin farming: local wisdom that faded existence, local wisdom that disappeared, and local wisdom that adapted so that it went hand in hand with agricultural modernization. Some of Samin's local wisdom still exists in the midst of agricultural modernization driven by several factors, such as the pride of the Samin community in their identity, the transfer of cultural knowledge to the younger generation, the traditional attitude of the Samin community, and the low use of information and communication technology.

Keywords: agricultural cultivation, indigenous peoples, local wisdom, modernization

INTRODUCTION

The agricultural sector is one of the sectors that has a positive impact on Indonesia's development, accommodating a large number of Indonesian workers and reaching one-third of Indonesia's workforce. Syaifullah & Emmalian (2018) show that the agricultural sector labor variable has a linearly proportional relationship with GDP from the agricultural sector; that is, if agricultural sector labor increases, the contribution of the agricultural sector to GDP will increase. According to Statistics Indonesia (2014), based on data from the 2013 Indonesian Agricultural Census, there are 32 million farmers in Indonesia, comprising 24,418,161 males and 7,292,896 females. The number of agricultural workers in Indonesia is relatively large, but productivity is still low at IDR 34.44 million/person/year (BPS, 2014). One of the efforts to increase productivity is to modernize agriculture. In this regard, the Ministry of Agriculture launched the development of agriculture and food in 2020-2024 by emphasizing agricultural development towards industrial agriculture from traditional systems to modern agricultural systems (KEMENTAN, 2020). Modern agricultural systems can be realized through agricultural modernization, which is the process of changing agricultural patterns through current development. Agricultural tools and machines are the instruments that support modern agriculture (Anugrah et al., 2022).

Rifkian et al. (2017) defined agricultural modernization as a major change in agricultural patterns from traditional to more advanced or modern ways, covering various aspects, including agricultural institutions, agricultural technology, development of natural resources, and regulations. The introduction of agricultural modernization into society requires an adaptation process. Togatorop (2017) explaines that modernization is driven by several factors, including contact with other cultures, an advanced formal education system, future orientation, an open stratification system, and field agricultural extension or Petugas Penyuluh Lapangan (PPL). According to Selvia et al. (2019), modernization in agriculture is driven by several factors, namely, contact with other cultures, an advanced formal education system, and orientation to the future. According to Arjawa (2020), modernization is driven by the rationality of society, which considers modernization to be more efficient. Based on this statement, researchers are interested in analyzing the driving factors of agricultural modernization in Samin.

The samin community was closely related to its identity as a farming community. The samin community is indigenous to Indonesia, whose lives depend on the agricultural sector. Agricultural modernization in the Samin community changed the pattern of agriculture seen from the modern agricultural institutions that occurred, the agricultural technology adopted, and the way the control of plant pests and diseases or Organisme Pengganggu Tanaman (OPT) was carried out. The introduction of agricultural modernization in the Samin indigenous community was driven by several factors. Being a farmer in the Samin community is a profession that has been passed down from generation to generation. The samin community also has local farming wisdom that has been passed down to this day, as seen from customary institutions, farming traditions, and the tradition of controlling plant pests and diseases (OPT).

Hanif (2016) states that local wisdom is a particular locality's conception of life. Local wisdom can be said to be a tradition if it survives. The local wisdom of samin farming can survive and exist, driven by several factors that cause tradition to continue to exist. Arjawa (2020) explains that there are factors that hinder modernization, namely the existence of traditional attitudes that arise due to concerns over losing traditions that have been going on for years. Soekanto (2015) explains that several factors hinder the occurrence of a change including the lack of relationships with other societies, the late development of science, traditional attitudes of society, the existence of vested interests, fear of cultural integration, prejudice against new things or a closed attitude, ideological obstacles, and customs.

The introduction of agricultural modernization allowed the Samin community to adapt to the changes that occurred in farming. Syafrizal and Calam (2019) explain that from time to time the noble values in local wisdom began to dim, fade, lose their substantive meaning as well as the local wisdom of farming Samin community. The results of research conducted by Widyawati (2017) show that Samin people accept the entry of popular culture and information technology, but still maintain the purity of their

teachings. The samin community accepts the presence of agricultural modernization, even though it also has local wisdom in farming. According to Konradus (2018), the ability of one's own culture, including regional culture of any kind, is included in the local genius space, which has the following characteristics: (a) ability to withstand outside culture; (b) ability to accommodate outside culture; and (c) ability to integrate outside culture into the original culture and control and direct cultural development. In this study, the level of existence of Samin local wisdom is classified into existing, fading, and disappearing, adjusted to the ability of local wisdom in facing the entry of outside culture, in this case the entry of agricultural modernization. According to Danugroho (2020), existence is the ability or existence of an object in facing the development of an increasingly global era.

Based on this background, it is important for the author to research and analyze agricultural modernization and the existence of local wisdom in the agricultural system of the Samin Community amidst the ongoing process of agricultural modernization. This research discusses the interaction between modernization and farming traditions, described in accordance with the opinion of Syafrizal and Calam (2019) that local wisdom began to dim, fade, and lose its substantive meaning. The novelty of this study is that it explains the existence of tradition quantitatively from the number of followers of a tradition. Sztompka (2017) states that to know the changes in a tradition quantitatively, it can be seen from the number of adherents or supporters of the tradition. The researcher further elaborates on existing traditions, hand-in-hand, fading, and disappearing, as well as the extent to which the Samin community maintains its local wisdom and what makes them accept modernization. This study focuses on the factors that influence the modernization process and those that drive the existence of local wisdom. The researcher hypothesizes that the local wisdom of samin farming still exists because of the firmness of the Samin people in holding traditional values and the fact that agriculture is the way of life chosen by them.

METHODS

This research is a case study of modernization and the existence of local wisdom in the agricultural system of the Samin community. This research was conducted in November 2022 in Samin Village, Baturejo Village, Sukolilo District, Pati Regency. The research location was chosen purposively because the population of Samin community of Baturejo Village was quite large in compared with Samin community in other areas in Pati Regency and the results of field exploration showed that there had been agricultural modernization in Samin community of Baturejo.

This study used mixed methods and a combination of qualitative and quantitative methods. Quantitative methods were conducted using a survey method with an instrument in the form of a questionnaire. Quantitative data collection was conducted through questionnaire interviews with the selected respondents. The criteria for respondents in this study were Samin farmers in Baturejo Village, both men and women, with a minimum age of 15 years. The respondents were selected through accidental sampling. The unit of analysis in this study was an individual. Quantitative data were obtained, processed using Microsoft Excel 2013, and analyzed quantitatively. Quantitative data were derived from questionnaires obtained after interviews with the research participants. The data were then input into Microsoft Excel 2013 and processed by simplifying and encoding the data for subsequent tabulation. Tabulation is used to create descriptive statistics from the obtained data but does not reveal relationships within the data.

The qualitative method used in this research included in-depth interviews, observations, documentation, and document studies. In-depth interviews were conducted using the snowball sampling method with several informants, such as the Head of Baturejo Village, the owner of the grinding machine service, samin farmers, and samin leaders. Observations were conducted by the researcher as an observer who was open to the community under study, focusing on social phenomena such as agricultural modernization and the existence of local wisdom. Document studies were used to collect secondary data from monographic village reports and BPS publications. The collected qualitative data were then reduced, analyzed, and presented in various forms, such as narrative texts, documentary images, and tables, which were subsequently used as the basis for drawing conclusions.

RESULTS AND DISCUSSION

Samin Indigenous Community and its Existence in Baturejo Village

Samin Indigenous Community live in several areas in Pati Regency, one of which is Baturejo Village, Sukolilo District. Sukolilo District has an average altitude of 85.69 meters above sea level, with the highest being 262 m above sea level and the lowest being 5 m above sea level (BPS, 2015). Baturejo Village is administratively located in Sukolilo Subdistrict, Pati Regency and consists of 4 community associations and 23 neighborhood associations (BPS, 2022). Total area of Baturejo Village According to the (BPS, 2022) is 1,037 km^2. Baturejo Village consists of four hamlets: Ronggo Hamlet, Bombong Hamlet, Mulyoharjo Hamlet, and Bacem Hamlet. The Samin Indigenous Community of Baturejo Village lives in Bombong Hamlet, and the largest distribution of Samin Indigenous Community is found in Jalan Kampung Samin, where on the left and right sides of the road are scattered houses of the Samin Indigenous Community.

According to the 2021 Baturejo Village Monographic Report, the population of Baturejo Village has reached 6,202 individuals, consisting of 3,174 males and 3,028 females, with 62% of the population engaged in farming. The report also highlighted that the education level in Baturejo Village is relatively low, with 39.7 percent of elementary school graduates and 19.7 percent of junior high school graduates. Most of the farmers in Baturejo Village are farmers whose main commodities are rice, corn, and horticultural crops, such as watermelon and melon. A high percentage of farmers is supported by the availability of agricultural land in Kecamatan Sukolilo. Kecamatan Sukolilo has an area of 15,874 ha, with agricultural land in the form of paddy fields covering 7,253 ha and non-highland agricultural land covering 4,825 ha (BPS, 2022).

Mbah Samin Surosentiko or Samin Surosendiko is the pioneer figure of Samin Indigenous Community. The history of the Samin community began during the Dutch colonization of Indonesia. During the Dutch colonial period, *Mbah* Samin Surosendiko fought against the Dutch, refusing to impose taxes on Indonesian citizens. The rejection was carried out by *Mbah* Samin because, according to him, Indonesian land belongs to Indonesians, and Indonesians should not pay taxes on the results of their sweat to the Dutch. This rebellion led to the arrest of *the Mbah* Samin Surosendiko on March 15, 1907. *Mbah* Samin Surosendiko's movement in rejecting taxation was supported by his followers. Over time, *Mbah* Samin's followers have become increasingly scattered across several regions of Java. *Mbah* Samin then spread the teachings of Saminism to his followers and chose several figures as leaders in various Samin distribution areas. These figures included *Mbah* Surokidin, *Mbah* Suronggono (Pati Regency), and *Mbah* Surorejo Kuncung (Blora Regency). The followers of *Mbah* Samin's teachings are increasingly numerous and spread in various regions such as Pati, Bojonegoro, Rembang, Kudus, and Blora. The followers of *Mbah* Samin are commonly known as the Samin Community. The samin community prefers to be referred to as Orang Sikep or Sedulur Sikep, because the name Samin Community is thick with the nuances of rebels or dissident communities when viewed from the early history of the Samin community as a group that refused to pay taxes.

> *"...Mbah Surondiko came from Blora Regency. Although Mbah Surondiko was from Blora Regency, Mbah Surosendiko needed an umbrella (figuratively an umbrella is a person capable of being a shade or leader of a region). Mbah Surosendiko then decided to choose Mbah Suronggono as the leader in Pati Regency. Mbah Suronggono led the Pati Samin Community assisted by his son-in-law, Mbah Tarno, who came from Kaliyoso, Kudus Regency. The descendants or children of Mbah Tarno are Le Icuk and Mbah Wartoyo, respectively. Mbah Suronggono's mother is Mbah Jambed..."*

The history of the Samin community in Pati began with *Mbah* Suronggo as the leader, sent by *Mbah* Samin Surosendiko. *Mbah* Suronggono in spreading the teachings of Saminism and leading Sedulur Sikep Pati was assisted by *Mbah* Tarno as his son-in-law. *Mbah* Tarno's children or successors are *Le* Icuk and *Mbah* Wartoyo. Currently, *Le* Icuk is a Samin leader in Samin Village, Baturejo Village, whereas *Mbah* Wartoyo is a samin leader in Dukuh Ngawen, Sukolilo Village. Samin community in Pati Regency is spread in several areas, namely Kedumulyo Village (Dukuh Curug), Sukolilo Village (Dukuh Ngawen), Baliadi Village (Dukuh Galiran), and Baturejo Village (Dukuh Bombong). The

samin community of Baturejo Village is widespread in Samin Village, with a relatively large population.

Sedulur Sikep are individuals who declare themselves as Sikep confessors and act as Samin teachers. The samin community has several values that are firmly held and used as behavioral guidelines. Munawaroh et al. (2015) explained that the value system in the form of the teachings of Saminism, which is in their minds, is then implemented in their behavior and actions and these teachings are still maintained. A person who declares himself to be a Sikep person must be able to act according to his teachings, but the practice of Samin's teachings is returned to each individual whether he has been able to implement each Samin value in his life or is still unable. Someone who claims to be Sedulur Sikep but, in practice, does not implement the values of Samin's teachings cannot be said to be Sedulur Sikep.

> *"...Sedulur Sikep has a foundation that must be a behavioral guide. The behavioral guidelines of Sedulur Sikep are ojo ngelakoni dengki, srei, dawen, pangesten, kemeren, petuk jumbuh, until you find it, nek iso ojo dilakoni. This value is the foundation of the behavior of Sedulur Sikep. If people pinch themselves, it hurts so do not pinch others (figuratively, so as not to hurt others). If possible, be a person in harmony between what is said and what is done (honest). If property problems cause damage to the brotherhood, they do not take the inheritance. If a discussion raises unpleasant issues, it will not continue. This triggers brotherhood breakdown; it is better to be a reluctant individual. Whether an action is good or bad depends on the person performing it. " (KR)*

The Samin community is a society that does not recognize strata, and they consider everyone equal. The samin community does not recognize the terms elder or more respected person. According to Sedulur Sikep, the oldest kanda is honest and tuwuhaning akanda. People who are considered old and respected can honest correctly. Honesty for the Samin community means being in harmony with what is said and what is done. Anyone who can honesty cannot be seen from age, so if a small child tells the truth and honesty, then it must be respected and lessons learned from it. All people, whether young or old, must be respected, and the Samin community does not see a person's strata but sees the honesty held by each individual. The value of honesty is important and should be held firmly for every Samin individual.

The identity of a farming community is attached to the Samin community. This is because the entire Samin community works only as farmers, and being a farmer is a way of life chosen by the Samin people. The profession of farmers has been inherited since the beginning of the history of the emergence of the Samin community, and they have wisdom in farming. This statement is in line with the statement by Setyaningrum et al. (2017) that the profession of Samin people is as rice field cultivators and *mocoks* (laborers). The profession of farmers can survive and is irreplaceable even in the future; Samin people will still be farmers because this profession is based on the teachings of Samin. Working as a farmer requires Samin people to continue to learn about their agricultural culture so that Samin local wisdom can continue to exist, because this walking process is a lifelong learning process as well as a cultural inheritance process. This is in line with Fu' adi's (2020) statement that the learning process of the Samin community about culture in Baturejo Village is a lifelong learning process and a cultural inheritance process. The profession of farmers has been inherited because of the prohibition of working as a trader. According to Samin, the profession of farmers allows them to continue to be honest.

The profession of being a farmer persists because the Samin community takes pride in its identity as a farmer. Pride in their group identity as farmers fosters efforts and responsibilities to continuously preserve and pass down farming to future generations of Samin. The Samin community not only endeavors to pass down farming values and practices to the next generation, but also strives to conserve the environment to ensure the sustainability of agriculture. Agricultural land was meticulously maintained by the Samin community to be passed on to their descendants. This land inheritance represents the provision of life sustenance from samin parents to their children.

In agricultural activities, the main workforce utilized by the Samin community is family labor, starting from land preparation to harvesting. Family members involved in assisting typically include immediate families such as spouses and children, but sometimes extended family members such as in-laws, siblings, and relatives also participate in the fieldwork. Familial bonds are highly valued by the Samin community, leading them to engage in cooperative work with extended family members in agricultural

fields. The tradition of mutual assistance in farming activities among the Samin community is referred to as "*lebotan.*"

Since childhood, samin people have been taught how to farm by their parents so that, as adults, they can independently work on agricultural land. Samin people do not go to school formally and the schooling of Samin people is on the farm so that as teenagers Samin people already work as farmers. This makes the Samin community generally engage in farming. The respondents in this study mostly had a long farming experience. The length of the respondent's farming experience was calculated from the time the respondent actively helped the family's farming work until this study was conducted. Samin women who have been actively farming; for example, those who have been able to plant rice on their parents' land or help plant rice on their relatives' land. Samin men who have been active in farming, for example, have been able to prepare the land for planting rice or corn. Ten respondents had 5-20 years of farming experience or were classified as having moderate farming experience. Respondents who are classified as having long farming experience are respondents who have been farming for more than 20 years as many as 20 respondents.

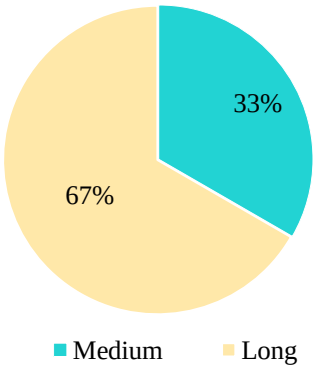

Figure 1. Percentage of respondents based on farming experience in Baturejo Village, Central Java

Samin farmers have long cultivated their land by planting paddies as the main commodity. Paddy plays a vital role in their lives and is a staple food that has been planted consistently for years. Rice harvest is not only used to fulfill daily food needs but is also stored in the lumbung as a reserve for the next few seasons. In addition, a portion of the harvest is allocated to paddy seeds to ensure the continuity of farming. The main principle adhered to by the samin community is to sell the harvest in accordance with urgent needs. Therefore, the sale of unhusked rice is done carefully and used to meet the needs of daily life, as well as capital for the next planting season, including buying agricultural tools, fertilizers, seeds, and paying for agricultural services such as irrigation, tractors, and milling machines. The Samin community refers to the act of buying and selling as "*ijol*" which translates to exchange, signifying the exchange of rice seeds for money or the exchange of money for essential goods. The term "*ijol*" is employed because trading or commerce is deemed irrelevant to the principles and values held by the Samin people.

> *"...What I usually do is keep a good-quality paddy for family consumption for a period of one year. Therefore, if farmland is flooded (crop failure), there is already rice at home. I usually set aside paddy rice for the next year and don't sell it..."*(NU)

Rice is the crop commodity cultivated by the Samin community of Baturejo. They also commonly cultivate other commodities, such as corn and horticultural fruits, such as watermelons and melons. The cropping pattern applied by samin farmers is classified into the category of polyculture cropping patterns with a crop rotation system. Planting patterns are usually carried out by Baturejo Village farmers, for example, planting twice a year, namely rice and rice commodities, planting twice a year rice and corn commodities, or planting three times a year, namely rice, corn, and fruit. Farmers who plant rice-corn and rice-rice commodities twice a year, usually after the first planting period. In determining a year's cropping pattern, samin farmers usually consider weather factors, land location, and available irrigation facilities. The decision to determine the cropping rotation was made by each farmer. The selection of cropping patterns also considers the ability of farmers to cultivate crops.

"...One area (cultivated land) can be planted three times a year and two areas (cultivated land) can be planted twice a year. Land that can be planted three times a year is planted with rice, fruit, and corn. The type of fruit planted depends on the owner of the cultivated land, some watermelons, and melons. Some plant tomatoes and chili peppers..." (RJ)

The farming commodities grown by the Samin community include rice, fruit, corn, and vegetables (Figure 2). The method of planting respondents' farming commodities was divided into two categories: organic and inorganic. All respondents in this study planted rice commodities with commonly planted varieties, namely, Inpari 36 and Inpari 32. Respondents in this study planted more rice in a non-organic manner than in an organic manner. There were 29 respondents who grew rice in a non-organic way are 29 respondents while respondents who grow rice organically. Another commodity that is widely planted by respondents, besides rice, is corn. Maize seed varieties commonly planted by the respondents in this study included BISI 18 and P27. The number of respondents who planted corn was 25 respondents with a percentage of 83% of the total respondents. The majority of respondents in this study grew maize in a non-organic way, and only a small number still grew maize organically. For respondents who grew corn non-organically, the percentage was 77% or as many as 23 respondents, whereas for respondents who grew rice organically, the percentage was 6% or as many as two respondents.

"...Currently, I plant rice in areas where there is water, and I plant a little corn. I plant corn according to my preference, usually if not BISI 18 then P27..." (KH)

Some respondents in this study stated that they could plant three crop rotations per year, starting with rice, corn, and then fruit. The most common fruits grown by respondents were watermelons and melons. The number of respondents who grew fruit was 18, and all of them grew fruit using inorganic methods. Non-organic methods are chosen for growing fruit because the planting process to harvest the fruit requires the intake of fertilizers and vitamins to maximize the yield.

"... Many Sedulur sikep plant watermelons and melons. If the melon is two months old, it can already be picked, if it is the pertiwi type, 50-55 days, the melon is ready to be harvested..." (NU)

Four respondents grew vegetable commodities. Three respondents grew vegetables in a non-organic manner, and one respondent organically grew vegetables. The types of vegetables grown by respondents included chilies, long beans, and several other types of vegetables, depending on the respondents' wishes. The harvest of vegetables is mainly to fulfill the respondents' food needs, and the rest will be sold either by slashing or sold little by little to middlemen.

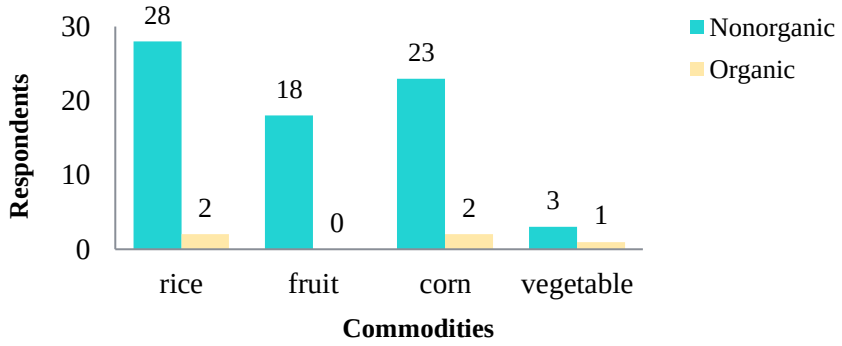

Figure 2. Number and percentage of respondents based on commodities grown in Baturejo Village, Central Java

The data above indicate a change in agricultural cultivation patterns among the Samin community, representing a significant transformation from traditional practices to modern methods. Previously, they relied more on organic cultivation, focusing on crops such as paddy rice and varieties such as *menthik wangi*. However, currently, the majority of the Samin community has shifted towards non-organic methods in their agricultural practices. With the adoption of nonorganic methods, the Samin community is now more open to various commodities and new varieties of crops, demonstrating their adaptability to changing times and market demand.

The Samin community practiced agricultural cultivation with several types of land tenures, including owners, cultivators, owners, and tenants. Most respondents in this study were farmers with land tenure as owners and tenants, meaning that in addition to working on private land, farmers also worked on land owned by other farmers with a profit-sharing system. The profit-sharing system for rice commodities is half of the harvest, meaning that half of the harvest is given to the landowner, and the other half belongs to the tenant farmer. The profit-sharing system for fruit commodities is 1/5 of the harvest given to the landowner, whereas 4/5 of the harvest is for tenant farmers. The profit-sharing system for maize is 1/3 of the harvest for landowners and 2/3 for tenant farmers.

Almost all respondents owned agricultural land, and only 13% of the respondents did not own agricultural land and only worked as tenants on land owned by other farmers. Samin farmers are trusted by landowners to work their land for a long period of time because they have other professions outside agriculture, and they trust their land to be cultivated by the Samin community because they are famous for being skillful in agricultural cultivation. People who do not own land are due to the Samin community who migrated from outside Pati Regency and those who did not receive land inheritance from their parents. Nevertheless, working as a farmer remains the preferred way of life.

> *"...I have cultivated only one field. I work as a farm laborer for people from Sukolilo. I have been working as a farm laborer for 30 years..."* (SP)

Agricultural Modernization: Drivers and Implementation

Driving factors of agricultural modernization

Agricultural modernization was driven by several factors, such as contact with other cultures, future orientation, attitude toward community rationality, open attitude of the community, and government policy. The driving factors of agricultural modernization are those that encourage the process of agricultural modernization and make samin farmers adopt agricultural modernization. These factors include contact with other cultures, future orientation, attitude toward community rationality, the open attitude of the community, and government policy. The decision to adopt modern technology is driven by a single factor. Technology adoption begins with a community's openness to modern agricultural technology. The existence of contact with other cultures and government socialization makes farmers more familiar with modern technology. Encouragement from the government, government policies, and farmers' rational attitudes towards the need for technology that is useful in helping work led to farmers' decisions to adopt a technology. In adopting technology, samin farmers also consider the sustainability of agriculture in the future. The driving factor of modernization, which has a major influence on modernization in Samin, is contact with other cultures.

Contact with other cultures, meaning interactions between Samin farmers and cultures outside of Samin, have encouraged the Samin community to learn agricultural practices beyond their own traditions. Initially, the combine harvester machine was not well received by Samin farmers; however, over time, they began using the technology after repeatedly receiving suggestions from non-Samin communities. The Samin community initially rejected the combine harvester because it could reduce labor; however, after adopting the combine harvester, samin farmers ended up working as machine operators. Additionally, the introduction of fruit commodities occurred after observing other farmers who had long been growing fruit. Initially, they were not interested, but after asking and learning from non-Samin farmers, they began to plant fruit commodities on their cultivated land.

Samin farmers strive to ensure sustainable agriculture for future generations by adopting environmentally friendly farming practices, including the use of self-made organic fertilizers and integrated pest management with natural substances, reflecting their commitment to a better agricultural future and the preservation of fertile land as an investment and legacy for their descendants, and adopting pesticide use as needed to promote agricultural sustainability. This rationality is evident in samin farmers' decisions to adopt technology based on the belief that modern agricultural technology makes work more efficient and effective, such as the use of tractors, water pumps, generators, milling machines, sprayers, pesticides for pest and weed control, and fertilizer applications, simplifying their work and leading them to adopt modern technology.

Irrigation using water pumps began to be widely used in 2013, when irrigation was coordinated by farmer groups. Over the years, the use of water pumps for irrigation and samin farmers began to purchase their own pumping equipment, leading to an increasing number of samin farmers adopting water pump machines as it facilitates irrigation by channeling water from rivers to their cultivated land.

Initially, the Samin community used manure as fertilizer for agricultural land, but government-led socialization efforts encouraged Samin farmers to transition from organic farming to chemical fertilizer use. This change highlights the significant role of government policies in modernizing fertilizer use, which has now become a primary need for the Samin community. The introduction of milling machines began with government socialization efforts, including the introduction of harvesting technology along with the provision of machine grants to village governments. The advancement of harvesting technology has been well received by Samin farmers for processing their harvests.

As an indigenous community, the Samin community is relatively open to modern technological advancements and embraces changes that contribute positively to agricultural progress. Samin farmers are receptive to changes in agriculture as long as they do not conflict with their core values. This openness within the Samin community reflects their willingness to learn and adapt to agricultural changes, rather than their outright rejection of new technologies.

Agricultural institutions

The samin community is said to be modern in its agricultural institutions in terms of the involvement of samin farmers in farmer groups, the involvement of annual auctions, farmer membership, and the existence of procurement groups for Alsintan in the form of blower machines (Table 1). Samin farmers, although only a small proportion, namely three percent of respondents, joined farmer groups, they were active in activities routinely held by farmer groups and even Samin farmers generally became initiators of routine activities about agriculture. Samin farmers tend to be passive in auction activities, only 7 percent of respondents, because these activities do not reflect Samin way of life.

The Samin community tends to be passive in certain activities related to governance because it perceives these activities as not conforming to the Sikep people's customs and governance procedures. Historically, the Samin community has been less concerned with governmental activities such as non-compliance with tax payments and failure to register through ID cards. This apathetic attitude towards governmental activities persists to this day, making them less interested in agricultural initiatives initiated by the village government.

Although their presence in auction activities is passive, they are always present when there are cooperative activities, and they often provide suggestions to the village government for the advancement of agriculture. The majority of Samin communities have now joined farmer membership through farmer cards. The ownership of farmer cards by the Samin community is evidence of the awareness of samin farmers that, along with the times they must adapt to today's agricultural life.

Table 1. Number and percentage of respondents based on modern agricultural institutions in Baturejo Village, Central Java

Modern agricultural institutions	Number (n)	Percentage (%)
Farmer group member	1	3
Annual auction involvement	2	7
Farmer membership	16	53
Procurement of alsintan	3	10

Agricultural technology

According to (Ali, 2017) is a tool, method, or method used to process agricultural inputs to produce agricultural outputs or products so that they are efficient and effective in the form of raw, semi-finished, and ready-to-use products. The agricultural technology owned by all respondents in this study was sprayer. These results also indicate that the Samin community adopted a sprayer and used it to assist their work on cultivated land. Samin farmers usually use spray equipment to apply liquid fertilizers and spray pesticides such as insecticides and molluscicides. The percentage of respondents

who adopted spray equipment was 100%, or as many as 30 respondents (Table 2). For respondents in this study who already had a generator engine, the percentage was 13% or as many as four respondents. Those who own generator engines are farmers who usually eradicate rats by using electric trapping machines.

Table 2. Number and percentage of respondents by owners and users of agricultural technology in Baturejo Village, Central Java

Agricultural Technology	Owner		User	
	Number (n)	Percentage (%)	Number (n)	Percentage (%)
Tractor	5	17	29	97
Pumping machine	20	67	29	97
Engine generator	4	13	4	13
Sprayer	30	100	30	100
Grinding machine	0	0	29	97
Combine harvester	0	0	29	100

The land processing technology adopted by samin farmers is a tractor machine. The samin community uses tractors to cultivate their arable land, and the type of tractor used adjusts the commodity to be planted. For respondents in this study who owned a tractor machine, the percentage was 17% or as many as five respondents. Those who own tractors usually use tractors to cultivate privately owned land, as well as open services for other farmers who need help to cultivate their arable land. Respondents who owned tractors were still relatively few, but as many as 29 respondents stated that they had used tractors as a tool to cultivate their agricultural land.

Figure 3. Knapsack sprayer used in Baturejo Village, Central Java

The utilization of tractors as agricultural tools has become a primary requirement for farmers within the Samin community. The utilization of tractors in their farming activities is not only driven by necessity but also follows the evolving needs and advancements in technology. Presently, Samin farmers adopt specialized tractors capable of preparing land for fruit cultivation. Advancements in tractor technology have been accompanied by efforts by samin farmers to attain optimal results in their agricultural land management. Traditionally, before the introduction of tractor technology, the Samin community relied on buffalo or cow, known as "*luku,"* to plow agricultural land. However, this tradition has long been lost because Samin farmers prefer to use more effective and efficient tractors to plow land.

> *The processing of samin agricultural land today is usually plowed using a tractor, whereas in the past, luku (plowing) used cows and buffaloes. Agricultural land that has been plowed is then harrowed / leveled, arranged galengan (making bunds) using a hoe so that water does not leak, harrowed / leveled until the soil is smooth and then ready for planting..."* (GN)

Agricultural modernization is not only a production technology but also the introduction of new crops and the use of superior varieties. The main commodity planted by samin farmers was rice; after the entry of modernization, the Samin community knew about other plants, such as fruit commodities. Hariyadi et al. (2022) define seeds as seeds that are used as breeding tools while seedlings are seeds that have germinated. The percentage of respondents who had bought rice seeds to meet the needs of seeds in their cultivated land was 93% of all respondents who planted rice commodities, or 27 respondents. Besides planting rice commodities, samin farmers also planted corn commodities in a year. Samin farmers who meet the needs of corn seeds usually buy corn seeds from agricultural stores. There were 23 respondents who bought corn seeds from agricultural stores, or it could be said that all respondents who planted corn met their seed needs by buying at agricultural stores. All respondents who grow fruit and vegetable commodities buy fruit and vegetable seeds at agricultural stores.

The agricultural technology widely adopted by samin farmers is chemical fertilizers. All respondents stated that they had used chemical fertilizers for their agricultural land. The introduction of technology in the form of chemical fertilizers has been a long time, and both young and old Samin farmers have become accustomed to using chemical fertilizers. The facts in the field showed that all respondents had used chemical fertilizers to be applied to their cultivated land and 83% of all respondents, or as many as 25 respondents, only relied on chemical fertilizers without using additional organic fertilizer assistance.

Modern irrigation technology used by most Samin farmers is a water pump machine. The percentage of respondents in this study who used a water pump machine as a tool for irrigation on agricultural land was 97% of the total respondents. This percentage represents the adoption of water pump machines as irrigation technology by the majority of samin farmers. The number of respondents who had water pump machines was 21, while the number of users of water pump machines was 29. One respondent who did not use a water pump only grew vegetables and corn, so he only relied on rain-fed irrigation.

Commodities grown by samin farmers, whether rice or corn, require the help of harvesting technologies. The technology commonly used by samin farmers to process rice into grain is a blower and combine harvester machine. The technology used by samin farmers to process corn into shelled corn is a corner-sheller machine. Samin farmers have also commonly used technology in the form of rice milling machines to convert grains into rice. The number of respondents who had used a combine harvester machine was 29, indicating that all respondents who grew rice had used a combine harvester machine. All the respondents in this study used rice milling machines and corn shell machines to process their crops. The availability of milling services (milling houses) in Baturejo Village and its surroundings is quite high, making it easier for farmers to process rice or corn crops.

Control of plant pests and disease (OPT)

Pest nuisance organisms, according to (UU, 2019) are all organisms that can damage, disrupt their life, or cause the death of plants. Pest destructive organisms or plants according to (Yudono et al., 2016) have three types, namely plant pests, pathogens (causes of disease) and weeds (nuisance plants). Pests that disturb crops on Samin farmers' cultivated land include rats, snails, caterpillars, grasshoppers, and leafhoppers. Efforts that are now widely used by farmers to control rat pests include the use of rat poison or rodenticides. The use of rat poison is considered more effective by farmers than other methods, so many farmers choose to use rat poison to eradicate rat pests. The number of respondents who use rat poison to eradicate rat pests is 20 respondents or a percentage of 67% of all respondents. Another effort made by farmers to control rat pests is the use of electric traps. Electric mouse-traps are made of electrified wires and are installed around the farm. The percentage of respondents who used electric rat traps was 23% of the total respondents, or seven respondents.

The population of snail pests on Samin farmers' lands was also relatively large, so they used molluscicide drugs to control snail pests. The use of molluscicide drugs is efficient and effective, and many farmers have adopted molluscicide drugs. Respondents used to apply molluscicides before or immediately after planting rice, so that after the rice was planted, it was not eaten by snail pests. The number of respondents who used molluscicides was 28, or 93% of all respondents.

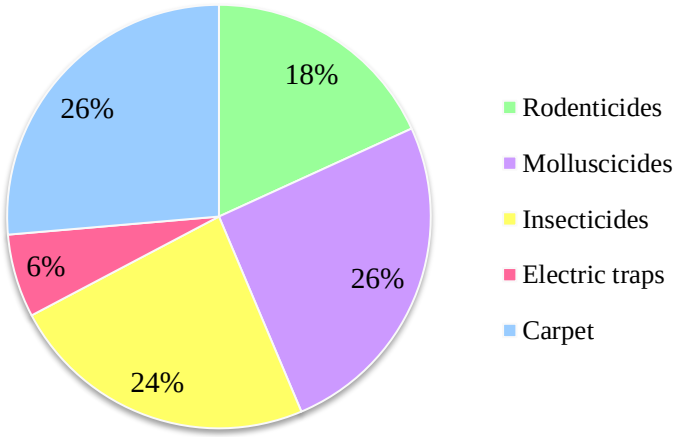

Figure 4. Number and percentage of respondents based on pesticide use in Baturejo Village, Central Java

Pests that mostly attack corn plants are caterpillars and pests that mostly attack rice plants. Samin farmers currently use insecticidal drugs to control locust and caterpillar attacks on their cultivated land. The number of respondents who used insecticidal drugs to eradicate caterpillars and locusts was 26% and 87%, respectively.

The current agricultural method commonly used by samin farmers to control weeds is to use weedkillers, commonly called herbicides. Respondents in this study who had used herbicides to control weeds on their farms were 24 people with a percentage of 80%. Considerations made by samin farmers using herbicides include their ease of use. The use of herbicide drugs makes weed cleaning more time-efficient and effective.

The Agricultural Local Wisdom

The local wisdom discussed pertains to the practices still maintained by the Samin community in Baturejo Village. Local wisdom, as a tradition, cannot be considered if it is no longer practiced or has disappeared. The traditional farming practices of the Samin community encompass various activities from planting to post-harvesting activities.

Indigenous agricultural institutions

Samin's traditional agricultural institutions include regular gathering activities every Friday night, agricultural discussion activities, the existence of farmer groups and mutual cooperation activities that are routinely carried out by Samin farmers. Pambudi et al. (2022) explains that institutions have a function as a driver, collector, distributor of production facilities, generator of interest and attitudes and ensure the success of agricultural agribusiness. Samin community gathering is a traditional institutional activity that is routinely held every Friday night at *Le* Icuk's house. The gathering activities every Friday night have been carried out for generations and are still being passed down.

Table 3. Number and percentage of respondents based on indigenous agricultural institutions in Baturejo Village, Central Java

Indigenous agricultural institutions	Number (n)	Percentage (%)
Samin association	30	100
Agricultural discussion	15	50
Farmer groups	17	57
Cooperation	13	43

One of the factors that makes the gathering activities among Samin people still carried out today is because Samin people are not accustomed to using communication technology such as cell phones so that the means of communication and discussion for Samin people is to gather and discuss together. Samin Association is a means of passing on Samin agricultural knowledge to the entire Samin community and at the association Samin community can discuss and discuss the agriculture that is

being carried out by Samin farmers. Agricultural discussion activities among the Samin community are not formal; however, these activities are always carried out to discuss work preparation, farmland conditions, or other agricultural chats. Based on the above statement, it can be concluded that Samin agricultural institutions can function, as explained by Pambudi et al. (2022).

The main occupation of the Samin community is farming, both as owner farmers and as farm laborers. Samin farmers often work as laborers in groups or farming groups. Samin farmer groups usually work as planting groups, corn harvesting groups, tractor worker groups, and blower or combine harvester groups. Respondents in this study who were members of farming groups were 17 people with a percentage of 57% of all respondents. This shows that samin farmers were accustomed to working in groups with their farmer groups.

The majority of respondents who are members of farmer groups are rice-planting groups or groups consisting of female farmers. When the planting season arrives, farmer groups usually coordinate their work directly. Farmer groups are said to be classified as customary institutions because they tend to be permanent and the activities carried out to meet the needs of their members and agricultural activities are carried out quite often or can be said to be routine activities and work habits for samin farmers. The percentage of respondents as much as 57% who are members of farming groups indicates that many of the Samin people are involved in the traditional institutions of farming groups.

> *"... Community service as a form of harmony is often held; if there is a community service, I will participate. The irrigation canal was repaired. Community services are often carried out if there is garbage in the river that causes water blockage. Usually, Sedulur Sikep organizes it, and then informs each other. Other than Sedulur Sikep, some people want to join community services. But usually Sedulur Sikep is the one who often conducts community service activities..."* (KH)

Agriculture is very important for the Samin community. Agricultural continuity is always prioritized for the Samin Community so that if there are agricultural problems, they will immediately respond to solve agricultural problems. Every agricultural problem they face will be resolved through joint deliberation and action in the form of community services. Samin farmers consider that community service activities for agriculture must be done because they are concerned with the sustainability of agriculture. Thirteen respondents were actively involved in the cooperation or community service activities of the Samin community was 13 people. Community service activities are only carried out by men, so 93 percentage of all male respondents are actively involved in community service activities. This percentage indicates that Samin farmers' awareness of agricultural and social activities around them is high.

Indigenous agricultural traditions

Triyanto and Lathifah (2018) explain that local wisdom is the result of culture that becomes the identity of a traditional society that is applied in everyday life. Samin farmers traditionally use derived rice as seeds for the next planting period. The percentage of respondents who still use derived rice for the next planting of seeds is 25 respondents, or 87% of all respondents who plant rice commodities. This percentage shows that the tradition of using rice-derived seeds is still sustainable and exists today. Samin farmers will set aside good-quality rice grains to be used as seeds during the harvest season. Although rice is harvested with a combine harvester machine and sold with a slashing system, farmers still try to set aside the best rice from the harvest as seed supplies for the next planting season. The criteria for grains used as planting seeds for the next season are grains from rice in the *mapag* category. *According* to the Samin Community, rice grows to a uniform height, which represents the grain yield of uniform rice of the same quality.

Samin people have a unique tradition of planting rice, called *lebotans*. *Lebotan* is a method of planting rice through mutual cooperation. *Lebotan* workers are relatives and neighbors of farm owners. Farmers who have assisted in the rice planting process then take turns helping to plant on the land of other farmers who help plants on their land. All respondents who grow rice still use the *Lebotan* tradition as a way of planting, so it can be said that this tradition still exists.

Table 4. Number and percentage of respondents by agricultural tradition in Baturejo Village, Central Java

Traditions	Number (n)	Percentage (%)
Derived rice for the next planting	25	87
Planting rice with *lebotan*	29	100
Rainfed irrigation	18	58
Organic fertilizer application	5	17
Labor comes from the family	30	100
Lumbung to store crops	30	100
Harvest to fulfill food needs	29	97
Sharing of the rice harvest	6	20
Sharing the fruit harvest	17	57
Inheriting farmland	25	83

In the past, the Samin community used manure as a plant fertilizer. Manure is commonly referred to by the Samin Community as *klethong*. Manure or *klethong* was applied by spreading it across agricultural lands before planting process is carried out. Manure is usually obtained from farmers who keep livestock such as goats and cows. The number of respondents who still used manure or organic fertilizer as fertilizer on their farms was five or 17% of all respondents. The small number of farmers who still use manure is due to changes in the use of fertilizers used by farmers. In the past, all farmers fertilized using manure, but after the introduction of chemical fertilizers, farmers preferred to use chemical fertilizers because they were more effective and efficient. The use of organic fertilizers causes weeds to lush, so farmers are overwhelmed with weed control. Samin farmers who still use organic fertilizers state that the harvest of organic paddies can be used for personal consumption because it is healthier, and when organic paddies are sold, the selling price is higher.

Irrigation carried out by Samin farmers from generation to generation uses rainfed and assisted irrigation, relying on irrigation from rivers that drain agricultural land areas. Irrigation using rainfed water was performed by 58% of the respondents in this study. This is a large number, because more than half of the respondents still used rainfed irrigation on their farms. Rainfed irrigation is still practiced by farmers because of the high rainfall in recent years in the Pati Regency area.

One of the customary procedures of the Samin community is to utilize the harvest to meet food needs, whether the commodities grown are rice, fruits, or vegetables. All the respondents in this study stated that they had a barn or place to store crops in their houses. The barn is used to store crops, such as rice grains, in sacks and several other crops. The rice harvest for farmers is mainly intended to fulfill the family's food needs so that when the harvest arrives, it will be stored in the barn or at the farmer's house. All respondents in this study who grew rice commodities used their crops to meet their food needs. When the rice harvest season arrives, farmers store the rice harvest in barns for food needs in the long term. They store rice grain as food reserves for one to two years. This is because farmers do not lack basic foodstuffs in the event of crop failure. If the need for rice for food has been fulfilled in the long term, samin farmers will sell some of the harvest for their daily needs and farming capital for the next season.

The samin community strongly upholds family values, so they are accustomed to sharing the harvest with their closest relatives and neighbors. Samin children who are already married usually give some of their harvest to their parents, either in the form of rice grain or money. Samin children are usually given an inheritance in the form of agricultural land after marriage, so they give the rice harvest as a form of gratitude to their parents. The number of respondents who still maintained the tradition of sharing the rice harvest with their family members was six or 20% of all respondents. The samin community was also used to share the fruit harvest when the harvest season arrived. The number of respondents who used to carry out the tradition of sharing fruit harvests was 17, or 57% of all respondents. This number shows that 95% of all respondents who grow fruits are accustomed to sharing their fruit harvests.

Samin farmers usually bequeath farmland to their children as provisions for their children, who are considered adults, with the hope that the farmland can be used as a provision for them to start their lives. Samin parents usually give farmland to their children when they are married. The number of respondents

who had received agricultural land inheritance and gave agricultural land inheritance was 25, or 83% of all respondents. This number indicates that the tradition of sharing agricultural land still exists among the Samin community.

The samin community accustomed their children to helping their parents work, as well as learning farming directly on the farm. These efforts were made to provide practical knowledge directly, and samin children could help their parents' work. Every Samin community can farm, so the main labor force on their farms is family members, either children, wives, or husbands.

Tradition of controlling pests and diseas (OPT)

Weed control in crops is important thing to do because weeds can compete with plants for nutrients, light, and air, resulting in a decrease in yield in agricultural cultivation (Widyastuti et al., 2023). The effort that has become a tradition of the Samin Community in controlling weeds in their agricultural land is to clean weeds manually. This weed control method is called *matun*. *Matun* work on agricultural land can be performed alone or with a family to help the process. The number of respondents in this study who still use the *matun* method to clean weeds on their farms is 21 respondents or a percentage of 70% of the total respondents. This percentage shows that the *Matun* tradition among samin farmers still exists.

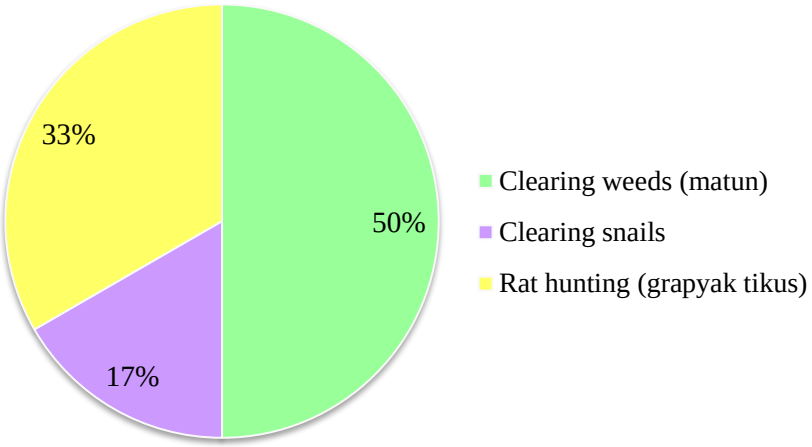

Figure 5. Number and percentage of respondents by tradition of controlling pests and diseases (OPT) in Baturejo Village, Central Java

For many years, the Samin community has been accustomed to cleaning the land from snails that disturb the plants by picking snails one by one and then collecting them in sacks and taking them home. The number of respondents who still used manual methods in cleaning snail pests in this study was seven, or 23% of all respondents. This shows that samin farmers are starting to leave the tradition of picking snails manually.

Figure 6. A collection of conch shells in Baturejo Village, Central Java

The tradition of rat pest control carried out by samin farmers is *grapyak tikus*. *According* to (Rai, 2018) is classified as a mechanical pest control, which is an action taken with the aim of killing or removing pests directly either by hand or with the help of tools. *The grapyak tikus* is a mass rat hunting activity that is usually carried out by male farmers. All male respondents had conducted *grapyak tikus* activities with a percentage of 47 of the total respondents. In the last few years, *grapyak tikus* has not been conducted because farmers' land was flooded and could not be planted. Farmers whose land was not flooded and could be planted chose to use rat poisoning to control rat infestation because *grapyak tikus* hunting was not conducted.

Drivers of the survival of local wisdom

The local wisdom of the Samin community can survive and exist until now, driven by several factors such as the pride of the Samin community in their identity, the transfer of cultural knowledge to the younger generation, the traditional attitude of the Samin community, the low level of education, and the low use of information and communication technology, which has an impact on the lack of exposure of the Samin community to the development of agriculture today. Samin people are proud of their identity as farmers and the way of farming that has become their tradition, so they strive to maintain the integrity and sustainability of Samin agricultural local wisdom.

The internalizing of Samin values and Samin behavior has been done from an early age so that every Samin person should be able to behave according to Samin values. According to Samin, working as a farmer is a noble thing, because they do not have to depend on others and can provide livelihoods by feeding many people. The pride of the Samin people as farmers makes them continue to work as farmers, and will continue to preserve it for the next generation. The profession of farmers is the teaching and legacy of Samin's predecessors. Since the beginning of its history, the Samin people have worked in the agricultural sector, and this profession has remained the main profession for the entire Samin community.

> *"...The sikep people's school is a farming school. Working overseas is not the way that the Sikep people work. If the Sikep are healthy, they work as farm laborers..."* (LS)

Their pride in their group identity as farmers gave birth to the effort and responsibility to continue preserving and passing on agriculture to the next generation of Samin. They are proud of the life choices of Samin people who work as farmers. The samin community not only seeks to pass on the values and procedures of farming to the next generation, but also seeks to preserve the environment so that agricultural sustainability can be maintained. The samin community has the tradition of passing agricultural land to the next generation. The provision of this land is a manifestation of the provision of life by Samin's parents to their children. Farming is not just a job for the Samin people. Farming is the life choice of the Samin people and they are proud of their identity as farmers, so the tradition of farming will be passed down from generation to generation to the next generation of Samin to continue to exist.

The way of life of the Samin people is as farmers, so it can be said that if they do not farm, they are not Samin people. This principle is strongly held for each Samin individual, so that Samin farmers continue to carry out agriculture through traditions and methods that have been taught for generations. Changes that occur in agriculture, such as agricultural modernization, do not necessarily affect Samin people because they know very well how they farm. This has become a strong factor driving agricultural modernization. The transfer of knowledge to the next generation of Samin is an effort to instill value and strengthen Samin's identity as a farmer. The traditional attitude of Samin is the attitude of the Samin people in upholding the local wisdom of farming and maintaining their identity as farmers. The low level of education of Samin people occurs because they hold the value that Samin people do not go to school formally, Samin people's school is on the farm learning to farm. The driving factors of knowledge transfer, traditional attitudes, and low education levels are still related to the pride of Samin as a farmer.

Knowledge transfer is a form of instilling samin values to the next generation of samin to be able to behave according to the values they hold. The traditional attitude of the Samin people gave birth to the behavior and actions of the Samin people in line with their values and traditions. The level of education

of the Samin community is relatively low because they believe that Samin School is a farming school on the farm and not through formal schooling. Samin people are not accustomed to using information and communication technology in farming activities.

The Interaction of Agricultural Modernization and Local Wisdom

The relationship between modern agricultural institutions and traditional Samin agricultural institutions is that both can go hand in hand and complement each other. Samin traditional agricultural institutions survive and exist today because there are still many followers or actors in these institutions (Table 3). Modern agricultural institutions do not necessarily make traditional agricultural institutions diminish their existence; instead, the existence of traditional institutions supports modern agricultural institutions. These customary agricultural institutions can still exist because the Samin people can apply the values they hold, and they strive to continue to carry out the Samin agricultural tradition. The involvement of Samin individuals in Samin traditional agricultural institutions is necessary for those who declare themselves in the recognition of Sikep people so that they will continue to behave as samin people.

Table 5. The level of existence of local wisdom in Baturejo Village, Central Java

Number	The level of existence of local wisdom			
	Existing	**Hand in hand**	**Fading**	**Dissapearing**
1	The *lebotan* tradition	Modern institutions and traditional institutions	Use of manure	*Luku* tradition
2	Harvesting to fulfill food needs	Use of derived rice seeds and rice seeds from shops	Sharing the rice harvest	
3	Storing the harvest in the barn	Rainfed irrigation and organized irrigation	*Grapyak* tikus tradition	
4	Sharing the fruit harvest	Snail picking and molluscicide use		
5	Passing down farmland	Herbicide use and matun tradition		

Existing local wisdom is the local wisdom of farming that is still carried out as inherited by their predecessors, including the *Lebotan* tradition, harvesting to meet food needs, storing crops in barns, sharing fruit harvests, and inheriting agricultural land. The *Lebotan* tradition still exists today because Samin farmers realize that the *Lebotan* tradition can create kinship between samin farmers and can save labor costs. The values held by the Samin community include farming primarily to fulfill food needs so that even though rice is harvested in a modern way, such as the slash system, they still set aside part of the harvest for family food. The tradition of storing crops in barns also exists as one of the traditions/ways for the Sami people to meet the family's food needs in the future. The tradition of sharing crops and agricultural land still exists because it is closely related to the family values held firmly by the Samin community. Sztompka (2017) explains that to know the changes in a tradition quantitatively, it can be seen from the number of adherents or supporters of the tradition. In line with Sztompka (2017), the tradition that still exists also has many followers, as explained in the section on Samin's local wisdom (Table 4). The traditions that exist reflect that the Samin community upholds the value of family and considers it an important value; therefore, there is an effort to continue to carry out the traditions associated with it.

The adaptation of the Samin community to agricultural modernization provides local wisdom, and agricultural modernization can go hand in hand and complement each other. Local wisdom that can go hand in hand with agricultural modernization includes modern institutions and customary institutions, the use of derived rice seeds and rice seeds from shops, rainfed irrigation and pumped irrigation, snail picking, molluscicides, the use of herbicides, and the *matun* tradition. Samin farmers use paddy seeds from the shop if the harvest is poor or when the supply of seeds in the granary is running out. The use of derived paddy seeds interspersed with paddy seeds from the shop was done by Samin farmers to save the planting budget and ensure good seed quality.

> *"... Corn seeds are typically purchased from farmshops. Paddy seeds are sometimes bought, and sometimes not. If the harvest is good it can be used as planting seeds so that it doesn't need to buy seeds but if the seeds are not good it is necessary to buy seeds...."* (WD)

Factors considered by farmers in choosing between rainfed irrigation and pump-irrigation include crop types, rainfall patterns, and the location of agricultural land. When rainfall is abundant, some farmers tend to rely on rainfed irrigation, but when the land becomes dry, farmers resort to using pump machines. In times of low rainfall and when agricultural land is far from river streams, farmers opt to cultivate crops that require less irrigation and can rely sufficiently on rainfed irrigation, such as corn.

Samin farmers have the principle of respecting nature, which provides them with livelihoods. The presence of pests and weeds in agricultural land, as long as they are present in small quantities and do not cause significant losses, will be tolerated by samin farmers because they understand that both pests and weeds also need food to survive. However, if the number of pests and weeds is worrisome and can disadvantage farmers, they will make efforts to control the pests. If the number of weeds is small, the farmer chooses matun to clear the weeds; if there are many weeds, then the farmer will use herbicides, and when the weeds are still growing after the application of herbicides, the farmer will matun to clear the weeds again.

> *"... Weed control is based on the grass, if it is too thick (a lot) then it is assisted by using pesticides if the grass is rare then it is cleaned by yourself (manually)..."* (BY)

Fading local wisdom means that it still exists but has begun to be abandoned. Fading local wisdom includes the use of manure, sharing of the rice harvest, and the tradition of *grapyak tikus*. Farmers abandoned *grapyak tikus* activities because they were considered ineffective, and rats tended to return after hunting. Additionally, in recent years, *grapyak tikus* activities have not been carried out because farmers' fields have been flooded. The tradition of using organic fertilizers is starting to be abandoned by samin farmers because they feel that the use of chemical fertilizers is more practical than the use of manure. The Samin community feels that making organic fertilizer is quite complicated and takes up a lot of their time, so farmers have long left organic fertilizer and switched to using chemical fertilizers. Furthermore, when chemical fertilizers are difficult to obtain, it does not make samin farmers do not return to manure use.

The lost local wisdom is local wisdom is no longer practiced by the Samin community. Facts in the field found that only one local wisdom was lost, namely, the tradition of *luku* or plowing with the help of animals. The tradition of plowing by *luku* was abandoned by the Samin community after the introduction of tractor technology, which was more effective and efficient for plowing land.

CONCLUSION

Agricultural modernization has occurred among Samin farmers and can be seen in three indicators: agricultural institutions, agricultural technology, and how to control pest destructive organisms. The entry of agricultural modernization in Samin was driven by several factors, including contact with other cultures, future orientation, community rationality, community openness, and government policy. The contact and interaction of the Samin community with the outside culture of Samin is the most influential factor in the entry of agricultural modernization in Samin.

The local wisdom of the Samin community can survive and exist until now, driven by several factors such as the pride of the Samin community in their identity, the transfer of cultural knowledge to the younger generation, the traditional attitude of the Samin community, the low use of information and communication technology that has an impact on the lack of exposure of the Samin community to the development of agriculture today, and the low level of education. The research findings show that a tradition can survive external influences because of its inner strength to hold on to its values and traditions.

The encounter between agricultural modernization and local wisdom creates several conditions for the local wisdom of samin farming. The first situation is local wisdom that is affected by the entry of modernization so that its existence fades, such as the use of manure, the tradition of sharing rice harvests, and the tradition of *grapyak tikus*. The second situation is local wisdom that is affected, extinct, or lost, such as the *luku* tradition. The third situation represents local wisdom that can adapt to agricultural modernization so that it can go hand in hand with both modern and traditional institutions. In this

situation, the use of derived paddy seeds goes hand in hand with the use of paddy rice from farm stores, whereas rainfed irrigation and pumping irrigation are carried out simultaneously according to water availability. Controlling snail pests using molluscicides is also combined with manual picking, while weed control with herbicides is still carried out in the *matun* tradition. Some local wisdom still exists amid agricultural modernization, such as the *Lebotan* tradition, harvesting to meet food needs, storing crops in lumbung, sharing fruit harvests, and the tradition of inheriting agricultural land. The author's recommendation for future research is to conduct further studies on the history and process of agricultural modernization in Samin, the level of technology adoption and innovation, and their impact on the existence of local wisdom within the Samin community.

BIBLIOGRAPHY

Anugrah, I. S., Syahyuti, & Hestina, J. (2022). Tata Kelola Bantuan Alat dan Mesin Pertanian Sebagai Instrumen Pendukung Pertanian Modern. *Riset Dan Inovasi Nasional*, *40*(2), 105–118. https://doi.org/10.21082/fae.v40n2.2022.105-118

Ali. (2017). Pengaruh Teknologi Pertanian terhadap Produktivitas Hasil Panen Padi di Kecamatan Maritengngae Kabupaten Sindreng Rappang. *AkMen, Jurnal Ilmiah*,14(3), 514-525. https://e-jurnal.nobel.ac.id/index.php/akmen/article/view/88

Arjawa, G. S. (2020). Faktor Pendorong dan Penghambat Modernisasi Desa Pakraman. *Jurnal Ilmiah Widya Sosiopolitika*, *2*(2), 87–107. https://doi.org/https://doi.org/10.24843/JIWSP.2020.v02.i02.p03

BPS. (2014). *AnalisisSosial Ekonomi Petani Indonesia*. Badan Pusat Statistik.

BPS. (2015). *Rata-rata Ketinggian Kecamatan dalam Wilayah Kabupaten Pati*. Badan Pusat Statistik.

BPS. (2022). *Kecamatan Sukolilo dalam Angka*. Badan Pusat Statistik.

Danugroho, A. (2020). Eksistensi Tradisi Masyarakat Samin Kabupaten Bojonegoro pada Era Modern. *SINDANG*, *2*(1), 1–7. https://doi.org/https://doi.org/10.31540/sindang.v2i1.289

Fu'adi, A. N. (2020). Pendidikan Nilai Kearifan Lokal Masyarakat Samin Desa Baturejo, Sukolilo, Pati. *Prosiding Webinar Nasional dalam Rangka Dies Natalis UNG ke-57*, 163–178. http://ejurnal.pps.ung.ac.id/index.php/PSI/article/view/363/326

Hanif. (2016). Kearifan Lokal Masyarakat dalam Menyikapi Warga Retardasi Mental (Studi Kasus di Kampung Idiot Desa Sidoharjo Kecamatan Jambon Kabupaten Ponorogo). *Sodality: Jurnal Sosiologi Pedesaan* , 4(3), 242-248. https://doi.org/https://doi.org/10.22500/sodality.v4i3.14433

Hariyadi B W, Purwanti S, Pratiwi Y I, Ali M, & Suryanto A. (2022). *Dasar-dasar Agronomi*. Uwais Inspirasi Indonesia.

KEMENTAN. (2020). *Rencana Strategis Kementerian Pertanian Tahun 2020-2024*. Kementerian Pertanian.

Konradus, D. (2018). Kearifan Lokal Terbonsai Arus Globalisasi: Kajian terhadap Eksistensi Masyarakat Hukum Adat. *Masalah-Masalah Hukum*, *47*(1), 81–88. https://doi.org/https://doi.org/10.14710/mmh.47.1.2018.81-88

Munawaroh S, Ariyani C, Suwarno. (2015). *Etnografi Masyarakat Samin di Bojonegoro*. Balai Pelestarian Nilai Budaya (BPNB) Yogyakarta.

Pambudi A, Anggarwati S, Mulyana M, Ismiasih, Widiastuti Y, Rostwentivaivi V, Ayesha I, Wibaningwati D B and Jumiyati. (2022). *Ekonomi Pertanian*. PT Global Eksekutif Teknologi.

Rai I.N. (2018). *Dasar-dasar Agronomi*. Percetakan Pelawa Sari.

Rifkian B A, Suharso P, & Sukidin. (2017). Modernisasi Pertanian (Studi Kasus tentang Peluang Kerja dan Pendapatan Petani dalam Sistem Pertanian di Desa Dukuh Dempok Kecamatan Wuluhan Kabupaten Jember). *Jurnal Pendidikan Ekonomi*, 11 (1), 39-48. https://doi.org/10.19184/jpe.v11i1.4995

Sayifullah, & Emmalian. (2018). Pengaruh Tenaga Kerja Sektor Pertanian dan Pengeluaran Pemerintah

Sektor Pertanian terhadap Produk Domestik Bruto Sektor Pertanian di Indonesia. *Jurnal Ekonomi-Qu*, *8*(1), 66–81. http://dx.doi.org/10.35448/jequ.v8i1.4962

Selvia, S., Hos, H. J., & Moita, H. S. (2019). Dampak Modernisasi Pertanian terhadap Kondisi Sosial Ekonomi Masyarakat Petani Sawah. *Neo Societal*, *4*(2), 767–776. https://doi.org/https://doi.org/10.33772/.v4i2.7044

Setyaningrum, D., Astuti, T. M. P., & Alimi, M. Y. (2017). Pergeseran Nilai Masyarakat Samin (Sedulur Sikep) Dukuh Bombong. *Journal of Educational Social Studies*, 6(1), 29–36 https://doi.org/10.15294/jess.v6i1.16252

Soekanto, S. (2015). *Sosiologi Suatu Pengantar*. PT Raja Grafindo Persada.

Syafrizal and Calam. (2019). Local Wisdom: Eksistensi dan Degradasi Tinjauan Antropologi Sosial (Eksplorasi Kearifan Lokal Etnik Ocu di Kampar Riau). *Jurnal EduTech*, 5(2), 178-185. https://doi.org/10.30596/edutech.v5i2.3424

Sztompka, P. (2017). *Sosiologi Perubahan Sosial* (1st ed.). Penerbit Kencana.

Togatorop, A. (2017). Modernisasi Pertanian terhadap Pemakaian Pupuk dalam Meningkatkan Taraf Hidup Petani di Desa Sirisirisi Kecamatan Doloksanggul Sumatera Utara. *Jurnal Online Mahasiswa Fakultas Ilmu Sosial dan Ilmu Politik*, *4*(2), 1–15. https://jom.unri.ac.id/index.php/JOMFSIP/article/view/15202/14749

Triyanto, A. & Lathifah, A. (2018). Peran Sesepuh Adat dalam Preservasi Pengetahuan di Masyarakat Samin. *Jurnal Ilmu Perpustakaan,* 7(2),181–190. https://ejournal3.undip.ac.id/index.php/jip/article/view/22903/20940

UU. (2019). Undang-Undang Republik Indonesia Nomor 22 Tahun 2019 tentang Sistem Budi Daya Pertanian Berkelanjutan.

Widyastuti, R. A. D., Hidayat, K. F. & Pujisiswanto, H. (2023). *Dasar-dasar Budidaya Tanaman.* Pusaka Media.

Widyatwati, K. (2017). Pengaruh Masuknya Budaya Populer terhadap Eksistensi Ajaran Sedulur sikep pada Masyarakat Samin. *Nusa: Jurnal Ilmu Bahasa dan Sastra*, *12*(1), 137. https://doi.org/10.14710/nusa.12.1.137-146

Yudono, P., Maas, A., Sumardiyono, C., Yuwono, T., & Masyhuri. (2016). *Pengantar Ilmu Pertanian*. Gadjah Mada University Press.