

Socialization and Training on SGX SICOM for Rubber Farmers in Lalang Sembawa Village, South Sumatera, Indonesia

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ABSTRACT

The SGX SICOM training was held in Lalang Sembawa Village, Banyuasin Regency, South Sumatra, Indonesia, as a community service activity aimed at increasing the understanding and digital literacy of rubber farmers towards the mechanism of determining the price of natural rubber in the international market. Indonesia, as one of the world's largest natural rubber producers, still faces the challenge of low price literacy among farmers, which weakens their bargaining position with buyers. This activity is designed to bridge the information gap through focus group discussion (FGD) methods, interviews, delivery of interactive materials, and the practice of directly accessing price data on the Singapore Commodity Exchange (SGX SICOM). A total of nine farmers were selected purposively based on their experience and active involvement in rubber cultivation and marketing. Evaluations were carried out using pre-tests and post-tests to measure the improvement of participants' knowledge and skills, with descriptive-quantitative analysis to assess the effectiveness of the activities. The results showed a significant improvement in three key indicators, namely understanding of price determinants increased from 20% to 35%, knowledge of SGX SICOM from 17% to 26%, and the ability to search and analyze rubber prices from 9% to 15%. This activity has proven to be effective in increasing market literacy, price analysis skills, and digital independence of rubber farmers, while providing a positive socio-economic impact in the form of increasing bargaining power and readiness to face global rubber price dynamics.

Keywords: Socialization, Training, SGX SICOM, Rubber Farmers.

I. Introduction

Indonesia is strategically positioned as one of the largest producers of natural rubber in NR worldwide. According to Riyono and Juliansyah (2018), rubber is a plantation commodity with high economic and strategic value for increasing farmers' income. The plantation subsector, which is export-oriented, plays a vital role in agriculture, and South Sumatra Province is one of its main production centers. Most Indonesians depend on farming for their livelihood; therefore, agriculture is an essential sector for improving the welfare of the Indonesian people (Saputra et al., 2020). South Sumatra is one of the largest rubber-producing regions in Indonesia, with the widest plantation area and the highest production volume. The Sumatra region,

especially South Sumatra, contributes significantly to national rubber output. Lalang Sembawa is one of the villages located in Sembawa District, Banyuasin Regency, South Sumatra. Although Lalang Sembawa Village is only 16 km from the capital of Banyuasin Regency, many residents work as rubber farmers. Currently, there are six major producers of natural rubber in the world: Thailand, Indonesia, Malaysia, India, Vietnam, and China (Syarifa et al., 2016). According to Harahap and Segoro (2018), Indonesia is among the largest rubber-exporting countries. Rubber trees grow well in tropical climates; therefore, Indonesia, with suitable soil and weather conditions, has become the second-largest natural rubber producer in Thailand. Although Indonesia's plantation area is larger than that of Thailand, rubber plantations in Indonesia play an important role because of their vast land area and wide distribution, which involve many farmers (Maghfirah et al., 2021).

According to Rosnita et al. (2017), rubber farmers, the main actors in plantation activities, play an important role in supporting agricultural development in Indonesia. Furthermore, the international market price of natural rubber in Singapore serves as a reference for Indonesian rubber price. Consequently, any price fluctuations in the Singapore market directly affect Indonesia's natural rubber export prices (Yuningtyas et al., 2020). Rubber plays a crucial role in improving the rural economy, as rubber plantations in Indonesia cover approximately 3.4 million hectares and provide livelihoods for around two million families (Murni Artha Christy, 1385). Rubber is a raw material processed from coagulated latex of rubber trees and is commonly produced in the form of blocks, sheets, or crumb rubber (Riyono and Juliansyah, 2018). The fluctuating prices of natural rubber significantly affect the welfare of rubber farmers. Indonesia's rubber product, Standard Indonesian Rubber 20 (SIR 20), follows the price reference set by the Singapore Commodity Exchange (SICOM), which serves as the international futures market (Andelia and Antoni, 2022). In Lalang Sembawa Village, rubber is not merely a commodity, but a primary source of livelihood for the community. However, most rubber farmers in Lalang Sembawa Village lack knowledge on how to determine the global base price of rubber on SICOM, calculate the notering price (base price), and estimate the actual selling price based on Dry Rubber Content (DRC), exchange rate, and factory deductions (Claudia, Yulianto, and Mawardi, 2016). The SGX SICOM training is aligned with global efforts to empower farmers through enhanced digital literacy and access to daily price data. Initiatives such as Sustainable Natural Rubber provide e-training modules, infographics, and access to SICOM price information to strengthen farmers' literacy of global price trends.

According to Alamsyah et al. (2024), fluctuations in natural rubber prices significantly affect the welfare of rubber farmers. SIR 20 Indonesia refers to the Singapore Commodity (SICOM) price, and Indonesia's export prices tend to follow international rubber price movements (Antoni and Purbiyanti 2015). The rubber market prices play a key role in determining rubber farmers' welfare. When rubber prices fall, farmers' incomes decrease; conversely, when prices rise, farmers' welfare improves (Emilda et al., 2023). According to Audina and Antoni (2023), the determination of natural rubber prices in South Sumatra refers to the export or Free on Board (FOB) price of South Sumatra. In this context, the South Sumatra FOB price uses the Singapore international rubber market as a reference because most natural rubber products are exported. When prices between the two markets are well integrated, market price transmission occurs efficiently (Fazaria, Hakim, and Sahara, 2016). Similar research was conducted by Pagiu et al. (2022) through community empowerment activities that focused on the utilization of home gardens to improve family income. Their study showed that hands-on, practice-based training and participatory approaches effectively increased community awareness and skills in optimizing local potential, consistent with the objectives of the SGX SICOM training for rubber farmers in this study.

II. Literature Review and Hypothesis Development

Indonesia is one of the world's major producers of natural rubber, with a significant contribution to the global market, but fluctuations in international rubber prices often have a direct impact on farmers' income at the local level (Riyono & Juliansyah, 2018). According to Harahap and Segoro (2018), the competitiveness of Indonesian rubber commodities in the global market is highly dependent on farmers' ability to understand international price dynamics, especially those set by the Singapore Commodity

Exchange (SGX SICOM) as a global price reference for Technically Specified Rubber (TSR 20) products. In the context of microeconomics, global price literacy is an important component of farmers' financial and digital literacy. This literacy includes the ability to access, interpret, and use market information for economic decision making (Audina & Antoni, 2023). Low price literacy causes farmers to depend on local collectors and to often receive suboptimal selling prices. Therefore, price information-based training is a crucial economic empowerment strategy (Emilda et al., 2023). According to the theory of Community Empowerment (Zimmerman 2000), community empowerment occurs when individuals gain control over decisions that affect their economic lives through increased knowledge, skills, and access to information resources. The implementation of technology-based training such as SGX SICOM can strengthen farmers' self-efficacy and increase their independence in determining their marketing strategies.

Lantara and Arfah (2022) emphasized that community empowerment through practical training and technology transfer is essential to strengthen the economic independence of rural communities. Similar to SGX SICOM training, their program focused on developing community-based entrepreneurship by utilizing locally available resources and simple technology. The results of community service activities by Pagiu et al. (2022) show that training and field assistance conducted in a sustainable manner can strengthen the economic independence of village communities. The implementation model based on active participation and intensive mentoring is an important reference in designing SGX SICOM training for rubber farmers so that the results are more effective and sustainable. In addition, research by Alamsyah et al. (2024) confirms that the socioeconomic characteristics of farmers, such as educational level and experience, affect the success of the training program. Meanwhile, a study by Saputra et al. (2020) shows that effective communication between farmers through farmer groups can strengthen knowledge transfer and accelerate the adoption of digital technology in the pricing process. Thus, previous literature shows that information technology-based training utilizing SGX SICOM not only broadens farmers' understanding of global price mechanisms, but also contributes to improving the bargaining power, production efficiency, and economic well-being of rural communities. Based on the literature review and objectives of the activity, there is a conceptual assumption that SGX SICOM training will bring positive changes to farmers' knowledge and behavior. The conceptual formulation that forms the basis of this activity is as follows:

- a. SGX SICOM training is expected to improve rubber farmers' understanding of the global rubber pricing mechanism, including the factors that influence it.
- b. The socialization and direct practice of accessing the SGX SICOM website are expected to improve farmers' digital skills in finding and interpreting price information independently.
- c. Increasing digital literacy and price knowledge are expected to strengthen farmers' bargaining power in determining the selling price of rubber at the local level.

III. Research Method

The socialization method was designed to provide knowledge and information to participating rubber farmers. Training refers to a planned learning process aimed at improving the participants' knowledge and skills. The implementation stages of this activity include a series of processes, starting from identifying the problems faced by rubber farmers, formulating objectives, planning socialization and training programs, implementing activities, and evaluating the outcomes. The following are the detailed stages of SGX SICOM socialization and training activities for rubber farmers:

- a. Problem Identification

The first stage of community service activity begins with identifying the problems faced by the community. These problems were identified through direct field observations, interviews with village officials, and discussions with the local residents.

b. Determination of Activity Topics

An overview of the community's needs was obtained based on the problem identification results. Based on this information, relevant activity topics that could provide practical solutions for the community were selected.

c. Team Building

The implementation team involved students from the Faculty of Economics, particularly those from the Management and Accounting Study Programs at Indo Global Mandiri University. Each team member was assigned a specific role according to their respective competencies to ensure that the activities were carried out effectively.

d. Preparation of Activities

Before implementation, several preparatory steps were undertaken, including the preparation of socialization materials, procurement of necessary equipment, and arrangement of facilities and infrastructure required for the activities.

e. Implementation of Activities

After all preparations were completed, activities were conducted using socialization and training methods. The program was held for two days and involved rubber farmers as main participants.

f. Evaluation of Activities

The final stage was an evaluation conducted to measure the extent to which the objectives of the activities were achieved. The evaluation was conducted by comparing the results of the pre-test and post-test completed by the participants. The pre-test was administered to assess the farmers' initial knowledge of SGX SICOM, while the post-test was used to evaluate improvements in their understanding and skills after participating in socialization and training sessions.

IV. Result and Discussion

4.1. Analysis Result

Socialization and training on SGX SICOM was conducted for rubber farmers in Lalang Sembawa Village, Sembawa District, Banyuasin Regency, South Sumatra, involving a total of nine participants. The activities were held for two days at the Rubber Auction Office in Lalang Sembawa Village. The location was chosen because it serves as the weighing and selling point for rubber farmers, making it an accessible and strategic place to carry out socialization and training sessions. The activity began with a presentation on SGX SICOM held on July 22, 2025, at the UPPB Maju Bersama Sembawa Office. The session aimed to provide participants with a comprehensive understanding of the role of the SGX SICOM as an international reference exchange used to determine global rubber prices. In addition, the importance of global reference prices in the rubber trade was explained, highlighting their role in guiding price determination in international markets. This understanding helps business actors adjust their sales strategies and maximize their profits more competitively.



Figure 1. Socialization of SGX SICOM at the UPPB Maju Bersama Sembawa office

On July 30, 2025, practical training was provided to the participants to access the official SGX SICOM website. This session was intended to provide farmers with hands-on experience in understanding real-time rubber prices. Participants were taught how to monitor prices, analyze market trends, and interpret price movements over time. They also received additional guidance and exercises related to rubber pricing. Furthermore, farmers were trained to access rubber price data from SGX SICOM through both the official website and a mobile application, enabling them to obtain market information quickly and accurately. The activity was concluded with a simulation exercise designed to help participants determine the optimal time to sell their rubber to achieve the best possible price. This simulation incorporates analyses of historical data, market trends, and other factors that influence price fluctuations.



Figure 2. SGX SICOM Training for Rubber Farmers at the UPPB Maju Bersama Sembawa Office

SGX SICOM is an international commodity exchange under Singapore Exchange Limited (SGX), which focuses on trading natural rubber futures, particularly Technically Specified Rubber (TSR 20). This exchange serves as the main reference for global rubber pricing and is utilized by various stakeholders, including farmers, traders, exporters, and manufacturing industries, such as tire producers. The SGX SICOM provides a transparent, secure, and standardized trading system that allows businesses to hedge against the risk of fluctuations in world rubber prices. The steps to access global rubber prices through the SGX SICOM website are as follows.

- a. Step 1: Open the SGX Website at <https://www.sgx.com>

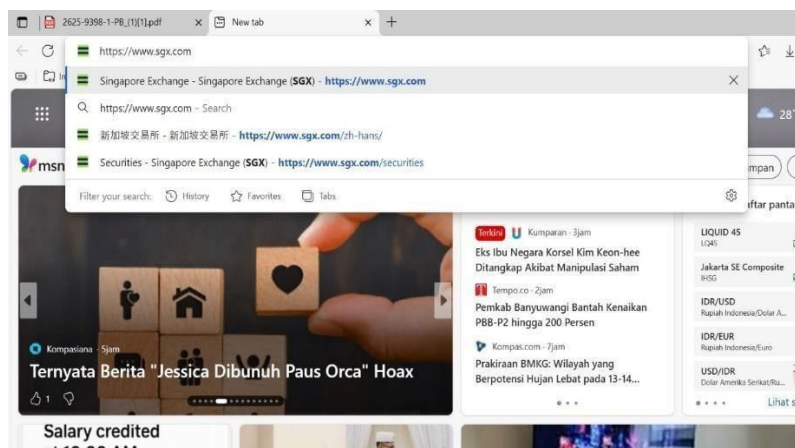


Figure 3. Search Bar on Microsoft Edge/Google

First, Microsoft Edge or Google was opened on a computer or mobile device, respectively. In the search bar, type <https://www.sgx.com> and press enter. Once the page is loaded, you have reached the official SGX website, where international rubber price data can be accessed directly from the source.

- b. Step 2: Click on “Derivatives”

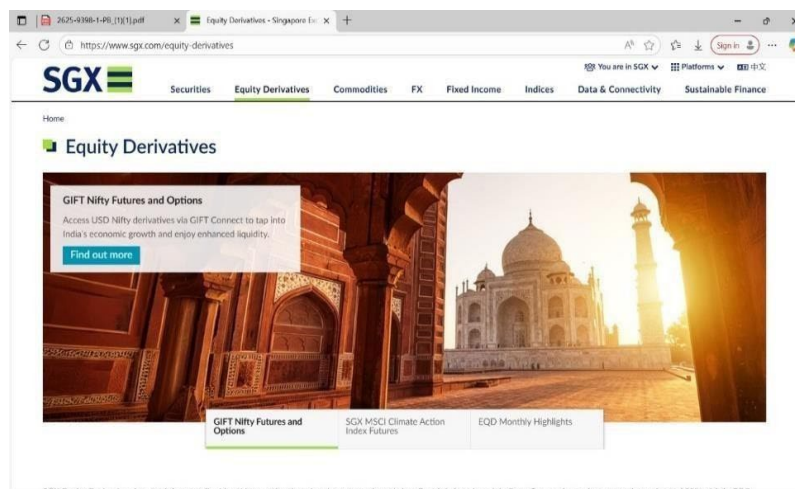


Figure 4. SGX SICOM Website Main Page

After the main SGX homepage opens, hover your cursor over the top menu and select the Equity Derivatives. This section provides information on the various equity derivative products traded in international markets. One example is GIFT Nifty Futures and Options, which offers access to the Indian market with high liquidity. You can click “Find out more” to read a detailed explanation of the products available.

c. Step 3: Click on “Commodities”

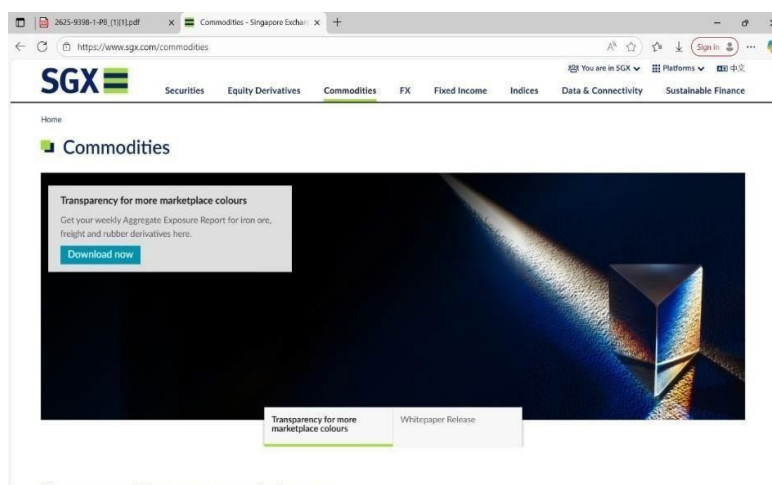


Figure 5. SGX SICOM Website Display on the Commodities Menu

Next, navigate to the commodities category from the main menu at the top of the page. This section presents an overview of the global commodity trading facilitated by SGX, including iron ore, maritime cargo, and natural rubber. The page also provides an option to download the Weekly Aggregate Exposure Report, which contains a summary of market exposure across different commodities. To download the report, click the clearly visible “Download now” button.

d. Step 4: Select “SICOM Rubber”

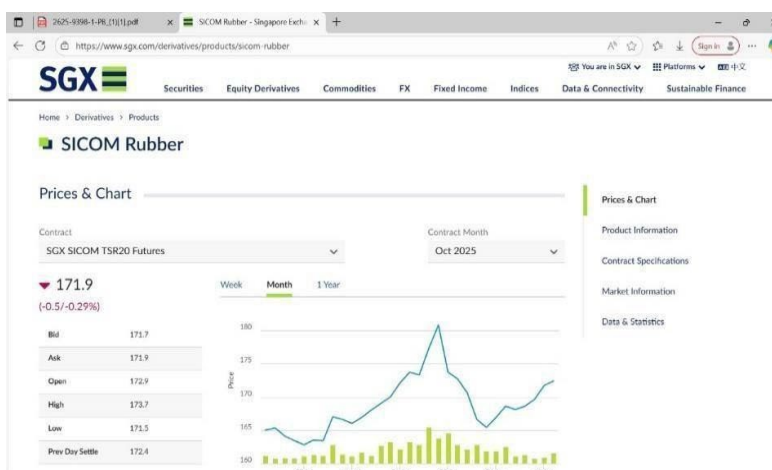


Figure 6. SGX SICOM Website Display on the SICOM Rubber Menu

In the final step, the SICOM Rubber subpage is opened under the Derivatives category. This page specifically provides information on SGX SICOM TSR 20 Futures, which serves as one of the international benchmark prices for natural rubber. The page displays the key market data, including bid (the highest price offered by buyers), ask (the lowest price requested by sellers), open (the opening price), high (the highest price of the day), low (the lowest price of the day), and Previous Day Settle (the previous day’s closing price).

4.2. Evaluation of Activities

The SGX SICOM training conducted in Lalang Sembawa Village, Sembawa District, Banyuasin Regency, South Sumatra, aimed to enhance the knowledge and skills of rubber farmers to understand the mechanism for determining global rubber prices through the SGX SICOM exchange. The training lasted for two days and consisted of both theoretical sessions and hands-on practice of finding rubber price information according to global market data. Nine rubber farmers participated in the study. The evaluation results indicated a significant improvement from pretest to post-test. Most participants were able to understand and accurately calculate rubber prices based on noisy data from the exchange. The success of the training was demonstrated by the participants' ability to master key materials, including the types of rubber products, the stages of price discovery, and the calculation of selling prices in rubber factories. These findings suggest that training was effective in increasing the bargaining power of rubber farmers in relation to global market prices. Documentation of the implementation, materials, and evaluation results were also prepared as part of the final report and publication of the activity outcomes. Evaluation activities were conducted before and after the socialization and training sessions. The pre-implementation evaluation was carried out through a question-and-answer session to determine the participants' prior knowledge of SGX SICOM. All participants stated that they had no prior knowledge of SGX SICOM. After the training, an evaluation was conducted using the following questions to assess knowledge improvement:

1. Is the price of rubber in a country affected by global-market factors?
2. What do you know about the SGX SICOM?
3. How can you determine the current price of rubber?

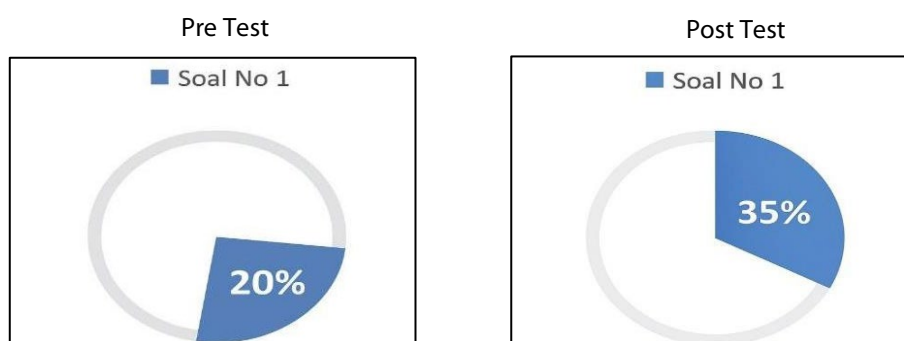


Figure 7. Factors Affecting Rubber Prices

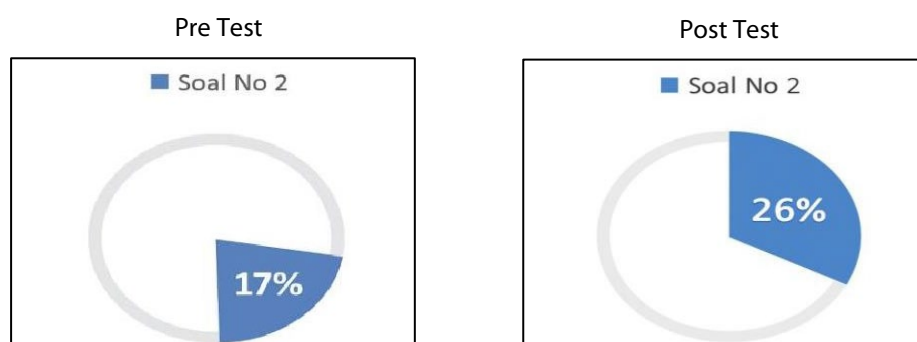


Figure 8. Knowledge of SGX SICOM

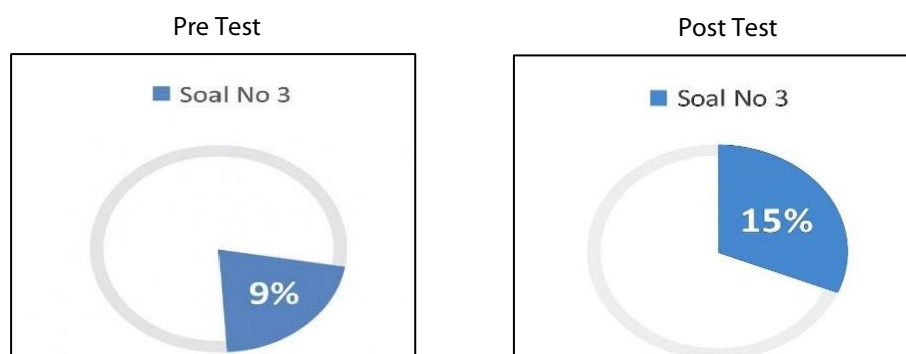


Figure 9. Knowledge Related to Finding Rubber Prices

The figures above present the results of the evaluation conducted before and after SGX SICOM socialization and training. Based on the data, for the first question regarding factors influencing rubber prices, only 20% of the participants were able to answer correctly before the training. After receiving an explanation, this percentage increased to 35%. A similar improvement was observed in the second question on knowledge of SGX SICOM, where the percentage increased from 17% to 26%. Meanwhile, for the third question on how to find rubber prices, the percentage increased from 9% to 15%. These results indicate that socialization and training activities successfully provided additional insights and improved participants' understanding, although the degree of improvement varied across indicators. These findings are consistent with the results of a study by Pagiu et al. (2022), which demonstrated that community empowerment-based training can increase economic awareness and citizen participation in managing local resources. The growing enthusiasm of rubber farmers during SGX SICOM training reflects the success of knowledge transfer and practical learning approaches. The findings of this activity are also in line with those of Lantara and Arfah (2022), who found that training programs focusing on local resource utilization and skill development effectively enhanced community participation and income generation in rural areas. This similarity in approach emphasizes the importance of hands-on learning and mentoring in empowering local communities. In conclusion, SGX SICOM socialization and training activities were effective in expanding farmers' literacy regarding rubber pricing mechanisms and in strengthening their understanding of SGX SICOM as a global price reference.

V. Conclusion

The SGX SICOM socialization and training activities conducted in Lalang Sembawa Village proved effective in enhancing the understanding and skills of rubber farmers regarding the mechanism of determining global rubber prices. The evaluation results showed a significant improvement in participants' knowledge as farmers were able to access international price data, interpret market trends, and calculate selling prices based on global standards. To maximize the impact, similar programs should be implemented sustainably by involving a larger number of farmers and supported by collaboration between the government, universities, and relevant institutions. Furthermore, farmers should continue to utilize digital technology to obtain price information quickly and accurately and strengthen cooperation with stakeholders in the rubber industry to enhance their bargaining power and improve their welfare in the global market.

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