



## Harnessing Islamic Education for Agricultural Empowerment: The Islamic Boarding School Model in Indonesia

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### Abstract

This research investigates the role of Islamic Boarding School in empowering *Santri*-farmers to achieve agricultural self-reliance in Indonesia, which addresses crucial issues of farmer regeneration and rural economic development. This research examines Islamic Boarding School-based agricultural empowerment programs and the level of empowerment of *santri*-farmers. The article focuses on a unique Islamic Boarding School model that integrates Islamic education with practical agrarian skills. Using a quantitative research design, this study collected data from *Santri* Farmers in three Islamic Boarding School in East Java, Indonesia, representing different institutions (Salafiyah, Modern, and Integrated). The total population was 318 *Santri* Farmers, from which a sample of 116 participants was selected using a combination of simple random sampling and census techniques. Data were collected mainly through questionnaires and analyzed using descriptive statistics to measure the level of empowerment. The study revealed that Islamic Boarding School contributes to the agricultural empowerment of *Santri*-farmers. Effective empowerment activities include integrating agricultural education with religious education, providing agribusiness assistance, agricultural extension, and facilitating market access. *Santri*-farmers show a high level of empowerment, especially in terms of agricultural technical skills, resource management, and communication. Meanwhile, mastery of information technology is still lacking.



## 1. Introduction

Globally, the agricultural sector stands at a critical juncture, grappling with the urgent need for farmer regeneration amidst a backdrop of aging farming populations and declining youth interest (Anwarudin et al., 2020; Fanelli, 2023; Setiartiti, 2021; Susilowati, 2016). This generational shift poses a significant threat to global food security and the sustainability of agricultural economies, particularly in developing nations where agriculture remains a cornerstone of livelihoods. Addressing this challenge requires innovative approaches that can effectively engage and empower younger generations to embrace and revitalize the agricultural sector, ensuring its continued vitality and contribution to societal well-being (Ani et al., 2024; Geza et al., 2021; Mendoza & Garcia, 2023).

In Indonesia, agriculture holds a particularly significant position, employing a substantial portion of the population and making a considerable contribution to the national economy. However, mirroring global trends, Indonesia's agricultural sector faces a concerning decline in youth participation (Nasikh et al., 2021; Otsuka, 2021). Data reveal a consistent decrease in the number of young Indonesians entering or continuing in farming professions, driven by a confluence of factors, including perceptions of low profitability, arduous labor, and limited social prestige associated with agriculture (Ngadi et al., 2023; Oktaviani et al., 2023; White, 2012). This trend jeopardizes the future of Indonesian agriculture, necessitating targeted interventions to cultivate a new generation of skilled and motivated farmers. The Indonesian government has launched various farmer regeneration programs to address the declining number of young farmers and ensure the sustainability of the agricultural sector. One of the key programs is the growth of "Santri Tani Milenial Groups (KSTM)," which aims to attract the younger generation to engage in modern and competitive agriculture in the Islamic Boarding School (BPPSDMP, 2019; Fahmi et al., 2023; Gandasari et al., 2021).

The Islamic Boarding School model of education, characterized by its integration of Islamic teachings with practical life skills, presents a distinctive approach to agricultural empowerment. This model extends beyond conventional agricultural training, embedding farm knowledge and practices within a framework of Islamic ethics, community engagement, and spiritual growth (Anggadwita et al., 2021; Arif et al., 2024; Noor, 2015; Warsah, 2020). By fostering a values-based approach to farming, the Islamic Boarding School not only equips *Santri* with technical agricultural competencies but also cultivates a strong sense of purpose, social responsibility, and entrepreneurial spirit (Fatchurrohman, 2018; Indra, 2019; Widodo, 2016). While research acknowledges the broader role of Islamic Boarding Schools in community development, scholarly attention to the specific Islamic Boarding School model and its effectiveness in fostering agricultural self-sufficiency among *Santri-tani* remains limited.

This article discusses the *Santri-farmer* empowerment model in Islamic Boarding School as a unique approach to agricultural empowerment in Indonesia, especially in East Java. Through a quantitative study conducted in various Islamic Boarding Schools in East Java, this research analyzes the key components of Islamic Boarding School-based empowerment programs and their impact on the empowerment of farming *santri*. This article aims to contribute to a deeper understanding of how Islamic Boarding Schools can be utilized as effective agents for farmer regeneration and sustainable agricultural development, providing valuable insights for policy and practice in Indonesia and beyond.

## 2. Research Methods

This study employed a quantitative survey research design to analyze the Islamic Boarding School model in agricultural empowerment among *Santri-tani* in Indonesia, especially in East Java. The survey approach was chosen for its ability to collect structured

and measurable data from a large population, enabling the generalization of findings to a broader context (Bungin, 2020; Creswell, 2015). The study was conducted in three Islamic Boarding Schools located in East Java, Indonesia, purposively selected to represent the diversity of existing Islamic Boarding School institution types: Salafiyah (traditional) Islamic Boarding Schools, Modern Islamic Boarding Schools, and Integrated Islamic Boarding Schools (integrating religious and general education). The selection of this location aims to capture the variation in agricultural empowerment approaches across different types of Islamic Boarding Schools. The research population consisted of *Santri-tani* students who are actively involved in farming activities in the three Islamic Boarding Schools.

The research sample was determined using a simple random sampling technique for *Fathul Ulum* Islamic Boarding School (*Salafiyah*), with the sample size calculated using the Slovin formula to ensure adequate representation. For *Sunan Drajat* Islamic Boarding School (Modern) and Islamic Boarding School Mambaul Ulum (Integrated), given the smaller population of *Santri-tani*, a total sampling or census technique was used to cover the entire population.

Table 1 Number of research samples

| No. | Islamic Boarding School | Population of Santri-tani (people) | Number of Samples (people) |
|-----|-------------------------|------------------------------------|----------------------------|
| 1   | Fathul Ulum             | 275                                | 73                         |
| 2   | Sunan Drajat            | 18                                 | 18                         |
| 3   | Mambaul Ulum            | 25                                 | 25                         |
|     | Total                   | 318                                | 116                        |

The primary instrument for data collection was a structured questionnaire developed based on the research objectives and a comprehensive literature review. The questionnaire consisted of sections that explored the demographic profile of *Santri-tani*, their perceptions of the implementation of agribusiness empowerment programs in Islamic Boarding School, their level of empowerment in various aspects of agribusiness (including agricultural technical skills, resource management, communication, leadership, marketing, information technology, and partnership networks), and their perceptions regarding the role of *Kyai* (religious leader), caregivers (*Santri* caregivers), and the support of Islamic Boarding School facilities and infrastructure in the empowerment process. The collected data were then analyzed using descriptive statistics, including the calculation of mean values, percentages, and standard deviations, to describe the characteristics of the sample and identify key patterns related to the Islamic Boarding School empowerment model and the independence of *Santri-tani*. Data were presented in tables and graphs to facilitate interpretation and comparison between the Islamic Boarding School.

### 3. Result and Discussion

Islamic Boarding School plays a crucial role in enhancing the independence of farming *Santri* through an Islamic Boarding School-based empowerment approach. By combining religious values and practical skills in agriculture or animal husbandry, Islamic Boarding Schools provide holistic education that not only focuses on spiritual knowledge but also on skills that are useful in everyday life. Agricultural training programs in boarding schools help students understand how to cultivate good farming practices, manage livestock, and apply business management and marketing principles. This program aims to equip the *Santri* with

the ability to manage their farming business independently, both for their own needs and for the economic sustainability of the Islamic Boarding School.

In addition, the Islamic Boarding School also serves as an economic empowerment center, involving students in community-based agricultural activities. By involving *Santri* in the management of the Islamic Boarding School's farmland, they can learn directly from real practices and develop an entrepreneurial spirit in agriculture. The Islamic Boarding School supports *Santri* in becoming not only reliable farmers but also developing an entrepreneurial mentality that enables them to create business opportunities in agriculture. The independence that results from this empowerment has the potential to improve the welfare of *Santri* and the Islamic Boarding School as a whole and contribute to strengthening the local economy.

### 3.1 Implementation of Empowerment for *Santri* in Islamic Boarding School

Islamic Boarding School, as a religious educational institution, plays a strategic role not only in character and moral formation but also in supporting the economic independence of *Santri*. One of the efforts to realize this independence is through empowerment programs in the field of agribusiness, which are relevant to the needs of rural communities. This empowerment program aims to equip *Santri* with the skills, knowledge, and experience necessary to become productive and independent agribusiness actors. The results of this study are relevant to those of (Badrudin et al., 2021; Bahri & Rizal, 2023; Rohima et al., 2024), which explains the model of empowering *Santri* through the concept of entrepreneurship implemented at Islamic Boarding School with various business units, including canteens, agribusiness units, cooperatives, and waste management. This research shows that the Islamic Boarding School-based entrepreneurship model can shape the entrepreneurial competence and economic independence of students as a whole.

Islamic Boarding School, as an Islamic educational institution, plays a vital role in increasing the independence of students, especially in agriculture. The education provided at boarding schools not only focuses on religious teaching but also includes practical knowledge that can be applied in everyday life, including agriculture through agribusiness assistance activities, training, counseling, capital assistance, and market facilitation.

Table 2 below presents data on the implementation of agribusiness empowerment activities in the three surveyed Islamic Boarding Schools: *Fathul Ulum*, *Sunan Drajat*, and *Mambaul Ulum*. This implementation is measured through six indicators: agribusiness education, agribusiness assistance, training, agricultural extension, capital assistance program, and market facilitation. The maximum score for each indicator is 4, and the data is presented in terms of the Mean value and the percentage of achievement.

Table 2 Implementation of agribusiness empowerment activities in *Fathul Ulum* Islamic Boarding School, *Sunan Drajat* Islamic Boarding School, and *Mambaul Ulum* Islamic Boarding School

| No | Empowerment activities     | <i>Fathul Ulum</i> |                  | <i>Sunan Drajat</i> |                  | <i>Mambaul Ulum</i> |                  |
|----|----------------------------|--------------------|------------------|---------------------|------------------|---------------------|------------------|
|    |                            | Mean               | % of achievement | Mean                | % of achievement | Mean                | % of achievement |
| 1  | Agribusiness Education     | 3.05               | 76.33            | 3.46                | 86.56            | 3.04                | 75.94            |
| 2  | Agribusiness Assistance    | 2.83               | 70.79            | 3.18                | 79.58            | 3.11                | 77.71            |
| 3  | Training                   | 3.01               | 75.25            | 3.07                | 76.67            | 3.06                | 76.46            |
| 4  | Agricultural extension     | 3.11               | 77.68            | 3.00                | 75.00            | 3.09                | 77.25            |
| 5  | Capital Assistance Program | 3.04               | 76.03            | 3.00                | 75.00            | 2.94                | 73.59            |
| 6  | Market Facilitation        | 3.04               | 76.33            | 3.12                | 86.56            | 2.95                | 75.94            |

Notes: The maximum score for each indicator is 4

Based on Table 1 above, the highest percentage of achievements from each Islamic Boarding School is in Agribusiness Education, Agribusiness Assistance, and Counseling activities. *Sunan Drajat* Islamic Boarding School demonstrates the highest achievement in various empowerment activities, including education (86.56%), agribusiness assistance (79.58%), and market facilitation (86.56%). This result demonstrates their success in supporting *Santri* through programs relevant to the agribusiness sector. *Fathul Ulum* Islamic Boarding School excels in extension activities (77.68%) and shows consistency in capital assistance programs and technical training. The agricultural extension is delivered culturally through lectures and direct motivation from Kyai, who has strong spiritual legitimacy. In *Mambaul Ulum* Islamic Boarding School, agribusiness assistance has achieved the best results (77.71%), providing sufficient provisions for students. They have stable scores, but they are generally slightly lower than those of the other two Islamic Boarding Schools. This lower achievement indicates that, although the program implementation has been progressing well, there is still room for improvement in its effectiveness. The research results align with Prayitno's (2016) opinion, which explains that an integrated empowerment structure encompassing the planning, implementation, and evaluation stages is crucial. It was found that the combination of input (training), process (mentoring), and output (active entrepreneurship) is the key to successful empowerment.

In the context of agriculture, education provided in Islamic boarding schools often integrates theory and practice. Education aims to provide students with a comprehensive understanding of effective and responsible agricultural and agribusiness practices. At *Sunan Drajat* and *Mambaul Ulum* Islamic Boarding School, agricultural education activities have been integrated into the learning curriculum. These two Islamic Boarding Schools organize formal education through the Agribusiness of Food Crops and Horticulture (ATPH) department at SMK Sunan Drajat Lamongan, as well as the skills-based Madrasah Aliyah (MA Plus) Agribusiness and Agricultural Product Processing program (APHP). At *Fathul Ulum* Islamic Boarding School, agricultural learning is conducted by practicing crop and livestock cultivation every Wednesday for all students. Theoretical knowledge is integrated with religious education and lectures (*Ngaji Tani*), as well as technical training in agriculture and livestock. In line with the results of Muslih's research (2020), suggests that a business incubator model managed by Islamic Boarding School institutions is crucial for increasing market demand and promoting the sustainable development of *Santri* businesses.

With this education, *Santri* not only gains knowledge but also skills that can be directly applied to their farms. In addition, many *Santri* have successfully cultivated vegetables and fruits, which they then market to the surrounding community, thereby increasing their independence. These results align with Widodo's opinion (2016), who proposes an entrepreneurship-based empowerment model that involves mapping local business potential, managerial training, and the establishment of internal Islamic Boarding School microfinance institutions to strengthen the culture of entrepreneurship, starting from the structural Islamic Boarding School institutions.

#### *Agribusiness Education*

Education in an Islamic Boarding School is not limited to religious knowledge alone, but also balances it with practical knowledge, such as agriculture, thereby effectively building the independence of *santri* to face the challenges of real life.

Table 3 Implementation of agribusiness education activities in *Fathul Ulum* Islamic Boarding School, *Sunan Drajat* Islamic Boarding School, and *Mambaul Ulum* Islamic Boarding School

| No | Activities  | <i>Fathul Ulum</i> |                  | <i>Sunan Drajat</i> |                  | <i>Mambaul Ulum</i> |                  |
|----|---|--------------------|------------------|---------------------|------------------|---------------------|------------------|
|    |   | Mean               | % of achievement | Mean                | % of achievement | Mean                | % of achievement |
| 1  | Agribusiness curriculum on the basics of entrepreneurship                   | 3.00               | 75.00            | 3.40                | 85.00            | 3.03                | 75.63            |
| 2  | Materials for recognizing business opportunities in the agricultural sector | 3.00               | 75.00            | 3.55                | 88.75            | 3.00                | 75.00            |
| 3  | Learning business management skills   | 3.14               | 78.57            | 3.35                | 83.75            | 3.03                | 75.63            |
| 4  | Practical learning  | 3.07               | 76.75            | 3.55                | 88.75            | 3.10                | 77.50            |

Notes: The maximum score for each indicator is 4

Overall, the table indicates that all three Islamic Boarding Schools have implemented agribusiness education activities with a reasonably good level of achievement, ranging from 75% to almost 89%. These results suggest a dedicated effort within these Islamic Boarding School environments to equip *Santri* with knowledge and skills in agriculture and agribusiness. *Sunan Drajat* Islamic Boarding School recorded the highest achievement scores across all agribusiness education indicators. Specifically, practical learning and materials for recognizing business opportunities in the agricultural sector reached the highest percentages (88.75%), followed by agribusiness curriculum (85.00%) and business management skills (83.75%). These high achievements align with the information in the report, which states that *Sunan Drajat* Islamic Boarding School integrates agricultural education into its formal curriculum (ATPH major in SMK). This formal approach appears to be highly effective in delivering agribusiness content and skills to the *Santri*. *Fathul Ulum* Islamic Boarding School and *Mambaul Ulum* Islamic Boarding School show relatively similar levels of achievement, slightly lower than *Sunan Drajat* Islamic Boarding School. At *Fathul Ulum* Islamic Boarding School, the achievement rates range from 75.00% to 78.57%, with learning business management skills recording the highest score (78.57%). The report notes that at *Fathul Ulum* Islamic Boarding School, agricultural learning is conducted through weekly cultivation practices, theoretical integration with religious lectures ("*ngaji tani*"), and technical training. Although not through a formal curriculum like an SMK, this approach still managed to effectively implement aspects of agribusiness education. *Mambaul Ulum* Islamic Boarding School also consistently achieves results ranging from 75.00% to 77.50%. Practical learning recorded the highest score (77.50%) at this Islamic Boarding School. Like *Sunan Drajat* Islamic Boarding School, *Mambaul Ulum* Islamic Boarding School also offers formal education (*Madrasah Aliyah* Plus APHP skills).

In the context of agriculture, education provided in an Islamic Boarding School often integrates theory and practice. Notable examples include *Fathul Ulum* Islamic Boarding School, *Sunan Drajat* Islamic Boarding School, and *Mambaul Ulum* Islamic Boarding School, which have developed curricula that incorporate lessons on agronomy, crop cultivation techniques, agricultural product processing, and farm business management. This educational activity aims to provide students with a comprehensive understanding of effective and correct farming practices.

The education provided in Islamic Boarding School not only equips students with religious knowledge but also teaches them practical skills indispensable for increasing agricultural independence. Through integrated and relevant education, *Santri* is expected to become an independent and competitive farmer in the market. The results of this study align with those of Fahmi et al. (2022) and Silvana (2023), which describes the implementation of agribusiness education in an Islamic Boarding School using the entrepreneur model. This model follows the input-process-

impact stages, from training and farming assistance to utilizing the results for Islamic Boarding School management. *Santri* became more economically independent.

#### Agribusiness Assistance

With agribusiness assistance, students in Islamic boarding schools are expected to be better equipped to face challenges in the agricultural world. They are not only trained to be independent farmers but are also taught to think in business terms and sustainably develop their farming businesses.

Table 4 Implementation of agribusiness assistance activities in *Fathul Ulum* Islamic Boarding School, *Sunan Drajat* Islamic Boarding School, and *Mambaul Ulum* Islamic Boarding School

| No | Activities  | <i>Fathul Ulum</i> |                  | <i>Sunan Drajat</i> |                  | <i>Mambaul Ulum</i> |                  |
|----|---|--------------------|------------------|---------------------|------------------|---------------------|------------------|
|    |   | Mean               | % of achievement | Mean                | % of achievement | Mean                | % of achievement |
| 1  | Guidance in overcoming business challenges              | 2.85               | 71.13            | 3.55                | 88.75            | 3.15                | 78.75            |
| 2  | Assistance in accessing business networks               | 2.96               | 74.00            | 3.00                | 75.00            | 3.10                | 77.50            |
| 3  | Agribusiness mentoring entrepreneurial skills provision | 2.69               | 67.25            | 3.00                | 75.00            | 3.08                | 76.88            |

Notes: The maximum score for each indicator is 4

From the data presented, it appears that the level of implementation of agribusiness assistance activities varies between the Islamic Boarding School and indicators, with achievement percentages ranging from 67.25% to 88.75%. This achievement indicates that although agribusiness assistance is being carried out, its effectiveness is not uniform across all Islamic Boarding Schools and all aspects of assistance. *Sunan Drajat* Islamic Boarding School again shows the highest achievement in the indicator "Guidance in overcoming business challenges" (88.75%). This achievement is significant and indicates that *Santri* at this Islamic Boarding School feel they receive excellent support when facing difficulties in their agribusiness ventures. The ability of the Islamic Boarding School to guide in facing business challenges is a crucial aspect of building *Santri-tani's* self-sufficiency, as agricultural businesses are often exposed to various risks and obstacles. For the indicator "Assistance in accessing business networks," *Mambaul Ulum* Islamic Boarding School recorded the highest achievement (77.50%), slightly higher than *Sunan Drajat* Islamic Boarding School (75.00%) and *Fathul Ulum* Islamic Boarding School (74.00%). This result suggests that *Mambaul Ulum* Islamic Boarding School may have stronger networks or is more active in connecting *Santri-tani* with relevant parties (e.g., suppliers, buyers, or other organizations) to support their businesses. Access to business networks is essential for marketing, resource acquisition, and business scaling. For the indicator "Agribusiness mentoring entrepreneurial skills provision," *Mambaul Ulum* Islamic Boarding School achieved the highest score (76.88%), followed by *Sunan Drajat* Islamic Boarding School (75.00%), and *Fathul Ulum* Islamic Boarding School recorded the achievement of a score (67.25%). *Fathul Ulum's* lowest achievement in this indicator suggests that the aspect of assistance focusing directly on providing entrepreneurial skills (such as business planning, financial management, and marketing strategies) still needs significant improvement at this Islamic Boarding School. Entrepreneurial mentoring is a crucial foundation for *Santri-tani*, enabling them not only to produce but also to manage their businesses professionally and sustainably.

Mentoring involves the transfer of business knowledge, real-world experience, and relevant practical skills from both professional mentors and experienced fellow students (Elliott et al., 2020; Fauchald et al., 2022; Nabi et al., 2021). Students receive emotional support, role models, and motivation that strengthen their identity as entrepreneurs (Ahsan et al., 2018). Mentoring significantly increases students' entrepreneurial self-efficacy, a key factor in driving their intentions and actions to start a business (Issa, 2024; Villa et al., 2022).

*Training/Technical Guidance in Agribusiness*

Training and technical guidance are essential components in improving *Santris'* independence in agriculture. Islamic boarding schools often organize training programs designed to equip *Santris* with practical skills, enabling them to manage their agricultural businesses effectively.

Table 5 Organization of training/technical guidance activities in *Fathul Ulum* Islamic Boarding School, *Sunan Drajat* Islamic Boarding School, and *Mambaul Ulum* Islamic Boarding School

| No | Activities  | <i>Fathul Ulum</i> |                   | <i>Sunan Drajat</i> |                   | <i>Mambaul Ulum</i> |                   |
|----|---|--------------------|-------------------|---------------------|-------------------|---------------------|-------------------|
|    |   | Mean               | % of achieve-ment | Mean                | % of achieve-ment | Mean                | % of achieve-ment |
| 1  | Islamic Boarding School provides technical guidance/entrepreneurship training for students  | 2.95               | 73.75             | 3.00                | 75.00             | 3.08                | 76.88             |
| 2  | Islamic Boarding School provides agricultural training for students   | 3.00               | 75.00             | 3.00                | 75.00             | 3.05                | 76.25             |
| 3  | Agricultural/entrepreneurship training at the Islamic Boarding School provides practical skills helpful in starting an agribusiness venture | 3.08               | 77.00             | 3.20                | 80.00             | 3.05                | 76.25             |

Notes: The maximum score for each indicator is 4

The data in Table 5 shows a relatively consistent and high level of achievement in the organization of training and technical guidance across the three Islamic Boarding Schools, ranging from 73.75% to 80.00%. This indicates that providing practical training and advice has been a significant focus within the agribusiness empowerment programs at this Islamic Boarding School. Although the achievements are relatively uniform, *Sunan Drajat* Islamic Boarding School demonstrates slightly superior performance in the indicator that agricultural and entrepreneurship training provides practical skills helpful in starting an agribusiness venture (80.00%). This figure is the highest among all indicators and the Islamic Boarding School in this table. It suggests that *Santri* at the *Sunan Drajat* Islamic Boarding School feel they directly benefit from the training provided, which explicitly equips them with practical abilities to initiate agricultural businesses. This aligns with the information in the report that *Sunan Drajat* Islamic Boarding School integrates agribusiness education into a formal program, which may be more structured in delivering ready-to-use skills. The indicator for the provision of agricultural training generally shows a solid achievement across all three Islamic Boarding Schools (ranging from 75.00% to 76.25%), with *Mambaul Ulum* Islamic Boarding School slightly higher. Training focusing on cultivation aspects or basic agricultural techniques is widely organized. However, the indicator for the provision of technical guidance and entrepreneurship training (point 1) has a slightly lower achievement at *Fathul Ulum* Islamic Boarding School (73.75%) compared to the other two Islamic Boarding Schools (75.00% and 76.88%). Although the difference is not substantial, it may suggest that the focus on technical and entrepreneurial aspects together still needs improvement at *Fathul Ulum* Islamic

Boarding School, or that the *Santri* do not fully perceive the availability of comprehensive training in this area. On the other hand, *Mambaul Ulum* Islamic Boarding School records the highest achievement in this indicator (76.88%), demonstrating a commendable effort in providing technical and entrepreneurial guidance.

Overall, the data in Table 5 confirms that training and technical guidance are strong pillars in agribusiness empowerment at the Islamic Boarding School. The high achievement on the third indicator (practical skills for starting a venture) at *Sunan Drajat* Islamic Boarding School is very positive, indicating the relevance and usefulness of the training for *Santri*'s entrepreneurial aspirations. While all three Islamic Boarding Schools implement training well, there are subtle differences in their focus. These results underscore the importance of training that is oriented towards practical and integrated entrepreneurial skills, serving as key preparation for *Santri-tani* to become self-reliant agribusiness actors.

Training programs held in boarding schools typically cover a range of aspects, including crop cultivation techniques, pest control, and processing agricultural products. This training aims to prepare *Santri* to be more adaptive to technological developments in agriculture. Training that emphasizes hands-on practices, such as production, business management, bookkeeping, marketing, and processing of agricultural products, is proven to increase students' readiness to run an agribusiness (Adekola & Ishola, 2020; Fahmi et al., 2022). Skills such as business planning, financial management, leadership, and technology adaptation are also crucial for enhancing productivity and sustainability (Boye et al., 2024).

#### Agricultural Extension

Agricultural extension in Islamic boarding schools is one of the essential methods to improve *Santri*'s knowledge and skills in agriculture. This extension aims to provide up-to-date information on good and correct agricultural practices, as well as new technologies that can be applied on the farm.

Table 6. Organization of extension activities at *Fathul Ulum* Islamic Boarding School, *Sunan Drajat* Islamic Boarding School, and *Mambaul Ulum* Islamic Boarding School

| No | Activities  | <i>Fathul Ulum</i> |                  | <i>Sunan Drajat</i> |                  | <i>Mambaul Ulum</i> |                  |
|----|---|--------------------|------------------|---------------------|------------------|---------------------|------------------|
|    |   | Mean               | % of achievement | Mean                | % of achievement | Mean                | % of achievement |
| 1  | Islamic Boarding School provides agricultural and livestock counseling to students, supporting their agribusiness activities. | 3.05               | 76.21            | 3.00                | 75.00            | 3.13                | 78.13            |
| 2  | Agricultural extension in the Islamic Boarding School contributes to the development of <i>Santri</i> entrepreneurship.       | 3.18               | 79.47            | 3.00                | 75.00            | 3.05                | 76.25            |
| 3  | The agricultural extension program improves <i>Santri</i> 's skills in managing agricultural resources efficiently.           | 3.10               | 77.38            | 3.00                | 75.00            | 3.10                | 77.50            |

Notes: The maximum score for each indicator is 4

Agricultural extension activities have been organized with a good level of achievement across the three Islamic Boarding Schools, with percentages ranging from 75.00% to 79.47%. These figures generally indicate that the Islamic Boarding School recognizes the importance

of extension as part of their efforts to empower Santri through agribusiness. *Fathul Ulum* Islamic Boarding School stands out in two indicators: the contribution of extension to the development of Santri entrepreneurship (79.47%) and the improvement of *Santri's* skills in managing agricultural resources efficiently (77.38%). The highest achievement in the contribution to Santri entrepreneurship indicates that the extension methods applied at *Fathul Ulum* Islamic Boarding School, such as lectures and religious talks ("*pengajian*" or "*ceramah*") within the Islamic Boarding School itself, are highly effective in inspiring and equipping Santri with the mindset and knowledge that support entrepreneurial activities in agribusiness. This suggests the strength of an extension approach that might be more integrated internally with the Islamic Boarding School's values and context. *Mambaul Ulum* Islamic Boarding School shows the highest achievement in the indicator of Islamic Boarding School facilitation of agricultural and livestock counseling (78.13%). This figure suggests that *Mambaul Ulum* Islamic Boarding School is the most active in providing the means, access, or coordination for organizing extension activities for its *Santri*, potentially including facilitating visits from external parties, such as Agricultural Extension Workers (PPL). *Sunan Drajat* Islamic Boarding School shows a uniform achievement across all three extension indicators, scoring 75.00%. This could reflect a standardized approach to organizing extension, possibly through regular formats or collaboration with external parties, such as the PPL and the Agricultural Extension Office (BPP), as mentioned in the report. Although it did not score the highest in any single indicator, the consistent 75.00% indicates that all measured aspects of extension have been implemented at a solid level.

Extension also helps Santris build networks with other farmers and agricultural experts. At *Fathul Ulum* Islamic Boarding School in Jombang, extension is conducted inside the Islamic Boarding School in the form of recitations and lectures to the Santris. In *Sunan Drajat* and *Mambaul Ulum* Islamic Boarding School, extension services are sometimes conducted by PPLs because the location of the sub-district BPP is close to the Islamic Boarding School. In addition, students often conduct field visits and internships at BPP. This provides an opportunity for Santris to learn directly from the experiences of successful farmers and broaden their horizons about the world of agriculture. Practice-based, collaborative, and technology-supported agricultural extension has been proven to be highly effective in enhancing students' competence, interest, and readiness to contribute to the farming sector (Yusuf et al., 2021).

#### Capital Assistance Program

The capital assistance program in Islamic boarding schools is one of the efforts to increase the independence of Santri in agriculture. This capital assistance is significant, especially for Santris, who want to start or develop their agricultural business.

Table 7 Implementation of capital assistance activities at *Fathul Ulum* Islamic Boarding School, *Sunan Drajat* Islamic Boarding School, and *Mambaul Ulum* Islamic Boarding School

| No | Activities  | <i>Fathul Ulum</i> |                  | <i>Sunan Drajat</i> |                  | <i>Mambaul Ulum</i> |                  |
|----|---|--------------------|------------------|---------------------|------------------|---------------------|------------------|
|    |   | Mean               | % of achievement | Mean                | % of achievement | Mean                | % of achievement |
| 1  | Access to Capital   | 3.04               | 75.88            | 3.00                | 75.00            | 2.88                | 71.88            |
| 2  | Capital support according to business needs                                     | 3.11               | 77.68            | 3.00                | 75.00            | 2.80                | 70.00            |
| 3  | Availability of mentors/consultants who help Santri utilize capital effectively | 2.96               | 74.10            | 3.00                | 75.00            | 3.10                | 77.50            |

| No | Activities                        | <i>Fathul Ulum</i> |                  | <i>Sunan Drajat</i> |                  | <i>Mambaul Ulum</i> |                  |
|----|-----------------------------------|--------------------|------------------|---------------------|------------------|---------------------|------------------|
|    |                                   | Mean               | % of achievement | Mean                | % of achievement | Mean                | % of achievement |
| 4  | Long-term and sustainable funding | 3.06               | 76.49            | 3.00                | 75.00            | 3.00                | 75.00            |

Notes: The maximum score for each indicator is 4

Generally, the level of implementation of capital assistance activities at the three Islamic Boarding Schools shows a relatively good level of achievement, ranging from 70.00% to 77.68%, except for the lowest achievement at *Mambaul Ulum* Islamic Boarding School on some indicators. This shows that all three Islamic Boarding Schools have made efforts to facilitate access to and support for capital for Santri, although with varying degrees of success.

The implementation of the capital assistance program in *Fathul Ulum* Islamic Boarding School, *Sunan Drajat* Islamic Boarding School, and *Mambaul Ulum* Islamic Boarding School involves providing access to capital according to each institution's business needs. In *Sunan Drajat* Islamic Boarding School and *Mambaul Ulum* Islamic Boarding School, the provision of capital assistance is integrated with the practicum of entrepreneurship and agricultural subjects, which teachers accompany. While in *Fathul Ulum* Islamic Boarding School, capital assistance is provided for the *Santripreneur* program, where Santri is given capital for entrepreneurship in fields of interest, such as agriculture or animal husbandry. The implementation of capital assistance activities for students in agribusiness is crucial in encouraging independence and fostering an entrepreneurial spirit. In the context of an Islamic Boarding School, the *Santri* empowerment program through agribusiness involves several main stages: business training, provision of business capital, mentoring, and marketing. Capital assistance or funding is one of the key inputs that enable students or *Santri* to start and manage agribusiness business units, such as agricultural land management, animal husbandry, or fisheries. This process not only improves technical and managerial skills but also strengthens *Santri's* confidence and ability to manage the business independently (Fahmi et al., 2022). Santri capital empowerment through a social entrepreneurship approach, where the Islamic Boarding School not only provides capital assistance but also assists in mobilizing social agribusiness units. This model enhances agribusiness capabilities and improves the welfare of the surrounding community (Badrudin et al., 2021; Rohima et al., 2024).

### Market Facilitation

Islamic Boarding School can act as intermediaries that assist Santris in reaching the market. Through the network built by the Islamic Boarding School, Santris can be introduced to interested parties, such as wholesalers, collectors, or direct consumers. This connection is vital to ensure that the products produced by Santris can be marketed properly.

Table 8. Implementation of market facilitation activities at *Fathul Ulum* Islamic Boarding School, *Sunan Drajat* Islamic Boarding School, and *Mambaul Ulum* Islamic Boarding School

| No | Activities  | <i>Fathul Ulum</i> |                  | <i>Sunan Drajat</i> |                  | <i>Mambaul Ulum</i> |                  |
|----|---|--------------------|------------------|---------------------|------------------|---------------------|------------------|
|    |   | Mean               | % of achievement | Mean                | % of achievement | Mean                | % of achievement |
| 1  | Boarding schools provide access to Santris, enabling them to develop business networks in the agribusiness sector through partnerships with industry players. | 3.14               | 78.57            | 3.35                | 83.75            | 3.00                | 75.00            |

| No | Activities   | <i>Fathul Ulum</i> |                  | <i>Sunan Drajat</i> |                  | <i>Mambaul Ulum</i> |                  |
|----|--|--------------------|------------------|---------------------|------------------|---------------------|------------------|
|    |  | Mean               | % of achievement | Mean                | % of achievement | Mean                | % of achievement |
| 2  | Boarding schools help provide sufficient access to Santris to market their products.   | 3.11               | 77.68            | 3.00                | 75.00            | 3.05                | 76.25            |
| 3  | The market facilitation program in Islamic boarding schools contributes significantly to the sustainable development of Santri businesses. | 2.88               | 71.99            | 3.00                | 75.00            | 2.80                | 70.00            |

Notes: The maximum score for each indicator is 4

The data in Table 8 shows varying levels of achievement in the implementation of market facilitation activities across the Islamic Boarding School, ranging from 70.00% to 83.75%. Generally, these achievements indicate that the Islamic Boarding School has made efforts in market facilitation, but with different levels of effectiveness in each aspect. *Sunan Drajat* Islamic Boarding School demonstrates strength in building broader business networks and partnerships, as well as a perceived contribution to business sustainability. *Mambaul Ulum* Islamic Boarding School excels in helping Santri gain direct market access for their products. *Fathul Ulum* Islamic Boarding School exhibits lower performance in terms of the program's contribution to business sustainability. This variation suggests that each Islamic Boarding School may have a different strategy or focus in facilitating markets. Building industry networks (*Sunan Drajat*), assisting with direct market access (*Mambaul Ulum*), and ensuring the contribution to business sustainability are complementary aspects of effective market facilitation. This data underscores the importance of market facilitation efforts in Islamic Boarding Schools as a complement to the production aspect of *Santri-tani* empowerment, and success in each element can vary.

Market facilitation is a very crucial aspect because, without access to a good market, even well-managed agricultural products will not be maximized in providing economic benefits. With a combination of education, infrastructure, collaboration, and hands-on practice, Islamic boarding schools can be a driving force in empowering Santri farmers toward complete independence (Abdullah et al., 2024; Lam & Harker, 2015).

### 3.2 Level of Santri Empowerment in Agribusiness in Islamic Boarding Schools

The level of empowerment of *Santri-tani* in the agribusiness field at the Islamic Boarding School reflects the extent to which *Santri* can apply their agricultural and livestock knowledge and skills to achieve economic independence. The following is the level of empowerment of *Santri-tani* in agribusiness at *Fathul Ulum* Islamic Boarding School, *Sunan Drajat* Islamic Boarding School, and *Mambaul Ulum* Islamic Boarding School:

Table 9. Empowerment level of santri farmers in Agribusiness

| No | Aspect of Empowerment | <i>Fathul Ulum</i> |                  | <i>Sunan Drajat</i> |                  | <i>Mambaul Ulum</i> |                  |
|----|-----------------------|--------------------|------------------|---------------------|------------------|---------------------|------------------|
|    |                       | Mean               | % of achievement | Mean                | % of achievement | Mean                | % of achievement |
| 1  | Technical Agriculture | 3.02               | 75.60            | 3.48                | 87.00            | 3.06                | 76.56            |
| 2  | Resource Management   | 2.98               | 74.39            | 3.08                | 76.88            | 2.99                | 74.84            |
| 3  | Communication         | 2.98               | 74.56            | 3.18                | 79.38            | 3.10                | 77.51            |

| No | Aspect of Empowerment       | <i>Fathul Ulum</i> |                  | <i>Sunan Drajat</i> |                  | <i>Mambaul Ulum</i> |                  |
|----|-----------------------------|--------------------|------------------|---------------------|------------------|---------------------|------------------|
|    |                             | Mean               | % of achievement | Mean                | % of achievement | Mean                | % of achievement |
| 4  | Leadership                  | 3.06               | 76.49            | 3.00                | 75.00            | 3.01                | 75.16            |
| 5  | Marketing                   | 2.96               | 74.12            | 3.07                | 76.75            | 3.06                | 76.50            |
| 6  | Information Technology      | 2.87               | 71.83            | 2.00                | 50.00            | 2.92                | 73.00            |
| 7  | Networking and partnerships | 3.03               | 75.79            | 3.06                | 76.46            | 3.02                | 75.42            |

Notes: The maximum score for each indicator is 4

*Sunan Drajat* Islamic Boarding School recorded the highest scores on several indicators, such as agricultural techniques (87.00%), resource management (76.88%), communication (79.38%), and networking/partnership (76.46%). Santri in *Sunan Drajat* Islamic Boarding School have better agribusiness independence. *Fathul Ulum* Islamic Boarding School excels in mastery of information technology (71.83%) and leadership (76.49%). *Fathul Ulum* Islamic Boarding School focuses on developing digital skills and leadership capacity. *Mambaul Ulum* Islamic Boarding School stands out in communication (77.51%), but overall, it has similar achievements to *Fathul Ulum* Islamic Boarding School, with results tending to stabilize across indicators.

The level of empowerment of Santri farmers in agribusiness in boarding schools varies depending on the quality of education, mentoring programs, and support they receive. Santri who achieve a high level of empowerment are those who are not only able to manage agriculture independently but also possess a strong entrepreneurial spirit, a concern for sustainable agriculture, and contribute positively to the Islamic Boarding School and the surrounding community (Fahmi et al., 2022; Sudiapermana & Muslikhah, 2020; Triatmo et al., 2024).

Santri empowerment is influenced by various factors, which can be grouped into environmental, behavioral, and personal characteristics. These factors interact with each other to influence the level of empowerment in the learning process. A supportive learning environment, which includes online interaction and cooperation, plays a crucial role in enhancing student empowerment (Pan, 2022). Positive relationships between teachers and students, as well as fair use of power by teachers, can also increase student empowerment (Kirk et al., 2016). Clear teacher communication behaviors and effective interactions can increase student motivation and empowerment (Houser & Frymier, 2009). A combination of environmental, behavioral, and personal factors influences student empowerment. A supportive learning environment, positive relationships with teachers, and strong social support are key to increasing student empowerment. Additionally, effective communication and active participation in teaching and learning activities play a crucial role in this process.

#### 4. Conclusion

This study confirms the role of Islamic Boarding Schools in empowering *Santri-tani* towards agricultural self-reliance in Indonesia. This is achieved through their unique model, which integrates Islamic education with practical agribusiness skills. The implementation of various empowerment activities, including agribusiness education, assistance, training and technical guidance, agricultural extension, capital support, and market facilitation, demonstrates a good level of effort across the surveyed Islamic Boarding School, albeit with variations in specific areas. In the *Salafiyah* Islamic Boarding School, the implementation of empowerment has the highest achievement in agricultural extension activities. The extension is delivered culturally through lectures and direct motivation from Kyai, who has strong spiritual

legitimacy. In a Modern Islamic Boarding School, agribusiness education is significantly superior because agribusiness materials are fully integrated into the formal curriculum. In an Integrated Islamic Boarding School, agribusiness mentoring yields the best achievements, providing sufficient provisions for santri. Consequently, Santri-tani exhibits notable levels of empowerment, particularly in key agricultural technical, resource management, and communication skills, although proficiency in information technology and networking still requires attention. Overall, the Islamic Boarding School model presents a promising and contextually relevant approach for addressing farmer regeneration challenges, promoting sustainable agricultural development, and enhancing rural economic empowerment in Indonesia by leveraging existing religious and community structures.

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