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THE ROLE OF AGRIBUSINESS COMPETENCIES IN STRATEGIC DECISION-MAKING FOR MILLENNIAL FARMERS IN KUBU RAYA REGENCY

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ABSTRACT

Millennial farmer' management decisions are influenced by their agribusiness competencies. Farmers are constantly faced with decision-making on what and how to produce it. Both controllable internal and uncontrollable external factors constrain farmers' decision-making process. Meanwhile, millennial farmers will need to act as the driving force of agriculture in the future. Millennial farmers require sufficient agribusiness skills to manage their farms effectively. This study examines the competencies of millennial farmers in agribusiness, their managerial decision-making process, and the relationship between these competencies and organizational decisions. The agribusiness competency variables studied are based on agribusiness subsystems, including input supply, production process, product processing, marketing, and supporting subsystems. This study included all millennial farmers in Kubu Raya Regency. The sample was determined to be 150 samples using purposive sampling. A selected sample of millennial farmers aged 19-39 years old. The analysis used interval class category analysis with three categories: good, moderate, not good, and Spearman rank correlation analysis. Results of the analysis show that millennial farmers have moderate agribusiness competencies and managerial decision-making processes. There is a strong positive correlation between agribusiness competencies and managerial decision-

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making processes. The government should enhance millennial farmers' agribusiness skills by providing infrastructure, facilities, and marketing, finance, and product processing training while collaborating with academics to develop technology and innovation.

Keywords: *input supply, marketing, production process, product processing, supporting subsystems*

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INTRODUCTION

Millennial farmers' role as future agriculture drivers is crucial for international competitiveness. The agricultural sector must continue to develop, particularly in rural areas that rely on farming, and the millennial generation is believed to have the potential to enhance rural community welfare (Aziz, 2022; Hasibuan & Nasution, 2022; Haryanto et al., 2021). Successful and good-quality millennial farmers are examples of farmers who have good competencies. Millennial farmers can improve production and farm management, both of which contribute to the success of their farms. Farmers have social and economic traits that reflect their competence. Farmers' social characteristics, such as age, education level, farming experience, and family size, are generally suboptimal. In addition, their economic characteristics, such as land area, labor, and capital, are still inefficient. The low competence of millennial farmers may be attributed to various factors, including their limited involvement in farmer groups, lack of access to accurate information, feeling excluded from decision-making, and inadequate understanding of agricultural technology (Dewijanti, 2022; Anwarudin et al., 2020).

In addition, the agribusiness competencies of millennial farmers will impact their decision-making processes in managing their farms. The agricultural production process is a complex and dynamic system resulting from the interaction between physical and social subsystems over time. Farmers must constantly decide which products to produce and how to produce them. Farmers' decision-making process can be limited by both controllable internal and uncontrollable external factors (Anisah & Hayati, 2017; Putri & Purnomo, 2017). In some cases, decision-making involves choosing from a range of actions to achieve a specific business goal (Olalekun et al., 2021; Theresia et al., 2016). The role of networking can also shape millennial farmers into competent entrepreneurs (Wastutiningsih et al., 2024).

Millennial farmers have characteristics that differ from previous generations. They are more open to technology, better educated, and have a more dynamic perspective in managing agricultural businesses. Policies that are more responsive to demographic changes and the needs of millennial farmers are expected to be implemented through better access to capital and education for the new generation of farmers (Sutherland, 2023; Li et al., 2017). Competence in agribusiness encompasses various skills and knowledge that influence success in managing modern agricultural enterprises. Competence in agribusiness is related to technical skills and managerial strategies for reaching new consumers, which is essential to ensuring the competitiveness and sustainability of agricultural enterprises (Fiore et al., 2024; Chao-Chien et al., 2016). Millennial farmers, who have greater openness to technology and higher education than previous generations, can leverage these agribusiness skills more effectively to grow their businesses (Balanovska et al., 2021).

In developing countries, the adoption of digital technology is still low, even though its economic benefits are clear. Factors such as farmers' knowledge, government support, and competitive pressure play a crucial role in accelerating adoption Geng et al., (2024); Ehlers et al., (2021); Fan et al., (2023). Sargani et al., (2020) states that entrepreneurship in agriculture, especially among young farmers, increasingly emphasizes technological innovation and efficient supply chain management. The role of modern marketing supports the development of more commercial agribusiness. Agribusiness-based entrepreneurship among millennial farmers is also considered to have a positive impact on food security as well as economic and environmental sustainability.

The government and educational institutions play a crucial role in providing programs that can enhance their technical and entrepreneurial competencies and the need for continuous training, financial assistance, and support in the form of strong networks (Rusdiana et al., 2024). Millennial farmers are strategically positioned to take advantage of opportunities in the global agribusiness market. Millennial farmers, through the implementation of sustainable farming practices, play a crucial role in maintaining the sustainability and future of agriculture with innovation, technological knowledge, and an understanding of the importance of the environment (Bulkis, 2024; Afif et al., 2023). The right managerial decisions are crucial in determining the success or failure of agribusiness. Strategic decision-making is used in competitive companies and is intended to provide the company with a competitive advantage by altering its scope and how it conducts its activities (Saurav, 2024); Byamukama et al., 2023).

Millennial farmers are facing a more dynamic and competitive market compared to previous generations. They must make complex managerial decisions regarding pricing, product diversification, and access to global markets. Their agribusiness competencies are crucial in facing these challenges

and making the right decisions (Novisma & Iskandar, 2023; Romadi et al., 2023). This research can provide an overview of their agribusiness competencies, which influence how they make decisions in a managerial context. It can demonstrate the relationship between agribusiness competencies and the quality of managerial decisions made by millennial farmers. The results of this research can serve as a foundation for designing training programs, outreach, or policies that are more effective in assisting millennial farmers in developing their agribusiness competencies. Many countries are facing the issue of farmer regeneration, and this research can provide insights into what young farmers need to succeed in an increasingly competitive agricultural business environment.

In addition to increasing productivity, agribusiness competencies ensure the sustainability of agricultural businesses in the future. The ability to utilize technology and innovation is crucial in agricultural development. Millennial farmers are expected to be able to create and apply new technologies that can increase production yields and efficiency so that they can compete in an increasingly complex global market. Effective management decisions are essential for the successful operation of farming businesses (Ayati et al., 2018).

This study differs from previous studies that more generally discuss farmers as a whole, as this study analyzes explicitly the decision-making strategies of millennial farmers, who are known to be highly adaptive to technology. The sample was selected from millennial farmers in Kubu Raya Regency, the most dominant age group in agribusiness transformation, with productive age, access to technology, and involvement in agribusiness activities. The sample consists of farmers who vary in their education level and business size. This ensures that the data obtained covers a range of experiences and capabilities that illustrate trends among young farmers representing the research area. This research deeply examines agribusiness competencies through the approach of agribusiness subsystems, which include the input supply, production process, product processing, marketing, and supporting subsystems, all of which are necessary for millennial farmers to make managerial decisions. Most previous research emphasizes policy, market knowledge, technological capabilities, and product innovation.

This research also offers novelty by exploring the relationship between agribusiness competence and the managerial decision-making processes that millennial farmers must undertake. This issue has not been discussed in prior studies. The research data uses empirical data or case studies of millennial farmers in the research area, which can provide a new contribution to the literature, as data on millennial farmers in this specific context has not been extensively explored. Exploring the connection between entrepreneurial competencies and managerial decision-making among millennial farmers addresses a gap in prior research, which has primarily focused on

entrepreneurial skills without directly linking them to decision-making processes. This study enhances our understanding of the specific competencies possessed by millennial farmers and how these competencies impact their management practices. Furthermore, the findings carry practical implications for enhancing future farm sustainability and informing better agricultural policies. The research aims to evaluate the agribusiness competence of millennial farmers, their management decision-making process, and the relationship between managerial decision-making and agribusiness competence.

RESEARCH METHOD

This research used the survey method, purposively determined in Kubu Raya Regency, to study the millennial population in the agriculture sector. This study focuses on millennial farmers as the population. This study selected millennial farmers based on their ages between 19 and 39 years old. The sample selection technique used snowball sampling because the population size was uncertain. Snowball sampling is helpful for populations lacking accessible demographic data. Referrals facilitate quick and reliable subject recruitment, making the method cost-effective by utilizing primary data sources. To mitigate bias, the researcher established specific age criteria for the millennial farmer category and ensured farmer sampling was distributed across the research area's various locations. So, the researcher collected a sample size of 150 millennial farmers representing seven districts in Kubu Raya regency. Agribusiness competency variables include input supply, production, product processing, marketing, and support (Manyamsari & Mujiburrahmad, 2014; Ismed, 2018).

The decision-making process variables include intelligence, design, choice, and implementation (Prasatyawan & Lestari, 2020; Fahmi, 2013; Irsan et al., 2023). The research variables used a three-point Likert scale, where 1 indicates disagree and 3 indicates agree. The Likert scale allows the measurement of subjective variables, such as the attitudes and perceptions of respondents. To assess the reliability and validity of the measurement instrument, we will utilize Construct Validity and Cronbach's Alpha coefficient. The validity value is shown from the value of r count > r table based on a significant test of 0.05, meaning that the questionnaire questions are valid. Alpha Cronbach shows the reliability value; if the alpha value is ≥ 0.7, it means reliability. The study used a competency agribusiness level category with three categories: good, moderate, not good, and Spearman Rank correlation analysis as an analytical tool. This tool is very suitable for this research as it uses ordinal data types.

RESULT AND DISCUSSION

Characteristics of Millennial Farmers

The data collected from respondents is presented as follows: Table 1. shows that almost all millennial farmers are male. This emphasizes that men's role is to work to provide for the family (Purnama et al., 2017). Most millennial farmers are 31-35 years old and have a high school education level. Most respondents' age can be actively involved in the farming process from upstream to downstream (Haryanto et al., 2021). The higher the education level of millennial farmers, the better they are at managing their businesses, which has a positive impact on enhancing their agribusiness (Anwarudin et al., 2020).

Table 1. Characteristics of Millennial Farmers

Characteristics	Frequency	(%)
Gender		
a) Male	145	97.0
b) Female	5	3.0
Age (Years)		
a) 21 - 25	27	18.0
b) 26 - 30	41	27.3
c) 31 – 35	47	31.4
d) 36 – 39	35	23.3
Level of Education:		
a) Junior High School	17	11.3
b) Senior High School	67	44.7
c) Associate Degree	39	26.0
d) Bachelor Degree	27	18.0
Experience of farming (Years)		
a) 1-3	66	44.0
b) 4-6	64	42.7
c) 7-10	20	13.3
Field of Farming :		
a) Horticulture	84	56.0
b) Food Plants	66	44.0

Table 1. shows that almost all millennial farmers are male. This emphasizes that men's role is to work to provide for the family (Purnama et al., 2017). Men have a vital role in agribusiness decision-making and competencies. They are responsible for the technical management of land, making budget decisions, investing in new tools or technologies, and finding markets for selling crops. Most millennial farmers are 31-35 years old and have a high school education

level. Most respondents' age can be actively involved in the farming process from upstream to downstream (Haryanto et al., 2021). The higher the education level of millennial farmers, the better they are at managing their businesses, which has a positive impact on enhancing their agribusiness (Anwarudin et al., 2020). High school education often lacks in-depth technical or specialized knowledge, creating obstacles for graduates when they encounter decisions requiring complex technical understanding. Most millennial farmers have 1-3 years of agricultural business experience. More experienced farmers tend to be more skilled and efficient in dealing with the risks associated with their businesses (Anisah & Hayati, 2017), and the type of agricultural business that is predominantly engaged is horticulture. Research results (Harahap et al., 2018) indicate that age, education, and experience influence farmers' decision-making. There is a positive correlation between agribusiness competence and farmers' socio-demographic attributes, including age, education, and farming experience (Muhibuddin et al., 2015).

Level of Agribusiness Competency

The level of agribusiness competence of millennial farmers is described in Table 2. below. The level of competence is divided into 3 categories: good, moderate, and not good.

Table 2. Level of Agribusiness Competencies of Millennial Farmers

Variable	Mean Score	Agribusiness Competencies Level
Input Supply Subsystem	8.72	Not Good
Production Process Subsystem	10.30	Good
Output Processing Subsystem	7.00	Moderate
Marketing Subsystem	9.45	Moderate
Support Subsystem	11.60	Good
Mean Score	9.41	Moderate

The level of agribusiness competence in the production process subsystem and the supporting subsystem is sound (Anwarudin et al., 2020). The performance of the production process subsystem is described by the indicators of variety selection, land area, technology application, and labor, including the good category (Nursidiq et al., 2020). Millennial farmers are skilled in effective farming techniques, combining traditional knowledge with modern technology, and know how to optimize agricultural inputs. A suitable support subsystem combined with good farmer capabilities in production process activities forms strong competencies in farmers so that they can make choices to manage agricultural businesses in a sustainable, efficient, and market-responsive manner. Learning in extension impacts farmers' competence through extension

materials, the interaction between extension workers and farmers, methods, and extension evaluation (Yuniar & Endaryanto, 2019). The impact of agricultural extension on farmers' competence and production productivity is seen from the increase in knowledge, motivation, and desire to apply in daily life (Saputera et al., 2022; Hapsari et al., 2023; Nasir et al., 2023). The output processing and marketing subsystem is categorized as moderate. In terms of marketing activities, millennial farmers utilize marketing institutions and engage in direct selling, while some perform product promotions intermittently. Some farmers engage in direct marketing to end consumers, and a few have knowledge of online marketing but are not actively involved.

There are several problems in applying information and communication technology in the Farmer Group. These constraints include facilities, skills, and culture (Charina et al., 2017). The input supply subsystem is categorized as not good. This is due to farmers having limited capital (Dewijanti, 2022). The most common problem in agribusiness activities is the supply of production inputs (Nursidiq et al., 2020). Structural barriers that cause competence in the input supply subsystem in the not-good category are limited access to knowledge, limited financial resources, and lack of capital, which make it difficult for millennial farmers to obtain quality input needs, and inadequate infrastructure such as road access, logistics systems and input storage facilities in rural areas. Training, financing programs, market transparency, and technological support are needed to improve such competencies. So that millennial farmers can get quality inputs at reasonable prices. Based on research findings (Muhibuddin et al., 2015), planning farming, using production factors, implementing cultivation, marketing agricultural products, and fostering collaboration are key agribusiness competencies of farmers. These competencies generally fall into the moderate category.

Managerial Decision-Making Processes Identification of Millennial Farmers

Decision-making is a process consisting of various stages. A manager is the final decision-maker in the process. When managers make decisions, they must consider the business objectives so that the decision significantly impacts all planned activities and company results (Omarli, 2017). The decision-making process of millennial farmers is described in Table 3. below. The criteria for the managerial decision-making process of millennial farmers are divided into three categories: good, moderate, and not good.

The managerial decision-making process at the Intelligence and Design stages includes good criteria. The Intelligence stages is conducted to recognize problems and identify their root causes. Farmers carry out the design stages to develop solutions by seeking alternative information and assessing the alternatives they have obtained. The ability to find alternatives is reflected in actively seeking information through farmer groups to discuss and exchange

information (Pujakesuma & Tuti, 2020). Millennial farmers are skilled at identifying problems within their businesses and recognizing the necessary resources to address them. They can easily access information to find solutions and evaluate factors such as market trends, technology and innovation, financial resources, and government policies and assistance programs to inform their decision-making. For the Choice and Implementation stages, the category is moderate. The effectiveness of management decisions is required to implement and define the process as problem solutions. Choosing the best among many options is a powerful problem-solving tool (Dwi et al., 2023). During the Implementation stages, millennial farmers apply the chosen solutions and follow up with monitoring actions to ensure the effectiveness of the decisions. However, this is not done continuously and systematically. Millennial farmers often struggle to make well-informed decisions due to a lack of knowledge, leading them to rely on quick judgments rather than thorough evaluations. They frequently need to adapt to changing conditions and planting schedules, resulting in decisions that may not be based on comprehensive assessments. Although these decisions impact their business activities, farmers often do not monitor the outcomes effectively because of knowledge, time, costs, and labor constraints.

Table 3. Managerial Decision-Making Process of Millennial Farmers

Variable	Mean Score	Level
Intelligence	4.7	Good
Design	5.1	Good
Choice	3.4	Moderate
Implementation	4.0	Moderate
Mean Score	4.3	Moderate

To address these challenges, several solutions can be implemented. Training programs emphasizing data-driven decision-making and rapid evaluation can enhance farmers' skills. Additionally, collaborating with agricultural extension officers or consultants with in-depth farm business evaluation knowledge is beneficial. Joining agricultural forums or social media groups dedicated to agriculture can also provide valuable opportunities for farmers to share information and insights. According to research by Permasih et al., (2014), farmers make decisions in five stages: identifying needs, seeking information, evaluating alternatives, making purchasing decisions, and conducting post-purchase evaluations.

Correlation Between Agribusiness Competencies and Managerial Decision-Making Processes of Millennial Farmers

The correlation between agribusiness competencies and the managerial decision-making process of millennial farmers was analyzed using the Spearman Rank correlation. The results of the analysis show a strong relationship between agribusiness competence and managerial decision-making. Line with Kune et al., (2021) stated that knowledge of input use and the ability to access market information affect farmers' management decisions. In business activities, managers have to make many decisions. Some of these decisions are routine, every day decisions, and others are more complex and have a big impact. The analytical decision-making process requires complete knowledge and analytical skills, especially from the agribusiness competencies that farmers must possess (Aren & Hamamcı, 2021). The results of the analysis are shown in Table 4.

Table 4. Correlation Analysis

Spearman Correlation	Correlation Coefficient	Sig
Agribusiness Competencies and Managerial Decision-Making Processes of Millennial Farmers	0.610*	0.01

Note: *Significant at 5% level

If the relationship is analyzed in each agribusiness subsystem to the managerial decision-making process of millennial farmers, the results can be shown in the following table:

Table 5. Correlation Analysis Results Based on Agribusiness Subsystem Type

Spearman Correlation	Correlation Coefficient	Sig
Input supply subsystem and Millennial Farmer Managerial Decision-Making Processes	0.109	0.978
Production Process Subsystem and Managerial Decision-Making Process of Millennial Farmers	0.870**	0.005
Output Processing Subsystem and Managerial Decision-Making Process of Millennial Farmers	0.347*	0.049
Marketing Subsystem and Managerial Decision-Making Process of Millennial Farmers	0.471*	0.033
Support Subsystems and Managerial Decision-Making Processes of Millennial Farmers	0.690*	0.035

Note: **Significant at 1% level; and *Significant at 5% level

All agribusiness subsystems and the managerial decision-making process have a significant relationship at the 1% and 5% confidence levels, except that the production input provision subsystem does not correlate with the organizational decision-making process of millennial farmers. The correlated

subsystems have a positive relationship direction, which means that the better the subsystem is managed, the better the managerial decision-making process of millennial farmers. The strength of the relationship shows that the support subsystem has a strong relationship and the production process subsystem has a powerful relationship (Kune et al., 2021). Farmers' competence in production process activities on farms is categorized as having a strong relationship with farmers' decision-making. Farmers have knowledge and skills obtained from generation to generation; besides that, farmers are also very open to receiving innovations from outside parties through extension workers or the role of academics. This is indicated by the ability of farmers to make maximum use of land, land processing according to good agricultural practices, being able to determine fertilizer needs, and being able to control pests and diseases (Xianyu et al., 2024; Hayden et al., 2021). The decisions made by millennial farmers regarding production management have a direct impact on productivity, resource efficiency, and the application of information technology. The activities involved in the production process are closely tied to the managerial decision-making of these farmers. Based on this analysis, we can develop strategies to support millennial farmers in making informed decisions that contribute to their success in farming.

Farmers gain competencies from the support subsystem due to farmer group involvement in farming activities. This helps farmers to acquire new knowledge more efficiently, share experiences, and gain new skills together. In addition, farmer groups serve as a platform for farmers to establish partnerships with various parties, including the government, non-governmental organizations, academia, and the private sector (Irwan, 2024; Nur, 2023). The role of extension workers is crucial in supporting farmers' activities. With the help of extension workers, farmers can use modern technology to improve the productivity and quality of their agricultural products. Extension workers routinely provide training, technical guidance, and mentoring to farmers. They help farmers identify and find solutions to problems in agribusiness, such as pest attacks, crop diseases, or marketing constraints (Hameed & Sawicka, 2023; Arifin et al., 2022). The role of academics in supporting farmer's activities is invaluable. An important role of academia is to produce relevant research to address challenges in agribusiness. These innovations involve the development of new technologies, agribusiness management systems, and more effective and environmentally friendly cultivation methods. Academics also assist in the form of training or mentoring farmers and agribusiness actors (Soam et al., 2023); Kőmíves et al., 2019).

The marketing subsystem has a moderate relationship (Kune et al., 2021), and the output processing subsystem has a low relationship with the managerial decision-making process of millennial farmers. The low relationship between the produce processing subsystem and the managerial decision-making process of

millennial farmers is due to weak knowledge and skills, lack of training, focus on production and technology, and limited capital. These conditions can be improved through training and education activities, easy technological access, capital support, and networking. Managers need to have experience and skills with some of the methods associated with the strategic managerial decision-making process for decision-making in their managerial positions (Stofkova et al., 2022).

The study's limitations include the insufficient sample size, which does not adequately represent all millennial farmers in Kubu Raya Regency. Additionally, respondents may have completed the questionnaire with subjective bias, potentially impacting the data's accuracy. Furthermore, the timing of data collection does not account for situational and seasonal changes that could influence farmers' agribusiness capabilities and decision-making. Consequently, the findings of this study cannot be generalized, as cultural and geographical differences exist in other regions.

For future research, it is recommended to conduct long-term studies to observe changes in competencies and decision-making over time and increase the sample size to improve the representativeness of the results.

CONCLUSION AND SUGGESTION

Conclusion

Based on the results and discussion, millennial farmers' agribusiness competence level is in the moderate category. This means that the ability to carry out the production process and the ability of the supporting subsystem have been running well. Still, the ability to market, process results, and provide input supplies has not been completed in the best possible way. The managerial decision-making process of millennial farmers is in the moderate category. This means that farmers understand and can carry out activities to identify problems and examine various alternative solutions to problems. However, the ability to choose the best alternative and implement and monitor the actions taken has not been optimal. There is a significant positive relationship between agribusiness competence and the managerial decision-making process of millennial farmers, which has a muscular relationship strength. Agribusiness competencies affect agribusiness actors' ability to make more informed decisions based on relevant information, data, and trends.

Agribusiness policies can be implemented through training and education programs that address the current needs of millennial farmers, such as digital marketing training, business financial management, and increased innovation in product processing. Millennial farmer empowerment is carried out by supporting farmer groups or cooperatives to increase farmer competitiveness

and provide millennial farmers with access to agribusiness technologies to improve efficiency and product quality.

Suggestion

Increasing competence in agribusiness for millennial farmers is crucial in increasing business success rates. This step is realized through the government's active involvement in providing agricultural production facilities, such as agricultural inputs and infrastructure, in the form of processing machinery to increase the additional value of products. In addition, the government also provides digital platforms and organizes extension activities, education programs, and training for millennial farmers. Mentoring and coaching actions organized for farmers in collaboration with academics aim to improve farmers' agribusiness competencies by developing science, technology, and innovation. Connecting farmers and cooperatives will expand their opportunities, granting access to markets and the latest technologies.

Further research can be developed to compare the agribusiness skills of millennial farmers in areas bordering large cities and rural areas. Developmental research can also examine aspects of digital technology adoption in farmers' decision-making.

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