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Entrepreneurial Behavioral of Garlic Farmers in the Garlic Production Center Area, Sembalun District, East Lombok Regency

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Abstract: This study aims to identify and analysis of the entrepreneurial behaviour of garlic farmers as entrepreneurial farmers in the garlic production center area in Sembalun District, East Lombok Regency. This research was conducted in March–May 2023. The data used were primary data obtained through interviews with 80 farmers in Sembalun Bumbung and Sembalun Lawang Village; both locations were chosen because they were villages with the highest number of farmers, production, and garlic land area in Sembalun District. The analysis of *the Entrepreneurial Behavioural Index* (EBI) is carried out statistic descriptive using FAO ideas. It is classified into four components: Entrepreneurial Qualities, Entrepreneurial Competencies, Managerial Competencies, and Technical Competencies. The results showed that the entrepreneurial activities of garlic farmers in the national garlic production center area of Sembalun District, East Lombok Regency, were still dominated by low levels of entrepreneurial activity in the criteria of *entrepreneurial qualities* (63.75%) and *entrepreneurial competencies* (51.25%). While the Managerial Competencies criteria are at a high level (51.25%), and *the Technical Competencies* criteria are at a moderate level (51.25%). As consequences, training, farmers' field schools, and extension services are still needed to improve the quality and competence of garlic farmers as a whole.

Keywords: Entrepreneurial behavioral index; Garlic farmers; Sembalun

Introduction

Garlic (Allium sativum L.), as one of the horticultural vegetable commodities, plays an essential role in meeting consumer needs, not only as a complementary ingredient to cooking (flavoring) but also as herbal medicine and beauty raw materials (Mardiana et al., 2021; Saptana et al., 2021). According to the Ministry of Agriculture (2017), garlic consumption in Indonesia is divided into two, namely direct consumption (households) and indirect consumption (industrial raw materials, seed needs, and scattered). Direct garlic consumption by the household sector reached 92.63 percent, and indirect consumption reached 7.3 percent (Asogiyan, 2018).

National garlic production in 2019 was known to reach 88,817 tons with a harvest area of 12,280 ha, while the national garlic consumption needs are higher than the national production of 500,000 tons annually. So that to meet these consumption needs, the government imports garlic as much as 466,344 tons (Ministry of Agriculture, 2020). Until 2021, national garlic production decreased 44.88 percent to 45.09 thousand tons (Ministry of Agriculture, 2022). The high demand for domestic garlic is an excellent opportunity for farmers to develop garlic farming in Indonesia.

The lack of domestic garlic availability makes imports as one of the actions the government can take to meet national needs; as a result, the volume of garlic imports in Indonesia has increased by an average of 509,621 tons per year (Ministry of Agriculture, 2022). To

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overcome, the Indonesian government, through the Ministry of Agriculture, attempt to increase domestic garlic production by determining production center areas such as Temanggung Regency, East Lombok Regency, and Malang (Danasari et al., 2022), in addition to the government also issuing regulations regarding mandatory planting policies for garlic importers at 5% of total imports (Kiloes et al., 2021; Sayaka et al., 2021). This attempt is expected to increase garlic farming land in Indonesia, and also to increase garlic national production.

In line with attempts to increase production that launched by the government, efforts to increase production must be followed by efforts to improve quality, considering domestic garlic does not substitute perfectly with imported garlic (Sandra et al., 2022). It must be admitted that so far, the quality of imported garlic is better than that of domestic garlic, which is indicated by the larger size of imported garlic bulbs. The increase in production, followed by improved quality and *food safety* aspects, is expected to increase the interest of Indonesian consumers to consume domestic garlic so that Indonesia's dependence on imported garlic is reduced.

East Lombok Regency has climate potential (15 ^{0}C-25^{0}C), altitude (700-1,100 masl), rainfall (1,200-2,400 mm per year), and planting areas of 2,000-2,400 ha spread across Sembalun District so that it is very supportive in the national garlic production development program (Danasari et al., 2022; Novianty, 2020; Titisari et al., 2019). However, good potential, if not followed by the ability of farmers to apply good agricultural technology and techniques (Good Agricultural Practices) can affect the success in producing quality and sustainable agricultural products.

Farmers as producers in agriculture who determine success in producing agricultural products are expected to be able to allocate production factors appropriately; besides, it also requires supporting factors such as entrepreneurial ability. This ability can create and provide value-added products or innovations, more creative, independent society, and be able to develop agricultural businesses towards business (FAO, 2012). For this reason, it is undeniable that entrepreneurship does have an essential function as a driving force for farmers in developing agricultural businesses, so that farmers' performance is no longer only measured through cultivation techniques (Dumasari, 2014) but also by their entrepreneurial ability (Sandra et al., 2022).

Therefore, it is necessary to conduct research to identify and analyse the level of entrepreneurial activity of garlic farmers to support the development program of national garlic production centres. The more entrepreneurial activities a farmer has, the easier it is for the farmer to carry out large-scale agricultural development and broad agricultural development ("Scientists' Transition to Academic Entrepreneurship: Economic and Psychological Determinants," 2012). Therefore, this study aims to identify and analyse the level of entrepreneurial activity of garlic farmers in the production centre area of Sembalun District, East Lombok Regency.

Method

Research on farmers' entrepreneurial behavioural in garlic production center was conduct by purposively sampled method in March – May 2023 in Sembalun District, East Lombok Regency. Two villages were used as research locations, namely Sembalun Lawang and Sembalun Bumbung Village; these two locations were chosen because these villages are villages that have the highest number of farmers, production, and land area. The data was primary and was obtained through interviews and questionnaires to 80 garlic farmers in Sembalun District.

Entrepreneurial activity is analyzed comprehensively by identifying individual actors, farmers, and other external factors. Descriptive statistical analysis was conducted using *the Entrepreneurial Behavior Index* (EBI) with the following formula 1 (Balasaravanan et al., 2012; Mulyana et al., 2020).

$$EBI = \frac{\sum_{i=1}^{n} SEVi}{\sum_{i=1}^{n} MSEVi} \; x\; 100 \qquad (1)$$

Where SEV = observation score of variables; MSEV = maximum score of variable i; i = i-n number of question items in the variable. Furthermore, to measure level of garlic farmers EBI was used four entrepreneurial indicators proposed by FAO (2012): entrepreneurial qualities, entrepreneurial competencies, managerial competencies, and technical competencies (Figure 1).

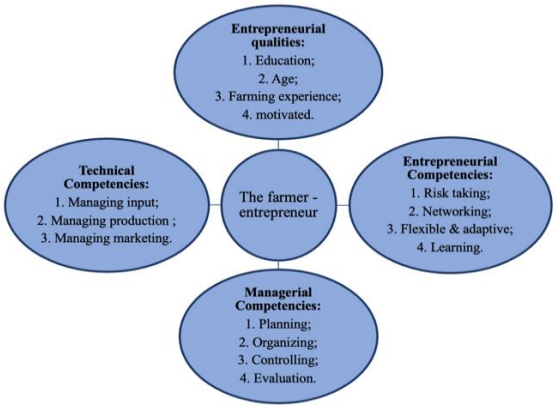

Figure 1. Components of the farmer-entrepreneur

The EBI category is determined based on the score value obtained; it is considered the low category if it is 23.53- 49.02, the medium category 49.03-74.52, and the high category 74.53-100. The class range was obtained using the following formula:

$$Range = \frac{Maximum\ score - Minimum\ score}{3}$$
$$= \frac{100 - 23.53}{3} = 25.49$$

Result and Discussion

Based on the research conducted in the identification and analysis of the level of entrepreneurial behavioural (*Entrepreneurial Behavioural Index*) for 80 garlic farmers in the garlic production center area of Sembalun District (Sembalun Lawang and Sembalun Bumbung Village), East Lombok Regency, the following results and discussions were obtained:

Entrepreneurial Qualities

Farmers who think agriculture is a business opportunity with the potential to develop are entrepreneurial. The quality of entrepreneurship in this study is measured by looking at the characteristics of farmers, such as education level, age, farming experience, and motivation in farming. The entrepreneurial qualities farmers possess are expected to be the ability to look ahead in identifying opportunities, creating a business vision to develop, innovate, develop business scale, and take risks in farming. So that the more indicators a farmer has, the higher the quality of entrepreneurship owned in managing and running his farm.

Based on the identification that has been carried out on the criteria for the quality of entrepreneurship of garlic farmers in Sembalun District (Table 1), it was found that all respondents had formal education, the majority of them with elementary school education, as many as 39 farmers (48.75%), then the rest at the junior high school level 24 farmers (30%), senior high school 14 farmers (17.5%), and undergraduate 3 farmers (3.75%). Gowda et al. (2015) and Mukti et al. (2022), explained that the level of education is an essential factor that can shape farmers as entrepreneurial farmers who can read business opportunities and challenges so that farmers who have an education will be better than farmers who do not have formal education.

The age indicator shows that all garlic farmers are at a productive age of 15-64 years, most of which are dominated by farmers with a mature age (> 40 years). This is evidenced by the farming experience of respondents, which is more than five years, as many as 50 farmers (62.5%) and more than 10 years for as many as 28 farmers (35%). Paudel et al. (2022) also explained that, in general, farmers in developing countries mostly have productive age and sufficient education, can write and read (literate), which is the principal capital in improving the quality of farmers.

Table 1. Entrepreneurial Qualities Indicators of Garlic Farmers in Sembalun District, 2023

No	Indicators	Farmers (person)	Percentage (%)
1	Education		
	Bachelor	3	3.75
	Senior High School	14	17.5
	Junior High School	24	30
	Elementary School	39	48.75
Total		80	100
2	Productive age (15-64 yo)	80	100
Total		80	100
3	Farming experience (years)		
	a. < 5	2	2.5
	b. 5 - 10	50	62.5
	c. > 10	28	35
Total		80	100
4	Motivated		
	a. main job	75	93.75
	b. Side job	5	6.25
Total		80	100

Source: Primary data, 2023.

Furthermore, the motivation of farmers in carrying out farming is measured by the current status of farmers, namely as the main job or side job. There are 75 farmers who make farmer as their main job and the remaining 5 farmers make farmers as a side job; this can explain that the motivation of farmers in carrying out garlic farming in Sembalun District is very high.

Entrepreneurial Competencies

The entrepreneurial competence possessed by farmers will be better able to compete in the new environment and benefit by taking advantage of new market opportunities (FAO, 2012). Several indicators that can shape the entrepreneurial competence of farmers in entrepreneurship can be obtained through training and experience. In this study, entrepreneurial competence will be measured using indicators in taking insurance (risk taking), joining farmer organizations or institutions (networking), being flexible and adaptive, as well as participating in training, extension, and field school activities (learning), the results of the analysis can be seen in Table 2.

Entrepreneur farmers are actively willing to take risks if they are said to understand enough about risks and how to evaluate them. Farmers can consider the potential costs and benefits of risk-taking in business. They are not afraid of failure and consider it part of

learning. To determine the level of *risk-taking* ability of farmers in this study can be seen from the use of agricultural insurance by farmers. After observation, almost all farmers do not use agricultural insurance services on garlic commodities because garlic cultivation is a horticultural crop easily damaged and has one growing season, different from food crops. In fact, until now, no insurance program has been offered by horticultural farmers, such as rice crops, with a government insurance program known as AUTP (Rice Farm Business Insurance). However, among the 80 respondents, 6 farmers expressed interest in using agricultural insurance services on the condition that premiums received subsidies from the government. They are garlic farmers with a cultivated area of more than 0.5 ha.

Table 2. Entrepreneurial Competencies Indicators of Garlic Farmers in Sembalun District, 2023

No	Indicators	Farmers (person)	Percentage (%)
1	Risk-taking – insurance		
	Not interested.	80	100
Total		80	100
2	Networking – organization		
	a. Farmer org.	74	92.50
	b. Middleman org.	5	6.25
	c. Seed Stocker org.	1	1.25
Total		80	100
3	Flexible & adaptive – implementing technology &; innovation		
	a. One Method	1	1.25
	b. more than one method	5	6.25
	d. Not at all	74	92.50
Total		80	100
4	Learning – participating on training/farmers field school/elucidation		
	Yes	34	42.50
	No	46	57.50
Total		80	100

Source: Primary data, 2023.

Furthermore, the ability of farmers to network also determines entrepreneurial ability; this is seen by the participation of farmers in collecting and breeding farmer groups. All farmers are members of village farmer groups; some are also members of other institutions such as village collecting groups, and one group is part of national garlic farming groups. Hart (2019), Jayawardena et al. (2013) explained in their research that organizations formed by farmers can make it easier for them to exchange information related to renewable cultivation-harvest methods, product prices, to marketing activities. Social farmers' networking can also be an opportunity in tourism management activities (Ferrara et al., 2023), this is an opportunity for garlic farmers in Sembalun District, a tourism destination.

The development of technology and information today causes many innovations in the world of agriculture, to find out the level of entrepreneurial ability can be seen from the level of readiness and implementation carried out by farmers. The results showed that garlic farmers in Sembalun District still need to be adaptive in applying innovation and technology. This is explained because farmers still use the cultivation system their parents or ancestors taught. There are only 6 farmers who implement adaptive and innovative agricultural systems, including the use of organic fertilizers and vegetable pesticides. Princess et al. (2023) reinforce that smallholders in rural areas have the ability, but most still use traditionally accepted methods.

The learning aspect shows the participation and activeness of farmers participating in training activities and field schools in increasing information and knowledge about agricultural cultivation. Of all respondents, 34 farmers stated that they were active in training and extension activities, while the rest stated that they had never attended training or counseling. These farmers did not attend training and counseling mainly because of their remote location and the information that needed to be obtained.

Managerial Competencies

Entrepreneurial competence must be complemented by managerial competence in diagnosis, planning, organizing, leading, and controlling. Farmer-entrepreneurs perform these functions in each significant area of agricultural business, such as managing inputs, production, and marketing. The managerial function in a business is to plan, organize, control, and evaluate the business being run.

Four indicators are used to measure garlic farmers' managerial ability in Sembalun District: *Planning, Organizing, Controlling,* and *Evaluating*. The better the farmer's ability to do managerial, the more feasible the farmer is to be called an entrepreneur in carrying out his agricultural business.

The planning ability possessed by garlic farmers in running an agricultural business here is seen from the planning of the use of agricultural land. Most 77 farmers (96.25%) chose to use their land for monoculture garlic cultivation, while the remaining 3 people (3.75%) chose intercropping with other crops such as chili and vegetables. Research conducted by Kiloes et al. (2021), most farmers combine cultivation in the dry season with planting rice. Farmers mainly use monoculture planting patterns to get optimal garlic production results and make it easier to control pests.

Table 3. Managerial Competencies Indicator of Garlic Farmers in Sembalun District, 2023

No	Indicators	Farmers (person)	Percentage (%)
1	Planning (Planting Pattern)		
	a. Monoculture	77	96.25
	b. Intercropping	3	3.75
Total		80	100
2	Organizing – Production inputs (seeds)		
	a. Alone	30	3.50
	b. Buy	50	62.50
Total		80	100
3	Controlling – Pest Control using Pesticides		
	a. Vegetable (natural)	6	7.50
	b. Chemistry	74	92.50
Total		80	100
4	Evaluating – recording the costs and profits of farming		
	a. Yes	15	18.75
	b. No	65	81.25
Total		80	100

Source: Primary data, 2023.

The managerial ability of farmers in the *organizing* aspect is seen through the source of input (seeds) obtained. The results showed that 50 farmers bought garlic seeds for their farming activities, and 30 produced their own. Based on the results of this study, it can be said that most of the research respondents are still unable to produce garlic seeds independently. They buy garlic seeds from local garlic seed collectors and breeders Kiloes et al. (2021). The price of garlic seeds purchased ranges from Rp. 35,000-Rp. 45,000.

In the aspect of controlling, they have seen the actions taken by farmers to control pests and diseases in garlic plants with pesticides. The results showed that there were only 6 farmers who used vegetable pesticides, while the remaining 74 famrers which chose to use chemical pesticides. The selection of vegetable pesticides is the same as the decision of farmers to use chemical fertilizers to meet nutrients, which is more precise and efficient in terms of time. Kahsay (2019) mentioned that some of the reasons farmers are less interested in using organic fertilizers and vegetable pesticides are due to lack of credit availability, high cost of fertilizer and lack of awareness on the use of organic fertilizer.

The last aspect that is assessed of managerial ability is *evaluating* by looking at the presence or absence of cost and financial disability activities carried out by farmers. The results showed that 15 farmers performed financial mutilation or bookkeeping of costs and profits obtained during garlic farming activities. This aims to determine the average cost needed for production in the upcoming planting season and, at the same time, as an evaluation material for agricultural business actors.

Technical Competencies

In addition to being entrepreneurs, entrepreneurial farmers must also be excellent farmers. This requires technical competence, especially in three areas: the ability to manage inputs, production and marketing. The difference between entrepreneurial farmers and other farmers in this aspect of agriculture is their behavior; where ordinary farmers ignore technicalities in their farming activities and tend to be monotonous, while farmers-entrepreneurs are always looking for better ways to do things and are willing to experiment.

The technical ability in this study was assessed by looking at farmers' application level to technology and innovation used in garlic cultivation activities in Sembalun District, East Lombok Regency. Based on the research that has been conducted, presented in Table 4, farmer competence is explained based on three indicators, namely *managing input*, *production*, and *marketing*.

At Indicators *Managing Input*, a vital production factor in producing garlic is a crucial element to producing a quality product. *Managing input* In this study is the farmers' decision to use the type of seed as there are two types of varieties that garlic farmers generally use in Sembalun District, namely Sangga Sembalun and Lumbu Hijau. Sangga sembalun is a native garlic seed variety from Sembalun District (Mardiana et al., 2021) so this type dominates the use of seed types in Sembalun District, as many as 52 farmers or 65%, while the Green Lumbu type is 28 farmers or 35%. The selection of this type of seed is one of the farmers' abilities in organizing and choosing the production inputs used.

Managing production in this study is seen from the ability of farmers to manage the production process by looking at the use of organic fertilizers, pest control, and irrigation techniques. The results showed that 6 farmers (7.50%) used organic fertilizer. Farmers stated that using organic fertilizers requires a longer time in the production process, making it less efficient in terms of time, causing most farmers to prefer to use chemical fertilizers as many as 74 farmers (92.50%). In pest control activities, it is known that most farmers (93.75%) carry out pest control during the cultivation process. One of the factors that cause farmers' lack of use in organic fertilizers and pesticides is due to the lack of promotion carried out by sellers of organic fertilizers and pesticides (Fang et al., 2021). Furthermore, most farmers use a reservoir of 93.75% in irrigation techniques.

Table 4. Technical competencies indicators of garlic farmers in Sembalun District, 2023

No	Indicators	Farmers (person)	Percentage (%)
1	Managing input – selection of seed varieties		
	a. Sangga Sembalun	52	65
	b. Green Lumbu	28	35
Total		80	100
2	Managing Production – Use of Organic Fertilizers		
	a. Yes	6	7.50
	b. Not	74	92.50
	Total	80	100
	Managing Production – Pest Control		
	a. Yes	75	93.75
	b. Not	5	6.25
Total		80	100
	Managing Production – Irrigation		
	a. Shallow Water Wells	5	6.25
	b. Embung (retention basin)	75	93.75
Total		80	100
3	Managing Marketing – marketing and post-harvest		
	a. Sell right away	14	17.5
	b. Processed	66	82.5
Total		80	100

Source: Primary data, 2023.

Farmers as entrepreneurs in running their farms will know which products will be sold and get more profits; in this competence, garlic farmers will be assessed based on their ability to carry out after-harvest activities such as carrying out advanced processes in the form of sorting seeds, processed products, and others. After research, 66 farmers were found to carry out further processes after harvest. Most of these farmers sort the harvest, which will be used as seeds, dried, and then sold in the market as dried garlic; as is known that garlic seeds have a higher selling value than the price of fresh garlic sold directly. However, the garlic seeding process requires a longer process or time (Mardiana et al., 2021).

Entrepreneurial Activities of Garlic Farmers in the National Production Center Area of Sembalun District

Based on analysis using the Entrepreneurial Behavioural Index, it was found that garlic entrepreneur farmers with low categories were on indicators of entrepreneurial quality and entrepreneurial competence, entrepreneurial activities with medium categories were on technical competence indicators, and those with high categories were on managerial competence indicators. Waqingah et al. (2022) stated that the higher the level of entrepreneurial ability owned by farmers, the higher their entrepreneurial performance (Mulyana et al., 2020; Waqingah et al., 2022). More details can be seen in Table 5.

Table 5. Entrepreneurial Behavioral Index of Garlic Farmers in Sembalun District, 2023

Criteria	Entrepreneurial Behavioural Index					
	Low		Medium		High	
	Qty	%	Qty	%	Qty	%
Entrepreneurial Qualities	51	63.75	26	32.5	3	3.75
Entrepreneurial Competencies	41	51.25	35	43.75	4	5
Managerial Competencies	0	0	39	48.75	41	51.25
Technical Competencies	0	0	41	51.25	39	48.75

Source: Primary Data, 2023.

The quality of entrepreneurship possessed by garlic entrepreneur farmers in this study was dominated by low abilities of as many as 51 farmers, medium as many as 26 farmers, and high as many as 3 people. The low quality of entrepreneurship owned by farmers in Sembalun District is due to the level of farmer education dominated only at the elementary level (SD). In addition, although garlic farmers are at a productive age, most of them have a relatively old age, which also affects the ability of farmers to absorb and receive information about innovations and renewable technology (Mukti et al., 2022).

Entrepreneurship Competence shows that entrepreneurship still needs to be higher as many as 41 farmers; medium as many as 35 farmers; and high as many as 3 farmers. On this indicator, garlic farmers demonstrate competence networking who were good through entrepreneurial activities but not in the ability to take risks, were not flexible and adaptive, and were not active in attending training and counseling. The weak activity of farmers on the criteria of competency ability affects the weak competence of entrepreneurial farmers in entrepreneurial activities. The further the farmer's activities in competency improvement activities, the lower the competence they have. Yaseen et al. (2018), said farmers participation in pprenticeship and training programme could be the main direct source of exploiting farming business opportunities.

The managerial competence of garlic entrepreneurs in Sembalun District is seen from planning to evaluation. The results of the analysis show that garlic farmers are at a high index of 41 farmers and medium as many as 39 farmers, meaning that the ability of farmers to manage their business is good, like entrepreneurs. The higher the managerial ability business actors possess, the better their ability to develop their business (Mulyana et al., 2020).

Not only in managerial ability, had garlic farmers in this study also showed a high index value on technical competence indicators, which was 39 people. In contrast, farmers who were on the medium index were 41 farmers. The high ability of farmers' technical ability is

supported by the experience and knowledge of farmers in cultivating garlic; this is evidenced by the experience of farming garlic farmers in Sembalun District for more than 15 years. Therefore, farmers' entrepreneurship ability was good because it has been done for generations. In addition, garlic marketing activities in Sembalun District also involve the government in distributing garlic production and seeds to meet domestic needs (Danasari et al., 2022; Mardiana et al., 2021).

Based on the results of the analysis that has been carried out on the entrepreneurial activities of garlic farmers in Sembalun District, it still shows that efforts are still needed to improve the quality indicators and entrepreneurial competence of farmers, especially in a more flexible and adaptive attitude in accepting and implementing new and better technology and innovation. Further on managerial and technical competence indicators, garlic growers are spread at low and high levels. That is, in technical and managerial abilities, farmers have been able to manage a farm that leads to a business or business like an entrepreneur. However, there is still a need for an approach to culture that is more environmentally friendly (organic and semi-organic) to realize sustainable agriculture.

Conclusion

Based on research that has been conducted on the entrepreneurial behavioural of garlic farmers in the production center area of Sembalun District, East Lombok Regency, showed different levels in each indicator. The indicators of competence and quality of entrepreneurship are dominated by low entrepreneurial activity, namely 51.25% and 63.75%, respectively. Meanwhile, the Managerial Competencies indicator was at a high level (51.25%), and *the Technical Competencies* criteria are at a medium level (51.25%). Some efforts is needed to improve the entrepreneurial ability of farmers through training and empowerment that refers to sustainable agriculture.

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All writers declare no conflict of interest.

References

Asogiyan, P. K. (2018). *Analisis Produksi dan Konsumsi Bawang Putih Nasional dalam Mencapai Swasembada Bawang Putih*. Retrieved from http://repository.ipb.ac.id/handle/123456789/96339

Balasaravanan, K., & Vijayadurai. (2012). Entrepreneurial Behavior among Farmers – An Empirical Study. *International Journal of Engineering and Management*, *2*(1). Retrieved from https://ijemr.in/wp-content/uploads/2018/01/Entrepreneurial-Behavior-among-Farmers-An-empirical-Study.pdf

Danasari, I. F., Sari, N. M. W., & Setiawan, R. N. S. (2022). Farmers Respons to Garlic Development On Upland Program in East Lombok Regency. *Jurnal Biologi Tropis*, *22*(4), 1318–1327. https://doi.org/10.29303/jbt.v22i4.4420

Dumasari, D. (2014). Kewirausahaan Petani dalam Pengelolaan Bisnis Mikro di Pedesaan. *AJIE*, *3*(3), 196–202. https://doi.org/10.20885/ajie.vol3.iss3.art4

Fang, P., Abler, D., Lin, G., Sher, A., & Quan, Q. (2021). Substituting Organic Fertilizer for Chemical Fertilizer: Evidence from Apple Growers in China. *Land*, *10*(8), 858. https://doi.org/10.3390/land10080858

FAO. (2012). *Entrepreneurship in Farming*.

Ferrara, A., Ferrara, C., Tomasi, S., Paviotti, G., Bertella, G., & Cavicchi, A. (2023). Exploring the Potential of Social Farmers' Networking as a Leverage for Inclusive Tourism. *Sustainability*, *15*(7), 5856. https://doi.org/10.3390/su15075856

Gowda, M. J. C., & Dixit, S. (2015). Influence of farmers educational level on comprehending, acting upon and sharing of agro advisories. *Journal of Agriculture and Rural Development in the Tropics and Subtropics (JARTS)*, *116*(2), 167–172. Retrieved from https://www.jarts.info/index.php/jarts/article/view/1892

Hart, J. (2019). Farmer creates networking platform for farmers to connect. *Corn and Soybean Digest*. Retrieved from https://www.proquest.com/trade-journals/farmer-creates-networking-platform-farmers/docview/2187975428/se-2

Jayawardena, C., & Abeyrathne, M. (2013). Entrepreneurial behavior and interactivity of sri lankan farmer groups. *Proceedings for the 8th Europen Conference on Innovation and Entrepreneurship: ECIE 2013*, 333–339. Retrieved from https://www.proquest.com/conference-papers-proceedings/entrepreneurial-behavior-

interactivity-sri-lankan/docview/1508791936/se-2

Kahsay, W. S. (2019). Effects of nitrogen and phosphorus on potatoes production in Ethiopia: A review. *Cogent Food & Agriculture*, *5*(1), 1572985. https://doi.org/10.1080/23311932.2019.1572985

Kiloes, A. M., Puspitasari, Mulyono, D., Prabawati, S., Devy, N. F., & Hardiyanto. (2021). Partnership schemes in implementing mandatory garlic planting rules for importers: the case in East Lombok, Magelang, and Temanggung. *E3S Web of Conferences*, *306*, 02054. https://doi.org/10.1051/e3sconf/202130602054

Mardiana, Utami, S. K., & Hidayah, B. N. (2021). Empowering certified garlic seed producers to increase local production in Sembalun highlands of Eastern Lombok, Indonesia. *E3S Web of Conferences*, *306*, 02056. https://doi.org/10.1051/e3sconf/202130602056

Ministry of Agriculture. (2020). *Garlic Outlook*. Agricultural Data Center and Information System.

Mukti, G. W., Kusumo, R. A. B., & Rochdiani, D. (2022). The influence of self-efficacy on entrepreneurial behavior of horticultural young farmers in agribusiness Center Of West Java Province. *Journal of Extension*, *18*(01), 134–143. https://doi.org/10.25015/18202234794

Mulyana, M., Harianto, Hakim, Budiman, D., & Hartoyo, S. (2020). Entrepreneurial Activities And Performance Of Rice Farming In Bojongpicung Sub-District, Cianjur Regency. *European Journal of Molecular &; Clinical Medicine*, *7*(3), 4535. Retrieved from https://rb.gy/6axdik

Novianty, E. (2020). *Garlic Cultivation*.

Paudel, S., Regmi, R., Subedi, M., & Karki, T. (2022). Entrepreneurship Behavior of Indigenous Fish Farmers in Eastern Chitwan, Nepal. *Discrete Dynamics in Nature and Society*, *2022*, 1–7. https://doi.org/10.1155/2022/3154821

Sandra, I. K., Sahara., K., B., N., & T. (2022). Dynamics of Garlic Prices Before and During the Covid-19 Pandemic in Indonesia. *Policy Brief: Agriculture, Marine, and Tropical Biosciences*, *4*(1).

Saptana, Dyah Perwita, A., & Ganda Sukmaya, S. (2021). Analysis of Garlic Commodity Competitiveness and Impact of Government Policy in Indonesia. *E3S Web of Conferences*, *316*, 02016. https://doi.org/10.1051/e3sconf/202131602016

Sayaka, B., Saputra, Y. H., & Swastika, D. K. S. (2021). Realisasi Kebijakan Wajib Tanam Bagi Importir dan Dampaknya Terhadap Peningkatan Produksi Bawang Putih Nasional. *Analisis Kebijakan Pertanian*, *19*(1), 45. https://doi.org/10.21082/akp.v19n1.2021.45-67

Scientists' transition to academic entrepreneurship: Economic and psychological determinants. (2012). *Journal of Economic Psychology*, *33*(3), 628–641. Retrieved from https://www.proquest.com/scholarly-journals/scientists-transition-academic-entrepreneurship/docview/926942269/se-2

Titisari, A., Setyorini, E., Sutriswanto, S., & Suryatini, H. (2019). Kiat Sukses Budi Daya Bawang Putih. *Pusat Perpustakaan Dan Penyebaran Teknologi Pertanian*, *1*(193), 26–45. Retrieved from http://repository.pertanian.go.id/handle/123456789/9503

Waqingah, S., Irham, & Mulyo, J. H. (2022). The effect of competency and orientation toward agripreneurship performance on semi-organic shallot farmers: A case study of Selopamioro Village, Imogiri, Bantul District, Indonesia. *IOP Conference Series: Earth and Environmental Science*, *1005*(1), 012018. https://doi.org/10.1088/1755-1315/1005/1/012018

Yaseen, A., Somogyi, S., & Bryceson, K. (2018). Entrepreneurial behaviour formation among Farmers. *Journal of Agribusiness in Developing and Emerging Economies*, *8*(1), 124–143. https://doi.org/10.1108/JADEE-01-2017-0002