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RESEARCH ARTICLE

Adoption of Certified Seeds by Farmers: A Perspective from the Theory of Trying

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Abstract
This study aims to analyze the adoption of certified seeds by farmers using the perspective of the Theory of Trying. The study is motivated by the importance of using certified seeds to improve productivity and sustainability in the agricultural sector; however, adoption rates vary among farmers. The research involves 473 farmers who are members of farmer groups and are located in the provinces of Banten, West Java, Central Java, and East Java. A purposive sampling technique was used to select participants. Data were collected through structured questionnaires and analyzed using Structural Equation Modeling (SEM) to test the relationships between variables in the research model. The results show that all hypotheses were significantly supported, indicating that constructs in the Theory of Trying, such as attitude toward the process of trying, subjective norms, attitude toward the success of trying, attitude toward the failure of trying, and attitude toward trying behavior, play an important role in encouraging the intention and behavior of farmers to adopt certified seeds. These findings provide theoretical implications for the development of adoption behavior models for agricultural technology and practical implications for governments and stakeholders in designing more effective policies and programs to increase the use of certified seeds among farmers.

Keywords
Adoption of Certified Seeds; Theory of Trying; Farmers, SEM, Technology Adoption Behavior.

1 | INTRODUCTION

The agricultural sector remains one of the key pillars in national economic development, particularly in ensuring food security, improving farmers' welfare, and maintaining the sustainability of food production systems. One of the key factors determining the success of agricultural production is the use of high-quality superior seeds or seedlings. Certified seeds have advantages in terms of genetic purity, germination rate, resistance to pests and diseases, and higher yield potential compared to non-certified seeds. Therefore, the government consistently promotes the use of certified seeds through various policy programs, extension services, and strengthening the seed certification system.

However, in practice, the adoption rate of certified seeds by consumers, particularly farmers as the primary users, still varies significantly (Isma, 2025). Various studies indicate that some farmers still use seeds from previous harvests or seeds obtained from unofficial sources due to reasons such as price, habit, limited access, or a lack of understanding of the benefits of certified seeds (Kurniawati *et al.*, 2025). This situation indicates that the adoption decision of innovations in the agricultural sector is not solely determined by rational aspects related to economic gains but is also influenced by psychological, social, and individual behavioral factors (Isma, 2025; Kurniawati *et al.*, 2025).

In the context of consumer behavior, the adoption of an innovation can be understood as a process that involves effort, consideration, and trial before a final decision is made. This perspective aligns with the Theory of Trying proposed by Richard P. Bagozzi and Paul R. Warshaw (Patiro *et al.*, 2016; Patiro *et al.*, 2022). This theory emphasizes that in situations involving uncertainty, barriers, or risks, individuals do not only show an intention to perform a behavior (intention to perform) but also an intention to try (intention to try), which is influenced by expectations of success, fear of failure, and evaluation of the trying process itself (Patiro *et al.*, 2016; Patiro *et al.*, 2022). Thus, adoption behavior is often the result of a repeated trial process before individuals ultimately decide to adopt or reject the innovation.

The Theory of Trying approach is relevant in explaining the adoption of certified seeds because farmers' or agricultural consumers' decisions often involve various constraints, such as limited information, the risk of crop failure, capital limitations, and previous experiences with agricultural technologies. In such conditions, farmers do not always adopt innovations fully but first conduct small-scale trials to assess the potential benefits and risks. This trial process becomes an important stage that influences adoption decisions in the following stages.

Although numerous studies on agricultural innovation adoption have been conducted, most of these studies still use classical approaches, such as innovation diffusion or the Theory of Planned Behavior models, which focus on the direct intention to use a technology (Bay & Daniel, 2003). These approaches do not fully capture the psychological dynamics that occur when individuals face uncertainty in trying new innovations (Bay & Daniel, 2003). Furthermore, while these studies provide valuable insights into the factors driving the adoption of agricultural innovations, there is a limited body of research that specifically examines the socio-psychological factors that may influence farmers' decisions to adopt certified seeds (Lalani *et al.*, 2016; Omulo *et al.*, 2024). Meanwhile, recent studies are increasingly focusing on attitudes, norms, and perceptions, which are integral parts of the decision-making process for farmers when it comes to using certain agricultural technologies (Lalani *et al.*, 2016; Omulo *et al.*, 2024). Therefore, the use of the Theory of Trying perspective offers a more comprehensive analytical framework to understand how consumers or farmers form intentions to try, evaluate the trial experience, and ultimately decide to adopt certified seeds.

Based on the above explanation, this study is important to further examine how the Theory of Trying perspective can explain the adoption behavior of certified seeds by consumers. By understanding the factors influencing the intention to try and the dynamics of the trial process in the use of certified seeds, this research is expected to contribute theoretically to the development of consumer behavior studies in the agricultural sector and provide practical implications for formulating policies and strategies for more effective dissemination of agricultural innovations.

2 | BACKGROUND THEORY

The use of certified seeds is an important strategy in improving the productivity and quality of agricultural output. Various government policies have encouraged the use of certified superior seeds through seed provision programs, agricultural extension services, and strengthening the seed certification system. However, the adoption rate of certified seeds among consumers, especially farmers, still shows significant variation. In many cases, farmers continue to use seeds from previous harvests or seeds obtained from informal sources because they are considered more accessible, cheaper, or simply a customary practice in cultivation. A similar phenomenon also occurs in several regions with large farming populations, such as Banten, Central Java, East Java, and West Java. The available agricultural land area is no longer sufficient to support rice production. This is due to the conversion of rice fields into residential areas and various infrastructure developments. Additionally, some rice fields have also been converted into plantation land, either for vegetables or perennial crops.

These changes have led to a decline in rice production capacity, resulting in insufficient availability of rice from local

production. This situation arises from the reduction in the area of rice fields, which previously served as the main source of rice production. Therefore, to increase production efficiency while maintaining the quality of agricultural products, the implementation of various technological innovations is required. These technologies include cultivation or production technologies, post-harvest technologies, and strengthening farmers' institutions through farmer groups, economic farmer groups, and cooperatives.

The use of non-certified seeds is still high in Indonesia, especially among smallholder farmers, due to lower costs and limited access. Studies show that non-certified seeds are often chosen, even though certified seeds yield up to 66.34% higher production. This remains a major challenge in efforts to increase national agricultural productivity (Wulandari *et al.*, 2024). Previous studies have attempted to explain the phenomenon of agricultural innovation adoption using the innovation diffusion approach developed by Everett M. Rogers in 1983 (Omulo *et al.*, 2024). This approach emphasizes that the adoption decision of an innovation is influenced by the characteristics of the innovation, communication channels, social systems, and adoption time (Ataei *et al.*, 2021). In addition, several studies have also used consumer behavior approaches based on behavioral intentions to explain individual decisions in adopting a technology or innovation (Hyland *et al.*, 2018).

However, most of these studies still consider adoption decisions as the result of a direct intention to perform a behavior (Omulo *et al.*, 2024; Waiswa *et al.*, 2025). This approach tends to assume that individuals with a positive intention toward an innovation will directly adopt it (Omulo *et al.*, 2024; Waiswa *et al.*, 2025). In practice, the decision to adopt an innovation in the agricultural sector is often not a simple process. Farmers or consumers frequently face various obstacles such as uncertainty about outcomes, limited capital, production failure risks, and a lack of information regarding the performance of new technologies (Hyland *et al.*, 2018). These conditions result in the adoption process not always beginning with an intention to immediately use the innovation but rather with a phase of trial on a limited scale (Ataei *et al.*, 2021).

This phenomenon highlights the limitations of the approach that focuses solely on direct behavioral intention, as it does not fully capture the psychological dynamics that individuals face when dealing with uncertainty in trying new innovations. In such situations, an individual's behavior is better understood as an intention to try (intention to try) rather than just an intention to perform the behavior directly. This perspective is explained in the Theory of Trying developed by Richard P. Bagozzi and Paul R. Warshaw in 1990, which emphasizes that individuals will evaluate the likelihood of success, the possibility of failure, and their experience in the process of trying before finally deciding to engage in a behavior. Although the Theory of Trying has been widely used in consumer behavior studies, its application in the context of innovation adoption in the agricultural sector, particularly regarding the use of certified seeds, remains relatively limited (Waiswa *et al.*, 2025). Most studies on agricultural technology adoption still focus on socio-economic factors, technological characteristics, or perceptions of innovation benefits, while the psychological processes of individuals during the trial phase of innovation adoption have not been deeply explored (Waiswa *et al.*, 2025).

This study aims to bridge this gap. First, the research is conducted on the consumer group (farmers in Wanasaba Kidul Village, Cirebon Regency, West Java) to understand their reasons for using certified seeds, to explore their attitudes and intentions, and to identify the mechanisms underlying these attitudes and intentions. Second, the focus of this study is on the adoption of certified seeds. Certified seeds refer to seeds specifically produced for the purpose of seed production and are associated with quality standards such as physical purity, germination percentage, and seed health (Mastenbroek *et al.*, 2021). Third, this research employs the Theory of Trying (TT) framework.

Several theories have been developed to understand and explain the adoption of products and services by consumers. These theories build upon each other. Among these theories are the Theory of Reasoned Action (Ajzen & Fishbein, 1980), the Theory of Planned Behavior (Ajzen, 1985), the Technology Acceptance Model (Davis, 1986), and the Technology Acceptance Model 2 (Venkatesh & Davis, 2000). Among these theories, attitude is considered the primary antecedent of behavioral intention. However, the weaknesses of these theories are: (1) attitude is viewed as a unidimensional concept in achieving a goal, and (2) these theories do not consider attitudes toward the process.

In contrast, in the Theory of Trying (TT), attitude is viewed as a multidimensional concept, and attitudes toward the process also influence an individual's behavioral intention. This multidimensional conceptualization can better explain the adoption of new technologies by consumers in developing countries (Chaouali *et al.*, 2017). Several scholars have also documented similar results in the context of online banking and mobile banking (Akhlaq & Ahmed, 2013; Alalwan *et al.*, 2016). Adoption in these contexts is related to internal factors (deep-rooted habits of using offline banking services) as well as external factors (limited internet infrastructure).

The Theory of Trying (TT) was introduced by Bagozzi and Warshaw as an extension of several previous theories, such as goal pursuit theory and the Theory of Planned Behavior (TPB) (Bagozzi & Warshaw, 1990). The earlier theories assumed that rational thinking always precedes an individual's behavior in processing and using the information received. Additionally, individuals would always consider the consequences of the behavior they are about to engage in (Pinder, 2015). As an extension of these theories, the Theory of Trying also shares similar foundational assumptions.

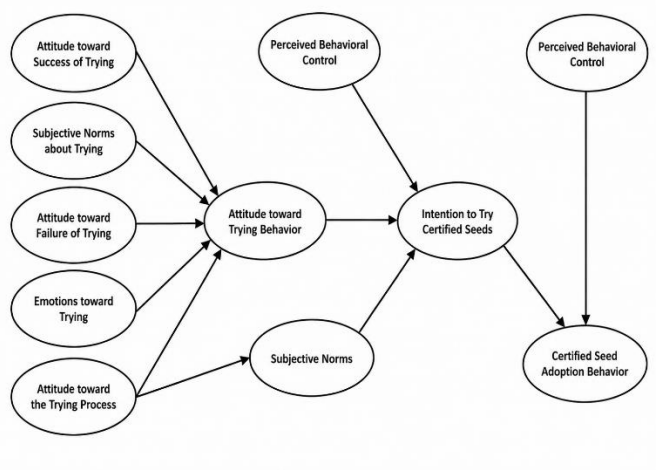

Figure 1. Theory of Trying

Figure 1 shows that an individual's intention to try (perform a behavior) is influenced by several factors. These factors include: (1) personal factors, in this case, attitude, which refers to the evaluation of the outcomes of the behavior and the likelihood of those outcomes occurring; (2) social factors, which involve approval of the behavior from significant others and the motivation to fulfill the desires of others; and (3) the frequency with which an individual has tried something in the past.

The attitude toward trying is influenced by attitudes toward success, attitudes toward failure, and attitudes toward the process, which reflect an individual's willingness to try a (new) product that holds significant importance for them, based on an evaluation of the thoughts they have considered. Ultimately, an individual is expected to exhibit certain behaviors when the opportunity to do so arises. This study argues that individuals engage in a rational process when deciding whether to adopt certified seeds. A rational individual will always weigh the possibilities of success or failure, as well as the processes they have previously experienced before making a decision to adopt. From this perspective, the Theory of Trying (TT) provides an appropriate framework to explain and understand this process. Therefore, the proposed model is shown in Figure 2.

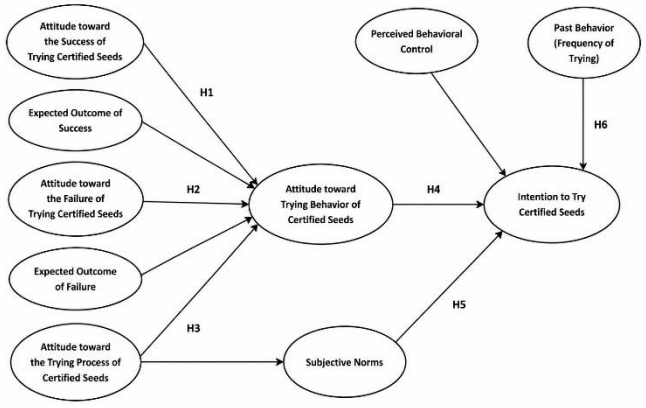

Figure 2. Research Model

Figure 2 shows that the model (from right to left) works as follows. First, the intention to adopt certified seeds stems from the individual's attitude toward adopting certified seeds. The attitude toward adopting certified seeds is a function of attitudes and expectations regarding the success and failure of using certified seeds, as well as attitudes toward the process of using certified seeds. Second, the intention to adopt certified seeds is also influenced by subjective norms and the frequency of past experiences in trying certified seeds. Based on this explanation, the hypotheses proposed in this study are as follows.

H1. The attitude toward the success of certified seeds has an influence on the attitude toward adopting certified seeds.
H2. The attitude toward the failure of certified seeds has an influence on the attitude toward adopting certified seeds.
H3. The attitude toward the process of using certified seeds has an influence on the attitude toward adopting certified seeds.
H4. The attitude toward adopting certified seeds has an influence on the intention to adopt certified seeds.

H5. Subjective norms have an influence on the intention to adopt certified seeds.
H6. The frequency of past experiences in trying certified seeds has an influence on the intention to adopt certified seeds.

3 | METHOD

A survey method was used for data collection. Since no specific survey method is consistently superior to others, this study employed an online survey (via mobile phones), considering the advantages and disadvantages of different methods. One reason for using an online survey for data collection is the rapid growth in mobile phone usage, as evidenced by the increasing number of mobile phone owners in society. In 2011, only about 39.11% of Indonesia's population owned a mobile phone. In contrast, by 2022, this number increased to 67.88% of the population using mobile phones (BPS, 2023). The population in this study consists of farmers spread across Banten, West Java, Central Java, and East Java, who are members of farmer groups in their respective areas. Respondent selection was carried out using a non-probability sampling method, specifically purposive sampling, where sample selection is based on the assessment of certain characteristics deemed relevant and necessary (Zikmund & Babin, 2016). Through this method, the selected respondents are those most likely to provide relevant and useful information (Kelly, 2010) to address the research objectives. The respondents in this study must meet the following characteristics or criteria: (1) have a good level of literacy; (2) be members of farmer groups in their respective areas; and (3) be willing to voluntarily participate in the study. The sample size required for this study is 500 farmers spread across Banten, West Java, Central Java, and East Java, who are members of farmer groups in their respective areas. The main reason for setting a sample size of 500 is related to the analysis technique used in this study, which is Structural Equation Modeling (SEM). According to Hair *et al.* (2018), a good sample size for a research model using SEM is at least 5 to 10 times the number of indicators. The total number of indicators used in this study is 20, so the minimum sample size is 10 X 20 = 200. This is also in line with Aaker *et al.* (2013), who suggest that a larger sample size is preferable as it helps avoid non-response bias. Therefore, the sample size set in this study is 500 respondents.

This study uses a structured questionnaire that consists of two main sections: (1) the section that asks about the research variables, including attitudes toward the success of certified seeds, expectations regarding the success of certified seeds, attitudes toward the failure of certified seeds, expectations regarding the failure of certified seeds, attitudes toward the process, attitudes toward the adoption of certified seeds, subjective norms, the frequency of past experiences trying certified seeds, and the intention to adopt certified seeds; and (2) the section that asks about the respondent's profile. The items in the questionnaire were modified based on previous studies by (Bagozzi & Warshaw, 1990), (Patiro *et al.*, 2016), (Manggarani, 2017), and (Patiro *et al.*, 2022). Respondents' answers were measured using a seven-point Likert scale, where 1 indicates strongly disagree and 7 indicates strongly agree. To ensure the accuracy of the translation of the questionnaire items, the translation process was verified in English (Jogiyanto, 2013). In this process, the researcher sought the assistance of a language expert from Yogyakarta State University to translate the questionnaire items from English to Indonesian. Then, the Indonesian translation was retranslated into English by a member of the research team who is a graduate from abroad. Afterward, a verification process was carried out to ensure the accuracy of the translation.

After the questionnaire was developed, the first step taken was to conduct a pilot test with the following objectives: (1) to identify any ambiguities in the wording of the questions; (2) to ensure that the instructions in the questionnaire were easily understood; (3) to identify any difficulties respondents encountered when answering the questions; and (4) to assess the time required to complete the questionnaire. This pilot test was conducted with 7 respondents. Before performing the Structural Equation Modeling (SEM) analysis, construct validity (both convergent and discriminant validity) and reliability tests were carried out, as recommended by Anderson & Gerbing (1988). The criteria for convergent validity are as follows (Fornell & Larcker, 1981): (1) factor loadings should be significant and greater than 0.7; and (2) the Average Variance Extracted (AVE) value should be greater than or equal to 0.5. For discriminant validity, the square root of the AVE should be greater than the correlation values between pairs of constructs. Reliability testing was conducted through the calculation of composite reliability. According to Abdillah & Jogiyanto (2015) and Nunnally in Ghozali (2013), the minimum cut-off point for composite reliability is 0.7. The collected data were then analyzed using SEM. When determining which SEM approach to use—variance-based (PLS-SEM) or covariance-based (CB-SEM) it is important to understand the differences between them. CB-SEM is used to confirm established theories (e.g., for explanatory purposes), while PLS-SEM is used to explore theories oriented toward prediction (Hair Jr. *et al.*, 2017). Based on these considerations, this study used the CB-SEM approach.

4 | RESULTS AND DISCUSSION

4.1 Results

The results of the study indicate that attitudes toward the success and failure of certified seeds, along with attitudes toward the process of using them, significantly influence farmers' intentions to adopt certified seeds. Subjective norms and past experience also play a crucial role in shaping adoption intentions. The analysis using CB-SEM confirmed that these factors are interrelated and contribute to the overall behavior of adopting certified seeds. The findings highlight the importance of addressing both personal and social factors in promoting the adoption of agricultural innovations, offering valuable insights for policy development and agricultural extension programs.

Table 1. Results of Construct Validity Test

Constructs	Indicators	Factor Loading	Average Variance Extracted (AVE)	Cronbach Alpha	Composite Reliability
Attitude toward the Success of Trying Certified Seeds	AS1	0.710	0.60	0.925	0.952
	AS2	0.790			
	AS3	0.820			
Attitude toward the Failure of Trying Certified Seeds	AF1	0.850	0.649	0.916	0.933
	AF2	0.880			
	AF3	0.770			
Attitude toward the Process of Trying Certified Seeds	AP1	0.910	0.656	0.917	0.948
	AP2	0.750			
	AP3	0.760			
Attitude toward Trying Behavior of Certified Seeds	AT1	0.870	0.618	0.933	0.958
	AT2	0.830			
	AT3	0.740			
Frequency of Past Behavior	FR1	0.813	0.586	0.927	0.965
	FR2	0.715			
Subjective Norms	NS1	0.913	0.721	0.937	0.959
	NS2	0.852			
	NS3	0.777			
Intention to Try Certified Seeds	IT1	0.759	0.700	0.872	0.921
	IT2	0.826			
	IT3	0.919			

Table 1 shows the results of the validity test for the constructs and the indicators used in this study. As stated by Hair *et al.* (2018), the factor loading value of an indicator within a construct should be at least 0.7 for confirmatory research purposes. Out of the 500 questionnaires distributed, 473 were returned. This indicates a response rate of 94.6%. In other words, the response rate obtained is suitable for further analysis, as it exceeds the minimum response rate, as suggested by Aaker *et al.* (2013), who state that surveys with high response rates (e.g., 70% to 80%) have a high likelihood of avoiding non-response bias.

Table 2. Respondent Profile

Profile	Number	Percentage (%)
Gender		
Male	286	60.47
Female	187	39.53
Age (years)		
20 – 25	48	10.15
26 – 30	100	21.14
31 – 35	125	26.43
> 35	200	42.28
Marital Status		

Married	367	77.59
Unmarried	106	22.41
Education Level		
Elementary School	0	0
Junior High School	185	39.11
Senior High School	269	56.87
Bachelor's Degree	19	4.02
Master's Degree	0	0
Doctorate Degree	0	0
Expenditure		
0 – 1,000,000	109	23.04
1,000,001 – 2,500,000	364	76.96
2,500,001 – 5,000,000	0	0
5,000,001 – 10,000,000	0	0
Above 10,000,000	0	0

Based on Table 2, the respondents of this study were predominantly male, with the majority being over 35 years old. Most of the respondents were married. Furthermore, the majority of the respondents had a high school education level. Regarding monthly expenditure, all respondents in this study had monthly expenses ranging from 1,000,001 to 2,500,000.

After evaluating the measurement model, the structural model was analyzed to assess the Goodness of Fit (GoF). The conceptual model was found to have a good fit based on the GoF values, which are: χ^2/df = 2.983, GFI = 0.896, NFI = 0.839, AGFI = 0.830, NFI = 0.929, TLI = 0.938, CFI = 0.950, and RMSEA = 0.081 (Schumacker & Lomax, 2010; Yarimoglu & Gunay, 2020). Hypothesis testing was conducted after the GoF evaluation. Table 3 shows that all six proposed hypotheses were well supported.

Table 3. Hypothesis Testing Results

Hypothesis	Beta Coefficient	T-Statistic	P-Value	Remarks
H1. Attitude toward the success of certified seeds influences the attitude toward adopting certified seeds.	0.112	2.208	0.027	Supported
H2. Attitude toward the failure of certified seeds influences the attitude toward adopting certified seeds.	-0.105	-1.982	0.047	Supported
H3. Attitude toward the process of using certified seeds influences the attitude toward adopting certified seeds.	0.667	15.513	0.001	Supported
H4. Attitude toward adopting certified seeds influences the intention to adopt certified seeds.	0.319	2.438	0.015	Supported
H5. Subjective norms influence the intention to adopt certified seeds.	0.215	3.634	0.001	Supported
H6. The frequency of past experiences in trying certified seeds influences the intention to adopt certified seeds.	0.257	5.791	0.001	Supported

4.2 Discussion

In this study, the first hypothesis, which states that attitude toward the success of certified seeds has a positive impact on the attitude toward adopting certified seeds, was supported. Table 3 shows this result. The t-statistic value is greater than 1.96, with a p-value < 0.05. These findings are consistent with research conducted by Rhodes & Dickau (2012) and Hornsey *et al.* (2016). Their studies found that the degree of behavior change is influenced by manipulation of attitudes and behavioral intentions. Hornsey *et al.* (2016) stated that attitudes toward the success of a behavior in a group of subjects can affect their subsequent behavioral attitudes, although they also emphasized that the relationship between attitude and behavior is complex and not always clear. Attitudes toward success are generally considered predictors of behavioral attitude and intention, but attitudes do not always perfectly indicate how a person will act in a given situation. Attitudes toward success will influence the actual attitude toward a behavior (Rhodes & Dickau, 2012). In their research, they found that the stronger the attitude toward success, the greater the likelihood that this attitude can predict behavioral attitudes. Strongly held attitudes toward success, based on personal experiences or deeply held values, are more likely to guide behavior compared to weak attitudes. As in this study, farmers' attitudes toward the success of adopting certified seeds will shape their attitudes toward adopting certified seeds.

The second hypothesis, which states that attitude toward the failure of certified seeds has a negative impact on the attitude toward adopting certified seeds, is supported by the data in this study. This result is consistent with research by Faqih & Jaradat (2015), Abou-Shouk *et al.* (2016), and Faqih (2016). Findings from these studies on the adoption of new

technologies show that attitudes toward failure will affect attitudes toward behavior. The studies also suggest that some developing countries face environmental factors that hinder the adoption of mobile banking technologies, such as limited mobile network infrastructure, slow and unreliable telecommunications infrastructure, limited internet coverage, high internet usage costs, and unstable political and economic conditions. These barriers create uncertainty regarding the public's acceptance of the benefits of adopting mobile banking. They also state that mobile banking adoption in developing countries is vulnerable to errors, which can cause consumers to develop negative attitudes and intentions toward purchasing. In this study, farmers' attitudes toward the failure of certified seeds negatively affect their attitude toward adopting certified seeds.

The third hypothesis, which states that attitude toward the procedure in the certification process of certified seeds has a positive impact on the attitude toward adopting certified seeds, is supported. This finding further emphasizes the concept of the relationship between attitude toward the process and individual behavioral attitudes. Attitude toward an experiment is a result of the attitude toward the execution of that experiment (Bagozzi & Warshaw, 1990). This finding is in line with research by Akhlaq & Ahmed (2013) and Chemingui & Ben-Lallouna (2013). Their research showed that attitude toward the process of adopting new technologies greatly influences the attitude toward adopting the technology. Furthermore, their study indicated that banking customers who are used to conducting transactions offline feel more comfortable doing them online. A positive attitude toward the process an individual has experienced has a significant influence on the formation of subsequent behavioral attitudes. As in this study, farmers' attitudes toward the certification process of certified seeds will have a positive impact on their attitude toward adopting certified seeds.

The fourth hypothesis, which states that attitude toward the adoption of certified seeds has a positive impact on the intention to adopt certified seeds, is supported by the data. This finding emphasizes the close relationship between attitude and behavioral intention. Attitude toward trying can significantly influence the intention to try (Bagozzi & Warshaw, 1990). When someone has a positive attitude toward trying something new, it often encourages a greater intention to try it. In this context, secondary stakeholders have a positive perception of the adoption of certified seeds. Furthermore, their positive attitude will shape their perception of the experience or activity. When they believe that trying to adopt certified seeds will provide a pleasant, beneficial, or positive experience, they are more likely to have a stronger desire to try it. In this case, secondary stakeholders believe that trying to adopt certified seeds is beneficial for future sustainability and crop yield. Secondary stakeholders also have a lower perceived risk in adopting certified seeds. Their positive attitude can reduce the perceived risk associated with trying something new, in this case, the adoption of certified seeds. They feel more confident and less worried about potential negative outcomes if they believe the experience will be enjoyable or valuable when adopting certified seeds.

The fifth hypothesis, which states that subjective norms have a positive impact on the intention to adopt certified seeds, is supported in this study. This finding is consistent with research conducted by Hornsey *et al.* (2016). Subjective norms, or perceived social pressure to perform or not perform a behavior, can significantly influence a person's desire to try something new (Hornsey *et al.*, 2016). They state that several factors are related to the influence of subjective norms on the intention to try, including: (1) Social validation. Secondary stakeholders who try to adopt certified seeds often seek validation and approval from others for their behavior. If subjective norms indicate that the adoption of certified seeds is socially acceptable or even encouraged in their social circle or community, secondary stakeholders are likely to have the intention to try in order to conform to that norm and gain social approval. (2) Peer influence. Friends, family, coworkers, and other important individuals can directly influence secondary stakeholders' intentions to adopt certified seeds through their opinions, recommendations, or behaviors. If those close to them show a positive attitude toward similar behavior, it can increase the intention to try through social influence. (3) Perceived expectations. The perception of what others expect from secondary stakeholders can shape their intention to try adopting certified seeds. If they believe that important people or influential groups expect them to try adopting certified seeds, they will be more motivated to do so in order to meet those expectations and avoid social disapproval or sanctions. (4) Normative beliefs. Perceptions about what others believe should or should not be done when trying something new will influence subjective norms. If secondary stakeholders believe that important parties see value and benefits in trying certified seeds, it will increase their intention to try in order to align with those beliefs and norms. In this study, the subjective norms of secondary stakeholders form the social context that influences their perception of what is considered socially acceptable or expected in the effort to adopt certified seeds. This, in turn, affects their intention to engage in that behavior, either to conform to the norms, gain social approval, or avoid social rejection.

The sixth hypothesis, which states that previous experience with certified seeds has a positive impact on the intention to adopt certified seeds in this study, is also supported. This finding is consistent with research by Faqih & Jaradat (2015), Abou-Shouk *et al.* (2016), and Faqih (2016). According to them, the frequency of past experience trying something new can significantly influence the intention to try something new. Several aspects related to the frequency of past experience trying something new should be considered: (1) Behavioral consistency. In this study, secondary stakeholders tend to demonstrate consistent behavior. If they have previously tried something new and had a positive experience, they are more likely to have a stronger intention to try something similar in the future. This consistency arises from the belief that the frequency of previous attempts reflects their preferences and tendencies. (2) Self-efficacy. Success in trying something

new in the past can enhance self-efficacy, which is the belief of secondary stakeholders in their ability to succeed in similar tasks. In this study, those who previously succeeded in trying something new tend to be more confident in doing it again, thereby increasing their intention to try based on their higher self-confidence. (3) Outcome expectations. The frequency of trying experiences in adopting certified seeds shapes outcome expectations or beliefs about the consequences of trying something new. Positive past experiences in adopting certified seeds will create positive outcome expectations, thus increasing the intention to try when they anticipate similar results in the future. (4) Perceived control. The frequency of trying experiences in the past affects the perception of control over future actions. Secondary stakeholders who have previously succeeded in trying something new, such as adopting certified seeds, will feel they have greater control over their behavior, thus increasing their intention to try because they believe they can initiate and sustain the behavior. (5) Feedback and adaptation. Feedback from past experiences in adopting certified seeds will influence future intentions to repeat the behavior. Positive feedback will reinforce the intention to try because it validates the behavior, while negative feedback may lead to a reevaluation of intentions based on learning from previous mistakes or failures. Overall, the historical actions of secondary stakeholders in adopting certified seeds significantly predict future intentions by affecting beliefs, expectations, and perceptions related to the behavior. Positive past experiences in trying to adopt certified seeds will increase the likelihood of developing the intention to try similar activities in the future, while negative experiences may prompt a reassessment of intentions based on the learning acquired.

5 | CONCLUSIONS AND FUTURE WORK

This study aims to explain the adoption of certified seeds by farmers in the Banten, West Java, Central Java, and East Java regions, who are members of farmer groups in their respective areas, using the Theory of Trying (TT). The results show that TT can explain the adoption of certified seeds by these farmers. The intention to adopt certified seeds is influenced by the frequency of past experiences, subjective norms, and attitudes toward adopting certified seeds. Meanwhile, attitudes toward adopting certified seeds are influenced by attitudes and expectations regarding success, attitudes and expectations regarding failure (which have a negative impact), as well as attitudes toward the process. From a practical perspective, the government, which encourages the use of certified seeds, needs to adopt strategies that take into account factors such as attitudes toward adopting certified seeds, subjective norms, and the frequency of past experiences. These findings can also help the government in developing persuasive communication strategies. By considering these factors, the government can tailor messages related to the mandatory use of certified seeds to be more acceptable to farmers in the region, thereby improving productivity and the quality of agricultural outputs. In this regard, the government can implement demonstration plots (demplot), simulations, and tutorials to demonstrate that the requirement to use certified seeds is easy to adopt. Additionally, stakeholders should be encouraged to provide suggestions and feedback related to certified seeds for specific crops (e.g., seed source adequacy, market demand, and supply and distribution) to ensure their involvement and participation.

Although the findings of this study support TT, there are some limitations. First, this study used a non-probability sampling method (purposive). As it is non-probabilistic, the findings can only be generalized to a similar population. Therefore, future studies are recommended to consider using probability sampling methods. Second, the absence of actual behavioral variables is another limitation of this study. Although some studies use intention as a proxy for actual behavior, future research should consider the actual behavior of farmers. Third, this study views attitudes toward the adoption of certified seeds as something static. Future research should consider changes in attitudes over time. Variables such as pride (when successful), shame (when failed), and inertia (when reluctant to change) need to be considered. Social networks have a significant impact on the adoption of certified seeds, both in promoting and hindering it. This study shows that social relationships and community dynamics can influence the intention to adopt certified seeds. For example, a strong social network and community support can accelerate the adoption process by providing information, validation, and practical support. Conversely, weaknesses in social networks or strong cultural norms can hinder the intention to try certified seeds if they are not aligned with traditional practices or community values (Granovetter, 1973; Bourdieu, 1987). Fourth, an analysis of the social structure and relationships among community members provides insights into how the adoption of certified seeds is influenced by social and cultural factors, and how communities can overcome existing barriers through collaboration and the transformation of social norms.

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