


**PERCEIVED AND ATTITUDES INFLUENCING INTENTION TO ADOPT NEW TECHNOLOGY FOR FARM PRODUCTION: A CASE STUDY OF FARMERS AT NAKHON RATCHASIMA PROVINCE THAILAND**

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ARTICLE INFO	ABSTRACT
<p><b>Article history:</b></p> <p><b>Received</b> 20 February 2023</p> <p><b>Accepted</b> 08 May 2023</p>	<p><b>Purpose:</b> The purpose of this research is to study the factors that influence the acceptance of technology among farmers and their ability to adapt to changing times in agriculture, focusing on Thai farmers.</p> <p><b>Theoretical framework:</b> The theory was intended to explain an individual's decision in behavioral technology acceptance, which is determined by three factors: attitudes, subjective norms, and perceived behavioral control. Attitudes refer to an individual's behavioral assessment which is a consequence of experience and environment that can lead people to perform individual behavior, both positive and negative, those individuals can motivate by their attitudes and perform different behaviors depending on their environment.</p> <p><b>Design/methodology/approach:</b> The study constructs a model to explain the causal factors in relation to usefulness, control, attitude, and intention. Data was collected from a sample group of 420 registered farmers with the Ministry of Agriculture and Cooperatives who grow economic crops (rice, cassava, corn, sugarcane) using questionnaires.</p> <p><b>Findings:</b> It was found that attitude has the greatest influence on the intention to use technology. This implies that good attitude towards new technology, especially technology that is not yet widely distributed, has a significant impact on the intention to use technology. The attitude mediate has relationship between usefulness and intention.</p> <p><b>Research, Practical &amp; Social implications:</b> We recommend that the future research should have widen areas for results calibration.</p> <p><b>Originality/value:</b> The results indicate that these finding can guide both the government and private sector in supporting agricultural technology to enable sustainable long-term growth for farmers and as a guideline for farmers to adapt their operations to the changing times.</p> <p>Doi: <a href="https://doi.org/10.26668/businessreview/2023.v8i5.2111">https://doi.org/10.26668/businessreview/2023.v8i5.2111</a></p>
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**PERCEPÇÕES E ATITUDES QUE INFLUENCIAM A INTENÇÃO DE ADOTAR NOVAS TECNOLOGIAS PARA A PRODUÇÃO AGRÍCOLA: UM ESTUDO DE CASO DE AGRICULTORES NA PROVÍNCIA DE NAKHON RATCHASIMA TAILÂNDIA**

**RESUMO**

**Objetivo:** O objetivo desta pesquisa é estudar os fatores que influenciam a aceitação da tecnologia entre os agricultores e sua capacidade de adaptação aos tempos de mudança na agricultura, com foco nos agricultores tailandeses.

**Referencial teórico:** A teoria pretendia explicar a decisão de um indivíduo na aceitação da tecnologia comportamental, que é determinada por três fatores: atitudes, normas subjetivas e controle comportamental

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percebido. As atitudes referem-se à avaliação comportamental de um indivíduo que é consequência da experiência e do ambiente que pode levar as pessoas a realizar comportamentos individuais, tanto positivos quanto negativos, esses indivíduos podem motivar por suas atitudes e realizar comportamentos diferentes dependendo de seu ambiente.

**Desenho/metodologia/abordagem:** O estudo constrói um modelo para explicar os fatores causais em relação à utilidade, controle, atitude e intenção. Os dados foram coletados de uma amostra de 420 agricultores cadastrados no Ministério da Agricultura e Cooperativas que cultivam culturas econômicas (arroz, mandioca, milho, cana-de-açúcar) por meio de questionários.

**Resultados:** Verificou-se que a atitude tem maior influência na intenção de usar a tecnologia. Isso implica que uma boa atitude em relação à nova tecnologia, especialmente a tecnologia que ainda não é amplamente distribuída, tem um impacto significativo na intenção de usar a tecnologia. A atitude medeia tem relação entre utilidade e intenção.

**Pesquisa, implicações práticas e sociais:** Recomendamos que pesquisas futuras tenham amplas áreas para calibração de resultados.

**Originalidade/valor:** os resultados indicam que essas descobertas podem orientar tanto o governo quanto o setor privado no apoio à tecnologia agrícola para permitir o crescimento sustentável de longo prazo para os agricultores e como uma diretriz para os agricultores adaptarem suas operações aos tempos de mudança.

**Palavras-chave:** Utilidade Percebida, Controle Comportamental Percebido, Atitude, Intenção Comportamental, Agricultores para Adaptar a Tecnologia.

## PERCEPCIONES Y ACTITUDES QUE INFLUYEN EN LA INTENCIÓN DE ADOPTAR NUEVAS TECNOLOGÍAS PARA LA PRODUCCIÓN AGRÍCOLA: UN ESTUDIO DE CASO DE AGRICULTORES EN LA PROVINCIA DE NAKHON RATCHASIMA TAILANDIA

### RESUMEN

**Propósito:** El objetivo de esta investigación es estudiar los factores que influyen en la aceptación de la tecnología entre los agricultores y su capacidad para adaptarse a los tiempos cambiantes de la agricultura, centrándose en los agricultores tailandeses.

**Marco teórico:** La teoría pretendía explicar la decisión de un individuo de aceptar tecnología conductual, que está determinada por tres factores: actitudes, normas subjetivas y control conductual percibido. Las actitudes se refieren a la valoración del comportamiento de un individuo que es consecuencia de la experiencia y del entorno que puede llevar a las personas a realizar comportamientos individuales, tanto positivos como negativos, estos individuos pueden motivar por sus actitudes y realizar diferentes comportamientos dependiendo de su entorno.

**Diseño/metodología/enfoque:** el estudio construye un modelo para explicar los factores causales en relación con la utilidad, el control, la actitud y la intención. Los datos fueron recolectados de una muestra de 420 agricultores registrados en el Ministerio de Agricultura y Cooperativas que cultivan cultivos económicos (arroz, yuca, maíz, caña de azúcar) a través de cuestionarios.

**Resultados:** Se encontró que la actitud es la que más influye en la intención de uso de la tecnología. Esto implica que una buena actitud hacia la nueva tecnología, especialmente la tecnología que aún no se distribuye ampliamente, tiene un impacto significativo en la intención de usar la tecnología. La actitud media la relación entre la utilidad y la intención.

Implicaciones investigativas, prácticas y sociales: Recomendamos que futuras investigaciones tengan áreas amplias para la calibración de resultados.

**Originalidad/Valor:** Los resultados indican que estos hallazgos pueden guiar tanto al gobierno como al sector privado en el apoyo a la tecnología agrícola para permitir un crecimiento sostenible a largo plazo para los agricultores y como una guía para que los agricultores adapten sus operaciones a los tiempos cambiantes.

**Palabras clave:** Utilidad Percibida, Control Conductual Percibido, Actitud, Intención de Comportamiento, Los Agricultores para Adaptar la Tecnología.

### INTRODUCTION

Background of this research, the agriculture is very important for economic and social of Thailand. From the past to the present time, Thailand is located in the agricultural point

where is suitable for doing agriculture. Thai populations working as the agriculturists in 40% of Thai people in the whole part of Thai citizen. From the point that I have mentioned, in the agriculture can export their product and makes money approximately 1.4 trillion bath in 2021. It influences on Thai economic as well. At present, there are agricultural area 238,400 million square meters (Approx. 46 % of Thai area). Nakornratchasima has the most agricultural area in Thailand which is 12.13% of the northern area Which is the place that has the most population as the second rate of Thai citizen under Bangkok. There are 321,980 houses working agriculturists in Nakornnatchasima Province. From the point that I have mentioned, we can find that Nakornratchasima Agricultural Sector is the most the agricultural worker supported part for the agricultural worker but they still earn the lowest money which contrast with the number of the workers.

Nowadays Thai agriculturist force with the structural factors and the external changes which is influenced on their products and their competitive ability. (Department of Agricultural Extension, 2021) From the poverty source in 2021, we found that most of the poor Thai people are from the agriculturists. From this point makes Thai agriculturists have to force with their income money. because of their loan. Not only this point but the Fertility rate of the population also. In the past the Total Fertility Rates (TEFR) which refers to the average number of children a woman of childbearing age would have in her lifetime, dropping from approximately 2.1 to 1.3 in 2018. Moreover, due to advanced medical technologies, life expectancy in Thailand has continued to increase over time, resulting in a higher average age of the population. In 2020, the average life expectancy for women and men were 80.4 and 73.2 years, respectively, causing a rise in the number of elderly people in farming households, creating a labor shortage in the agricultural sector.

Justification, addressing practical and theoretical contribution, the acceptance of technology in agriculture is not widely accepted, with research comparing farmers who use traditional technology with those who use modern technology finding that farmers using traditional technology continue to use it up to 80 percent, while farmers who use modern technology have only a 35 percent chance of not using new technology (Attavanich et al., 2019). Applying technology in agriculture can solve the problem of poverty for farmers and can increase average yields.

Objective of the work or research problem, the researcher is interested in studying the factors affecting farmers' acceptance of agricultural technology. The objective is to test a model of the factors affecting farmers' acceptance of technology by collecting data from farmers in

Nakhon Ratchasima province. The results of this study can be used as a guideline for addressing the problem of technology acceptance among farmers, in order to help solve the problem of low agricultural productivity, which is a major cause of low income among farmers, as well as the problem of labor shortage in the agricultural sector.

## LITERATURE REVIEW

### **Theory of Planned Behavior: Tpb**

The theory was intended to explain an individual's decision in behavioral technology acceptance, which is determined by three factors: attitudes, subjective norms, and perceived behavioral control. Attitudes refer to an individual's behavioral assessment which is a consequence of experience and environment that can lead people to perform individual behavior, both positive and negative, those individuals can motivate by their attitudes and perform different behaviors depending on their environment. Subjective norm refers to an individual's perception through the information they received, whether it is a close person, honorable person, trustworthy person, or counterpart, it can all create a tendency of consent. (Lesser & Pope 2011). Perceived behavioral control refers to a person's perception of the ease or difficulty of performing behavior.

### **Technology Acceptance Model: TAM**

The theory explains the factors that affect technology and innovation acceptance. Three factors affect behavioral intention, including perceived usefulness, perceived ease of use, and attitude, according to the mention, attitude is the same factor as the theory of planned behavior. Perceived Usefulness refer to one of the processes that allow an individual to anticipate the benefits of technology and innovation which improve work efficiency. Perceived ease of use refers to the degree to which an individual believes that using a particular information technology or innovation would be free of effort. In other words, the more users feel a system is easy-to use, the higher their interest in using the system and Behavioral intention refer to the expression of an emotions of an individual is the manifestation of one's feeling and thoughts through behavior, gestures, and facial expressions over a period of time and in appropriate circumstances. The new technology adoption in banking business depends mainly on the decision makers who creates the business strategies for excellent business performance. The effective and efficient business operations enhance the bank profit and customer satisfaction (Haider, 2023).

## RESEARCH HYPOTHESES

The study of the relationship between two variables, technology adoption and perceived ease of use, in the context of agricultural technology adoption among developed and developing countries, was investigated using the Technology Acceptance Model (TAM) by Pierpaoli et al. (2013). The result showed a significant impact of perceived ease of use on technology adoption among farmers, as the ease of use of the technology directly affects the farmers' satisfaction with its use. This was further supported by Daragmeh et al. (2021), who studied the impact of the COVID-19 pandemic on Generation X (born between 2508-2522 in the Thai solar calendar) and found that perceived ease of use had a direct impact on their job satisfaction. This is particularly relevant for Thailand, where the agriculture sector employs 56% of the work force (Ministry of Agriculture and Cooperatives, 2564), and is a significant contributor to the country's economy and social stability. The study by Holzmann et al. (2021) entitled Drones to the Rescue? Exploring rescue workers' behavioral intention to adopt drones in mountain rescue workers to use drone to save lives. The results of the study are conflicting in some parts, with some indicating that social influence (Subjective Norm: SN) has no significant impact on the behavioral intention to adopt new technology. On the other hand, the results suggest that supports and enhances work performance has an impact on the intention to use new technology. This aligns with the findings of Zeng and Cleon (2018) in their study Factors affecting the adoption of a land information system: An empirical analysis in Liberia, Study of the factors affecting the use of land information system in the digital environment found that social impact has no statistically significant effect on the intention to adopt, which is generally derived from forced circumstances or punishment for non-compliance with organizational norms.

### Perceived Usefulness

The awareness of the benefits of technology usage has an influence on the willingness to use technology, and the recognition of benefits towards technology is a decision based on individual attitudes that are impacted by beliefs about the benefits of technology usage. The control of behavior that is perceived from one's ability to use technology to achieve work objectives, users will compare the benefits of technology usage and the control of behavior in using technology (Zhang et al. 2011; Li et al.,2020). In the tourism industry, the tourist destination has the influence on the customer satisfaction and loyalty. The perceived usefulness

of tourist destination totally supports the business performance which comes from customer satisfaction and loyalty (Nguyen,2023).

H1. The awareness of the benefits of technology usage among farmers affects their intention to use technology.

H2. The awareness of the benefits of technology usage among farmers affects their perception of their ability to control their behavior.

H3. The awareness of the benefits of technology usage among farmers affects their attitude towards using technology.

### **Perceived Behavioral Control**

New technologies require new and different specialized abilities compared to current ones. Positive behavioral control awareness increases user perception of success opportunities. Conversely, negative awareness decreases technology usage and decreases work convenience. Specialized technology training increases awareness and confidence in technology usage. (Bandura, 1977; Ajzen, 1991; Venkatesh et al., 2003; Adrain et al., 2005)

H4. Perception of the ability to control behavior affects the intention to use agricultural technology.

H5. Perception of the ability to control behavior affects the attitude towards the use of agricultural technology.

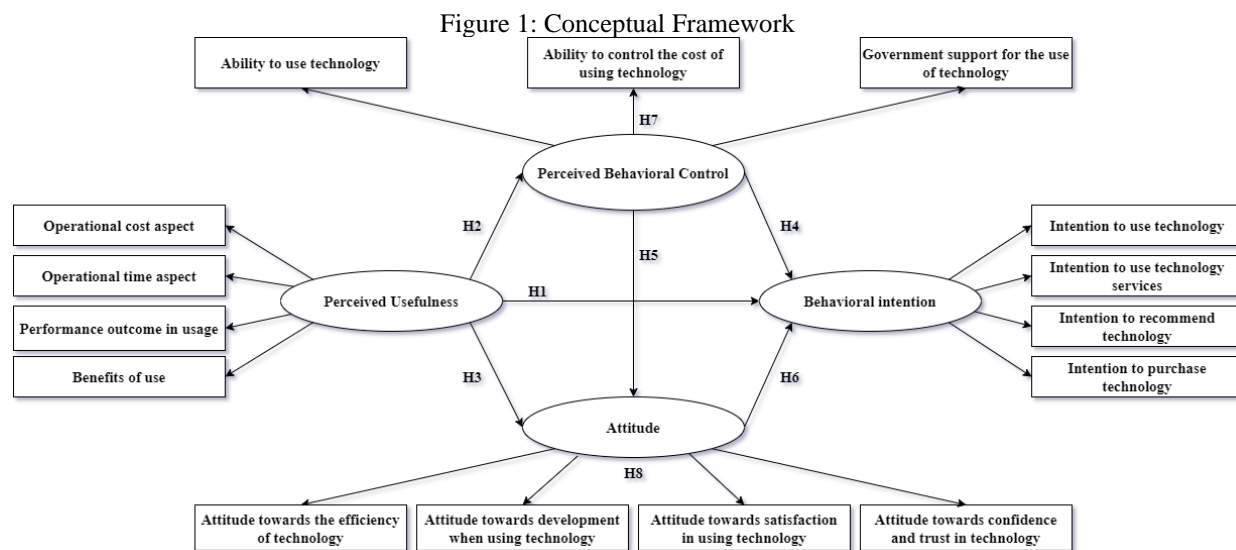
H7. Behavioral control awareness is a mediating variable between the perceived benefits of usage and the intention to use agricultural technology.

### **Attitude**

A positive attitude towards new technology, especially those that are not yet widely avoidable, and a positive perception of new technology have a significant impact on the intention to use technology. Individuals who have a higher level of psychological readiness towards a particular technology are more likely to use it. This psychological readiness lead to a greater satisfaction among users to use the higher level technology. (Hussein, 2017; Gaffney et al., 2013)

H6. Attitudes towards the use of technology in agriculture affect the intention to use agricultural technology.

H8. Attitude is a mediator variable between the perceived benefits from using and the intention to use agricultural technology by farmers.



Source: Prepared by the authors (2023)

## RESEARCH METHODOLOGY

### Participants and Procedure

The research on the acceptance of agricultural technology by farmers in Nakhon Ratchasima Province has a quantitative research design using a survey question as stool to collect quantitative data. Data collection took place between September to October 2022. The questionnaire consisted of two parts. Part 1 consisted of general information questions about registered farmers who grow economic crops such as rice, cassava, corn, and sugarcane. Part 2 consisted of Likert-scale questions divided into 4 dimensions: perceived benefits, perceived behavior control, attitude, and intention to use technology. The Cronbach’s Alpha Coefficient was used to test the questionnaire reliability, and the results showed a coefficient range of 0.702 to 0.964 indicating acceptable reliability.

### Data Analysis

The researchers contacted agricultural businesses or farmers’ associations to inquire about the addresses of farmers for the purpose of scheduling data from a sample group of agricultural farmers (rice, cassava, animal feed corn, and sugarcane) who were registered with the Ministry of Agriculture and Cooperatives. The researchers collected data in person and explained the purpose of the data collection to the respondents before proceeding. A total of 420 sets of data were collected using a one-on-one data collection method, which is appropriate for a sample size of no less than 200, based on the questionnaire that was validated by Hair,

Black, Babin and Anderson (2010). Descriptive statistics (e.g., percentage, mean, and standard deviation) and inferential statistics were analyzed using SEM.

## RESULTS

### Firm Demography and Sample Characteristics

The results of the descriptive statistics for the group of male farmers who responded to the questionnaire, totaling 275 people, show that 65.476% are aged between 40-49 years old, which is the majority. 36.667% have a primary school education or lower, with a total of 150 people. A total of 276 people, or 65.714%, have less than 10 years of farming experience or between 11-20 years of experience. The majority, 53.020% or 237 people, cultivate mainly sugarcane. The majority, 65.848% or 295 people, have their own land for farming. The majority, 29.048% or 122 people, have a cultivated area greater than 55 rai. The majority, 51.987% or 314 people, have agricultural machinery such as tractors, cane loaders, corn harvesters, rice harvesters, and trucks.

Table 1: Sample Characteristics and Construct

Sample Characteristics	Frequency (LSPS)	Percent (%)
1. Sex		
1) Male	275	65.476
2) Female	145	34.524
Total	420	100.000
2. Age		
1) 20 – 29 years old	52	12.381
2) 30 – 39 years old	98	23.333
3) 40 – 49 years old	154	36.667
4) 50 – 59 years old	85	20.238
5) over 60 years old	31	7.381
Total	420	100.000
3. Education		
1) Primary school or lower	150	35.714
2) Middle school	75	17.857
3) High school	125	29.762
4) Bachelor's degree or higher	70	16.667
Total	420	100.000
4. Duration of farming		
1) 10 years or lower	138	32.857
2) 11 - 20 years	138	32.857
3) 21 – 30 years	70	16.667
4) Over 31 years	74	17.619
Total	420	100.000
5. Cultivated plant		
1) Rice	65	14.541
2) Cassava	237	53.020
3) Corn	74	16.555
4) Sugarcane	71	15.884
5) Etc.	-	-
Total	420	100.000
Construct	Frequency (LSPS)	Percent (%)
6. Characteristics of the agricultural soil		



1) Farmers are the owner	295	65.848
2) Rent	148	33.036
3) Work for hired	-	-
4) Etc.	5	1.116
Total	448	100.000
7. Size of cultivation area		
1) Less than 10 rai	38	9.048
2) 11-25 rai	102	24.286
3) 26-40 rai	120	28.571
4) 41-55 rai	38	9.048
5) More than 55 rai	122	29.048
Total	420	100.000
8. Agricultural tool		
1) Grass cutter and sprayer	262	43.377
2) Tractor, Sugarcane loader, Corn harvester, Rice harvester, and Truck	314	51.987
3) Agricultural drone or Internet of Things (IoT)	6	0.993
4) Etc.	22	3.642
Total	604	100.000

Source: Prepared by the authors (2023)

Table 2: Mean, Standard Deviation, and Correlation Matrix

	Mean	SD	Usefulness	Control	Attitude	Intention
Usefulness	3.967	0.635	1	-	-	-
Control	3.584	0.742	0.548**	1	-	-
Attitude	3.935	0.654	0.524**	0.523**	1	-
Intention	3.941	0.706	0.397**	0.449**	0.769**	1

Note: \*\* significant at the 0.01 level

Source: Prepared by the authors (2023)

### Measurement Model

The measurement model is the first step to ensure that the measured variables represent the number of constructs. We used confirmatory factor analysis (CFA) to confirm or reject the observed variables related to the latent variables. Table 3 shows that the measurement models-including the usefulness, control, attitude and intention are within the acceptable values. The results reveal four latent variables with factor loadings between 0.500 and 0.930, factor loadings of 0.5 or greater can be considered as adequate indicators for that factor (Comrey and Lee, 1992, Hair et al., 1998). We also used the CFA to examine the convergent and discriminant validity. (CR) and average variance extracted (AVE) are greater than the criterion of 0.7 (Hair et al. 2010) and 0.5 (Barclay, Higgins & Thompson 1995), respectively. Thus, convergent and discriminant validity findings are sufficient to present descriptive statistics and correlations.

Table 3: Measurement Model

Variable	Indicators	Factor loading	CR	AVE

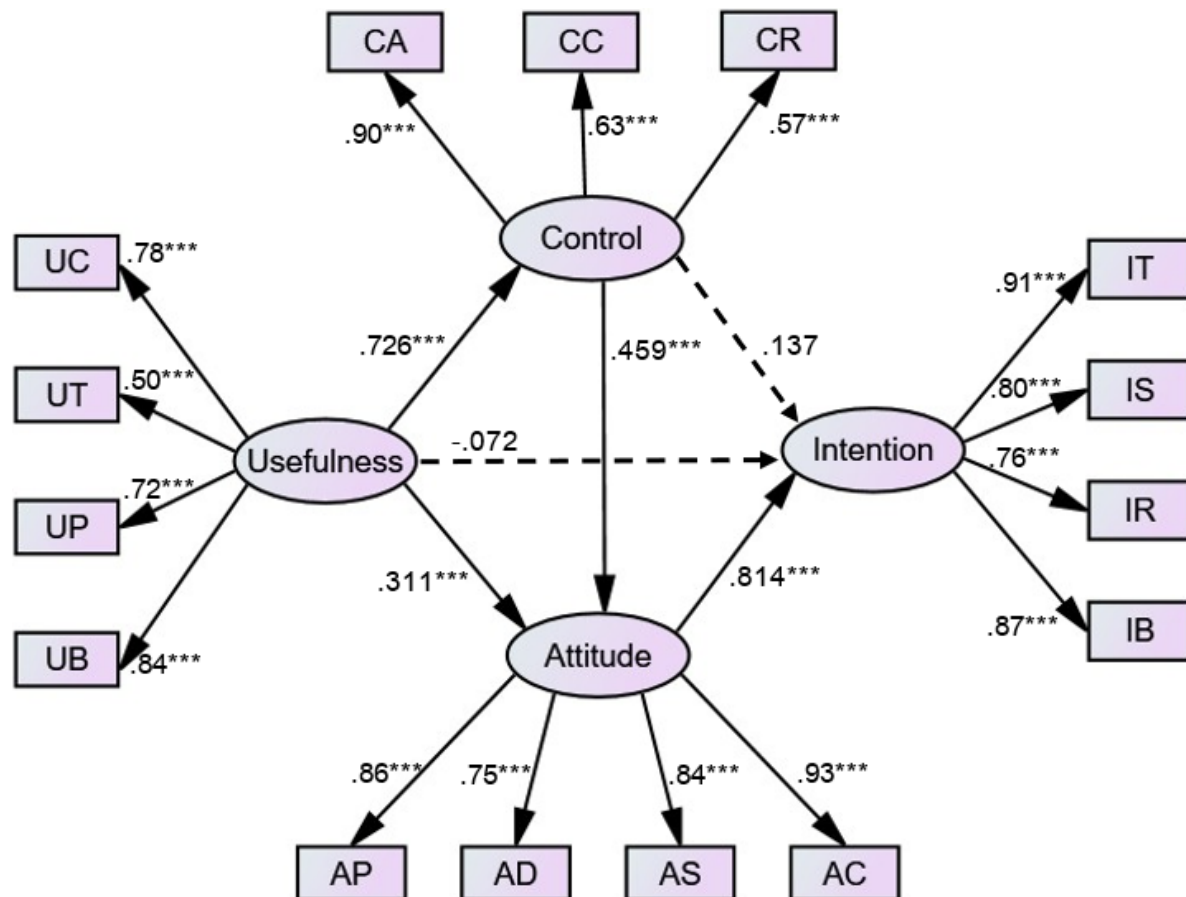
Usefulness	UC	0.783	0.808	0.520
	UT	0.500		
	UP	0.718		
	UB	0.838		
Control	CA	0.905	0.754	0.516
	CC	0.632		
	CR	0.574		
Attitude	AP	0.856	0.910	0.718
	AD	0.754		
	AS	0.839		
	AC	0.930		
Intention	IT	0.906	0.902	0.698
	IS	0.797		
	IR	0.763		
	IB	0.869		

Source: Prepared by the authors (2023)

### Structural Model and Hypotheses Testing

The SEM examining the relationships between variables uses a path coefficient for hypothesis testing. The results show that the structural model is consistent with empirical data. The values of the goodness of fit index (GFI) and adjusted GFI exceed 0.8 (Byrne 2001). The standardized root means square residual and root mean square error of approximation are smaller than 0.05 (Hair et al. 2010) and 0.08 (Hu & Bentler 1995), respectively.

Figure 2. Conceptual Framework



Chi-square = 148.609, Chi-square/df = 1.930, df = 77, p = .000, GFI = .960 CFI = .984, RMR = .025, RMSEA = .047, NFI = .967

Source: Prepared by the authors (2023)

Table 4. Hypotheses Testing

Hypotheses	Paths	Path Coefficient	P-value	Relationship
H1	Usefulness → Intention	-.072	.302	not Supported
H2	Usefulness → Control	.726***	.001	Supported
H3	Usefulness → Attitude	.311***	.001	Supported
H4	Control → Intention	.137	.047	not Supported
H5	Control → Attitude	.459***	.001	Supported
H6	Attitude → Intention	.814***	.001	Supported

Note: \*\*\* denote significance at the 0.001 level respectively

Source: Prepared by the authors (2023)

### Mediation Analysis

Mediation analysis, which is part of structural equation modeling (SEM), tests the indirect effect between causal variables for a certain variance with mediator variables. In our mediation test, we examined the role of control and attitude. Specifically, we conducted two mediation tests to investigate the mediating role of control (H7) and attitude (H8) in the relationship between usefulness and intention. We found a significant direct effect ( $\beta = 0.56$ ,  $p < 0.001$ ). In H7, the mediator variable decreased the direct influence between usefulness and intention, with a significant indirect effect coefficient ( $\beta = 0.282$ ). Control partially mediated

the relationship. In H8, we found a significant indirect effect coefficient ( $\beta = 0.563$ ), indicating that attitude fully mediated the relationship between usefulness and intention.

Table 5. Mediation Analysis

Hypotheses	Paths	Direct Effect	Indirect Effect	Mediation
	Usefulness → Intention	.707***	-	
H7	Usefulness → Control → Intention	-	.282	Partial mediation
H8	Usefulness → Attitude → Intention	-	.563	Full mediation
Hypotheses	Paths	Direct Effect	Indirect Effect	Mediation
	Usefulness → Intention	.707***	-	
H7	Usefulness → Control → Intention	-	.282	Partial mediation
H8	Usefulness → Attitude → Intention	-	.563	Full mediation

Note: \*\*\* significant at the 0.001 level

Source: Prepared by the authors (2023)

## DISCUSSION

This study is important for future agricultural technology acceptance as it presents information to aid in model selection, including the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB). This study eliminates latent variables according to the TAM and TPB models and uses manifest variables, such as perceived ease of use. The study finds that the perception of the benefit of using technology, according to the TAM model, has a significant impact on the intention of current farmers to use it. This is consistent with the finding of Daragmeh et al. (2021), which show that the perceived ease of use does not directly affect the intention to use technology for Generation X farmers, the largest group in Thailand's agricultural workforce with an average age of 56 years. The subjective norm (SN) does not have a significant influence on behavioral intention to use new technology, according to Holzmann et al. (2021), who argue that technology's support and efficiency improvement have a major impact on the intention to use new technology.

Several significant insights emerge from the findings of this study. First, the results indicate that usefulness positively affects Control and Attitude. This is consistent with previous studies which found that individuals with knowledge and ability to adopt agricultural technology are more likely to consider if it is useful. Rezael et al. (2020) found that farmers are currently using conservation agriculture technologies such as waste management, renewable energy, and soil conservation technologies, despite the increased cost. Farmers decide to adopt these technologies because of their relationship to agriculture, which is the primary impact on

the natural environment for long-term conservation. Additionally, usefulness has a positive impact on Attitude, which is influenced by individual's beliefs about the perceived benefits of using technology, especially those that meet job characteristics. As users become more familiar with the technology, they tend to develop a positive attitude towards its use (Gefen & Straub, 2000; Ducey & Coover, 2016). Second, the positive impact of control on attitude towards factors in the convenience condition (perception of behavioral control: for example, government support/ability to use technology) has a positive effect on attitude, which new technology requires increasing specialized abilities. If there are factors that support the use of agricultural technology, farmers will have a positive perspective, and if farmers are trained specifically in technology, it can increase their attitude towards technology (Venkatesh et al., 2003). A good attitude towards new technology, especially technology that is not yet widely distributed, has a significant impact on the intention to use technology (Hussein, 2017; Gaffney et al. 2019). In addition, the impact that has no significant effect on intention is Control and Usefulness in agricultural technology. Agricultural technology should support making work easier or increasing efficiency in operations. Therefore, farmers may not want additional support, but the benefits of using technology must meet job requirements. When users think that technology can help improve work, they tend to develop a good attitude towards technology use (Gefen & Straub, 2000; Ducey & Coover, 2016).

### **LIMITATIONS AND FUTURE RESEARCH**

This study has limitations in terms of data collection during the COVID-19 period. Therefore, some respondents may be more sensitive to risk management than usual. In future research, comparisons of leasing, purchasing, or hiring for the use of agricultural technology can be made, which may facilitate the use of agricultural technology by reducing risk and cost.

### **CONCLUSION**

Structural factors and external changes directly affect productivity and competitiveness of most farmers in Thailand. High debts in the agricultural sector, coupled with income uncertainty and an increasing number of elderly workers in agricultural households, indicate that the Thai agricultural sector is facing problems. Agricultural technology can assist the Thai agricultural sector.

This study shows the current situation in the Thai agricultural sector to support the use of agricultural technology. The results of the research show that farmers have a positive view of agricultural technology and a tendency to use it through appropriate support from the

government or funding agencies, as well as training on the use of technology. Ultimately, farmers will decide whether agricultural technology should support easier or more efficient work, leading them to accept technology in the future.

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