

Organic Fertilizer Purchasing Behavior of Vegetable Farmers in Ngablak Sub-District, Magelang District: Extended Theory of Planned Behavior Approach

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ABSTRACT

To develop organic farming in Magelang, particularly in Ngablak Subdistrict, it is essential to understand farmers' purchasing behavior toward organic fertilizers. This study aims to (1) Examine how attitude, subjective norm, perceived behavioral control, and environmental concern impact the vegetable farmers in Ngablak District intention to purchase organic fertilizer; (2) assess the extent to which purchase intention affects vegetable farmers behavior in purchasing organic fertilizer; and (3) Investigate the role of trust and price consciousness as moderating variables in the relationship among purchasing intention and purchasing behavior of organic fertilizer. This research involved a sample of 123 vegetable farmers in Ngablak sub-district, Magelang district. SEM-PLS method is employed to analyze the data. Empirical findings reveal that attitudes, subjective norms, perceived behavioral control, and environmental concerns significantly and positively contribute to the purchasing intention of organic fertilizer. Furthermore, purchasing intention plays a significant and positive role in shaping the purchasing behavior of organic fertilizer. The association among purchasing intention and purchasing behavior of organic fertilizer is positively moderated by trust. Meanwhile, the moderating role of price consciousness in the relationship between organic fertilizers purchasing intention and purchasing behavior is found to be insignificant.

Keywords: *Organic fertilizer, purchasing intention, purchasing behavior, theory of planned behavior*

BACKGROUND

Horticulture is a rapidly growing sub-sector of agriculture in Indonesia. In 2024, horticultural commodities contributed 1.39% to the Gross Domestic Product (GDP), indicating the importance of this sector to the national economy (Badan Pusat Statistik, 2025). Ngablak Subdistrict, Magelang Regency, is one of the areas with great potential for horticultural cultivation, especially vegetable commodities. This area produces various superior vegetable commodities, such as cabbage, chili, tomato, and mustard greens (Badan Pusat Statistik Kabupaten Magelang, 2024). On the other hand, in the process of vegetable cultivation, farmers often face various challenges, one of which is dependence on excessive use of chemical inputs. The continued application of non-organic substances in conventional farming can result in detrimental impacts on ecosystems and various forms of life over time.

Organic farming practices are the right solution to overcome the negative impacts of conventional farming. Organic farming is defined by the IFOAM (2007) as a cultivation system that preserves the health of soil, ecosystems, and human populations. Instead of using toxic chemical inputs, this system depends on biodiversity, biological processes, and cycles that are tailored to the local environment. One of the key elements in increasing crop productivity in organic farming systems is the use of organic fertilizers. Organic fertilizers refer to materials used as fertilizers that are naturally sourced, usually as by-products or end products of natural processes (Singh, 2012). One of the key factors to develop organic farming in Magelang, particularly in Ngablak District, having a thorough and in-depth grasp is crucial for the purchasing behavior of organic fertilizer products by farmers as consumers. Purchasing intention is part of consumer behavior in consumption attitudes that illustrates a person's propensity to act before finally making a purchasing decision (Kotler & Keller, 2016).

The Theory of Planned Behavior (TPB) is an extension of the Theory of Reasoned Action (TRA) that incorporates Perceived Behavioral Control (PBC) as an additional construct, enabling more accurate prediction of behavior in situations where individuals do not have complete control over their actions. TPB developed by Ajzen (1991), posits that three fundamental elements, attitude, subjective norms, and perceived behavioral control, will work together to form someone's behavioral intention in purchasing a thing. Attitudes reflect psychological tendencies in evaluating certain behaviors and subjective norms reflect the social pressure individuals perceive regarding whether they should or should not perform a specific behavior. Meanwhile, an individual's perceived behavior control is assessment of how easy or difficult it is to perform a particular behavior, based on their confidence in accessing the necessary resources and opportunities (Ajzen, 2005).

Leonardo et al. (2024) investigated the key drivers behind adoption organic fertilizers among the farmers. The study's results reveal that favorable attitudes and perceived social expectations (subjective norms) significantly contribute to farmers' organic fertilizers adopting intention. The positive and significant relationship between TPB variables—attitude, subjective norms, and perceived behavioral control—and the intention to purchase environmentally friendly products has been supported by various other studies (Fenta et al. 2024; Zhuang et al., 2021). The intention to purchase environmentally friendly products is likely to be greater when individuals hold favorable attitudes, experience stronger subjective norms, and perceive greater control over their purchasing behavior.

In principle, TPB is flexible and can be expanded by including additional variables. Many studies have adapted the TPB model by adding variables related to environmental sustainability motives to predict the aim to eco-friendly products purchasing. Varah et al. (2021) and Mishra & Kaur (2023) tested consumer intentions toward environmentally friendly products utilizing a more comprehensive of the TPB by adding an environmental concern variable. They suggest that attitudes, subjective norms, perceived behavioral control, and environmental concern serve as a substantial positive predictor of consumers' environmentally friendly products purchasing intention.

Ajzen (1991) argues that intention acts as an initial factor that drives the emergence of a behavior. In the TPB model, purchasing intention is the element most closely related to purchasing behavior and serves as the major driver of the actualization of buying behavior. Purchasing intention significantly influences the decision to purchase environmentally friendly products (Niloy et al., 2023; Kamalanon et al., 2022; Laheri et al., 2024). Wang & Zhang (2023) also validated that the Organic Fertilizer Purchasing Behavior of Vegetable Farmers in Ngablak Sub-District, Magelang District: Extended Theory of Planned Behavior Approach (Johar *et al.*, 2026)

stronger the farmers' intention to use organic fertilizers, the more likely they are to adopt organic fertilizer use behavior.

However, Harris & Hagger (2007) explain that even if a consumer has the intention, there is still a possibility that they will fail to realize it. There is frequently a discrepancy between individuals' purchase intentions and their actual purchasing behavior. Various factors may serve to either enhance or reduce the strength of the intention–behavior relationship. According to some research, customers' inability to trust the product is a real barrier to purchasing organic goods (Nuttavuthisit & Thøgersen, 2017; Guerreiro & Pacheco, 2021). Consumer trust reflects the readiness to place confidence in a product or service, which is shaped by their expectations concerning its inherent features, reliability, and potential value (Mowen & Minor, 2002). Trust positively and significantly increases purchasing behavior and reduces the discrepancy between intention to purchase and the actual buying of organic products (Sultan et al., 2020; Zheng et al., 2021).

In addition to trust, high prices are also a major obstacle to purchasing environmentally friendly products. Rihn et al. (2018) explain that product price is the primary factor influencing the purchase decisions of those who are highly price-conscious. Price consciousness reflects the consumer's sensitivity to price, characterized by a strong orientation toward minimizing spending and prioritizing lower-cost options (Lichtenstein et al., 1993). The relationship between intention and actual purchase of organic products is negatively moderated by price consciousness. When consumers are very conscious about prices, the link between their intention to buy and their purchasing actions becomes less strong (Saleki et al., 2019; Zheng et al., 2021).

Thus, this study will examine how attitude, subjective norm, perceived behavioral control, and environmental concern impact the intention of vegetable farmers in Ngablak Subdistrict, Magelang Regency to purchase organic fertilizer. Previous research related to purchasing behavior and adoption of organic fertilizer have been conducted in various previous studies, both at the national and international levels (Leonardo et al., 2024; Yanakittkul & Aungvaravong, 2020; Purnomo, 2024). However, no one has specifically conducted a study related to the purchasing behavior of organic fertilizer in Ngablak Subdistrict, Magelang District, an area that has great potential in the vegetable farming sector.

Furthermore, this study will also evaluate the role of purchasing intention in shaping purchasing behavior of organic fertilizer. Wang & Zhang (2023) explored farmers' intentions contribute to and shape their actual behavior in using organic fertilizers. The study, however, omitted an analysis of variables that might moderate the intention–behavior link. Therefore, this study offers another research novelty by assessing the moderating effects of price consciousness and trust on the intention–behavior relationship in the context of organic fertilizer purchases. Through this behavioral evaluation, organic fertilizer producers and marketers can formulate more effective marketing strategies. In addition, understanding the purchasing behavior of organic fertilizers can also help the government formulate relevant policies to support organic farming by encouraging more farmers to switch to organic fertilizers.

The following is preparation of the research hypothesis based on the theoretical underpinnings and literature review:

H-1 : Attitudes exert a positive influence on the organic fertilizers purchasing intention.

H-2 : Subjective norms exert positive effect on the intention to purchase organic fertilizers.

H-3 : Perceived behavioral control has a positive effect on the purchasing intention of organic

fertilizers.

- H-4 : Environmental concerns positively affecting organic fertilizer purchasing intention.
- H-5 : Purchasing intention positively affecting organic fertilizers purchasing behavior.
- H-6 : Trust positively moderates the intention–behavior relationship in purchasing of organic fertilizer.
- H-7 : Price consciousness negatively moderates the intention–behavior relationship in purchasing of organic fertilizer.

RESEARCH METHODS

This analysis is classified as quantitative research. The study was conducted from September to November 2024. Meanwhile, the research location is in two villages in Ngablak District, Magelang Regency, namely Sumberejo Village and Jogoyasan Village. The selection of Sumberejo Village and Jogoyasan Village as research locations is based on the existence of farmer groups that support organic and semi-organic vegetable farmers. Sumberejo Village hosts a Pusat Pelatihan Pertanian dan Pedesaan Swadaya (P4S) that focuses on organic farming development, while Jogoyasan Village is home to KUB Berkah Mandiri, which supports semi-organic vegetable farmers. The existence of these institutions facilitates access to farmers who have experience and exposure to organic fertilizer use, thereby ensuring the relevance and reliability of the data collected. The population of this study refers to vegetable farmers in Ngablak Subdistrict, Magelang Regency. In 2023, Ngablak Subdistrict, Magelang District, had 9,171 horticultural farmers (Badan Pusat Statistik Kabupaten Magelang, 2024). Then, the sample size is determined using the Slovin formula, with an acceptable error rate of 10%.

$$n = \frac{N}{1 + Ne^2}$$
$$n = \frac{9,171}{1 + 9,171(0.1)^2}$$
$$n = 99$$

Notes: n=Sample size, N=Population size, e=Error rate

The Slovin formula calculation indicates that 99 respondents must be included in the study's minimal sample size. However, Sugiyono (2013) suggests that the larger of the sample size which close to the population, the smaller the chance of generalization error. Therefore, this study involved 123 respondents. Purposive sampling was employed as the method for selecting respondents, guided by predetermined criteria aligned with the objectives of the study. The specific criteria for becoming a respondent in this study is vegetable farmers domiciled in Ngablak Subdistrict, Magelang Regency who knew what organic fertilizer was and had purchased organic fertilizer before. This research used the type of data which is cross-sectional. Data collection was conducted through direct interviews with farmers, using research instruments in the form of structured questionnaires. Respondents were asked to rate a number of statements in the questionnaire by selecting the answer that best matched their perception. To assess the constructs of purchasing behavior, purchasing intention, attitude, subjective norms, perceived behavioral control, environmental concern, trust, and price consciousness, this study utilized a Likert-scale measurement instrument with a rating range from 1

(firmly disagree) to 5 (firmly agree). Using the Likert scale, the variables under study are translated into specific indicators, which then serve as the basis for developing instrument items in the form of statements or questions (Sugiyono, 2013).

Table 1. Measurement Items of Study Construct

Symbol	Measurement Items	Source
PI- 1	I am interested in purchasing organic fertilizer products	Laheri et al., 2024; Dorce et al., 2021; Kamalanon et al., 2022
PI- 2	I intend to purchase organic fertilizer products	
PI- 3	I plan to purchase organic fertilizer products in the future	
PI- 4	I am willing to purchase organic fertilizer products	
PB- 1	I tried to purchase environmentally friendly fertilizer products	Kamalanon et al., 2022; Laheri et al., 2024; Dorce et al., 2021
PB- 2	I have switched from buying nonorganic fertilizer to buying organic fertilizer	
PB- 3	I have purchased organic fertilizer	
PB- 4	I buy organic fertilizer regularly	
ATD- 1	I believe purchasing organic fertilizer products is a good idea	Varah et al., 2021; Kamalanon et al., 2022; Fenta et al., 2024; Sreen et al., 2018
ATD- 2	I like the idea of buying organic fertilizer products	
ATD- 3	I believe that purchasing organic fertilizer products is beneficial	
ATD- 4	I feel that if given the choice, I would prefer organic fertilizer products over non-organic fertilizer products	
SN- 1	Others will have a good opinion of me if I purchase organic fertilizer products	Fenta et al., 2024; Dorce et al., 2021; Varah et al., 2021
SN- 2	Most of the people whose opinions matter to me agree with my decision to buy organic fertilizer	
SN- 3	Positive feedback from my coworkers influenced me to buy organic fertilizer products	
SN- 4	Most people I know advise me to choose organic products when buying fertilizer	
PBC- 1	I have the resources to purchase organic fertilizer products	Fenta et al., 2024; Dangaiso, 2023; Varah et al., 2021
PBC- 2	I am confident that I have the financial means to purchase organic fertilizer products	
PBC- 3	I assume that the purchase of organic fertilizer products is entirely under my control	
PBC- 4	I may have many opportunities to purchase organic fertilizer products	
EC- 1	I care deeply about environmental sustainability	Paul et al., 2016; Kamalanon et al., 2022; Zheng et al.,
EC- 2	I would describe myself as someone who is responsible for the environment	

Symbol	Measurement Items	Source
EC- 3	I am concerned about my nation’s declining environmental quality	2021
EC- 4	When making most purchases of a product, I consider the potential environmental consequences	
TRS- 1	I believe in fertilizer products that are labeled organic	Sultan et al., 2020; Luo et al., 2023; Ogiemwonyi, 2022
TRS- 2	I believe that the price of organic fertilizer products is commensurate with their quality	
TRS- 3	The claims made by organic fertilizer products are reliable	
PC- 1	I choose fertilizer products that provide the best value for my money that I spent	Luthfiana et al., 2024; Katt & Meixner, 2020
PC- 2	I compared the prices of fertilizers from various brands	
PC- 3	I look for good deals when buying fertilizer	

After the data were collected, the analysis is performed using Structural Equation Modeling with the Partial Least Squares (SEM-PLS) approach to assess the relationships among the study variables. Hair et al. (2021) described SEM-PLS as a “predictive-causal” approach to structural equation modeling, emphasizing the explanation of variance in the model’s dependent variables. The conceptual framework outlining the relationships among the variables under investigation is visually represented in Figure 1.

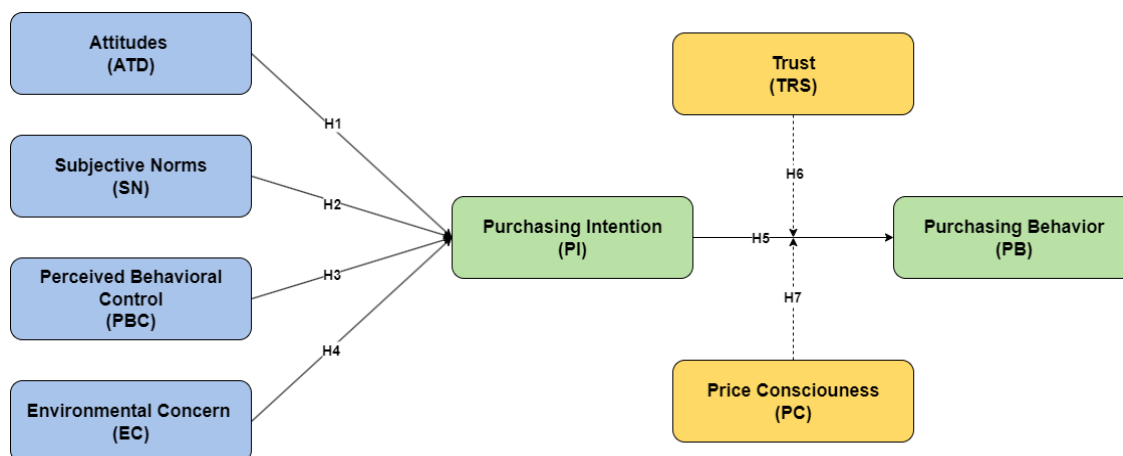


Figure 1. Conceptual framework

In SEM-PLS, the analysis consists of two primary stages, the assessment of the measurement (outer) model and the evaluation of the structural (inner) model. A measurement model is considered good if it meets several key criteria: each indicator must demonstrate sufficient item reliability, indicated by a loading factor of at least 0.5; internal consistency must be achieved with a Composite Reliability value exceeding 0.7; and the Average Variance Extracted (AVE) should be no less than

0.5. Additionally, discriminant validity is evaluated using the Fornell-Larcker criterion, which requires that AVE’s square root for each construct is greater than its correlations with any other construct in the model (Hair et al., 2021).

Meanwhile, inner model evaluation is based on variance inflation factor ≤ 3.3 , determination coefficient (R²), path coefficient, and significance value (p-value $\leq \alpha$). Then, a model fit check was performed using prediction relevance criteria (Q² > 0), standardized root-mean-square residual < 0.10, PLSpredict (PLS model error < benchmark model error), and crossvalidated predictive ability test (CVPAT) in which the PLS model is considered to have good predictive ability if the average loss difference is negative and significant (Hair et al., 2021; Lienggaard et al., 2021; Hu & Bentler, 1998).

RESULT AND DISCUSSION

Evaluating the reliability of each item—that is, examining the value of the standardized loading factor—allows one to evaluate convergent validity. The results from the tests show that every indicator as a manifestation of latent variables has a standardized loading factor above 0.5. This points to the validity and good representation of the latent variables by all of the utilized indicators. Furthermore, validating convergent validity by examination of internal consistency reliability and AVE. The results showed that every latent variable attained a CR score greater than 0.7, showing that the measuring instrument shows adequate consistency, and accuracy in capturing the desired construct. Likewise, the AVE values evaluation showed that all latent variables in this investigation surpassed an AVE of 0.5, therefore suggesting great convergent validity.

Table 2. Convergent Validity and Reliability Assessments

Constructs	Items	Loading Factor	Composite Reliability	AVE
PI	PI- 1	0.827	0.901	0.695
	PI- 2	0.893		
	PI- 3	0.785		
	PI- 4	0.825		
PB	PB- 1	0.674	0.857	0.602
	PB- 2	0.730		
	PB- 3	0.814		
	PB- 4	0.872		
ATD	ATD- 1	0.854	0.886	0.662
	ATD- 2	0.889		
	ATD- 3	0.818		
	ATD- 4	0.678		
SN	SN- 1	0.689	0.877	0.643
	SN- 2	0.804		
	SN- 3	0.810		
	SN- 4	0.891		
PBC	PBC- 1	0.797	0.872	0.631
	PBC- 2	0.711		
	PBC- 3	0.827		

Constructs	Items	Loading Factor	Composite Reliability	AVE
EC	PBC- 4	0.835	0.824	0.547
	EC- 1	0.770		
	EC- 2	0.796		
	EC- 3	0.516		
	EC- 4	0.833		
TRS	TRS- 1	0.764	0.818	0.604
	TRS- 2	0.663		
	TRS- 3	0.888		
PC	PC- 1	0.675	0.795	0.565
	PC- 2	0.832		
	PC- 3	0.739		

Source: Primary Data Analysis, 2025

Discriminant validity in this research is examined using the Fornell-Larcker criterion. This approach suggests that the square root of the AVE for each construct should be higher than its correlations with any other latent variables (Hair et al., 2021). The results of this assessment are shown in Table 3. The diagonal values, highlighted in yellow, express the square roots of the AVE, while the remaining values indicate the correlations between different constructs. AVE's square root for each construct in this study is consistently higher than its correlation with other constructs. Therefore, the model used demonstrates strong discriminant validity.

Table 3. Discriminant validity Fornell Larcker Criterion

Variabel	ATD	SN	PBC	EC	TRS	PC	PI	PB
ATD	0.814	0.538	0.423	0.389	0.359	0.280	0.523	0.610
SN	0.538	0.802	0.573	0.400	0.429	0.141	0.484	0.503
PBC	0.423	0.573	0.794	0.321	0.455	0.344	0.442	0.560
EC	0.389	0.400	0.321	0.740	0.240	0.313	0.409	0.335
TRS	0.359	0.429	0.455	0.240	0.777	0.364	0.435	0.443
PC	0.280	0.141	0.344	0.313	0.364	0.752	0.308	0.281
PI	0.523	0.484	0.442	0.409	0.435	0.308	0.833	0.631
PB	0.610	0.503	0.560	0.335	0.443	0.281	0.631	0.776

Source: Primary Data Analysis, 2025

Conducting a collinearity check is essential to ensure that the regression estimates are not distorted or biased. The Variance Inflation Factor is a frequently used indicator to determine whether or not there are symptoms of multicollinearity in the model (Hair et al., 2021). VIF is a statistical measure commonly employed in SEM-PLS analysis to detect the presence of multicollinearity, which reflects high intercorrelation among predictor variables. Multicollinearity can distort the estimation of path coefficients, making it difficult to ascertain each predictor's individual impact on the dependant variable. This will make the reliability of the regression estimates may be compromised, and the interpretation of the model becomes less precise. As stated on the test results, all path relationships of each estimated variable have a VIF value lower than 3.3 so that no multicollinearity symptoms are detected in the research model.

Table 4. Collinearity Assessment for Inner Model

Path Relationship	VIF
Attitudes → Purchasing Intention	1.514
Subjective Norms → Purchasing Intention	1.832
Perceived Behavioral Control → Purchasing Intention	1.544
Environmental Concern → Purchasing Intention	1.264
Purchasing Intention → Purchasing Behavior	1.302
Trust x Purchasing Intention → Purchasing Behavior	1.252
Price Consciousness x Purchasing Intention → Purchasing Behavior	1.301

Source: Primary Data Analysis, 2025

Goodness of Fit (GoF) serves as a way to examine how adequate the model accounts for the observed data as a whole. GoF evaluation can be conducted by measuring the relevance of Q2 prediction and assessing the SRMR. Q² and SRMR analysis results are summarized in Table 5. Both in the purchasing intention construct and in the purchasing behavior construct, both have a Q2 value higher than 0 so that both models have good predictive relevance. Meanwhile, the research model has an SRMR value of 0.097. Hu & Bentler (1998) explained that the SRMR value in the range of 0.08 to 0.10 is still tolerable and is considered to indicate an acceptable model fit.

Table 5. Q-squared and SRMR Values

Variable	Q ²	SRMR
Purchasing Intention	0.300	0.097
Purchasing Behavior	0375	

Source: Primary Data Analysis, 2025

Another approach to evaluating model fit involves the use of PLSpredict, which compares the RMSE and MAE values generated by the PLS model with those from a benchmark model, typically a linear regression model (LM) (Hair et al., 2021). The RMSE and MAE values of each endogenous latent variable indicator from the PLS-SEM model and the linear regression model can be presented in Table 6. According to the test findings, it is known that all measurement indicators of the PLS model, both in the purchasing intention and purchasing behavior variables, both have lower RMSE and MAE values than LM. This indicates that the PLS model has a smaller prediction error rate so the research model used demonstrates strong predictive power.

Table 6. Result of PLSpredict

Indicator	PLS-SEM		LM	
	RMSE	MAE	RMSE	MAE
PI- 1	0.514	0.367	0.571	0.447
PI- 2	0.495	0.369	0.568	0.449
PI- 3	0.577	0.413	0.647	0.512
PI- 4	0.602	0.427	0.744	0.540
PB- 1	0.505	0.358	0.600	0.442
PB- 2	0.700	0.543	0.826	0.628
PB-3	0.473	0.333	0.517	0.378
PB-4	0.618	0.486	0.730	0.543

Source: Primary Data Analysis, 2025

As a further step in the PLSpredict assessment, a crossvalidated predictive ability test (CVPAT) is carried out. Lienggaard et al. (2021) explain that CVPAT serves as a tool to evaluate the comparative predictive power of two theoretical models by measuring how well they estimate the indicators associated with all dependent variables at once. The PLS model’s performance will be compared with that of two benchmark models—namely, the indicator average (IA) model and the linear regression model (LM). The findings from CVPAT measurements revealed that the average loss difference (ALD) among PLS model and IA regarding purchasing intention and purchasing behavior variables was negative, with a significance level below alpha 0.01. Likewise, the average loss difference when comparing the PLS model with LM also resulted in a negative value and a significance level lower than alpha 0.01. Therefore, this inferred that the PLS model demonstrates lower predictive error relative to the benchmark models. This research model has high predictive power.

Table 7. Assessment of CVPAT

Variable	PLS-SEM vs IA		PLS-SEM vs LM	
	ALD	P Value	ALD	P Value
Purchasing Behavior	-0.098	0.000	-0.123	0.001
Purchasing Intention	-0.078	0.006	-0.104	0.000
Overall	-0.088	0.000	-0.114	0.000

Source: Primary Data Analysis, 2025

The determination coefficient quantifies how much of the variability in the endogenous variable can be attributed to the set of exogenous variables included in the model collectively. In this study, determination coefficient is assessed by examining the adjusted R² value. Purchasing intention construct has adjusted R² value of 0.357. This value means that the exogenous latent variables of ATD, SN, PBC, and EC are able to explain 35.7% of the endogenous variables of organic fertilizer purchasing intention. Meanwhile, in the purchasing behavior construct, an adjusted R² value of 0.428 is obtained. This value means that the exogenous latent variable of purchasing intention, along with the moderating variables trust and price consciousness, collectively explain 42.8% of the endogenous variable of organic fertilizer purchasing behavior. According to Haryono (2016), the adjusted R² coefficient value ranging from <0.67 and ≥0.33 is considered moderate.

Table 8. Coefficient of determination value

Variable	R ²	Adj R ²
Purchasing Intention	0.378	0.357
Purchasing Behavior	0.451	0.428

Source: Primary Data Analysis, 2025

The findings from structural model examination are shown in Figure 2 and Table 9. Path coefficients represent the magnitude and direction of associations between latent variables in the structural model. Haryono (2016) states that the direction or sign of each path coefficient should be consistent with the theoretical expectations established in the research hypotheses, while significance of the relationships among latent constructs is assessed through the use of p-values. This research conducts significance testing using three confidence levels. Coefficient estimates are interpreted as

statistically significant if the associated p-values are at or below 0.1, 0.05, and 0.01 at confidence levels of 90%, 95%, and 99%, respectively.

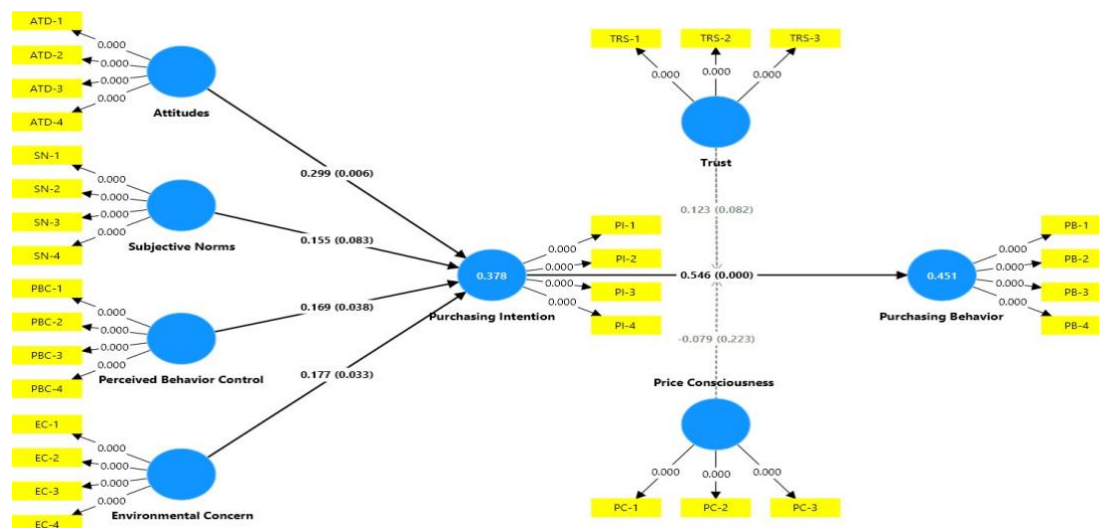


Figure 2. Structural Model

Table 9. Structural Model Examination

Hypothesis	Relationship	Path Coefficient	P Value	Standard Error	Result
H-1	ATD → PI	0.299***	0.006	0.011	Accepted
H-2	SN → PI	0.155*	0.083	0.010	Accepted
H-3	PBC → PI	0.169**	0.038	0.009	Accepted
H-4	EC → PI	0.177**	0.033	0.009	Accepted
H-5	PI → PB	0.546***	0.000	0.007	Accepted

Source: Primary Data Analysis, 2025

Notes: *, **, ***coefficient is significant at 90%, 95%, and 99% confidence levels, respectively

Attitudes ($\beta=0.299$, $p<0.01$) exerts a statistically substantial and positive effect on the purchasing intention of organic fertilizer so that H1 is accepted. If vegetable farmers in Ngablak Subdistrict have favorable attitudes pertaining to organic fertilizer, the level of their organic fertilizer purchasing intention will increase. This study’s findings are in accordance with Leonardo et al. (2024) and Laheri et al. (2024). A favorable attitude towards a product often reflects an individual's belief or trust in the benefits and favorable values that a particular product offers (Theocharis & Tsekouropoulos, 2025). This can form a sense of trust, attraction and desire to own the product, which in turn leads to an increase in product purchasing intentions. Positive attitudes can also reduce internal conflict and strengthen motivation to act. When consumers like and trust the product, there are fewer barriers or doubts about buying the product (An et al., 2021).

To strengthen farmers' positive attitudes toward organic fertilizers, educational activities should be conducted to provide comprehensive information about the advantages of using organic fertilizers. The government or extension agencies can provide extension materials covering the agronomic benefits of organic fertilizers and their long-term contribution to soil fertility and crop productivity. In addition, organic fertilizer marketers are also expected to provide informative

promotional materials that emphasize the added value of organic fertilizers compared to chemical fertilizers.

Subjective norms ($\beta=0.155$, $p<0.1$) positively and significantly influence purchasing intention so H2 is accepted. The stronger subjective norms obtained by vegetable farmers in Ngablak Subdistrict from the surrounding social environment, the higher the level of their organic fertilizer purchasing intention. The finding in this study is validated by Leonardo et al. (2024) and Fenta et al. (2024). Leonardo et al. (2024) showed that the attitudes and subjective norms of farmers in Belize positively influenced their intention to adopt organic fertilizers. Fenta et al. (2024) explain that individuals consider and follow the views, advice, and expectations of individuals or groups that have influence in their lives, such as friends, coworkers, family members, or certain communities. Individuals believe that their actions will be judged by these social groups, and if social norms support the purchase of a product, the intention to purchase the product will increase.

Subjective norms that support the purchase of organic fertilizers can be established by creating a social environment that encourages collective behavioral change towards more sustainable agriculture. Agricultural extension workers, influential community leaders, and farmer group leaders can become agents of change, either by setting real examples or by facilitating group discussions on the benefits and experiences of using organic fertilizers. Implementing group extension programs and comparative studies with farmer groups that have successfully adopted organic fertilizers can also be effective means of strengthening positive social pressure among farmers. Farmers are also encouraged to start inviting their fellow farmers to gradually switch from chemical fertilizers to organic fertilizers.

Perceived behavioral control ($\beta=0.169$, $p<0.05$) exerts a statistically substantial and positive influence on purchasing intention, so H3 is accepted. This finding indicates that the increasing perceived behavioral control of farmers towards the purchase of organic fertilizer is directly proportional to organic fertilizer purchasing intention. The intention to purchase organic fertilizer tends to be higher when farmers feel equipped with the necessary ability and resources to access, obtain, and apply the organic fertilizer. This result is in accordance with Nekomahmud et al. (2022) and Zhuang et al. (2021). When consumers perceive that they are capable of managing over factors such as product accessibility, information availability, and resource support (e.g., time and cost), their confidence in making purchasing decisions tends to increase (Watts & Chi, 2019). This confidence ultimately drives a stronger desire to buy.

To strengthen perceived behavioral control of farmers towards the purchase of organic fertilizer, it is advisable to facilitate farmers' access to organic fertilizers. The government can begin to intensify the provision of financial assistance programs in the form of special agricultural business loans for the purchase of organic fertilizers. Furthermore, the government can collaborate with organic fertilizer producers or distributors to expand the distribution network of organic fertilizers to various regions, especially remote areas with limited access to organic fertilizers. In addition, agricultural extension workers can also provide clear and practical information on the proper use of organic fertilizers so as to increase farmers' confidence and ability to apply organic fertilizers effectively.

Similarly, environment concern ($\beta=0.177$, $p<0.05$) positively and significantly influence purchasing intention so H4 is accepted. A greater intention to purchase organic fertilizer is generally observed among farmers who are highly concerned about environmental sustainability. This study's findings are corroborated by Varah et al. (2021) and Mishra & Kaur (2023). Environmental concerns

are also associated with individual willingness to protect the natural environment from adverse human impacts (Diekmann & Franzen, 2019). Sajinčić et al. (2021) explain that individuals who care about the status of the environment often try to solve environmental issues, one of which is the response to the desire to use environmentally friendly products or buy environmentally friendly products.

Farmers' concern for the environment can be increased through environmental awareness campaigns targeting farming communities. Support from the government and extension agencies is essential in conducting outreach that emphasizes the importance of integrating sustainability values into agricultural practices. These efforts are expected to shape collective awareness among farmers regarding the importance of preserving the environment as an integral part of sustainable farming activities.

Furthermore, purchasing intention ($\beta=0.177, p<0.05$) exerts a statistically substantial and positive influence on purchasing behavior of organic fertilizer so that H5 is accepted. It implies that a higher level of purchasing intention among farmers is associated with an increased probability of engaging in actual organic fertilizer purchases. This finding strengthens the assumption in the TPB which states that intention is the main predictor in explaining a person's actual behavior (Ajzen, 1991). These results are also in line with Wang & Zhang (2023), Niloy et al. (2023), Kamalanon et al. (2022) and Laheri et al. (2024). Wang & Zhang (2023) showed that behavioral intention has a significant positive effect on organic fertilizer use behavior in Luobei County, Hegang City, China. Purchasing intention is regarded as indicator that captures the motivation underlying consumption behavior. An individual's intention shows both the effort they are prepared to make and the persistence they are willing to demonstrate in order to complete a specific purchasing action (Ajzen, 2005).

The examination of moderation effect driven by trust and price consciousness on the association among organic fertilizer purchase intention and behavior is presented in Table 10. As shown in Table 10, it is found that trust ($\beta=0.123, p<0.1$) positively moderates the intention-behavior relationship in organic fertilizer purchasing so that H6 is accepted. Meanwhile, price consciousness ($\beta=-0.079, p>0.1$) fails to significantly moderate the intention-behavior link in organic fertilizer purchasing so that H7 is rejected.

Table 10. Moderation Analysis Examination

Hypothesis	Relationship	Path Coefficient	P Value	Standard Error	Result
H-6	TRS*PI → PB	0.123*	0.082	0.008	Accepted
H-7	PC*PI → PB	-0.079 ^{ns}	0.223	0.009	Rejected

Source: Primary Data Analysis, 2025

Notes: *, **, ***coefficient is significant at 90%, 95%, and 99% confidence levels, respectively

The link between organic fertilizer purchase intention and behavior is strengthened by farmers' trust. In other words, when farmers have high trust in the quality, effectiveness, and advantages of organic fertilizer, their intentions are more likely to be translated into real purchasing actions. This discovery is in sync with Sultan et al. (2020) and Zheng et al. (2021). Zheng et al. (2021) explained that trust can bridge the disparity intertwined intention and actual behavior. The greater degree of consumer trust in organic products, the more likely they are to realize this intention into actual purchase actions. Trust helps overcome doubts and strengthen commitment to purchasing decisions.

Farmers' trust in organic fertilizers can be increased by providing accurate and transparent information about the composition, benefits, and effectiveness test results of the product. Organic

fertilizer producers are expected to provide clear labeling and obtain official certification from credible institutions. The government can also facilitate field demonstrations to show the real results of using organic fertilizers, while marketers can provide support by providing testimonials and case studies of successful farmers.

In contrast to trust, price consciousness shows no moderating influence on the intention–behavior relationship in organic fertilizer purchasing among vegetable farmers in Ngablak District, Magelang Regency. This finding differs from the results reported by Saleki et al. (2019) and Zheng et al. (2021). This discrepancy may be due to the characteristics of farmers who are mostly accustomed to using organic fertilizer in the form of manure, which is relatively cheap and easily accessible. In addition, most of vegetable farmers in Ngablak Subdistrict stated that the price of organic fertilizer was in accordance with their expectations, indicating that price perceptions tended to be positive. The price of manure that farmers in Ngablak Subdistrict usually purchases ranges from Rp30,000 to Rp50,000 per sack 50 kg. This condition causes the price consciousness variable to be less varied. Aguinis et al. (2016) explain that moderator variables with low variance distribution tend not to show a significant moderating effect.

CONCLUSION AND SUGGESTION

Attitude, subjective norm, perceived behavioral control, and environmental positively and significantly influence the vegetable farmers' intention to purchase organic fertilizer in Ngablak Subdistrict, Magelang Regency. Furthermore, purchasing intention exerts a statistically substantial and positive influence purchasing behavior of organic fertilizer on vegetable farmers. In addition, trust positively moderates the intention–behavior relationship in organic fertilizer purchasing. Meanwhile, price consciousness fails to significantly moderate the intention–behavior link in organic fertilizer purchasing.

Thus, in order to encourage increased purchase and use of organic fertilizers, various strategic efforts are needed to strengthen favorable attitude, subjective norm, perceived behavioral control, environmental concern, and trust among farmers. For organic fertilizer marketers, marketing strategies should focus on conveying the added value of organic fertilizer products, such as long-term benefits for soil fertility and crop productivity, to increase farmers' favorable attitudes towards these products. Strengthening subjective norms can be done through increasing social support, including through the implementation of group counseling, involving community leaders, and creating a social environment that supports sustainable agricultural practices.

To increase the perception of farmers' behavioral control, accessibility to organic fertilizers needs to be facilitated, for example through financial assistance for farm credit specifically for the purchase of organic fertilizers and the expansion of distribution networks to various regions. The formation of environmental concern can be encouraged through continuing education that emphasizes the importance of sustainable agriculture, environmental awareness campaigns that target farming communities, and the integration of sustainability values in agricultural extension activities. Meanwhile, farmers' trust in organic fertilizers can be strengthened through field demonstrations that show the real success of applying organic fertilizers, as well as through the existence of official

certification and credible product labels so that farmers are confident that the products they use have guaranteed quality.

REFERENCES

- Aguinis, H., Edwards, J. R., & Bradley, K. J. (2016). Improving Our Understanding of Moderation and Mediation in Strategic Management Research. *Organizational Research Methods*, 20(4), 665–685. <https://doi.org/10.1177/1094428115627498>
- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (2005). *Attitudes, Personality and Behavior (2nd Ed.)*. Open University Press.
- An, D., Ji, S., & Jan, I. U. (2021). Investigating the Determinants and Barriers of Purchase Intention of Innovative New Products. *Sustainability*, 13(2), 1–14. <https://doi.org/10.3390/su13020740>
- Badan Pusat Statistik. (2025). *Produk Domestik Bruto atas Dasar Harga Berlaku Menurut Lapangan Usaha 2024*. Badan Pusat Statistik. <https://www.bps.go.id/id/statistics-table/3/UzFSTVVXUlliME5XYzBZNUwwNVFRa3h6Y1d3M1p6MDkjMw==/p?year=2024>
- Badan Pusat Statistik Kabupaten Magelang. (2024). *Hasil Sensus Pertanian 2023 Kecamatan Ngablak* (Vol. 1, Issue 8). Badan Pusat Statistik Kabupaten Magelang. <https://bpbd.magelangkab.go.id/home/detail/mendalami-gizi-untuk-keencanaan/769%0Ahttps://bpbd.magelangkab.go.id/home/detail/study-banding-mitra-arbeiter-samariter-bund--asb--untuk-desa-tangguh-bencana-kabupaten-magelang-berbasis-inklusi/710%0Ahttp://bappe>
- Dangaiso, P. (2023). Extending The Theory of Planned Behavior Topredict Organic Food Adoption Behavior Andperceived Consumer Longevity in Subsistencemarkets: A Post-Peak COVID-19 Perspective. *Cogent Psychology*, 10(1). <https://doi.org/10.1080/23311908.2023.2258677>
- Diekmann, A., & Franzen, A. (2019). Environmental concern: A Global Perspective. In *Einstellungen und Verhalten in der empirischen Sozialforschung* (Issue August). Springer VS. <https://doi.org/10.1007/978-3-658-16348-8>
- Dorce, L. C., da Silva, M. C., Mauad, J. R. C., de Faria Domingues, C. H., & Borges, J. A. R. (2021). Extending The Theory of Planned Behavior to Understand Consumer Purchase Behavior for Organic Vegetables in Brazil: The Role of Perceived Health Benefits, Perceived Sustainability Benefits and Perceived Price. *Food Quality and Preference*, 91(2). <https://doi.org/10.1016/j.foodqual.2021.104191>
- Fenta, Y., Singh, M., & Gautam, R. K. (2024). Antecedents of Consumers' Green Product Purchase Intention: An Insight from Ethiopia. *Cogent Business and Management*, 11(1). <https://doi.org/10.1080/23311975.2024.2361865>
- Guerreiro, J., & Pacheco, M. (2021). How Green Trust, Consumer Brand Engagement and Green Word-of-Mouth Mediate Purchasing Intentions. *Sustainability*, 13(14), 1–13. <https://doi.org/10.3390/su13147877>

- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R*. Springer. https://doi.org/10.1007/978-3-319-57413-4_15
- Harris, J., & Hagger, M. S. (2007). Do Basic Psychological Needs Moderate Relationships Within the Theory of Planned Behavior? *Journal of Applied Biobehavioral Research*, 12(1), 43–64. <https://doi.org/10.1111/j.1751-9861.2007.00013.x>
- Haryono, S. (2016). *Metode SEM untuk Penelitian Manajemen dengan AMOS LISREL PLS*. Intermedia Personalia Utama.
- Hu, L., & Bentler, P. M. (1998). Fit Indices in Covariance Structure Modeling: Sensitivity to Underparameterized Model Misspecification. *Psychological Methods*, 3(4), 424–453. <https://doi.org/10.1037//1082-989x.3.4.424>
- IFOAM. (2007). *IFOAM Training Manual for Organic Agriculture in Arid and Semi-Arid Tropics*. Research Institute of Organic Agriculture (FiBL). <https://www.fibl.org/fileadmin/documents/shop/1299-manual-tropics-basic.pdf>
- Kamalanon, P., Chen, J. S., & Le, T. T. Y. (2022). Why Do We Buy Green Products? An Extended Theory of The Planned Behavior Model for Green Product Purchase Behavior. *Sustainability*, 14(2), 1–28. <https://doi.org/10.3390/su14020689>
- Katt, F., & Meixner, O. (2020). Is It All about the Price? An Analysis of the Purchase Intention for Organic Food in a Discount Setting by Means of Structural Equation Modeling. *Foods*, 9(4), 1–13. <https://doi.org/10.3390/foods9040458>
- Kotler, P., & Keller, K. L. (2016). *Marketing Management*. In Pearson. Pearson Education Limited.
- Laheri, V. K., Lim, W. M., Arya, P. K., & Kumar, S. (2024). A Multidimensional Lens of Environmental Consciousness: Towards an Environmentally Conscious Theory of Planned Behavior. *Journal of Consumer Marketing*, 41(3), 281–297. <https://doi.org/10.1108/JCM-03-2023-5875>
- Leonardo, T. Y., Chen, S. H., Liou, G. B., & Hsieh, C. M. (2024). Evaluating Belizean Sugarcane Farmers' Adoption Intentions Regarding Organic Fertilizer. *Agronomy*, 14(10), 1–16. <https://doi.org/10.3390/agronomy14102356>
- Lichtenstein, D. R., Ridgway, N. M., & Netemeyer, R. G. (1993). Price Perceptions and Consumer Shopping Behavior: A Field Study. *Journal of Marketing Research*, 30(2), 234–245. <https://doi.org/10.2307/3172830>
- Lienggaard, B. D., Sharma, P. N., Hult, G. T. M., Jensen, M. B., Sarstedt, M., Hair, J. F. H., & Ringle, C. M. (2021). Prediction: Coveted, Yet Forsaken? Introducing a Crossvalidated Predictive Ability Test in Partial Least Squares Path Modeling. *Decision Sciences*, 52(2), 362–392. <https://doi.org/10.1111/decis.12445>
- Luo, G. L., Zheng, H., & Guo, Y. L. (2023). Impact of Consumer Information Capability on Green Consumption Intention: The Role of Green Trust and Media Publicity. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1247479>
- Luthfiana, D. N., Andika, A., & Bidayati, U. (2024). Unraveling The Complexity of the Organic Food Market: Indonesian Consumer Perspective on Price and Product Knowledge. *Asian Management and Business Review*, 4(1), 73–89. <https://doi.org/10.20885/ambr.vol4.iss1.art5>

- Mishra, S., & Kaur, R. (2023). Investigating Consumer's Buying Behaviour of Green Products Through the Lenses of Extended Theory of Planned Behaviour. *Management of Environmental Quality*, 36(4), 971–989. <https://doi.org/10.1108/MEQ-11-2022-0315>
- Mowen, J. C., & Minor, M. (2002). *Perilaku Konsumen*. Erlangga.
- Nekmahmud, M., Naz, F., Ramkissoon, H., & Fekete-Farkas, M. (2022). Transforming Consumers' Intention to Purchase Green Products: Role of Social Media. *Technological Forecasting and Social Change*, 185. <https://doi.org/10.1016/j.techfore.2022.122067>
- Niloy, A. C., Sultana, J., Alam, J. bin, Ghosh, A., & Farhan, K. M. (2023). What Triggers You to Buy Green Products? Explaining Through an Extended TPB Model. *Asia-Pacific Journal of Management Research and Innovation*, 19(1), 25–39. <https://doi.org/10.1177/2319510x231171195>
- Nuttavuthisit, K., & Thøgersen, J. (2017). The Importance of Consumer Trust for the Emergence of a Market for Green Products: The Case of Organic Food. *Journal of Business Ethics*, 140(2), 323–337. <https://doi.org/10.1007/s10551-015-2690-5>
- Ogiemwonyi, O. (2022). Factor Influencing Generation Y Green Behaviour on Green Product in Nigeria: An Application of Theory of Planned Behaviour. *Environmental and Sustainability Indicators*, 13. <https://doi.org/10.1016/j.indic.2021.100164>
- Paul, J., Modi, A., & Patel, J. (2016). Predicting Green Product Consumption Using Theory of Planned Behavior and Reasoned Action. *Journal of Retailing and Consumer Services*, 29, 123–134. <https://doi.org/10.1016/j.jretconser.2015.11.006>
- Purnomo, D. (2024). Farmers' Intentions for Sustainable Fertilizer Practices: A Study of Shallot Farmers. *Jurnal Penelitian Pendidikan IPA*, 10, 234–242. <https://doi.org/10.29303/jppipa.v10ispecialissue.7852>
- Rihn, A., Khachatryan, H., & Wei, X. (2018). Assessing Purchase Patterns of Price Conscious Consumers. *Horticulturae*, 4(3), 1–16. <https://doi.org/10.3390/horticulturae4030013>
- Sajinčič, N., Gordobil, O., Simmons, A., & Sandak, A. (2021). An Exploratory Study of Consumers' Knowledge and Attitudes About Lignin-Based Sunscreens and Biobased Skincare Products. *Cosmetics*, 8(3). <https://doi.org/10.3390/cosmetics8030078>
- Saleki, R., Quoquab, F., & Mohammad, J. (2019). What Drives Malaysian Consumers' Organic Food Purchase Intention? The Role of Moral Norm, Self-Identity, Environmental Concern and Price Consciousness. *Journal of Agribusiness in Developing and Emerging Economies*, 9(5), 584–603. <https://doi.org/10.1108/JADEE-02-2019-0018>
- Singh, R. P. (2012). *Organic Fertilizers: Types, Production and Environmental Impact* (Issue May). Nova Science.
- Sreen, N., Purbey, S., & Sadarangani, P. (2018). Impact of Culture, Behavior and Gender on Green Purchase Intention. *Journal of Retailing and Consumer Services*, 41, 177–189. <https://doi.org/10.1016/j.jretconser.2017.12.002>
- Sugiyono. (2013). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Sultan, P., Tarafder, T., Pearson, D., & Henryks, J. (2020). Intention-Behaviour Gap and Perceived Behavioural Control-Behaviour Gap in Theory of Planned Behaviour: Moderating Roles of Communication, Satisfaction and Trust in Organic Food Consumption. *Food Quality and Preference*, 81. <https://doi.org/10.1016/j.foodqual.2019.103838>
- Theocharis, D., & Tsekouropoulos, G. (2025). Sustainable Consumption and Branding for Gen Organic Fertilizer Purchasing Behavior of Vegetable Farmers in Ngablak Sub-District, Magelang District: Extended Theory of Planned Behavior Approach (Johar *et al.*, 2026)

- Z: How Brand Dimensions Influence Consumer Behavior and Adoption of Newly Launched Technological Products. *Sustainability (Switzerland)*, 17(9), 1–40. <https://doi.org/10.3390/su17094124>
- Varah, F., Mahongnao, M., Pani, B., & Khamrang, S. (2021). Exploring Young Consumers' Intention Toward Green Products: Applying an Extended Theory of Planned Behavior. *Environment, Development and Sustainability*, 23(6), 9181–9195. <https://doi.org/10.1007/s10668-020-01018-z>
- Wang, H., & Zhang, L. (2023). The Effect of Environmental Cognition on Farmers' Use Behavior of Organic Fertilizer. *Environment, Development and Sustainability*, 27(4), 9165–9185. <https://doi.org/10.1007/s10668-023-04275-w>
- Watts, L., & Chi, T. (2019). Key Factors Influencing the Purchase Intention of Activewear: An Empirical Study of US Consumers. *International Journal of Fashion Design, Technology and Education*, 12(1), 46–55. <https://doi.org/10.1080/17543266.2018.1477995>
- Yanakittkul, P., & Aungvaravong, C. (2020). A Model of Farmers Intentions Towards Organic Farming: A Case Study on Rice Farming in Thailand. *Heliyon*, 6(1). <https://doi.org/10.1016/j.heliyon.2019.e03039>
- Zheng, G. W., Akter, N., Siddik, A. B., & Masukujjaman, M. (2021). Organic Foods Purchase Behavior Among Generation Y of Bangladesh: The Moderation Effect of Trust and Price Consciousness. *Foods*, 10(10). <https://doi.org/10.3390/foods10102278>
- Zhuang, W., Luo, X., & Riaz, M. U. (2021). On The Factors Influencing Green Purchase Intention: A Meta-Analysis Approach. *Frontiers in Psychology*, 12, 1–15. <https://doi.org/10.3389/fpsyg.2021.644020>