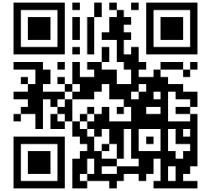


## Determinants Impacting Brand Equity: The Case of Agricultural Product in the Mekong Delta (Vietnam)



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**ABSTRACT:** To measure the perception of farmers engaged in the production of agricultural products mainly crops, the study conducted a survey of 210 farmers producing fruit trees, food crops, vegetables and flowers in the field located in the Mekong River. This study is to assess the behavior of farmers towards evaluating the brand equity of fertilizer products. This is a product commonly used by farmers for agricultural production. This result is confirmed based on the quantitative method of EFA, which shows that brand equity of fertilizer is dominated by related components ranked from high to low including: brand loyalty, perceived quality, brand awareness, and brand association. The research results are also a meaningful reference in practice, because fertilizer manufacturers need to know what to do to improve the brand equity of fertilizer products for agricultural production.

**KEYWORDS:** brand equity, loyalty, agricultural sector, fertilizer product

### 1. INTRODUCTION

Brand equity in the agricultural sector refers to the overall value, perception, and strength of a brand operating within the agricultural industry. Although the agricultural sector is primarily associated with commodities and raw materials, brands within this sector can still differentiate themselves and build brand equity through various strategies.

Investigating brand equity in agriculture sector can have a limitation, in which the case of agricultural products in an emerging market is evident. In fact, the agricultural sector is becoming more knowledge-intensive (Bunchapattanasakda, 2021). Current information enables farmers to manage farms efficiently and effectively and facilitates the use of cutting-edge technology in order to raise yields and improve farmers' living conditions. Brand equity refers to the value and strength of brand in the market place, it supports to measure the perception, recognition, and trust that consumers associate with a particular brand. In the agricultural sector, brand equity plays a significant role in driving business success and contributing to the sector's overall development, in which the role of farmers is indispensable and contributes to market development of agribusiness companies, such as fertilizer products.

Although fertilizer products are indispensable for farmers in the Mekong Delta, measuring the brand value of the product can be said to be less published by researchers. The study of brand equity can be said to be a lot, but the specificity of agricultural products, the main assessor is farmers in the Mekong Delta also need a study to contribute to the practical and academic. This is seen as a gap of this study that the current paper wants to investigate how brand equity of fertilizer products of a manufacturer X (its name is asked to hide, due to sensitive information of the company's business strategy) is affected by farmers' evaluations with respect to brand awareness, brand association, perceived quality, and brand loyalty.

### 2. LITERATURE REVIEW

#### Relationship between brand awareness and brand equity in the agricultural sector

Brand equity includes brand awareness, which measures how strongly a brand is perceived by customers (Aaker, 1991). Aaker described numerous stages of brand awareness, ranging from simple brand identification to domination, which describes the situation in which the brand in question is the only one a consumer can recall. Brand awareness is described as "the ability of the potential buyer to recognize and recall that a brand is a member of a certain product category" by (Jalilvand, Samiei, & Mahdavinia, 2011). Accordingly, brand recognition may be more important to the extent that product decisions are made (Kotler & Keller,

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2006). Customer-based brand equity happens when the consumer is well-aware of the brand, is familiar with it, and has strong, positive, and distinctive brand connotations in their minds .

Brand awareness and brand equity are closely related concepts in the field of marketing and branding. Brand awareness refers to the level of familiarity and recognition that consumers have with a particular brand. It represents the extent to which a brand name, logo, or other brand elements are known by consumers and can be recalled from memory. The relationship between brand awareness and brand equity is typically positive and interdependent. Brand awareness is often considered a prerequisite for building brand equity (Zia, Younus, & Mirza, 2021). A brand needs to be known and recognized by consumers before it can establish a positive brand image and develop strong brand equity.

*H1: An increase in farmer's brand awareness causes a raise in its brand equity of fertilizer product*

### **Relationship between brand association and brand equity in the agricultural sector**

Brand associations play a crucial role in shaping brand equity. Brand associations are the thoughts, feelings, perceptions, and beliefs that consumers have about a brand. They are the mental connections and attributes that come to mind when consumers think about a particular brand. Brand equity, on the other hand, refers to the overall value and strength of a brand in the marketplace. It represents the commercial and intangible value of a brand, including its reputation, customer loyalty, and market position. According to Jayswal & Vora (2019), tangible and intangible attributes are included in brand association. Their finding confirmed that brand association and brand equity have a significant relationship. Based on arguments above, the hypothesis is stated as below

*H2: An increase in farmer's perception with respect to brand association causes a raise in its brand equity of fertilizer product*

### **Relationship between perceived quality and brand equity in the agricultural sector**

Perceived quality and brand equity are closely linked in the field of marketing and branding. Perceived quality refers to the subjective assessment of a product or service's overall quality by consumers. It represents the customer's perception of how well a brand meets their expectations and performs compared to competing offerings (Mägi & Julander, 1996).

Perceived quality affects brand equity because it plays a crucial role in shaping customer perceptions, attitudes, and behaviors towards a brand. The consequence is to foster customer satisfaction, loyalty, differentiation, trust, and positive brand image (Hasnida, Shahrina, & Lai, 2014). Brands that prioritize delivering high-quality offerings build stronger customer relationships, attract new customers, and maintain a competitive advantage, ultimately enhancing their brand equity in the marketplace, while Phong, Nga, Hanh, & van Minh (2020) argue that brand association is an integral part of brand equity. As a result, the hypothesis is stated as below

*H3: An increase in farmer's perception with respect to perceived quality causes a raise in its brand equity of fertilizer product*

### **Relationship between brand loyalty and brand equity in the agricultural sector**

Brand loyalty and brand equity are closely intertwined in the field of marketing and branding. Brand loyalty refers to the degree of consumer attachment and repeat purchasing behavior towards a particular brand. It represents the extent to which customers consistently choose and prefer a specific brand over its competitors.

Brand loyalty plays a significant role in shaping brand equity, it contributes to the overall value of a brand. When customers are loyal to a brand, they are more likely to perceive it as valuable and superior compared to its competitors (Nguyen, Barrett, & Miller, 2011). This perception of value enhances the brand's equity in the marketplace. Brand loyalty provides a competitive advantage by creating a barrier to entry for new competitors. When customers have a strong attachment to a brand, they are less likely to switch to alternative options, even if they are cheaper or offer similar features (Ali, Khushi Muhammad, Shahid Rasheed, & Lodhi, 2019). Based on arguments above, the hypothesis is concerned as below

*H4: An increase in farmer's brand loyalty causes a raise in its brand equity of fertilizer product*

### **Brand equity**

Brand equity is referred to as "a set of assets and liabilities linked to a brand, its name and symbol that adds to or subtracts from the value provided by a product or service to a firm and/or that firm's customers" (Aaker, 1997). King, Grace, & Funk (2012) defined the concept of brand equity from the customer 'based employee perspective in marketing, specially "as the different impact of brand knowledge on employees' responses to internal brand management". Christodoulides & de Chernatony (2010) recently defined brand equity as "a set of perceptions, attitudes, knowledge, and behaviors on the part of consumers that results in increased utility and allows a brand to earn greater volume or greater margins than it could without the brand name." In marketing literature, brand equity is a multidimensional term that assesses customer mentality indicators such as (Verbeeten & Vijn, 2010).

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Indicators of customer-based brand equity employed by Aaker (1991) in his model include brand awareness, brand associations, perceived quality, and brand loyalty. According to Munoz & Kumar (2004), these indicators play a key role in branding strategy and have a considerable impact on brand equity.

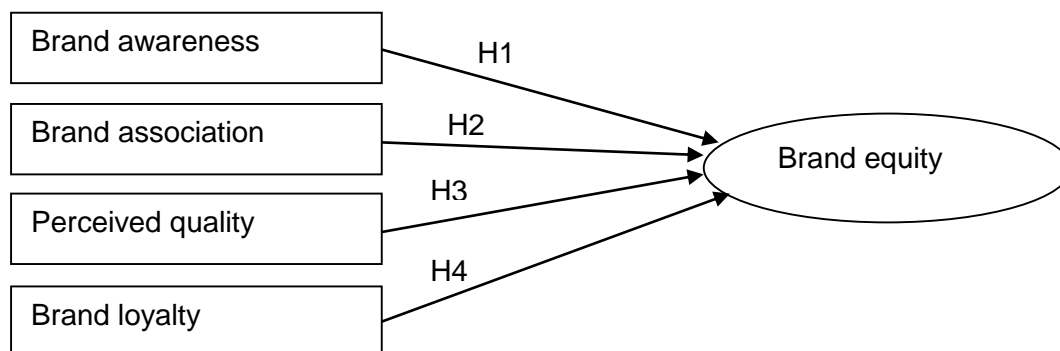


Figure 1: Proposed research model in agricultural sector

In sum, from the above arguments, the proposed research model is shown in figure 1. This model will help to study the behavior of farmers in assessing the brand value of X of a fertilizer company in the Mekong Delta. Due to confidentiality requirements, the omitted name of the X brand fertilizer product from the fertilizer company was used in the study. Expected research results, contributions and gaps of the aforementioned research and practical contributions.

### 3. RESEARCH METHODOLOGY

The quantitative method was conducted in three provinces in the Mekong Delta, such as Vinh Long, Dong Thap, and An Giang. Respondents interviewed are farmers who have a long time involved in agricultural production, which farmers are producing crops of fruit, food (rice, corn, and bean), vegetable, and flowers and ornamental plans.

The questionnaire consists of two sections. Firstly, the questions are to collect farmers' profile as demographic characteristics. Secondly, the questions with respect to observed variables measured by five point Likert scale, 1 being unlikely and 5 being likely. According to the second section, four factors designed (brand awareness, brand association, perceived quality, and brand loyalty) are based on proposed model that is derived from previous scholars. There are 21 observed variables as items grouped into 5 factors: Brand awareness with 5 items; Brand association with 5 items; Perceived quality with 5 items; Loyalty brand with 3 items; Brand equity with 3 items (Table 1).

Initially, 230 farmers were interviewed directly. However, during data cleaning, 20 invalid questionnaires are removed, due to missing answers, so the final number of observation used in this study is 210 observations.

Table 1: Components and observed variables

Components	Variable	Observed variable
Brand awareness	AW1	I knew brand fertilizer X
	AW2	I think that fertilizer X is one of brands in my mind
	AW3	X is the fertilizer brand I am very familiar with
	AW4	I clearly know fertilizer X
	AW5	I immediately realized the fertilizer X in others brand
Brand association	AS1	The fertilizer x is valuable
	AS2	I think the fertilizer X should be concerned to buy
	AS3	The fertilizer of brand X is prestigious
	AS4	I like fertilizer of brand X
	AS5	The fertilizer brand X is popular and known by farmers
Perceived quality	PQ1	Fertilizer of brand X offers very good quality products
	PQ2	Fertilizer of brand X is products with stable quality
	PQ3	Fertilizer of brand X offers very reliable products
	PQ4	Fertilizer of brand X offers products with great features

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	PQ5	Fertilizer of brand X is good uses and meet my requirements
Brand loyalty	LY1	I consider myself loyal to brand X of fertilizer
	LY2	Brand X of fertilizer will be my first choice when considering buying
	LY3	I will not buy another brand of fertilizer if brand X is available at the store.
Brand equity	BE1	Even though other fertilizer products have similar features to brand X, I still choose brand X.
	BE2	If there is a fertilizer brand that is as good as brand X, I still choose X.
	BE3	If a fertilizer brand is no different from X in any way, I would still choose X

### 4. DATA ANALYSIS

With the sufficient sample of 210 farmers, the descriptive statistics of the sample can be seen in table 2. Accordingly, the ratio between male and female is not big different (male with 47% and female with 53%). Their age range is a high share of 75% from 25 to 55 years old. Most of the farmers in the survey are not highly qualified, about 75% of their qualification are from high school or below, accounting for 75%. There are two main products that the interviewed farmers produce: fruit tree (54.8%) and food crops (41.4%). This means that the fertilizer products purchased by farmers mostly serve the agricultural production of fruit and food crops. The main income of farmers is mainly from agricultural production, so income is mostly concentrated in the range of 5 – 20 million VND per month, accounting for 62%.

**Table 2: Descriptive statistics**

Variable		Observation	Percentage (%)
Gender	Male	98	46.7%
	Female	112	53.3%
Age	18 – 24 years old	54	25.7%
	25 – 34 years old	72	34.3%
	35 – 44 years old	53	25.2%
	45 – 55 years old	31	14.8%
Education	Lower than high school	43	20.5%
	High school	114	54.3%
	University/College	53	25.2%
Crops	Fruit tree	115	54.8%
	Food crops (rice, corn, beans, etc.)	87	41.4%
	Vegetable	5	2.4%
	Flowers and ornamental plants	3	1.4%
Income (VND/month)	≤ 5 million VND	39	18.6%
	> 5 – 10 million VND	52	24.8%
	> 10 – 20 million VND	78	37.1%
	> 20 million VND	41	19.5%

Source: Own survey

As mentioned previously, 21 items of components are employed to test their reliability through the method of Cronbach's Alpha. All 21 items are reliability (Hair, Black, Babin, & Anderson, 2017), that is, no items are discarded. Meanwhile, the Cronbach's Alpha value of brand awareness (0.886), brand association (0.902), perceived quality (0.756), brand loyalty (0.920), and brand equity (0.817) ensure reliability (Hair et al., 2017). Thus all these items are used for the next step of Exploratory Factor Analysis (EFA).

Application of the method of EFA with the Varimax Rotation derives indicators of KMO = 0.864, value of Sig. = 0.000, and Total Variance Explained = 70.233% (table 3). As a result, the result method confirms an appropriate method of EFA for this data.

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Table 3: Rotated Component Matrix

No.	Items	Component				Factor label
		1	2	3	4	
1	AS5	0,858				Brand association
2	AS2	0,824				
3	AS1	0,782				
4	AS4	0,747				
5	AS3	0,528				
6	AW1		0,465			Brand awareness
7	AW2		0,908			
8	AW5		0,878			
9	AW4		0,807			
10	AW3		0,775			
11	LY2			0,881		Brand loyalty
12	LY1			0,850		
13	LY3			0,845		
14	PQ2				0,786	Perceived quality
15	PQ5				0,760	
16	PQ3				0,756	
17	PQ4				0,595	
18	PQ1				0,485	
<b>KMO</b>						<b>0.864</b>
<b>Sig</b>						<b>0.000</b>
<b>Eigenvalue</b>						<b>1.401</b>
<b>Total Variance Explained</b>						<b>70.233%</b>

As resulted, four factors are confirmed as independent variables. The dependent variables is also defined. Similarly, the dependent variable defined in this case is brand equity. The determination of the value of the dependent variable is also based on the EFA method with 3 observed variables as mentioned in the previous section (BE1, BE2, and BE3). The method also gives the KMO's index and significance level to meet the confidence level. Results are not included here to limit the number of pages increased.

### Testing hypotheses

Thanks to EFA, four factors of brand awareness, brand association, perceived quality, and brand loyalty are significantly confirmed. They are employed in regression model as independent variables. While brand equity is used as a dependent variable. The general regression is seen as below

$$\text{Brand equity} = b_0 + b_1 * \text{brand awareness} + b_2 * \text{brand association} + b_3 * \text{perceived quality} + b_4 * \text{brand loyalty} \quad (1)$$

Based on the function (1), the result estimated present, R square of the regression (1) is 50.8%. This provides 50.8% variations in brand equity are explained by factors of brand awareness, brand association, perceived quality, and brand loyalty. Based on the result in table 4, the estimated regression of (1) as below

$$\text{Brand equity} = 0.515 + 0.232 * \text{Brand awareness} + 0.113 * \text{Brand association} + 0.354 * \text{Perceived quality} + 0.168 * \text{Brand loyalty} \quad (2).$$

As depicted in table 4, the coefficients of brand awareness, brand association, perceived quality, and brand loyalty are significantly positive values. This means that any increase in four factors as independent variables will increase brand equity, with the effects of independent variables ranging from high to low being arranged: first being brand loyalty, next as perceived quality, next as brand awareness, next as brand association. This ranging is based on Standardized coefficients of those four factors.

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**Table 4: Result of regression model estimated**

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	0.515	0.214		2.407	0.037		
	Brand awareness	0.232	0.041	0.232	5.659	0.000	0.672	1.234
	Brand association	0.113	0.048	0.144	2.354	0.036	0.526	1.551
	Perceived brand	0.354	0.061	0.287	5.803	0.000	0.756	1.401
	Brand loyalty	0.168	0.034	0.310	4.941	0.000	0.590	1.523

a. Dependent Variable: Brand equity

As a result, the four hypotheses are summarized in table 5 below, all four hypotheses are supported. This leads to the conclusion that brand equity of fertilizer products is significantly depended on farmers, who think of brand awareness, brand association, perceived quality, and brand loyalty.

**Table 5: Summary of testing hypotheses**

Hypotheses	Confirmation	Ranking
H1: An increase in farmer's brand awareness causes a raise in its brand equity of fertilizer product	Supported	3
H2: An increase in farmer's perception with respect to brand association causes a raise in its brand equity of fertilizer product	Supported	4
H3: An increase in farmer's perception with respect to perceived quality causes a raise in its brand equity of fertilizer product	Supported	2
H4: An increase in farmer's brand loyalty causes a raise in its brand equity of fertilizer product	Supported	1

### 5. DISCUSSION

Research on brand equity in the agricultural sector has given a general picture of farmers' evaluation of the fertilizer products they use for the production of agricultural products (crops of fruit, food, vegetable, and flowers). Farmers have said that brand loyalty is one of the factors that have a great influence on brand equity, which is consistent with the research of (Nguyen et al., 2011). As argued by Hasnida et al. (2014), perceived quality is part of contribution into brand equity, this argument is found in this study. The finding confirms the association of brand awareness and brand equity for a statement that is consistent with the research results of Zia et al., (2021). Unlike Severi & Ling (2013) which view brand association as the dominant moderator for brand equity, this study confirmed the importance of brand association having a direct impact on brand equity. As a result, this finding is a difference with (Severi & Ling, 2013).

The results of the study gave an affirmation of the brand value of agricultural crop products, which is basically not much different from non-agricultural products or services. Here, there is only the difference in the impact level of the factors ranked from top to bottom as follows: brand awareness, brand association, perceived quality and brand quality.

### 6. CONCLUSIONS

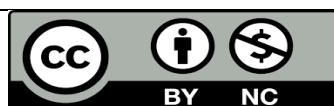
The study of brand equity from 210 farmers engaged in agricultural production in the Mekong Delta gives a realistic picture of their behavior in brand X assessment of a fertilizer company providing the fertilizer product for agricultural production in the region. This result is confirmed based on the quantitative method of EFA, which shows that brand equity of brand X fertilizer is dominated by related components ranked from high to low including: brand loyalty, perceived quality, brand awareness, and brand association. The research results are also a meaningful reference in practice, because fertilizer manufacturers need to know what to do to improve the brand equity of fertilizer products for agricultural production.



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