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The Effect of Brand Image, Positive Emotions, and Consumer Crowd on Consumer Satisfaction of NPK Liquid-Fertilizer Products: An Empirical Analysis

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ABSTRACT

Consumer satisfaction management regarding NPK liquid-fertilizer in Bojonegoro, the main fruit farming center in East Java, is crucial. This study explores brand image and organic fertilizer usage. Challenges like crowded fertilizer stores can influence consumers' positive feelings, impacting their satisfaction. The research aims to examine the correlation between brand image, positive feelings, and in-store crowd with consumer satisfaction. A quantitative explanatory research method was employed with simple random sampling. Face-to-face interviews and meticulous data analysis were also conducted. The findings are expected to offer new insights for farmers and retailers of NPK liquid-fertilizer in Bojonegoro to enhance consumer shopping experiences and ensure optimal satisfaction levels. The study's results test the relationship between brand image, positive feelings, in-store crowd, and consumer satisfaction with NPK liquid-fertilizer products in Bojonegoro. While the influence of brand image on positive feelings and consumer satisfaction is inconclusive, positive feelings and in-store crowd significantly impact consumer satisfaction. The importance of managing positive emotions and providing smooth shopping experiences to enhance consumer satisfaction is emphasized.

1. INTRODUCTION

Liquid NPK fertilizer plays a vital role in increasing the productivity and quality of these fruit crops. This fertilizer contains a mixture of nitrogen (N), phosphorus (P), and potassium (K), essential elements that plants need for optimal growth. With a large agricultural area, the use of appropriate and efficient fertilizers is crucial for Bojonegoro farmers in ensuring quality and sustainable crop yields. Bojonegoro, located in East Java Province, Indonesia, has an area of about 2,301 km^2. The region is known as one of the largest fruit producers in Indonesia, with most of its agricultural land allocated to crops such as mangoes, durians, and oranges.

According to Anggraeni & Soliha (2020), variable reliability tests show that the fertilizer brand image has a Cronbach alpha of 0.740, exceeding the value of 0.70 which indicates good reliability. This indicates that consumer perception of the fertilizer brand is consistent and reliable in influencing purchase decisions. Winanda *et al*. (2020) stated that the use of organic fertilizers such as chicken manure provides an important source of nutrients for plants, increases crop yields, and indirectly reduces pressure on limited natural resources. The findings of Nurrohmah & Usmaryanti (2023) reveal the relationship between satisfaction and brand image, because the best treatment (2ml/l liquid fertilizer and 400kg/ha NPK fertilizer) increases the yield of glutinous corn (*Zea mays* var. ceratina), strengthens brand image, and satisfies consumers. A study by Hakim & Saragih (2019) shows that the relationship between consumer satisfaction and brand image can influence purchase decisions and product loyalty.

However, in operating the farm effectively, challenges arise, including human overcrowded in shops selling fertilizers, resulting in disruptions in obtaining the necessary fertilizers. This disruption is due to the limited supply of fertilizers or difficult to access due to distribution or production problems, consumers will experience difficulties in obtaining them. This situation can affect the positive emotions of consumers, Fun and excitement are key elements of a positive consumer experience. They help strengthen the bond between consumers and brands, increase loyalty, and create a satisfying experience for consumers. Thus, fun and excitement have an important role in shaping consumers' positive emotions and creating a sustainable relationship between consumers and brands, which in turn has the potential to influence their satisfaction with the fertilizer products available. Therefore, an in-depth understanding of the factors influencing consumer satisfaction with liquid NPK fertilizer, brand image and adequate shopping experience, is crucial for sustainable fruit farming in Bojonegoro.

Previous studies have highlighted the high reliability of the fertilizer brand image and its relationship to purchasing decisions. The use of organic fertilizers provides agronomic and environmental benefits (Budiman *et al*., 2020). The latest findings point to the need for an in-depth understanding of the factors that affect consumer satisfaction and the brand image of liquid NPK fertilizer, particularly in the context of fruit farming in Bojonegoro. Challenges such as congestion at fertilizer stores can affect consumers' positive emotions, which in turn can affect product satisfaction (Aryadinata & Rianto, 2023). Therefore, research that focuses on a deep understanding of the shopping experience and the factors that affect consumer satisfaction with fertilizer brands is essential to support sustainable agriculture. By understanding these dynamics, agriculture can be improved by responding to consumer needs and strengthening brand image, thereby making a positive contribution to local economic growth and environmental sustainability (Davidson *et al*., 2016; Santeramo, 2022).

This study aims to test the relationship between brand image, positive emotions, and consumer crowd and consumer satisfaction with liquid NPK fertilizer products in Bojonegoro. Through hypothesis testing, this study explores whether brand image, positive emotions, and consumer crowd directly or indirectly affect consumer satisfaction, as well as its practical implications in creating a shopping environment that promotes consumer satisfaction. Through this research, it is hoped that new insights will emerge that can help farmers and retailers of liquid NPK fertilizer in Bojonegoro to improve the consumer shopping experience and ensure an optimal level of satisfaction with fertilizer products. Thus, this research not only has academic relevance, but also significant practicality for the progress of the agricultural sector, especially in the context of fruit farming in Bojonegoro.

2. METHODS

2.1. Population and Sampling

This study is a quantitative study with an explanatory research design. This design aims to explain the relationship between research variables (Sugiyono, 2021). This study involved the population of users of liquid NPK fertilizer products from IndoFertil Bojonegoro (IFB). This population is not limited by gender, income, education, radius of domicile, and age. The simple random sampling was adopted in this research. The sample of this study is quite representative of the population of users of liquid NPK fertilizer produced by the IFB. This can be seen from the variation in sample characteristics that are in line with the characteristics of the population. Initial observations show that around 120 farmers everyday use liquid NPK fertilizer produced by IFB. This provides a preliminary overview of the population size relevant for this study. The distribution of gender, income, education, domicile radius, and age of the sample was quite even. However, it should be remembered that this study only involved 100 respondents according to the Slovin method with an error of 0.05. The sample of 100 respondents was due to giving more intensive attention to each respondent to the variables studied.

2.2. Research Instrument

To understand customer satisfaction of liquid NPK fertilizer produced from IFB, this study used a face-to-face interview and filled out an online questionnaire to facilitate the research tabulation process. The researcher prepared questions relevant to the research variables related to customer satisfaction and its aspects based on references from Sugiyono (2016). These questions were designed to get informative answers and reinforce the results of the research.

In this study, two research tools were used, namely smartphones and Google forms integrated with Google sheets. In order to obtain more in-depth and accurate information about various aspects of research variables, stores that sell liquid NPK fertilizer produced by IFB was observed by visitation. The second tool, Google forms integrated with Google sheets was used to tabulate data of the research. The collected data was then processed using SMART PLS 3.0 for Windows software. A model that is in accordance with the conceptual research framework was used to provide accurate and reliable data so as to strengthen the research findings and provide relevant recommendations for users of IFB's NPK fertilizer products.

2.3. Operation Constructs

Table 1 provide operation constructs used in this research. The constructs included consumer crowd (X1), brand image (X2), positive emotions (Z), and customer satisfaction (Y). Each of construct involved several statements.

Table 1. Operation constructs to evaluate consumer satisfaction of NPK liquid-fertilizer products from Indofertile Bojonegoro

No.	Construct	Code	Statement	Source
1	Consumer Crowd (X1)	X1.1	Long and lengthy queues to purchase liquid NPK IndoFertil fertilizer in stores	(Haggard *et al*., 2013; Pradana *et al*., 2022, 2023; Seok *et al*., 2020; Yamauchi *et al*., 2019)
		X1.2	Disturbed by the large number of consumer during rush hour at shops selling IndoFertil liquid NPK	
		X1.3	Avoid stores that sell IndoFertil liquid NPK due to long queues	
2	Brand Image (X2)	X2.1	Positive impressions about the NPK liquid IndoFertil brand	(Gazi *et al*., 2024; Lusianto *et al*., 2024; Samekto *et al*., 2023)
		X2.2	IndoFertil liquid NPK is a trusted and quality brand	
		X2.3	IndoFertil liquid NPK offers innovative and exciting products	
3	Positive Emotions (Z)	Z1	Happy and satisfied when buying IndoFertil liquid NPK	(Ariyo *et al*., 2023; Isac-Torrente *et al*., 2023; Panagiotou & Gkatzionis, 2022; Hayuni & Sharif, 2023)
		Z2	IndoFertil liquid NPK provides a positive experience	
		Z3	Makes you feel valued and respected when shopping for NPK liquid IndoFertil	
		Z4	Liquid NPK IndoFertil brings a sense of togetherness	
4	Consumer Satisfaction (Y)	Y1	I am so satisfied with the quality of IndoFertil liquid NPK	(Cynthia & Tuti, 2023; Nasution & Adnan, 2024; Prasetyo *et al*., 2021; Wibowo & Syafuddin, 2023)
		Y2	IndoFertil liquid NPK products suitable for my plant needs	
		Y3	The variety of IndoFertil liquid NPK products is plentiful	

2.4. Data Analysis Techniques

Data quality testing includes validity testing with a Pearson Correlation value of > 0.138 (Krawczyk-Sokołowska & Caputa, 2023), reliability test with a Cronbach Alpha value of > 0.400 (Alagarsamy & Mehrolia, 2023; Dzandu *et al*., 2022), as validation for filling out the online questionnaire. The convergen validity stage testing stage with a > value of 0.500 (Hou & Lu, 2023; Li & Li, 2023), determined the average variance extracted > 0.400 (Cardoso *et al*., 2022; Damberg, 2023), and a discriminant validity value with a composite reliability > 0.700 (Musyaffi *et al*., 2021). In addition, an inner model was also tested with an R-Square stage of > 0.450 (Avkiran & Ringle, 2018; Hakim & Saragih, 2019). The hypothesis testing process was carried out using the T_{table} > 1.96 criteria to ensure the significance of the analysis results. In addition, the effect size of the research construct matrix was determined to measure how much influence the independent variable had on the dependent variable. After that, a design of relationships between the corrected variables is carried out to prove that alternative hypothesis is accepted. This is done so that the results of the research can be accounted for and provide recommendations for users of liquid NPK fertilizer produced by IFB.

3. RESULTS

a. Outer Model

The measurement model (outer model) was used to assess the quality of the measuring instrument in the study. A good

measuring tool must be valid and reliable. Validity tests measure the ability of the instruments to measure what is supposed to be measured. The tool is considered valid if it has an AVE (Average Variance Extracted) value > 0.5 and all statement loading items > 0.5. This shows that the measuring tool is able to measure the concept in question well.

The model to assess customer experience with IndoFertil liquid NPK fertilizer products in Bojonegoro is valid and reliable. Figure 1 and Table 1 show that all constructs have outer loadings values above 0.7, Cronbach's alpha and composite reliability above 0.7, and AVE above 0.5, indicating good internal consistency and convergent validity. Discriminant validity is also fulfilled with a value above 0.7. Item X1.2 (“Disturbed by the crowds during peak hours in stores selling NPK Liquid IndoFertil") had the highest outer loading value (0.951), indicating that this was the most powerful factor influencing customer perception of queue issues. Customer satisfaction is greatly influenced by the suitability of the product to the needs of the plant (Y2, outer loading 0.917) and the positive experience when purchasing (Z2, outer loading 0.922). The main focus for improvement should be on reducing distractions and queues in stores to improve the overall customer experience.

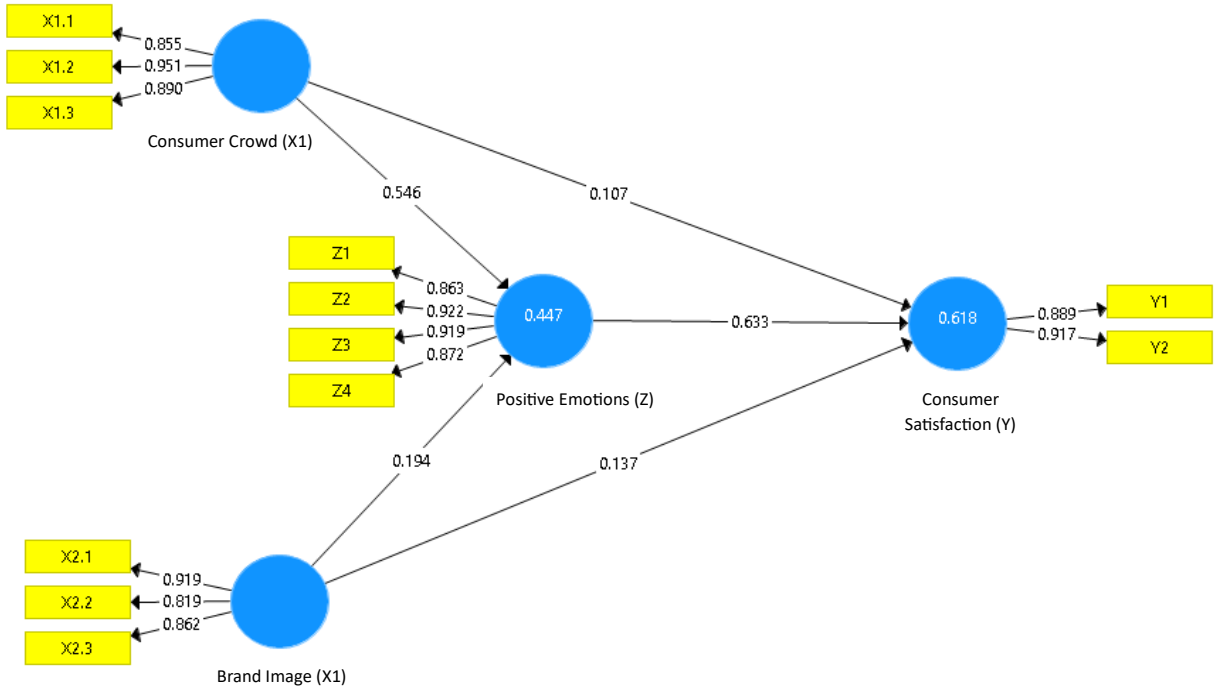

Figure 1. Selected models post iteration 3.

Table 1. Outer model results

Statement Items from Constructs	Outer Loading	Cronbach Alpha	Composite Reliability	Average Variance Extracted	Discriminant Validity	Decision
X1.1	0.855					
X1.2	0.951	0.882	0.927	0.809	0.900	Outer Model suitable
X1.3	0.890					
X2.1	0.919					
X2.2	0.819	0.836	0.901	0.753	0.868	Outer Model suitable
X2.3	0.862					
Y1	0.889					
Y2	0.917	0.775	0.898	0.816	0.903	Outer Model suitable
Z1	0.863					
Z2	0.922	0.916	0.941	0.800	0.895	Outer Model suitable
Z3	0.919					
Z4	0.872					

b. Inner Model

The results of the R-Square and R-Square Adjusted analysis show that the model applied to IndoFertil Liquid NPK fertilizer products in Bojonegoro has a fairly good prediction rate. The "Positive Emotion" construct has an R-Square value of 0.447 and an Adjusted R-Square of 0.436, which means that about 44.7% of the variability in a customer's positive emotion can be explained by this model, after adjusting by 43.6% for the number of predictors and sample size (Table 2). Meanwhile, the Consumer Satisfaction construct has an R-Square value of 0.618 and an Adjusted R-Square of 0.606, indicating that this model can account for about 61.8% variability in consumer satisfaction, with an adjustment of 60.6%. This shows that this model can substantially account for variations in customer satisfaction and positive emotions, which is important to understand and improve the marketing strategy and service of IndoFertil Liquid NPK products to improve customer experience and satisfaction in the Bojonegoro region.

Table 2. Contributed by R- Square

Construct	R Square	R Square Adjusted
Positive Emotions (Z)	0.447	0.436
Consumer Satisfaction (Y)	0.618	0.606

Table 3. Model Fit 1

	Saturated Model	Estimated Model	Standard Model	Decision
SRMR	0.077	0.077	< 0.10	Appropriate
d_ULS	0.458	0.458		Appropriate
d_G	0.584	0.584		Appropriate
Chi-Square	304.928	304.928		Appropriate
NFI	0.709	0.709	<0.90	Appropriate

Table 4. Model Fit 2

Model Fit 2	Estimated Standard Model	Estimated Model	Decision
Root Mean Square Theta	0.102	0.302	Not Met

The results of the fit model for IndoFertil liquid NPK fertilizer products in Bojonegoro show that the model used is appropriate and valid. The SRMR (standardized root mean square residual) value is 0.077 for both the Saturated and Estimated models, which are below the 0.10 limit, indicating a good match between the model and the data. The values of *d*_ULS (0.458) and *d*_G (0.584) are also appropriate, indicating the consistency of the model (Table 3). A Chi-Square of 304,928 indicates that the model fits the overall data. In addition, an NFI (Normed Fit Index) of 0.709, although below 0.90, still indicates that the model has an adequate fit. These overall results show that the model used to assess customer experience with IndoFertil Liquid NPK fertilizer in Bojonegoro is reliable and reliable for further analysis and strategic decision-making.

The fit 2 model (Table 4) using root mean square Theta (RMS Theta) for IndoFertil Liquid NPK fertilizer products in Bojonegoro shows that the RMS Theta value of the estimated model is 0.302, which is much higher than the estimated standard value of 0.102, indicating that this model has not met the eligibility criteria. The urgency to improve this model is crucial because the high RMS Theta indicates a significant mismatch between the hypothesized model and the actual data. This mismatch can affect the validity and reliability of the conclusions drawn from the model, so it is necessary to improve the model to ensure that the results of the analysis truly reflect the customer's condition and perception accurately.

c. Final Modeling of Hypothesis

Figure 2 shows model algorithm testing structure and Table 5 presents the results of hypothesis testing conducted to test the relationship between the variables studied in this study. The first hypothesis (H1) states that brand image has

an effect on positive emotions, but with a T-statistics value of 1.627 and a p-value of 0.104, this hypothesis is rejected. This shows that there is not enough statistical evidence to support a direct relationship between the brand image of liquid NPK fertilizer products and the positive emotions felt by consumers. Furthermore, the second hypothesis (H2) that associates brand image with consumer satisfaction is also rejected with a *T*-statistics value of 1,046 and a *p*-value of 0,296. This indicates that there is not enough statistical evidence to support the idea that the perception of liquid NPK fertilizer brands directly affects consumer satisfaction levels. However, the third hypothesis (H3) which states that positive emotions have a significant influence on consumer satisfaction was accepted with a T-statistics value of 3.337 and a p-value of 0.001. This suggests that there is strong statistical evidence to support the idea that the positive emotions felt by consumers contribute significantly to their satisfaction levels with liquid NPK fertilizer products.

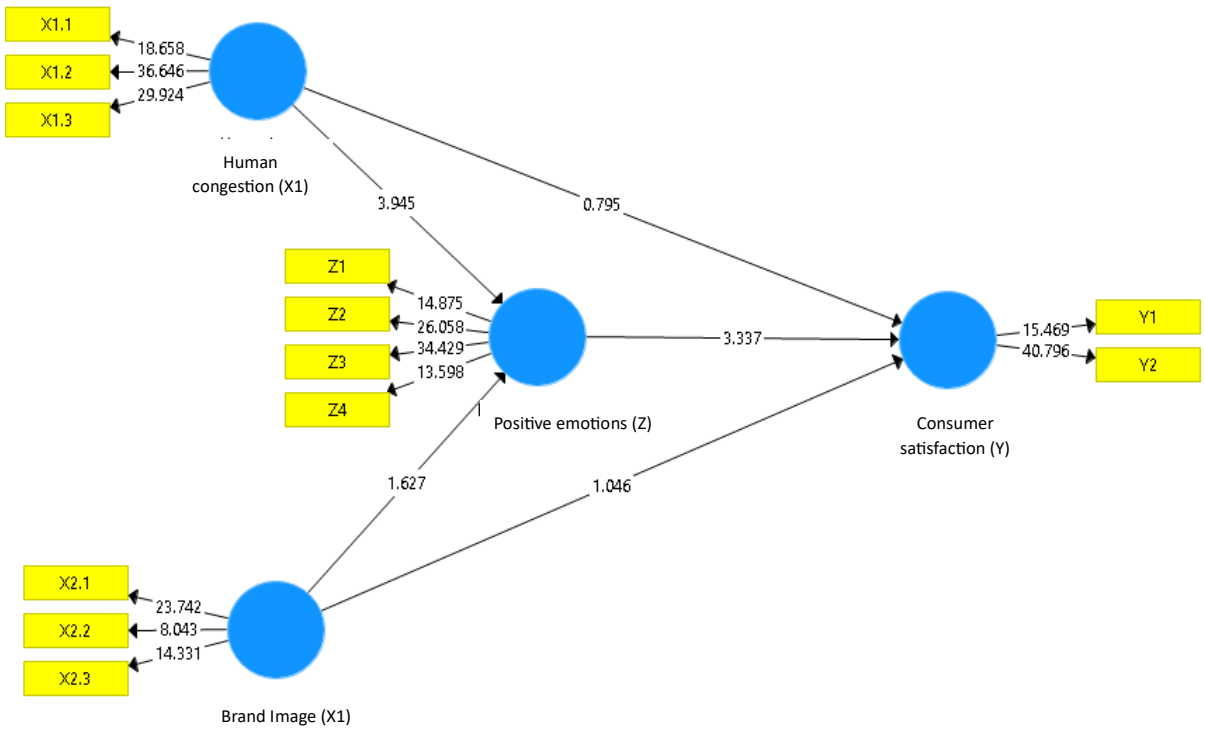

Figure 2. Model Algorithm Testing Structure

Table 5. Hypothesis Testing

Hypothesis order	Construction Paths	*T*-statistic (|O/SD|)	*p* value	Decision
H1	Brand Image (X2) → Positive Emotions (Z)	1.627	0.104	Alternative Hypothesis Rejected
H2	Brand Image (X2) → Consumer Satisfaction (Y)	1.046	0.296	Alternative Hypothesis Rejected
H3	Positive Emotions (Z) → Consumer Satisfaction (Y)	3.337	0.001	Alternative Hypothesis Accepted
H4	Consumer Crowd (X1) → Positive Emotions (Z)	3.945	0.000	Alternative Hypothesis Accepted
H5	Consumer Crowd (X1) → Consumer Satisfaction (Y)	0.795	0.427	Alternative Hypothesis Rejected
H6	Brand Image (X2) → Consumer Satisfaction (Y)	1.959	0.051	Alternative Hypothesis Rejected
H7	Consumer Crowd (X1) → Consumer Satisfaction (Y)	3.093	0.002	Alternative Hypothesis Accepted
H8	Brand Image (X2) → Positive Emotions (Z) → Consumer Satisfaction (Y)	1.959	0.051	Alternative Hypothesis Rejected
H9	Consumer Crowd (X1) → Positive Emotions (Z) → Consumer Satisfaction (Y)	3.093	0.002	Alternative Hypothesis Accepted

The fourth hypothesis (H4), which links consumer crowd to positive emotions, was also accepted with a T-statistics value of 3.945 and a p-value of 0.000. This shows that consumer crowd, such as long queues in stores, has a significant impact on the level of positive emotions felt by consumers when shopping for liquid NPK fertilizer products. The seventh hypothesis (H7) and ninth (H9), which associate consumer crowd with consumer satisfaction through positive emotions, were both accepted with a T-statistics value of 3.093 and a p-value of 0.002, respectively. This shows that consumer crowd not only directly affects consumer satisfaction, but also affects consumer satisfaction through its influence on positive emotions.

4. DISCUSSION

This study found the influence of brand image, positive emotions, and consumer crowd on consumer satisfaction related to liquid NPK fertilizer products in Bojonegoro (Manurung *et al*., 2023; Mirza & Kadir, 2019). The first hypothesis (H1) stating that brand image affects positive emotions is rejected, however, the second hypothesis (H2) stating the influence of brand image on consumer satisfaction is also rejected (Hakim & Saragih, 2019; Karlina & Seminari, 2015). This shows that brand image does not directly affect positive emotions or consumer satisfaction on liquid NPK fertilizer products (Anggraeni & Soliha, 2020; Mubarok *et al*., 2023). On the other hand, the third hypothesis (H3) that associates positive emotions with consumer satisfaction is accepted, showing that the positive emotions felt by consumers have a significant influence on their level of satisfaction with liquid NPK fertilizer products (Aryadinata & Rianto, 2023). These findings are consistent with previous research that shows that positive experiences in shopping are closely related to consumer satisfaction (Adhitama *et al*., 2023). The fourth hypothesis (H4) which states that consumer crowd affects positive emotions is accepted, suggests that consumer crowd conditions, such as long queues in stores, can affect the level of positive emotions perceived by consumers (Kim *et al*., 2020; Sari & Wibowo, 2019). This underscores the importance of managing a smooth buying experience to increase positive consumer emotions (Sagala & Pirngadi, 2023). However, the fifth (H5) and sixth (H6) hypotheses that link consumer crowd to consumer satisfaction, as well as brand image to consumer satisfaction, were both rejected. This shows that consumer crowd or brand image does not directly affect consumer satisfaction related to liquid NPK fertilizer products (Hawayant *et al*., 2021). The seventh hypothesis (H7) which states the influence of consumer crowd on consumer satisfaction is accepted, showing that consumer crowd directly affects consumer satisfaction related to liquid NPK fertilizer products. This shows that attention to queue management and shopping experience can increase consumer satisfaction levels. Furthermore, the eighth (H8) and ninth (H9) hypotheses that associate brand image and consumer crowd with consumer satisfaction through positive emotions, are both rejected and accepted (Aras *et al*., 2023). This shows that although brand image and consumer crowd can indirectly affect consumer satisfaction through positive emotions, their direct influence on consumer satisfaction is not significant.

Liquid NPK fertilizer has become a phenomenon in agriculture because it provides essential nutrients for plants with maximum efficiency. The nitrogen, phosphorus, and potassium content in this fertilizer supports the optimal growth of fruit plants. The advantages of its application through irrigation or spraying ensure even absorption of nutrients and reduce environmental impact. Organic liquid fertilizers, such as MOL Solution, which are made from organic waste, offer sustainable solutions with macro and micronutrients and microorganisms that support plant growth. Harnessing fruit waste to make fertilizer not only reduces waste but also provides essential nutrients for plants. With a combination of elements N, P, and K, liquid NPK fertilizer provides optimal yields with healthy growth, good fruit quality, and disease resistance, making it a superior choice for fruit farmers. These findings highlight the importance of managing positive consumer emotions and a smooth purchasing experience in increasing consumer satisfaction with liquid NPK fertilizer products in Bojonegoro. In addition, the practical implications of this study are the importance of creating a comfortable shopping environment and reducing consumer crowd to improve consumer experience and their satisfaction with liquid NPK fertilizer products, so that the integration between superior product quality and a satisfactory purchasing experience is the key to success in the modern agricultural market.

5. CONCLUSION

This study found that brand image does not directly affect positive emotions or consumer satisfaction with liquid NPK fertilizer products. However, positive emotions and consumer crowd experiences significantly affect consumer

satisfaction. The implication is that the management of positive emotions and a smooth shopping experience are important to increase consumer satisfaction with the product. The practical advice is to create a comfortable shopping environment and reduce consumer crowd to improve consumer experience and their satisfaction with liquid NPK fertilizer products.

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