



The Impact of Pesticide Sales Promotion Strategies on Customer Purchase Intention

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ABSTRACT

The purpose of this study was to examine the effect of different types of sales promotions on farmer attitudes and purchase intentions of pesticides. The aim was to find out the impact of pesticides sales promotion strategies on customer buying intention. The study was conducted, using a quantitative research method, with special reference to Ampara, Anuradhapura, Polonnaruwa and Kurunegala. Data was collected from a convenience sampling method from Sri Lankan paddy farmers by means of a self-administrative questionnaire. Data were analyzed by using the statistical analysis program SPSS mainly, by using Pearson Correlation analysis, and Regression analyses to examine the hypotheses. The analysis revealed that farmers' attitudes and media exposure have a significant effect on farmers' purchase intentions for purchasing pesticides as they were significant at the level $p < 0.001$. Therefore, the hypotheses H1 and H10 were accepted. The regression analysis showed that all of these considered factors with the exception of coupons, in fact, have a positive effect on consumers' attitudes towards purchasing pesticides as they were significant at the level $p < 0.000$. Therefore, the hypotheses H3, H7, H9 and H11 were accepted. The hypothesis H5 which assumed that coupons regarding the sales promotion of pesticides had a positive effect on farmers' attitudes

towards purchasing pesticides was, however, being rejected. Further, product knowledge through training classes & coupons were not impacted to the purchase intention. Final results implicate that marketer should aim to enhance farmers' experiences through demonstrations and media exposure in order to enhance their attitudes towards purchase intention of pesticides. This can be achieved by using free product trials as a marketing tool and by running advertising campaigns that educate farmers about the beneficial effects, right doze and correct application of using pesticides on the crops.

Keywords: *Attitude, Media Exposure, Past Experience Through Demonstration, Price Discount, Purchase Intention*

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1. INTRODUCTION

Sri Lanka was an agricultural economy at the time of its political independence and since independence, governments attempted to develop the domestic agricultural sector through various development programs. Further, developing the agriculture sector is essential for the rural economy of these developing countries like Sri Lanka to raise income and social status of farmers and the employed (Samarakoon & Shamil, 2010).

Sri Lanka is a South Asian agricultural country that has a total land area of around 6.56 million hectares. Farmland is around 2.93 million hectares. Farmland per head is around 0.146 hectares. The main cultivation in Sri Lanka is paddy. It is more than 1,254,000 hectares (Central Bank Annual Report, 2021). In addition to that Tea, Rubber, Coconut, vegetables, and fruit crops are prominent. The agricultural sector in Sri Lanka contributes nearly 7 percent to the country's GDP (Central Bank Annual Report, 2021). Since the independence, there were several attempts by successive governments and non-government organizations to improve the productivity of agricultural and livelihood products (Thayaparan, 2010).



In April 2021 the government made another blunder. It has been announced that Sri Lanka will only permit organic farming, banning all inorganic fertilizers and agrochemical fertilizers. The government believes that this will be beneficial to health. Many realized that the real issue was insufficient funding, not health. Sri Lanka was saving foreign reserves by banning the import of fertilizers. However, this impacted agriculture production [29].

According to the annual report of Central Bank (2021), agriculture activities recorded a contraction of 2.0 percent in 2021 in value-added terms, recovering from the contraction of 2.2 percent in 2020. Further, the growing of tea, spices, forestry and logging, and growing of other cereals also expanded during the year, contributing favorably to the growth in overall agricultural activities. However, the growing of rice, fruits, vegetables, other perennial crops, rubber and other beverage crops (coffee, cocoa, etc.) contracted during the year. Even though Agriculture activities recorded an expansion during the year, the lack of relevant nutrients and agrochemicals prevented it from reaching its full potential particularly during the second half of the year (Central Bank Annual Report, 2021).

In terms of agriculture production, The Agriculture Production Index (API), which measures the output of the agriculture and fisheries sectors,² recorded a moderate increase in 2021. The API increased by 3.0 per cent during the year over a 2.7 per cent increase in 2020 driven by the growth in most of the sub-indices, including paddy, tea, coconut, livestock and fisheries, whereas the rubber sub index witnessed a contraction in comparison to the previous year. The paddy sector recorded a high level of production in 2021, with a bumper harvest during the 2021 Yala season. Conducive weather conditions and an increase in the net extent harvested contributed to the increased production during the year. Accordingly, total paddy production recorded a bumper harvest for the second consecutive year in 2021, with a marginal increase in harvest compared to the previous year. Paddy production during the year grew by 0.6 per cent, on a year-on-year basis, to 5.1 million metric tons. Notably, the decline of 4.2 per cent in production of 2020/2021 Maha season was greatly offset by

the growth of 8.5 per cent recorded in the 2021 Yala season. The net extent harvested expanded by 2.8 per cent to 681,521 hectares and 10.3 per cent to 445,084 hectares in the 2020/2021 Maha and 2021 Yala seasons, respectively, resulting in an overall increase of 5.6 per cent in the total net extent harvested over 2020 (Central Bank Annual Report, 2021). Further, the cost of agriculture products includes Rent of land, Fertilizers/ Chemicals, seeds, labor and transport. Most of the Sri Lankan farmers must take loans from banks, other financial institutions, and individuals, as they aren't financially strong enough to source their own capital. This is a long-living problem faced by Sri Lankan farmers. This issue causes the increase in suicide percentage of the country (Samarakoon, 2010).

As a result of the increasing food production, there should be a proper food security system. There is growing evidence that climatic variations and changes are already influencing the distribution and virulence of crop pests and diseases, but the interactions between crops, pests and pathogens are complex and poorly understood in the context of climate change (Gregory et al., 2009). Pest management is critical to achieving rice production in a sustainable manner (Savary et al., 2006). Pesticides are widely used in most sectors of agricultural production to prevent or reduce losses by pests and thus can improve yield as well as the quality of the product which is often important to consumers (Oerke & Dehne, 2004; Cooper & Dobson, 2007). Pesticides can also improve the nutritional value of food and sometimes its safety (Narayanasamy, 2006). There are also many other kinds of benefits that may be attributed to pesticides, but these benefits often go unnoticed by the general public (Cooper & Dobson, 2007; Damalas, 2009). Thus, from this point of view, pesticides can be considered as an economic, labor-saving, and efficient tool of pest management with great popularity in most sectors of agricultural production.

1.1 Problem Statement

In the present day, the generation of farmers is literate enough to understand the complexity in the cropping environments and act when guided properly. The problem

of health hazards due to pesticides, banding chemicals or imposing laws for restriction of sales promotion or advertising are not the only remedies, finding alternatives for pesticide use is another means to minimize damage to human health and the environment. Because pesticide plays an important role in protecting crops from pest and diseases. Farmers' pest control decisions, scientists' research priorities and policymakers' prescriptions are based largely on perceived pest-related yield losses. Actual and perceived pest-related yield losses are often unrelated. Farmers' perceptions of yield losses are based on experience, usually during the year of highest pest damage (Damalas, 2009).

To understand the rationale of farmers' pest management practices, their decision-making process must be understood. Their stock of knowledge regarding pests, natural enemies and pest management technology should also be assessed. Farmers' pest control activities reflect their perceptions, not necessarily the actual situation (Tisdell, 1999). None of these studies explains farmers' behavior because they do not differentiate between actual losses and farmers' perceptions of losses.

Considering the importance of farmers' perceptions in making decisions about pest control, surprisingly little effort has gone into detailed “attitudes and intention” studies for developing-country agriculture in general and rice in particular. Accordingly, this study examined the pesticide purchasing related to marketing as the consumer's behavior and the influencing factors leading to their behavior. Research has focused heavily on understanding and finding motivational factors inducing purchase intention of pesticides. Researchers examine factors influencing the adoption of products or services in different aspects and also use a variety of theoretical perspectives. Previous studies have mainly focused on pharmaceuticals and no research had been conducted to find out the impact of pesticides sales promotion strategies on customer buying intention and this study aims to address this research gap.

2. LITERATURE REVIEW

2.1 Purchase Intention

Purchase intention can be defined as the consumer's willingness to purchase a product when it is provided for commercial sale (Chin et al., 2020). Purchase intention represents the possibility that consumers will plan or be willing to purchase a certain product or brand in the future, then being an important indicator of consumer behavior (Wu et al., 2011). Purchase intention is a kind of decision-making that studies the reason to buy a particular brand by consumer and a situation where consumer tends to buy a certain product in certain condition (Shah et al., 2012).

The customers purchase decision is a complex process. Purchase intention usually is related to the behavior, perceptions and attitudes of consumers. Purchase behavior is a key point for consumers to access and evaluate the specific product. The probability of buying the brand is called purchase intention (Esch et al., 2006). Purchase intention may be changed under the influence of price or perceived quality and value. In addition, consumers are affected by internal or external motivations during the buying process (Gogoi, 2013). Researchers have proposed six stages before deciding to buy the product, which are: awareness, knowledge, interest, preference, persuasion and purchase (Kotler & Armstrong, 2010; Kawa et al., 2013). Customers always think that purchasing with a low cost, simple packaging and little-known product is a high risk since the quality of these products is not trustable (Gogoi, 2013).

Purchase intention is a dependent variable that depends on several external and internal factors. Purchase intentions are a measure of the respondent's attitude towards purchasing a product or availing of a service. Purchase intention is a very important metric in marketing. In fact, marketing based on intentions or intent marketing is about marketing goods & items based on the intentions of the consumers or the consumer's intent to accept, buy or use a particular product or service which may or may not have been clearly mentioned by the company or brand. Purchase intentions as a measurement are effective in designing marketing activities or

promotions. The intent of a customer can make it very easy to exactly iterate what kind of content should be displayed in an advertisement. The intentions can reflect information about the knowledge levels of the consumer's mind. Based on this measurement, the design of marketing activities can be formed. Purchase intentions of a customer base can be analyzed to make an integrated map of how to go about an advertising campaign (Ajzen, 2005).

2.2 Attitude

Attitudes are defined as an individual's positive or negative evaluation of self-performance of a particular behavior. Fishbein and Ajzen (1975) define attitude as a learned predisposition of human beings. As a part of the learned predisposition of human behavior, Kotler and Keller (2009) further elaborate attitude as an individual personal evaluation, emotional feeling attached and action tendency toward some objects or ideas. Attitude towards the behavior represents a person's overall evaluative effect by means of a favorable or unfavorable attitude toward undertaking the behavior. It can be interpreted as the personal estimation about whether the product under consideration will possess the desired attribute. More specifically, if a customer has a positive attitude towards a specific behavior, the more likely would he/she intend to purchase, whereas a negative attitude would dispose of consumers' prevention tendencies (Von Braun, 2009). While brand loyalty from an attitudinal perspective is defined as the tendency to be loyal to a focal brand, which is demonstrated by developing a favorable attitude toward the brand and the intention to buy (Oliver, 1997). The definition of perceived quality is very similar to attitude as its consumer's subjective evaluation or judgment about a product's overall superiority (Yoo & Donthu, 2001, Zeithaml, 1988). Therefore, perceived quality develops a positive attitude about the brand which leads to purchase intention. Therefore, in this study, it is hypothesized that;

H₁: Farmers' attitude toward buying pesticides has a positive impact on farmers' purchase intentions of pesticides.

2.3 Sales Promotion

Sales promotion is one of the four aspects of a promotional mix, which itself is incorporated in the core marketing mix; Product, Price, Place, and Promotion. Sales promotion is further identified as one of the marketing tools that are used in attracting the attention of the customer. (Bhandari, 2012). Sales promotions are the normally used marketing tool by manufacturers as well as retailers. Manufacturers use them to increase sales to retailers (trade promotions) and consumers (consumer promotions). Retail promotions are, used by retailers to increase sales to consumers such as temporary price reductions, features, and displays. It seems that a large percentage of retailer sales are made on promotion. (Gedenk, et al., 2005). The objectives of sales promotion are to stimulate short-term demand, to create loyal customers and to encourage brand switching from competitors. Sales promotions are achieved through informing and persuading customers or consumers of an existing or new product. (Ayimey, et al., 2013). Sales promotion influences buying decisions of customers and simply exists to have a direct impact on their behavior. Sales promotion techniques are classified as price and non-price based on their nature (Nagadeepa, et al., 2015).

Some of the price-based promotions are Money off Coupons, Repayment, Rebate and Discount that temporarily reduce the cost of goods. Some of the non-price-based promotions are Freebies, Reward points or Contests by which value is temporarily added to the product. These techniques may instigate the consumers to make unplanned purchases (Nagadeepa, et al., 2015). In supermarkets and retail stores, retailers use many types of sales promotions to increase their sales volume and attract customers towards their retail stores. So, they are using Rebate and Discount offers, coupons, Price packs, Loyalty programs, training classes for knowledge transfer, contests, premium, Samples or Sampling for getting experience, Product Combination, Quantity Gift, Instant Draw, Assigned Gift, Lucky Draw and media exposure. They are intended to produce quick and short-term changes in consumer or business-to-business buying behaviors. (Nagadeepa, et al., 2015). Most of the literature reveals that price discounts, free samples, buy one and get one free and

coupons as the most commonly used promotional techniques. But, in pesticide trade, free sample issuing and buy one and get one free are prohibited sales promotion techniques in retailing.

Consumers tend to believe more easily that companies are unethical rather than ethical. Other researchers have taken a more neutral position by stating that awareness about companies' unethical behavior might not lead to boycotting them; rather their products are expected to be cheaper (Oliver, 1997).

2.4 Price Discount

Price reduction is a valuation approach where goods or products are offered at a good discounted buying price and it seems to be a reduced cost to the consumers, mostly applied in hypermarkets and point of purchase displays (Shimp, 2008). Other studies found that price discounts (cut-off prices) play an important role in stimulating new customers' behaviors to try the offered products (Hagger et al., 2002; Shimp, 2008). Consumers are more to be attracted to price discount promotions. Product trail has a relationship with price discount, in a sense that the first can be increased by a price reduction for any product (Shimp, 2008). Others stated that price reduction has a relationship with different promotion tools in a way that they are affecting each other and pushing the customers to buy the product, such as coupons and samples (Krishna & Zhang, 1999; Gilbert & Jackaria, 2002). It is also indicated that a huge discounted price for any product which happened to be in sales seasons would exercise by dealers because of consumers' price awareness (Smith & Sinha, 2000).

Markets today sell a multitude of similar products which are produced by the same technology. In this case, price is a key element during the decision-making period for buying. As a result, price promotions have a strong effect pertaining to the encouragement to customers to buy one particular brand instead of another and to also purchase it in greater quantities (Shimp, 2008).

Price is typically an important factor influencing consumers' purchasing behavior. Through Diamond and Campbell's research (1989), which was based on three theories of modification of reference pricing: adaptation-level theory, assimilation-contrast theory and the anchoring and adjustment of heuristic, sale promotions have more effect on reference price. Among the types of promotions, only price promotions influence reference price. Moreover, the price consumers expect to pay for a brand has an inverse relationship with the observed frequency of price promotions and price discounting of the brands. Frequent exposure to both price and promotional activities will increase consumer expectations and can adversely impact the consumer brand choice behavior (Kalwani et al., 1992). Therefore, the following hypothesis was designed for further examination:

H₂: Price discount has a positive impact on farmers' purchase intention of pesticides.

Consumers respond to discounted prices primarily because of the values and benefits that discounted prices offer to consumers (Keller, 1998). Although discounted prices do not only refer to reduced prices, and may also refer to differences in the price of services obtained by consumers for goods of the same price (Raghubir & Corfman, 1999). However, Chen et al. (2012) found that for high-priced products, discounts have a greater influence on consumers compared to the increased value from bonus packs. One of the important features of outlet malls is price. In outlet malls, consumers can benefit from discounted products (Barnes, 1998). Based on the importance of price in the minds of consumers, previous research has confirmed that price influences the purchase intention of consumers (Jiang & Rosenbloom, 2004; Tarkiainen & Sundqvist, 2005). For outlet malls that attract consumers through price promotions, the price may also be a factor influencing purchase intention. In addition, the price paid by consumers for products creates product value. During the process, consumers generate value consciousness (Lichtenstein et al., 1990). Therefore, the value consciousness created by price promotions affects the attitude of consumers. Thus, this study can be hypothesized as:

H₃: Price discount has a positive impact on farmers' attitude of pesticides.

2.5 Coupons

A coupon is a certificate that, when presented for redemption at a retail store, entitles the bearer to a specified saving on the purchase of a particular product or brand (Stanley, 1982). The word of coupon advertisements is related to those customers who gained vouchers are eligible to get an allowance on the products at its usual price. Coupons are defined as vouchers or certificates, which help consumers to a price reduction on a specific product (Chen et al., 2012). The value of discount or price cut is set, and the coupon must be presented when the customer purchases the product.

According to Rothschild's (1987) behavioral view of the promotions model, it shows how a coupon can become the conditioning stimulus in the purchasing of a product. First, the presence of the coupon leads to the response of awareness and eventually for purchasing of the product with the coupon. This is followed by a cost/benefit relationship that is rewarded with additional coupon usage, which in turn produces more intention contingent on the availability of coupons.

Lee and Kim (2008) pointed out that coupons contain a set of provisions that retailers are bound to execute when consumers purchase the stipulated products or brands. In addition, they insisted that coupons should be understood to stimulate sales by increasing purchase incentives. Thus, coupons serve as a stimulus for sales by offering discounted prices and additional or free benefits; they also increase consumer purchase intention within a short period of time. Thus, this study can be hypothesized as:

H₄: Coupon has a positive impact on farmers' purchase intention of pesticides.

Coupons have been existed to produce product trials. According to Lee and Kim (2008), coupons are easily understood by the customer and can be extremely useful for trial purchases. A coupon is a confirmed method by which producers can

communicate with customers and it can be used as a strong brand-switching tool.

According to Ndubisi and Chew (2006) coupons have many benefits and trends towards the marketers in a way that they can boom the sales in a short period of time and they can stimulate customers to switch to other brands or products. Coupons have been used as key promotion tools. Wayne et al. (2002) in new consumer research on three recent coupon programs showed that the promoted brands gained incremental sales through enlarged trials and succeeding non-coupon purchases. They also wrote that coupon advertising was between the least used and not accepted marketing tools by customers. Further, some researchers showed that coupon is an ineffective tool to be used as sales promotion; these studies examined customers' behaviors towards the huge price reduction offered by coupons; since it can affect the value of any product negatively, and that can lead to an influence on product trial. Therefore, this concept can be hypothesized as:

H₅: Coupon has a positive impact on farmers' attitude of pesticides.

2.6 Product Knowledge Through Training Classes

Consumers are usually limited in regards to the amount of time and product knowledge to make an informed purchase decision when facing similar products to choose from. As a result, brand image is often used as an extrinsic cue to make a purchase decision (Richardson et al., 1994). Consumers are more likely to purchase well-known brand products with the positive brand image as a way to lower purchase risks. This argument is also supported by Rao and Monroe (1988) that a brand with a more positive image does have the effect of lowering consumers' product perception risks and increasing positive feedback from consumers. Therefore, consumers generally believe they can make a satisfying purchase by choosing well-known brands and also lower any purchase risks by doing so.

Consumers usually adopt various methods to evaluate products. Those with higher product knowledge tend not to use the preconceived idea to judge product quality since they are aware of the importance of product promotion. Wang and Hwang (2001) conclude that consumers with high product knowledge will evaluate a product based on its quality because they are self-confident with their product knowledge. Thus, they are likely to become aware of the value of the product and consequently develop purchase intention. On the other hand, those with low product knowledge are more likely to become influenced by environmental cues. Therefore, hypothesis H₈ is introduced.

H₆: Product knowledge through training class has a positive impact on farmers' purchase intention of pesticides.

Product knowledge is the cognitive representation of product-related experience in a consumer's memory, which is likely to contain knowledge in the form of coded representations of brands, product attributes, usage situations, general product class information, and evaluation and choice rules (Bamber et al., 2012).

The notion that knowledge affects one's attitude and behavior are well in line with Fishbein and Ajzen's theory of Reasoned Action (1975). They argue that one's beliefs - which can be linked to the concept of knowledge in so far as belief can be seen as defeasible knowledge functions as the basis for one's attitudes. Attitudes, in turn, influence one's behavioral intentions (Fishbein & Ajzen, 1975). Therefore, hypothesis H₉ is introduced.

H₇: Product knowledge through training classes has a positive impact on farmers' attitude of pesticides.

2.7 Experience Through Demonstration

Experience means the degree of familiarity of a person with some form of exposure to the brand (Hoch, 2002). In Hoch's (2002) opinion, experience credibly influences

consumer behavior because a consumer's personal experience with a product subtly affects their beliefs and draws the consumer in. Retailers concentrate on their effort providing a source of memories rather than goods and a source of experience rather than service. Experiences related to consumption take place in three situations such as while searching for products, shopping and receiving it, and consuming it (Brakus, et al., 2009). In summary, experiences gain directly through shopping, receiving, buying, and consuming goods and indirectly when interacting with media including print and electronic media.

Experience is explained as subjective, internal (sensations, feelings, and cognitions) and behavioral responses evoked by brand-related stimuli that are part of a brand's design and identity, packaging, communications, and environments (Brakus, et al., 2009). Thus, brand experience scales developed in four dimensions namely, sensory, affective, behavioral, and intellectual. Brakus et al. (2009) asserted that experience does influence the customers' preferences, which then subsequently affect their purchase decision. Thus, this study experience against purchase intention can be hypothesized as,

H₈: Experience through demonstration has a positive impact on farmers' purchase intention.

Further, previous research indicates that product class familiarity also referred to as experience with a product category influences purchase intentions of that product class (Kim & Chung, 2011; D'Souza et al., 2006). This is in line with various studies showing that experience and in particular frequent past behavior strongly influences future behavior or behavioral intentions as past behavior results in learning which influences future behavior (Mullen et al. 1987; Bentler & Speckart, 1979). In addition, experience has been found to influence attitudes or perceptions of that product category (D'Souza et al., 2006). Thus, one can argue that experience influences consumers' attitudes. Therefore, experience impact on attitude can be hypothesized as;

H₉: Experience through demonstration has a positive impact on farmers' attitude change.

2.8 Media Exposure

The marketing literature has acknowledged how advertising influences consumers, beyond the traditional effects on their preferences. That is, a second channel is important as it changes consumer's awareness of a product. This awareness, in turn, determines consumer's choice sets among a large number of products in the market, consumers are only aware of a few of them when they make their choices (Barroso & Llobet, 2012).

Communication and consumer behavior theories suggest that when consumers have a preference for a brand, they are keener and more willing to receive information from it and also to search for information about it. Repeated exposure potentially enhances brand attitudes by allowing the customer to process more information (Berger & Mitchell, 1989). Advertisers use a variety of media to communicate product benefits to a target audience. The uses of these media are often coordinated into a single integrated communications campaign.

Media exposure's most powerful effect on diffusion is that it spreads the knowledge of innovations to a large audience rapidly (Barroso & Llobet, 2012). Repetition of a message, its consistency over time, and apparent corroboration can shift public opinion over the long-term. Based on the foregoing literature, it can be argued that media exposure is an important predictor of purchase intention. Hence, the following hypothesis was developed:

H₁₀: Media exposure has a significant positive influence on the consumer's purchase intentions.

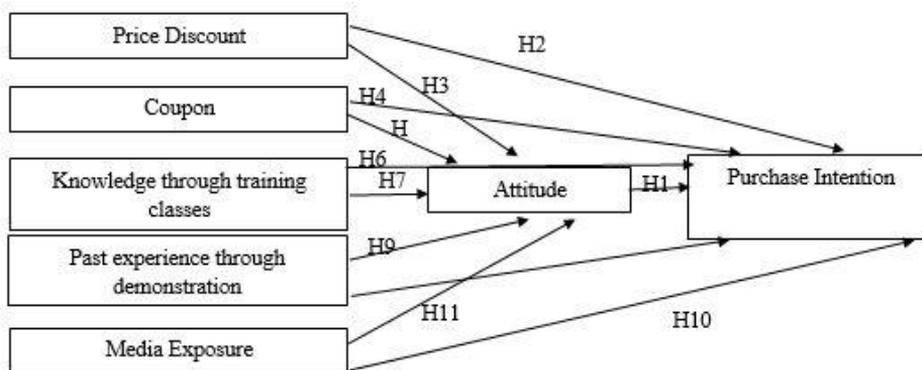
Observational learning can happen through print media and it was important to study both behavior and the consequences of the behavior that occurred on media.

Consequences of behavior were seemed to have a large impact on viewers' attitudes toward the observed behavior. If the behavior was elicited a positive response, then the observer remembered it and was more likely to attempt the same behavior (Bandura, 1965). In line with this, if the behavior generated a negative response, the observer was also more likely to remember the behavior and tried to avoid it in the future (Bandura, 1965). Hence, the following hypothesis can be developed:

H₁₁: Media exposure has a significant positive influence on the farmer's attitude

2.9 Conceptual Framework of the Study

Figure 1: Conceptual Framework



3. METHODOLOGY

This study was conducted in 4 districts namely Ampara, Polonnaruwa, Anuradhapura & Kurunegala districts in Sri Lanka. Since these four districts contribute to the highest paddy production than all the other paddy growing districts of Sri Lanka, was a reason to choose those four districts purposely for this study. Further, pesticide consumption for paddy cultivation of these four districts is also at the highest level. With the immense size of this population, a census becomes impossible to implement for this study therefore, sampling needs to be used. For this study, convenience sampling, has

been applied. For this study more than 300 farmers, 75 from each of above mentioned 4 districts, were selected. A pilot testing was thereafter conducted to refine the questionnaire and prevent potential problems regarding its completion and test the questions' face validity. The questionnaire was tested on five respondents which were afterwards taken out of the sampling frame. The self-administered questionnaire has been chosen as the data collection method. Before, collecting data, the questionnaire was translated into Sinhala to make its completion as convenient as possible for the respondents and, thus, to increase the response rate. SPSS Software package (version 23) was applied for the analysis of the data, using statistical tools such as Pearson's correlation, multiple regression.

4. DATA ANALYSIS

This study presented a quantitative study to quantify the association between the independent and dependent variables. To test the reliability, the study has considered the Cronbach's Alpha value. Researcher has considered age distribution, education level, land extent and paddy cultivation experience as demographic factors.

Table 1: Reliability of Variables (Cronbach's Alpha Table)

Constructs	Cronbach's Alpha Coefficient
Purchase Intention	0.903
Attitude	0.915
Price Discount	0.951
Coupon	0.666
Product Knowledge	0.949
Experience	0.904
Media Exposure	0.941

Source – Primary Data

Table 2: Model Summary of Attitudes of Purchasing Pesticides

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.917 ^a	.841	.838	.4963

- a. Predictors: (Constant), Media exposure, Price discount, Product knowledge, Experience
- b. Dependent Variable: Mean purchase intention

Source – Primary Data

Multiple correlation “R” was 0.917. This says that there was a strong positive relationship between the individual variables and farmers’ purchase intention. R-square is 0.841. This indicated that 84.1 percent of the dependent variable has been described by the individual variables. Adjusted R-square was also representing that 83.8 percent of the dependent variable has been described by the individual variables.

Table 3: ANOVA of Attitudes of Purchasing Pesticides

ANOVA^a

Model	Sum of squares	df	Mean Square	F	Sig
Regression	383.253	4	95.813	388.930	.000b
Residual	72.674	295	.246		
Total	455.927	299			

- a. Dependent Variable: Mean purchase intention
- b. Predictors: (Constant), Predictors: (Constant), Mean attitude, Mean subjective norm, Mean perceived behavior control

Source – Primary Data

According to the above table, the “P” value of the analysis showed a value of 0.000 which is <0.05 and the F value is 388.93. The overall model was statistically significant it was significant at the level of $p < 0.001$ meaning that the probability to occur these results by chance is very low.

Table 4: Coefficients of Attitudes of Purchasing Pesticides
Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.300	.081		3.717	.000
Price Discount	.215	.042	.220	5.095	.000

Product Knowledge	.295	.062	.317	4.742	.000
Experience	.146	.076	.152	1.925	.055
Media Exposure	.253	.102	.274	2.471	.014

a. Dependent Variable: Mean attitude

Source – Primary Data

As derived from the theoretical frame of reference the factors that were hypothesized to have an effect on consumers’ attitudes included different sales promotion factors – price discount (coupon is not significant in correlation, therefore, it was not analyzed by using regression tool) as well as product promotion such as product knowledge, experience and media exposure concern.

The regression model shows that independent variables, product knowledge of pesticides, exert the strongest effect on consumers’ attitudes towards purchasing pesticides with an unstandardized coefficient of 0.295 (table 4). This means that around 30 percent of the variation in consumers’ attitudes towards purchasing pesticides can be explained by it.

However, overall, all significant independent variables exert a fairly similar influence on consumers’ attitudes towards purchasing pesticides with unstandardized coefficients ranging from 0.146 (experience) to 0.253 (price discount and media exposure) in table 4.

Table 5: Model Summary of Purchase Intention of Pesticides

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
15	.952 ^a	.906	.904	.3622

a. Predictors: (Constant), Media exposure, perceived behavioral control, Price discount, Subjective norm, Attitude, Product knowledge, Experience

b. Dependent Variable: Mean purchase intention

Source – Primary Data

Multiple correlation “R” was 0.952. This says that there was a strong positive relationship between the individual variables and farmers’ purchase intention. R-square is 0.906. This indicated that 90.6 percent of the dependent variable has been described by the individual variables. Adjusted R-square was also representing that 90.4 percent of the dependent variable has been described by the individual variables.

Table 6: ANOVA of Purchase Intention of Pesticides

ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	371.321	7	53.046	404.279	.000 ^b
Residual	38.314	292	.131		
Total	409.635	299			

a. Dependent Variable: Purchase intention

b. Predictors: (Constant), Media exposure, perceived behavioral control, Price discount, Subjective norm, attitude, Product knowledge, Experience

Source – Primary Data

According to the above table, the “P” value of the analysis showed a value of 0.000 which is <0.05 and the F value is 404.279. The overall model was statistically significant it was significant at the level of $p < 0.001$ meaning that the probability to occur these results by chance is very low.

Table 7: Coefficients of Purchase Intention of Pesticides

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	1.418	.202		7.006	.0
Attitude	.334	.047	.352	7.044	.0
Price Discount	-.109	.032	-.117	-3.362	.0
Product Knowledge	.019	.050	.021	.375	.7
Experience	-.152	.059	-.167	-2.592	.0
Media Exposure	.368	.076	.419	4.839	.0

a. Dependent Variable: Purchase intention

As the results of the second regression analysis showed that contradictory to what was assumed in the hypothesis price discount and experience have a negative instead of a positive effect on consumers' purchase intentions of pesticides.

The analysis revealed that farmers' attitudes and media exposure have a significant effect on farmers' purchase intentions for purchasing pesticides as they were significant at the level $p < 0.001$. Therefore, the hypotheses **H₁** and **H₁₀** were accepted

5. FINDINGS

The regression analysis showed that all of these considered factors with the exception of coupons, in fact, have a positive effect on consumers' attitudes towards purchasing pesticides as they were significant at the level $p < 0.000$. Therefore, the hypotheses **H₃**, **H₇**, **H₉** and **H₁₁** which assumed that price discount, product knowledge through training classes, experience through demonstration and media exposure concern had a positive impact on consumers' attitudes towards purchasing pesticides were accepted. The hypothesis **H₅** which assumed that coupons regarding the sales promotion of pesticides had a positive effect on farmers' attitudes towards purchasing pesticides was, however, being rejected.

In particular, the product knowledge through training classes of pesticides was found to exert the greatest effect on consumer's attitudes towards purchasing pesticides which exhibited an unstandardized coefficient B of 0.295. Further media exposure was exhibited the second greater impact on consumer attitude towards purchasing pesticides is in line with and backs up findings from previous research such as Bandura (1965). When concerning the price discount, it plays a major role in the market because, especially farmers are very sensitive for the price. That can be seen in the received results in this study which showed the unstandardized coefficient B of the price discount was 0.215 given a greater effect for the attitude towards purchasing

pesticide. However weak to the moderate, relationship between experience through demonstration and pesticide purchase attitudes. Accordingly, the results of this study show that experience through demonstration, in fact, moderately correlates with attitudes (Significance level = 0.055) and attitudes can be explained by their level of experience through demonstration (unstandardized coefficient B = 0.146).

The analysis revealed that farmers' attitudes and media exposure have a significant effect on farmers' purchase intentions for purchasing pesticides as they were significant at the level $p < 0.001$. Therefore, the hypotheses H_1 and H_{10} were accepted.

Media exposure has been found to have the greatest variation in farmers' purchase intentions which has 0.368 of unstandardized coefficient (B). Farmers' attitudes also showed a positive significant effect on their purchase intentions of pesticides which has a 0.334 of unstandardized coefficient (B). Further, the result of the Pearson Correlation was 0.911 which shows the highest relationship between the attitude and the purchase intention of the pesticides.

However, two simple regression analysis conducted separately including purchase intentions of pesticides as the dependent and Price discount or Experience through demonstration as the independent variables, showed that Price discount and Experience through demonstration in fact has a significant positive effect on farmers' purchase intentions of pesticides individually. In simple regression analysis of price discount and the purchase intention, R square was 0.566 and unstandardized coefficients of B was 0.696 finally it was positively significant. Further, the other simple regression analysis of Experience through a demonstration against purchase intention of pesticide, the results show as R square was 0.736 and the unstandardized coefficient was 0.783. The results show a significant positive impact. Therefore, one can conclude that the negative effect of Price discount and Experience through a demonstration on farmers' purchase intentions of pesticides results from other factors considered in the second regression analysis that trigger changes in the final direct

effects of Price discount or Experience. Further research will need to explore the effects of other factors on the final direct effects of Price discount or Experience through demonstration.

Furthermore, the second regression analysis showed that product knowledge through training classes does not exert a significant influence over their purchase intentions of pesticides and therefore the hypothesis **H₆** was rejected. Since coupon was not correlated with the above factors it was not considered in the regression analysis. Therefore, hypothesis **H₄** was rejected.

6. DISCUSSION AND IMPLICATIONS

The purpose of this study was to examine the factors influencing the farmers' purchase intentions of pesticides. A conceptual model was developed in this study which was then tested. This was done by collecting statistical data by means of a questionnaire which was conducted with Sri Lankan pesticide using farmers, as in this decay the government aim is "Pesticide-free nation in 2020" and most concerned with the environment (Padgett & Allen, 1997). The hypothesized effects between the constructs included in the conceptual model were then being analyzed. These include farmers' attitudes and purchase intentions of pesticides. The results of this study revealed that the farmers' purchase intention of pesticides are attitudes and all these variables are positively impact the purchasing intention of farmers. Thus, regarding the first factor of investigating the influence of farmers' purchasing intention of buying pesticides, it can be concluded that farmers' attitude formation of buying pesticides plays a significant role. Price discounts, product knowledge finetuned the farmers' attitudes towards pesticides. Product-related knowledge through training classes strongly affects farmers' attitudes. It becomes apparent when farmers have owned, used or informed themselves about pesticides before, it has a strong impact on how they feel about purchasing them as well as their intention to purchase them or switch to the same brand.

The study which considered the factors influencing farmers' purchasing intention of pesticides is important for the government and policymakers since the modern agricultural trends required more efficiency, accuracy and effectiveness in policy decisions. Therefore, this can be achieved only through the design and development of excellent agricultural programs and design innovative solutions to enhance the agricultural sector's contribution. Some implications for the farmers are, farmers might consider their purchasing actions if they are interested in reducing their production costs and buying their pesticides at the best price. Farmers might also consider their reasons for using pesticides. Past experience was an important reason for using a pesticide. Perhaps farmers should make better use of educational influence to assure the pesticides are best suited for the job required.

6.1 Recommendations

In order to improve farmers' attitudes and purchase intentions of pesticides, marketers should therefore consider making stronger use of advertising as a marketing tool to increase farmers' media exposure to pesticides. Though the government banned the above line advertising the result shows the importance of media exposure. In addition, marketing managers of pesticides should consider the importance of running campaigns that educate farmers about the environmental impact of pesticides and the correct usage of pesticides for minimizing the impact of hazards to the environment. By doing so they will be able to increase farmers' product knowledge through training classes and thus their attitudes towards purchasing pesticides - as product knowledge through training classes have been found to affect attitudes towards purchasing pesticides. Further, experience through demonstration strongly impacted the attitudes and thus, doing many product trials will assist the farmers about the correct use of the recommended dose in the correct time instead of misusing and using overdose. In turn, increased attitudes towards purchasing pesticides will lead to greater purchase intentions of pesticides as this study has revealed that consumers' attitudes towards buying pesticides positively affect their purchase intentions of pesticides

6.2 Limitations of the Study

Due to restrictions in time and resources, this study was limited to farmers in four districts namely, Anuradhapura, Polonnaruwa, Ampara and Kurunegala. This, however, poses a limitation of this study as it makes the generalization of findings across the borders of total pesticide industry in Sri Lanka difficult due to cultivation crop differences. This study was conducted on the very specific market of pesticides. This poses a limitation in so far as it makes the generalization of findings to the entire pesticide industry difficult due to bio pesticides but not so popular in Sri Lanka comparing with other countries. Despite extensive effort to ensure the validity and reliability of the findings, some readers may be concerned with the predictability of behavior from attitude and intention.

6.3 Future Research Prospects

Future research should test the proposed conceptual model on farmers from different crop cultivations. Thus, a cross-cultivation examination of the constructs included in the model and their effects on farmers' attitudes of purchasing pesticides and their purchase intentions of pesticides is recommendable. The effects of the different factors on farmers' attitudes of purchasing pesticides and their purchase intentions of pesticides in the context of organic markets such as biopesticides are also recommendable to test in future studies. This would allow verification of the findings of this study for the pesticide industry in general (Netemeyer et al., 2004). The environment-based concerns are one of the very important factors under the present context (Lai et al. 2015; Khazaei & Khazaei, 2016; Degrimency & Breitner, 2017). Therefore, further studies are recommended to investigate an environment-based features under the changing context of the world. It is recommended to test the negative effect of experience through a demonstration on farmers' purchase intentions results from effects of other constructs considered in the multiple regression analysis that trigger changes in the direction of the final effects of

experience. Future researches should further examine these effects on experience through demonstration to reveal any impacts of other.

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