

Consumer Awareness and Willingness to Pay for Pesticide-Free Vegetables in Coimbatore

T. Haarshiny ^{1*} and D. Rajkumar ²

¹ Assistant Professor, Department of Agricultural Engineering, RVS Technical Campus, Sulu, Coimbatore - 641402, India.

² Professor and Head, Department of Agricultural Engineering, RVS Technical Campus, Sulu, Coimbatore - 641402, India.

ABSTRACT

Vegetable crops play a crucial role in Indian agriculture, contributing to nutritional security, livelihoods and dietary diversity. In India, vegetable breeding has evolved from conventional hybridisation and pedigree selection to incorporate molecular markers, genomics, gene editing and high-throughput phenotyping. This review summarises recent advances (2023-2025) in vegetable breeding in Rising concerns regarding pesticide residues in vegetables and their associated health implications have led to a gradual shift in consumer preferences toward safer and chemical-free food alternatives. In this context, the present study examines consumer awareness and willingness to pay (WTP) for chemical-free and pesticide-free vegetables in Coimbatore, Tamil Nadu. The study is based on primary data collected from 300 respondents using a structured and pre-tested questionnaire. Analytical tools such as descriptive statistics, Likert scale analysis, and the Tobit regression model were employed to assess awareness levels and identify the key determinants of WTP. The findings reveal that a majority of respondents (72%) are willing to pay a premium for chemical-free vegetables, with a preference largely concentrated within moderate premium ranges of 10–30%. The analysis further indicates that while consumers exhibit a relatively high level of awareness regarding pesticide use and its associated health risks, their awareness of certification systems and ability to identify genuine chemical-free products remain limited. Among non-paying respondents, price sensitivity and lack of trust in certification mechanisms emerged as the primary constraints. The results of the Tobit model demonstrate that household income, education level, health consciousness, pesticide risk awareness, trust in certification systems, and the presence of children in the household have a positive and statistically significant influence on WTP, whereas age exhibits a negative relationship. Overall, the study underscores the importance of enhancing consumer awareness, strengthening certification systems, and ensuring affordability to promote the adoption of chemical-free vegetables and support sustainable food consumption practices.

Keywords: Chemical-free vegetables; Willingness to Pay (WTP); Consumer awareness; Pesticide risk; Health consciousness; Tobit model; Sustainable consumption; Coimbatore

Introduction

Agriculture continues to play a pivotal role in the Indian economy, contributing significantly to food security, employment generation, and rural livelihoods. However, the intensification of agricultural practices in recent decades has led to a substantial increase in the use of chemical fertilizers and pesticides. While these inputs have enhanced crop productivity, their excessive and indiscriminate application has raised serious concerns regarding environmental sustainability, food safety, and human health. The presence of pesticide residues in vegetables and other food products has been linked to various adverse health outcomes, including endocrine disruption, neurological disorders, and carcinogenic risks (Aktar, Sengupta, and Chowdhury 2009; Sharma et al. 2019). In response to these concerns, consumer preferences have increasingly shifted toward safer and more sustainable food alternatives, particularly pesticide-free and organically produced vegetables. Growing awareness of health risks, coupled with rising income levels and changing lifestyles, has significantly influenced food consumption patterns. Urban consumers, in particular, are becoming more conscious of food quality and safety, thereby

increasing the demand for chemical-free products (Padel and Foster 2005; Rana and Paul 2017). This shift reflects a broader global trend toward sustainable consumption and environmentally responsible agricultural practices (Yadav and Pathak 2016).

Despite this increasing demand, pesticide-free vegetables often command a price premium due to higher production costs, certification requirements, and supply chain constraints. This necessitates a deeper understanding of consumers' willingness to pay (WTP) for such products. Willingness to pay serves as a critical economic indicator, reflecting the value consumers place on attributes such as food safety, environmental sustainability, and health benefits. It plays an essential role in determining market viability and guiding policy interventions aimed at promoting sustainable agriculture (Loureiro and Hine 2002; Krystallis and Chrysosoidis 2005). Existing literature suggests that consumers' willingness to pay for safer food products is influenced by a combination of socio-economic, psychological, and institutional factors. Variables such as income, education, age, and household composition significantly affect purchasing behavior and WTP decisions. Higher levels of income and education are generally associated with greater awareness and a stronger preference for safe and high-quality food (Govindasamy and Italia 1999; Prakash et al. 2018). In addition, psychological factors such as health consciousness and risk perception play a crucial role in shaping consumer attitudes toward pesticide-free products (Michaelidou and Hassan 2008).

Trust in certification systems and labeling mechanisms also plays a vital role in influencing consumer behavior. Reliable certification enhances consumer confidence by assuring product authenticity and quality. However, limited awareness and skepticism regarding certification systems can act as significant barriers to market growth, even when consumers exhibit favorable attitudes toward safe food (Janssen and Hamm 2012). Therefore, strengthening certification frameworks and improving transparency are essential for promoting consumer trust. In the Indian context, rapid urbanization and increasing disposable incomes have contributed to notable changes in dietary patterns and food preferences. Cities such as Coimbatore are experiencing a growing demand for safe and high-quality food products. However, empirical evidence on consumer awareness and willingness to pay for pesticide-free vegetables at the regional level remains limited. Understanding these dynamics is crucial for designing effective marketing strategies, improving supply chain efficiency, and promoting sustainable agricultural practices. Against this backdrop, the present study aims to examine consumer awareness and willingness to pay for pesticide-free vegetables and to identify the key socio-economic and behavioral factors influencing WTP. By employing an econometric approach, the study provides valuable insights into consumer preferences and offers policy implications for promoting safe and sustainable food systems.

Problem Statement

Despite the increasing concerns regarding pesticide residues in vegetables and their associated health risks, the adoption and consumption of pesticide-free vegetables remain limited, particularly in developing countries like India. Although consumer awareness of food safety issues has improved over time, this awareness does not always translate into actual purchasing behavior, especially when such products are sold at a premium price. In urban markets such as Coimbatore, where income levels and health consciousness are relatively higher, the demand for chemical-free vegetables is gradually increasing. However, several challenges persist, including price sensitivity, lack of trust in certification systems, limited ability to identify genuine chemical-free products, and insufficient market transparency. These factors create a gap between consumers' stated preferences and their actual willingness to pay (WTP). Furthermore, while existing studies have examined consumer preferences for organic or safe food, there is limited empirical evidence at the regional level that integrates socio-demographic characteristics, awareness levels, behavioral factors, and trust-related aspects in determining WTP for pesticide-free vegetables. In particular, the role of variables such as health consciousness, pesticide risk awareness, and trust in certification systems has not been adequately explored in a comprehensive econometric framework. Therefore, there is a need to systematically analyze the determinants of consumer willingness to pay for pesticide-free vegetables and to understand the underlying factors influencing both paying and non-paying behavior. Addressing this gap is essential for designing effective marketing strategies, strengthening certification mechanisms, and promoting sustainable agricultural practices.

Objectives:

The present study aims to examine consumer willingness to pay (WTP) for chemical-free and pesticide-free vegetables by integrating socio-demographic, awareness, and behavioral dimensions. Specifically, the study seeks to analyze the socio-demographic characteristics of respondents and assess their level of awareness regarding pesticide use, associated health risks, and chemical-free or organic farming practices. It further aims to estimate the extent and distribution of WTP premiums

among consumers and to identify the underlying reasons for unwillingness to pay among a segment of respondents. In addition, the study investigates variations in WTP across different socio-economic groups, including income, education, age, gender, and household composition. Finally, the research endeavors to identify and quantify the key determinants influencing WTP premiums through an econometric approach, particularly the Tobit regression model, focusing on factors such as income, education, age, health consciousness, and awareness of pesticide risks, trust in certification systems, and the presence of young children in the household. The findings are intended to provide meaningful insights for policymakers, marketers, and stakeholders to promote the adoption and consumption of chemical-free vegetables.

Methodology

Study Area, Data Collection and Sampling Design

The study was conducted in Coimbatore, one of the major urban centers in Tamil Nadu. The study is based on primary data collected from consumers in Coimbatore city. A structured and pre-tested questionnaire was administered through direct personal interviews. A total sample of 300 respondents was selected using a convenience sampling technique, ensuring representation across different socio-economic groups such as age, income, education, and household composition.

Survey Instrument and Variables

The questionnaire consisted of three sections. The first section captured socio-demographic characteristics, including gender, age group, education level, monthly household income, household size, and the presence of children under 12 years. The second section measured consumer awareness regarding pesticide use and chemical-free agricultural practices using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The awareness indicators included knowledge of pesticide use, health risks associated with pesticide exposure, awareness of organic farming practices, familiarity with certification systems, and the ability to identify chemical-free produce. The third section focused on willingness to pay (WTP) for chemical-free vegetables. Respondents were asked to indicate the premium they were willing to pay over conventional vegetables, categorized into percentage ranges. Respondents who were unwilling to pay any premium were also identified, and their reasons were recorded using multiple-response options.

Analytical Techniques

Descriptive statistical tools such as frequency, percentage, mean, and standard deviation were employed to summarize socio-demographic characteristics, awareness levels, and WTP distribution. Subgroup analysis was carried out to examine variations in willingness to pay across socio-economic categories, including income, education, age, gender, and household characteristics. This enabled identification of patterns in consumer behavior and preference heterogeneity.

Measurement of Willingness to Pay

The study adopted a contingent valuation method to estimate consumers' willingness to pay for chemical-free vegetables. The WTP premium was expressed as a percentage and treated as a continuous variable. However, a notable proportion of respondents reported zero willingness to pay, resulting in a censored dependent variable.

Econometric Model Specification

To analyze the determinants of willingness to pay, the Tobit Model was employed, as the dependent variable is censored at zero. This model is appropriate for estimating both the likelihood of willingness to pay and the magnitude of the premium.

The model is specified as follows:

$$WTP_i^* = \beta_0 + \beta_1 INC_i + \beta_2 EDU_i + \beta_3 AGE_i + \beta_4 HC_i + \beta_5 AWARE_i + \beta_6 TRUST_i + \beta_7 CHLD_i + \varepsilon_i$$

Where: WTP_i^* represents the latent willingness to pay. The observed WTP is defined as $WTP_i = WTP_i^*$ if $WTP_i^* > 0$, and $WTP_i = 0$ otherwise.

The explanatory variables include household income, education level, age, health consciousness score, pesticide risk awareness, trust in certification systems, and the presence of children under 12 years.

Result and Discussion

Socio-Demographic Characteristics of the Respondents

Table 1 presents the socio-demographic profile of the respondents included in the study. Out of the total sample of 300 respondents, females constituted a higher proportion (57.7%) compared to males (42.3%). This indicates that women were more actively involved in the survey, possibly reflecting their significant role in household food purchasing decisions. The age distribution shows that a majority of respondents belonged to the 31–45 years age group (37.3%), followed by those in the 46–60 years (27.3%) and 18–30 years (26.0%) categories. Respondents aged above 60 years accounted for only 9.3% of the sample.

Table 1: Socio-Demographic Profile of Respondents (n = 300)

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	127	42.3
	Female	173	57.7
Age Group	18–30 years	78	26.0
	31–45 years	112	37.3
	46–60 years	82	27.3
	Above 60 years	28	9.3
Education Level	Up to Secondary (10th)	52	17.3
	Higher Secondary (12th)	74	24.7
	Undergraduate Degree	101	33.7
	Postgraduate & above	73	24.3
Monthly Household Income	Below ₹15,000	61	20.3
	₹15,001 – ₹30,000	98	32.7
	₹30,001 – ₹50,000	89	29.7
	Above ₹50,000	52	17.3
Household Size	1–2 members	44	14.7
	3–4 members	154	51.3
	5 or more members	102	34.0
Children under 12 years	Present	138	46.0
	Absent	162	54.0

This suggests that the study primarily captured individuals within the economically productive and decision-making age groups. In terms of educational attainment, the largest proportion of respondents had completed undergraduate education (33.7%), followed by higher secondary education (24.7%) and postgraduate education or above (24.3%). Only 17.3% of respondents had education up to the secondary level. This indicates that the sample is relatively well-educated, which may positively influence awareness and perceptions related to food safety and health.

The distribution of respondents based on monthly household income reveals that 32.7% fell within the ₹15,001–₹30,000 category, followed by 29.7% in the ₹30,001–₹50,000 range. Respondents earning below ₹15,000 accounted for 20.3%, while 17.3% reported income above ₹50,000. This distribution reflects a predominance of middle-income households within the sample. Regarding household size, more than half of the respondents (51.3%) reported having 3–4 members in their household, while 34.0% had 5 or more members. A smaller proportion (14.7%) belonged to households with 1–2 members. This indicates that most respondents were part of medium to large-sized families. Furthermore, 46.0% of respondents reported the presence of children under 12 years in their household, whereas 54.0% did not. The presence of young children in nearly half of the households may have implications for food choices,

particularly in terms of preference for safer and healthier food options. Overall, the socio-demographic characteristics suggest that the sample is composed largely of educated, middle-income individuals within the active age group, with a considerable representation of female respondents and households with children. These factors are likely to influence consumer awareness and purchasing behavior toward chemical-free vegetables.

Consumer Awareness Levels Regarding Chemical-Free Vegetables

Table 2 presents the level of consumer awareness measured using a five-point Likert scale. The results indicate that respondents have a high level of awareness regarding pesticide use in vegetables (mean = 4.12), followed by knowledge of health risks associated with pesticide exposure (mean = 3.89). Awareness of chemical-free or organic farming methods was moderate (mean = 3.54). However, awareness related to organic certification systems was relatively low (mean = 3.11), and the lowest level was observed in the ability to identify chemical-free produce at the point of sale (mean = 2.74). Overall, the findings suggest that while consumers are generally aware of pesticide use and its health implications, there is limited practical knowledge regarding certification and identification of chemical-free products, indicating a need for improved consumer education and labeling practices.

Table 2: Consumer Awareness Levels Likert Scale Summary (1 = Strongly Disagree to 5 = Strongly Agree)

Awareness Dimension	Mean Score	Std. Deviation	Rank
Awareness of pesticide use in vegetables	4.12	0.74	1
Knowledge of health risks from pesticide exposure	3.89	0.81	2
Awareness of chemical-free / organic farming methods	3.54	0.93	3
Knowledge of organic certification systems (e.g., PGS, India Organic)	3.11	1.02	4
Ability to identify chemical-free produce at point of sale	2.74	1.09	5

Distribution of Willingness to Pay (WTP) Premium

Table 3 presents the distribution of respondents based on their willingness to pay (WTP) a premium for chemical-free vegetables. The results indicate that 72.0% of respondents were willing to pay a premium, while 28.0% were not willing to pay any additional amount. Among the willing respondents, the majority preferred moderate premium levels. The largest proportion (33.3%) was willing to pay a premium of 20–30%, followed closely by 31.5% willing to pay 10–20%. In contrast, a smaller proportion of respondents opted for higher premium categories, with 16.2% willing to pay 30–50% and only 5.6% willing to pay above 50%. Additionally, 13.4% of respondents were willing to pay less than a 10% premium. Overall, the findings suggest that although a significant proportion of consumers are willing to pay a premium for chemical-free vegetables; their preference is largely concentrated within moderate price ranges.

Table 3: Distribution of WTP Premium Categories among Respondents (n = 300)

WTP Premium Range	Respondents (n)	% of Willing Payers (n=216)	% of Full Sample (n=300)
Less than 10% premium	29	13.4%	9.7%
10% – 20% premium	68	31.5%	22.7%
20% – 30% premium	72	33.3%	24.0%
30% – 50% premium	35	16.2%	11.7%
Above 50% premium	12	5.6%	4.0%
Non-payers (WTP = 0)	84	—	28.0%
Total	300	100%	100%

Reasons for Non-Willingness to Pay (Non-WTP)

Table 4 presents the reasons cited by respondents who were not willing to pay a premium for chemical-free vegetables. The results indicate that the primary constraint was price sensitivity, with 46.4% of respondents stating that they could not afford higher prices. Distrust in 'chemical-free' claims and certification emerged as the second major reason (25.0%), suggesting concerns regarding authenticity and credibility. Additionally, 13.1% of respondents believed that all commercially sold vegetables contain similar levels of pesticide residues, indicating skepticism about differentiation. A smaller proportion of respondents (9.5%) reported that they already source vegetables from home gardens or trusted farmers, reducing their need to pay a premium. Finally, only 6.0% cited insufficient awareness of specific health benefits as a reason for non-WTP. Overall, the findings highlight that economic constraints and lack of trust are the key barriers limiting consumers' willingness to pay for chemical-free vegetables.

Table 4: Reasons for Non-WTP among Non-Paying Respondents (n = 84; Multiple Responses Permitted)

Reason for Non-WTP	Count (n)	Percentage (%)
Price sensitivity — cannot afford higher prices	39	46.4%
Distrust of 'chemical-free' claims and certification	21	25.0%
Belief that all commercially sold vegetables carry similar residue levels	11	13.1%
Already sourcing from home garden or trusted known farmer	8	9.5%
Insufficient awareness of specific health benefits	5	6.0%

Willingness to Pay (WTP) Across Socio-Economic Sub-Groups

Table 5 presents the variation in willingness to pay (WTP) for chemical-free vegetables across different socio-economic groups. The results reveal a clear positive relationship between income and WTP. Respondents with higher income levels exhibited both a greater likelihood of paying and a higher mean premium, with 90.4% of those earning above ₹50,000 willing to pay an average premium of 34.2%, compared to only 51.6% and 11.3% among those earning below ₹15,000. A similar trend is observed with respect to education. The proportion of respondents willing to pay and the mean premium increased with higher educational attainment, ranging from 48.1% (10.4%) among those with secondary education to 87.7% (29.6%) among postgraduates. This suggests that education plays a significant role in shaping consumer preferences for safer food. Across age groups, the highest willingness to pay was observed among respondents aged 31–45 years (76.8%; 23.7%), followed by younger consumers aged 18–30 years. In contrast, respondents above 60 years showed relatively lower willingness to pay (57.1%; 16.4%), indicating reduced inclination among older age groups.

Table 5: WTP Premium by Socio-Economic Sub-Group

Variable	Category	% Willing to Pay	Mean WTP Premium (%)
Monthly Household Income	Below ₹15,000	51.6%	11.3%
	₹15,001 – ₹30,000	68.4%	18.7%
	₹30,001 – ₹50,000	79.8%	24.5%
	Above ₹50,000	90.4%	34.2%
Education Level	Up to Secondary	48.1%	10.4%
	Higher Secondary	64.9%	17.8%
	Undergraduate	76.2%	23.1%
	Postgraduate & above	87.7%	29.6%
Age Group	18–30 years	74.4%	21.8%
	31–45 years	76.8%	23.7%
	46–60 years	70.7%	21.2%
	Above 60 years	57.1%	16.4%

Children < 12 Years	Present in household	80.4%	25.3%
	Not present	65.4%	19.8%
Gender	Female	76.3%	23.6%
	Male	66.1%	20.7%

Households with children under 12 years demonstrated a higher willingness to pay (80.4%) and a greater mean premium (25.3%) compared to those without children (65.4%; 19.8%), highlighting the influence of health concerns on purchasing decisions. Gender-wise analysis shows that female respondents exhibited a higher willingness to pay (76.3%) and a higher mean premium (23.6%) compared to male respondents (66.1%; 20.7%), suggesting that women may place greater importance on food safety and quality. Overall, the findings indicate that income, education, age, household characteristics, and gender significantly influence consumers' willingness to pay for chemical-free vegetables.

Determinants of Willingness to Pay (WTP) Premium: Tobit Model Results

Table 6 presents the results of the Tobit regression analysis estimating the determinants of willingness to pay (WTP) premium for chemical-free vegetables. The model is statistically significant, with a McFadden pseudo R^2 value of 0.298, indicating a good explanatory power of the selected variables. Household income has a positive and highly significant effect on WTP ($\beta = 0.0003$, $p < 0.01$), implying that higher-income consumers are more willing to pay a premium. Similarly, education level shows a strong positive influence ($\beta = 2.847$, $p < 0.01$), suggesting that more educated individuals are more inclined toward chemical-free food choices. Age exhibits a negative and significant relationship with WTP ($\beta = -0.147$, $p < 0.05$), indicating that older respondents are less likely to pay higher premiums compared to younger consumers. In contrast, health consciousness has a positive and significant impact ($\beta = 3.210$, $p < 0.01$), highlighting that individuals with greater health awareness are more willing to pay. Pesticide risk awareness also significantly increases WTP ($\beta = 2.566$, $p < 0.01$), reinforcing the importance of knowledge about food safety risks. Trust in certification systems positively influences WTP ($\beta = 1.943$, $p < 0.01$), indicating that credibility and assurance mechanisms play a crucial role in consumer decision-making. Furthermore, the presence of children under 12 years in the household significantly increases WTP ($\beta = 3.104$, $p < 0.01$), suggesting that families with young children are more concerned about food safety and quality. Overall, the results indicate that socio-economic factors, awareness levels, and trust significantly influence consumers' willingness to pay for chemical-free vegetables, with income, education, health consciousness, and awareness emerging as key determinants.

Table 6: Tobit Regression Results: Determinants of WTP Premium (n = 300)

Variable	Coefficient (β)	Std. Error	t-Value	Significance
Constant	-8.421	2.341	-3.598	0.001 ***
Household Income (INC)	0.0003	0.0001	3.812	0.000 ***
Education Level (EDU)	2.847	0.612	4.652	0.000 ***
Age (AGE)	-0.147	0.058	-2.534	0.012 **
Health Consciousness Score (HC)	3.210	0.784	4.094	0.000 ***
Pesticide Risk Awareness (AWARE)	2.566	0.631	4.066	0.000 ***
Trust in Certification (TRUST)	1.943	0.502	3.870	0.000 ***
Presence of Children <12 yrs (CHLD)	3.104	0.843	3.683	0.000 ***
Log Likelihood	-642.14	—	—	—
Pseudo R^2 (McFadden)	0.298	—	—	—

Note: Significance codes: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$. Dependent variable: WTP premium (%) censored at zero.

Conclusion

This study examined consumer awareness and willingness to pay (WTP) for chemical-free vegetables in Coimbatore. The results indicate that a majority of respondents are willing to pay a premium, primarily within moderate ranges, reflecting positive market potential. While awareness of pesticide use and health risks is relatively high, limited knowledge of certification systems and difficulty in identifying genuine products remain key concerns. Socio-economic factors such as income, education, age, gender, and household characteristics significantly influence WTP. The Tobit model confirms that income, education, health consciousness, pesticide risk awareness, trust in certification, and the presence of children

positively affect WTP, whereas age shows a negative relationship. However, price sensitivity and lack of trust act as major barriers among non-paying consumers. Overall, strengthening certification systems, improving consumer awareness, and ensuring affordability are essential to promote the adoption of chemical-free vegetables and support sustainable food consumption.

References

1. Aktar, Wasim, Dwaipayan Sengupta, and Ashim Chowdhury. 2009. "Impact of Pesticides Use in Agriculture: Their Benefits and Hazards." *Interdisciplinary Toxicology* 2 (1): 1–12.
2. Govindasamy, Ramu, and Jerry Italia. 1999. "Predicting Willingness-to-Pay a Premium for Organically Grown Fresh Produce." *Journal of Food Distribution Research* 30 (2): 44–53.
3. Janssen, Meike, and Ulrich Hamm. 2012. "Product Labelling in the Market for Organic Food: Consumer Preferences and Willingness-to-Pay for Different Organic Certification Logos." *Food Quality and Preference* 25 (1): 9–22.
4. Krystallis, Athanasios, and George Chrysoschoidis. 2005. "Consumers' Willingness to Pay for Organic Food: Factors That Affect It." *British Food Journal* 107 (5): 320–343.
5. Loureiro, Maria L., and Susan Hine. 2002. "Discovering Niche Markets: A Comparison of Consumer Willingness to Pay for Local, Organic, and GMO-Free Products." *Journal of Agricultural and Applied Economics* 34 (3): 477–487.
6. Michaelidou, Nina, and Louise M. Hassan. 2008. "The Role of Health Consciousness, Food Safety Concern and Ethical Identity in Consumers' Food Choices." *International Journal of Consumer Studies* 32 (2): 163–170.
7. Padel, Susanne, and Carolyn Foster. 2005. "Exploring the Gap between Attitudes and Behaviour: Understanding Why Consumers Buy or Do Not Buy Organic Food." *British Food Journal* 107 (8): 606–625.
8. Prakash, G., P. Singh, and R. Yadav. 2018. "Application of Consumer Style Inventory (CSI) to Predict Young Indian Consumers' Intention to Purchase Organic Food Products." *Food Quality and Preference* 68: 90–97.
9. Rana, Jyoti, and Justin Paul. 2017. "Consumer Behavior and Purchase Intention for Organic Food: A Review and Research Agenda." *Journal of Retailing and Consumer Services* 38: 157–165.
10. Sharma, Anket, et al. 2019. "Pesticide Residues in Food Grains, Vegetables and Fruits: A Hazard to Human Health." *Journal of Medicinal Chemistry and Toxicology* 3 (1): 1–7.
11. Yadav, Rambalak, and Govind S. Pathak. 2016. "Young Consumers' Intention towards Buying Green Products in a Developing Nation." *Journal of Cleaner Production* 135: 732–739.

