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Technological Advancement in Organic Food Production: A Study of the Factors Influencing Consumers' Intention to Purchase and Select

S. Siva Ramakrishna[1], Dr. P. Pinakapani[2]

[1]Research Scholar, GITAM School of Business Hyderabad, GITAM Deemed to be University, Hyderabad, India, ssidda@gitam.in
[2]Supervisor, GITAM School of Business Hyderabad, GITAM Deemed to be University, Hyderabad, India

These days, everyone is worried about the weather changing because of global warming. India now ranks among the world's top 10 polluters due to its steadily rising rate of greenhouse gas emissions. One of the major causes of the greenhouse effect is air pollution. Ten percent of India's air pollution is caused by vehicles. In an effort to lessen the country's air pollution, the government of India is promoting the use of electric cars. However, how people feel, think, and comprehend electric vehicles (EVs) will determine how well they do. The goal of this case study was to get a sense of how electric car buyers in India feel. The primary goal of this study was to utilize Deep Learning techniques, such as the Doc2Vec Algorithm, Recurrent Neural Networks (RNNs), and Convolutional Neural Networks (CNNs), to extract opinions that would be useful for marketers, manufacturers, and prospective buyers. We choose to use a big data platform to examine EV sentiment since that's how social media data is naturally structured. The better text mining capabilities of Deep Learning based approaches made them the favored choice over more conventional machine learning algorithms like Support Vector Machine, Logistic regression, Decision trees, etc.

Keywords: Electric Vehicles (EV),Recurrent Neural Network (RNN), Convolutional Neural Network (CNN),Deep Learning.

1. Introduction

The scarcity of food supplies was India's biggest challenge after gaining independence. In order to keep up with the rising demand for food grains caused by the world's expanding population, the green revolution was implemented in the early 1960s, which led to an increase in the production of several crops [1][2]. Through the use of modern irrigation techniques, the development and use of high-yielding seed and fertiliser types, and the management of dispersed land holdings, the primary goal of the green revolution was to achieve food grain

self-sufficiency [3].

One of Northern India's states, Punjab is sometimes called the "food basket of India" because to its fertile agricultural area and the industrious farmers who have turned it into a goldmine [4]. When it came to testing new seeds, utilising pesticides and fertilisers, and introducing mechanised and contemporary production processes, the farmers of Punjab were the pioneers in India. As a result, the state became known as "the wheat bowl of India." In the beginning, the state prospered thanks to pesticides and fertilisers, but the long-term, unwarranted use of these chemicals eventually turned the land and water bodies nasty and toxic. The Punjab state administration deemed the subsurface water unsafe for human consumption due to extreme water pollution in many regions. Chloride, chromium, uranium, and a host of other harmful elements—some of which cause cancer—had grown to dangerously high concentrations in the water [5].The health of many locals, who were inevitably going to drink the contaminated water, was negatively impacted. A lot of farms have seen their yields drop or become completely unusable because of the dangerous and excessive usage of chemical fertilisers and pesticides. Oversaturation of crops with pests that are resistant to pesticides is a direct result of the rise in pesticide use. Recall that this same thing happened a few years ago when American bollworms decimated a huge Punjabi cotton harvest. As a result, farmers began spraying their crops with massive quantities of pesticides in an effort to protect them from the devastating insects.

To get the most out of it, the pesticide vendors suggested using too many pesticides. Punjab Agriculture University, the state's preeminent agricultural institution, had advised just seven sprays for a given crop; nevertheless, farmers were applying the same sprays more than thirty-two times (indiatogether. org), rendering the land unusable due to the detrimental impacts of the pesticides. Due to excessive use and exposure to pesticides, there were many reports of intoxication cases and the development of various illnesses in different regions of Punjab [7].[8]. In order to protect their crops from various pests, farmers sought loans from commission agents and banks to purchase insecticides and other necessary apparatus. Overconsumption of natural resources led to pollution that undermined ecological harmony and endangered the well-being of countless individuals. It is very important to find ways to raise crops without harming the environment, and this is becoming more clear as we go along [9].

This motivates both farmers and governments to investigate and support the emerging organic food industry in an effort to break the harmful loop of pesticide overuse that threatens ecological sustainability, environmental health, and human health. For the sake of the land, ecology, food chain, and environment, the Indian government, along with various states and numerous non-governmental organisations, is actively promoting organic farming practices among farmers (ncof.dacnet.nic.in). It would be beneficial to conduct a study from the perspective of Indian customers to identify the various factors, both positive and negative, that influence their preference for organic food, since previous research on this topic has focused on developed nations. The current study's findings might also inform government policymaking about the need to curb the overuse of chemical pesticides. Many individuals are becoming more health conscious these days, and one way they're doing it is by eating more organic food. A sustainable or eco-friendly product, organic food is produced in a way that is less harmful to people and the environment than conventional alternatives.

2. Organic Food

The primary objective of creating food items from sustainable resources is to preserve water and soil for future generations while simultaneously improving the environment for the ones we have now [11]. Organic meat, poultry, eggs, and dairy products often originate from animals raised in natural settings, free from the use of antibiotics and growth hormones. Products that are cultivated without the use of radiation, conventional pesticides, or fertilisers containing synthetic components are also considered organic. The United States Department of Agriculture (USDA) has strict regulations regarding the production of organic food, and before any product can be labelled as "organic," a government-approved certifier must visit the farm to verify compliance [12].

3. Growth of organic food in the global market

With over 45 million hectares of land used for organic farming globally, the organic food business is experiencing rapid expansion and generates over 60 billion euros in income. Germany comes in at almost 8 billion euros, France at over 4 billion, and the United States at over 26 billion euros in the organic sector. China said in 2013 that they were leading the organic market with 2.4 billion euros, according to government statistics. Two million organic producers were recorded in 2013, when we looked at the largest organic producers globally. This time last year, the top three producers were Mexico(169,703), Uganda(189,610), and India (650,000)

4. Scenario of the organic food market in India

The India Organic Food industry Forecast and Opportunities, 2020 research by TechSci Research predicts that the country's organic food industry would expand from 2015 to 2020 at a CAGR of more than 25%. Organic food items are seeing a meteoric rise in demand in India, driven by rising health awareness. Increases in disposable money and general quality of life, as well as supportive government programmes that seek to boost organic farming by giving farmers access to funding and training, are further factors fueling market expansion [13]. In India, organic food consumption is on the rise due to both growing health concerns and more knowledge of the advantages of eating organic food. Producers are putting more effort into narrowing the price gap between organic and conventional food goods, even if the high cost of organic food is preventing its broad use. The organic food industry in India is expected to see significant growth over the next five years, because to rising demand, decreased production costs, and economies of scale. Many years of research on what influences consumers' decisions to buy organic foods have gone unanswered [14]. Consumers' propensity to purchase organic food is influenced by decisional variables that have been previously identified in research. Scientists are also interested in the elements that influence consumers' intentions to buy organic food and the factors that influence their purchasing decisions.

5. Environmental Concern and Purchase Intentions

Those that care about the environment prioritize keeping it clean and free of pollution so that

it may continue to be good and even improve. People who are concerned about the environment often choose to buy organic food. Some research suggests that organic agricultural practices could reduce environmental risks. A growing number of individuals are seeking out ways they can make a difference in the fight for environmental preservation. Customers who care about the environment may see the urge to buy organic food positively, according to studies in [7] and [8]. Responsible use of natural resources is only one way in which environmental awareness permeates every aspect of human life.

Furthermore, eco-consciousness may be defined by certain behaviors [10]. According to [11], statements that a product is organic or environmentally friendly have a little impact on Indian consumers. A solid association between the desire to purchase organic food and good intentions was shown in a study carried out by [12]. This is because organic food sales have increased as a result of people's growing interest in environmental issues.

6. Knowledge and Purchase Intentions

The term "consumer knowledge" refers to the facts and figures that people remember. When people make a purchase, the information they have stored in their memory will play a role. As a rule, users will take action according to the information they are aware of. A user's perspective changes, for better or worse, as they gain knowledge.

A consumer is more likely to determine whether a product is excellent or poor if they have access to more information about it. the third The speaker said that gaining environmental education will make one more conscious of their impact on the planet. have discovered that understanding the characteristics of organic foods may play a crucial role in making a purchase decision. A person's level of education on organic food is a major component in their decision to buy organic food. Consumers are more likely to have a good attitude towards buying organic food when they have greater awareness about it, according to [5]. The impact on customer attitudes is more influenced by subjective information than by objective knowledge, specifically [6]. Market information on organic goods significantly affects customers' subjective knowledge, as stated in [8]. Various sources, including advertising, social media, reporting from ecological organisations, and other forms of online communication, may raise consumers' knowledge of organic food options. On the other hand, personal experience has a significant role in shaping consumers' perceptions of organic food. People who have a favourable impression of organic food based on their own experiences are more likely to think that purchasing organic food is necessary and a wise decision [9]. Furthermore, the amount of consumer confidence may be influenced by one's level of knowledge. Users are less likely to believe newly provided information when there is a lack of understanding about it. Individuals who are dissatisfied with the updated product information will return to the original [10] source. It follows that customers are more likely to purchase organic food when they have more information about these items.

This study's model is based on Planned Behaviour Theory. A framework model is based on prior empirical research and Planned Behaviour Theory.

Attitudes, subjective standards, and perceptions of behavioural control are the three primary variables provided by this theory. Intention influences actual conduct, which is in turn affected

by intention, which is influenced by all three elements. A model of the breakdown of Planned Behaviour Theory is used to break down these three factors into numerous important beliefs, which in turn determine behavioural intentions[13][14].

Consequently, there are a number of ideas that make up attitudes, including health consciousness, environmental consciousness, and familiarity with organic food options.

Although the impression of cost is used to stand in for the sense of behavioural control [11]. The basic structure of this research is shown in Figure 1 model.

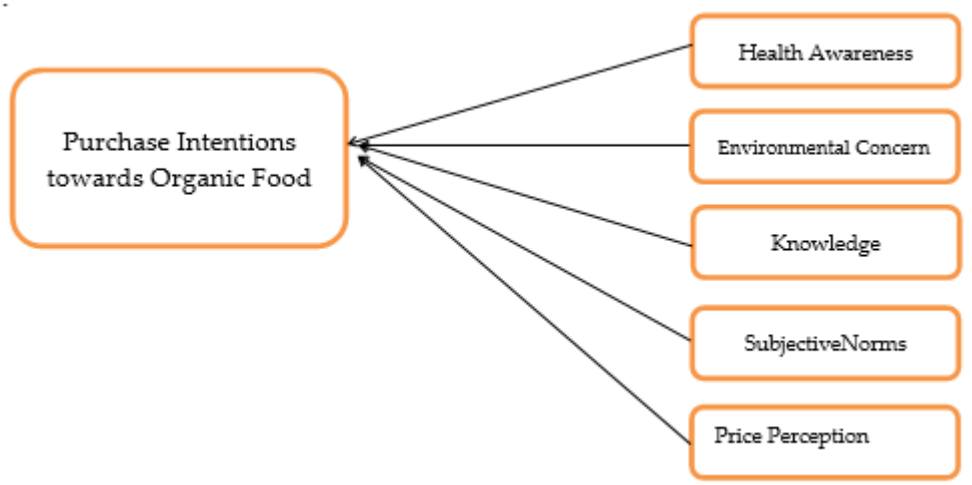

Figure 1. Research Framework

7. Conclusion

This research has shown that there are a number of important variables that affect customers' decisions to buy organic food. According to the results, customers' tastes are heavily influenced by aspects including their personal views on organic foods, their belief in organic certifications, their worries about the environment, and their perceived health advantages. First, consumers' desire to buy organic food is strongly correlated with their perceptions of health advantages, highlighting the significance of health-related factors in decision-making. The supposed beneficial effect on personal well-being is a key motivator for the organic label among health-conscious customers. Secondly, it became clear that customers' worries about the environment were a major role in their decisions. An increasing number of people are opting for organic goods because they are concerned about the environment and want to help promote sustainable practices. Marketers and lawmakers could use this to their advantage by communicating the environmentally beneficial benefits of organic farming.

Conflicts of Interest

The authors declare that they have no competing interests.

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