



**JULIANO MARTINS RAMALHO MARQUES**

**INSERTING FOOD SAFETY AND FOOD SECURITY VALUES  
THROUGH A NEW SCALE TOWARD INTENTION TO  
PURCHASE GREEN FOOD PRODUCT**

**LAVRAS - MG  
2021**

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Doctorate thesis presented at Federal University of Lavras, as a requirement from the Administration Post-Graduation Program, in the research area of Strategic Management, Marketing and Innovation, for a doctorate degree achievement.

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**INSERINDO OS VALORES DE SEGURANÇA ALIMENTAR ATRAVÉS DE UMA NOVA ESCALA PARA AVALIAÇÃO DA INTENÇÃO DE COMPRA DE PRODUTOS SUSTENTÁVEIS**

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## RESUMO

Esta pesquisa foi realizada em feiras livres no estado de Minas Gerais, Brasil e tem como objetivo principal analisar a relação entre os valores de segurança alimentar alinhado aos construtos funcionais, condicionais, sociais e emocionais que levam a atitudes e intenções de compras de produtos sustentáveis. A segurança alimentar neste estudo foi trabalhada na perspectiva de saúde percebida pelos consumidores (*food safety*), e na perspectiva do acesso a uma alimentação nutritiva e satisfatória (*food security*). Foi identificado uma lacuna na literatura relacionando os construtos acima mencionados à intenção de compra de produtos sustentáveis. Para se estabelecer essa relação, propôs-se criar uma escala que meça os valores percebidos de produtos sustentáveis pelos consumidores. A parte metodológica desse estudo se dividiu em duas etapas: a primeira sendo a validação da escala de nome *Green Food Perceived Value* (GFPV), e a segunda o desenvolvimento de uma modelagem de equações estruturais a fim de analisar a relação entre valores percebidos sustentáveis às atitudes e intenções de compra desses produtos. Na primeira parte foi realizada uma análise de conteúdo de entrevistas em profundidade realizadas em feiras livres no estado de Indiana, nos Estados Unidos da América, em que se pode perceber a relação entre os construtos mencionados. Juntamente com uma revisão de literatura, foi criado um questionário para mensurar os valores funcionais, condicional, social, emocional e de segurança alimentar. A escala foi validada através da percepção de consumidores em feiras livres no Estado de Minas Gerais, Brasil. A escala GFPV se mostrou robusta e confiável. A segunda parte desse estudo foi desenvolvida a partir de respostas de 519 consumidores de feiras livres no Estado de Minas Gerais, para através de uma modelagem de equações estruturais identificar a relação entre os valores percebidos sustentáveis às atitudes e intenções de compra desses produtos. Os resultados demonstram relações positivas e significantes dos valores de segurança alimentar em suas duas perspectivas (*safety* e *security*) às atitudes e intenções de compra de produtos alimentícios sustentáveis. Por outro lado os valores funcionais, condicionais e sociais não apresentaram resultados significantes em relação às atitudes que levam a compra desses produtos. A partir dos resultados podem-se lançar luzes à melhoria de políticas que fomentem o acesso dos consumidores a alimentos mais sustentáveis, vendidos pelo pequeno produtor rural. Campanhas de marketing podem ser mais eficazmente trabalhadas pelas cooperativas de pequenos produtores. Através de melhores práticas de acesso a alimentos sustentáveis, os ganhos são percebidos tanto para a saúde dos consumidores pois os alimentos são produzidos sob uma ótica mais saudável sem maiores processamentos, bem como para a melhoria da agricultura que diminua danos ambientais através de práticas extensivas, com grandes quantidades de químicos, uso demasiado do solo, desperdícios de água e do próprio alimento durante os transportes para chegar ao consumidor. Dessa forma, entende-se que essa tese de doutorado produz implicações inéditas de cunho acadêmico, teórico e social através do desenvolvimento de uma nova escala e de um modelo de grande relevância preditiva.

Palavras chave: Segurança alimentar, Valores, Alimentos Sustentáveis, Escala.

## ABSTRACT

This study was accomplished at Brazilian farmers' markets to analyze consumers' attitudes and intention to purchase green food products. There was a literature gap of a scale properly measuring green perceived value for food products. So, this study initially validated a new scale contemplating six first-order constructs (food safety value, food security value, functional value, conditional value, social value, emotional value) for green food perceived value. After accomplishing the validation process, the scale has been demonstrated to be reliable, proved to be robust, and credible. This was the first research advance, to have a new scale contemplating green perceived value, especially for food products. The scale was named Green Food Perceived Value (GFPV). Once the scale was validated, a descriptive and quantitative analysis was accomplished to understand consumer attitude and intention to purchase green food products at farmers' markets in Minas Gerais State, Brazil. Data were achieved through a questionnaire part collected at the farmers' markets, part through online media. The sample was composed of 519 farmers' markets consumers. From a structural equation modeling, it was found values related to safety, security, and emotional were highly significant compared to the non-significant values for functional, conditional, and social consumer perceive. This was a very interesting finding since it was the first time a scale from that magnitude was used especially for green food perceived value. Results can contribute to green food producers and traders providing subsidies for their marketing campaigns. Social development opportunities may also be thought from the research results, for example at small food producers organizations which can gain a better understanding over green food consumers behaviors. Then, this research brings new academic, managerial, and social perspectives. This is especially important since data were collected in COVID-19' pandemic situation which, even not being the main thesis purpose, can shed light on a new consumer behavior perspective. On the other hand, new studies and tests should be accomplished after the pandemic condition to have the results compared.

Keywords: Food Safety, Food Security, Values, Green Food Product, Scale.

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## 1 INTRODUCTION

Since the last decade, western people have become more concerned about their health and as a result, they are increasingly searching for green food products. Green food can be stated as having less impact on the environment when its produced and are less damaging to human health than traditional products. The green food product is also called sustainable or environmentally friendly product. Traditional products are those manufactured traditionally, not considering environmental and even health issues for its production.

The rising concern for future generations, increase in knowledge, health consciousness, and environmental well-being has contributed to the growing popularity of green food product movements. For example, the higher incidence of lifestyle diseases, such as diabetes and heart disease, triggered an alarm that made consumers realize the importance of food quality and safety (ALSABIEH et al., 2019; SOROKA; WOJCIECHOWSKA-SOLIS, 2019).

Green food products are produced using eco-friendly technology, reducing the environmental danger with proper characteristics such as originally grown, recyclable, reusable, biodegradable, containing some natural, non-toxic ingredients, and even no chemicals usage. The increase of food production and consumption influence major negative impacts on environment sustainability (AZZURRA; MASSIMILIANO; ANGELA, 2019), hence environment protection has been a critical topic in many parts of the world, and a great relevant research theme for food security guarantee (LAROUCHE; BERGERON; BARBARO-FORLEO, 2001; JOSHI; RAHMAN, 2015; YOGANANDA; BALAKRISHNAN NAIR, 2019). Many food consumers seem to be concerned about these impacts on the food system, as evidenced by the growing demand for environmentally friendly food products (TROUDI; BOUYOUCEF, 2020). These ecologically conscious consumers or green consumers are more likely to exhibit ecologically correct behaviors than others (WORSLEY; WANG; BURTON, 2015; MENOZZI et al., 2017).

The “green” term, largely replaced by “ecologically correct” or “environmentally responsible”, describe activities that are good for the environment (MANAKTOLA; JAUHARI, 2007; ASCHEMANN-WITZEL; NIEBUHR AAGAARD, 2014). It is worth mention this study describes green food products as slightly different from organic certified products. The United States Department of Agriculture (USDA) defines organic as a product produced without sewer-sludge, synthetic fertilizers, pesticides, genetic engineering, hormones, irradiation, and antibiotics (LIM; YONG; SURYADI, 2014), while non-organic foods allow to some extent the use of chemicals (SALEKI; SEYEDSALEKI, 2012). Therefore, there is a fine

demarcation between green and organic food products where green food products besides considering organic production, also take into account environmental issues, local economies matter, combined with consumers health improvements (ETEA et al., 2017).

Green food products in this study comprise organic products sold in Brazilians' farmers' markets. Brazil was chosen due to the country's performance importance in terms of being the largest economy in Latin America and seventh in the world (MARQUES; NAKATANI, 2015). Brazilian's economy is based extensively on its natural resources, manufacturing, and agricultural production, as Xie et al. (2014) highlighted its importance on the food sector. On the same hand, farmers markets were chosen to study the green food purchase and consumption due to farmers market common values for health habits (MOORE, 2006), environmental concerns (CARLISLE, 2015), and local food production system, which characterize the perspective of green food products (KLIMEK et al., 2021).

At farmers' markets, consumers seem to be more reflexive on food purchase and more committed to purchasing local food products supporting local producers. This behavior is called conscious consumers who act systematically according to perceive and values, drawing their choices based on reliable information towards health and the environment (BERG; PRESTON, 2017). For example, these consumers see a direct relationship between their behavior and environmental or ethical problems, and believe in their strength to influence their personal values, the local community, and broadly the world itself (DE PELSMACKER; JANSSENS, 2007; LOW; DAVENPORT, 2009; DE BARCELLOS et al., 2015). There is a growing trend towards sustainability from production to consumption in the food business worldwide. There is an adoption of a new way of production where environmental sustainability and health can be aggregated and be accomplished into the farmers' market purchase behavior (HUSEMANN; ECKHARDT, 2019).

The emergence of green consumer behavior significantly altered consumers purchases deciding factors especially related to food safety and food security (YOGANANDA; BALAKRISHNAN NAIR, 2019). Known as the inverse of food risk, food safety means the probability of not suffering any danger when consuming a specific food (HENSON; TRAILL, 1993). In addition, it is related to the guarantee of the food supply chain from the introduction, growth, or survival of microbial agents and dangerous chemicals (UYTTENDAELE; FRANZ; SCHLÜTER, 2016).

In the food sector, green food products have become one of the crucial market segments, and the shift to organic inputs usage can be seen as a support for agriculture, which reduces environmental damage. Along with sustainable agriculture, food systems must provide

sufficient and nutritious food for everyone, while minimizing environmental impacts, allowing producers to have a decent life (WILLETT et al., 2019). Food security exists when everyone, at all times, has physical, social, and economic access to sufficient, safe, and nutritious food that meets people's dietary needs and food preferences for an active and healthy life (WORLD HEALTH ORGANIZATION, 2001).

The growth of ecologically correct behavior pushed the increasing demand for green products, resulting in academic and practical interest in green food products consumers' attitude, intention, behavior, and green perceived value (GPV) (HOLBROOK, 2006; CHEN; CHANG, 2012; LIN; HUANG, 2012a; MASINI; MENICHETTI, 2013; SCHUITEMA et al., 2013; MOHD SUKI, 2016; WONG; TZENG, 2019). Woo and Kim (2019) for example, sought to understand consumers' behavioral intention, which is a determinant key of food buying behavior in the food industry. To work on this understanding, they applied the GPV multidimensional scale. GPV is defined as a consumer's overall appraisal of the net benefit of a product or service between what is received and what is given based on consumer's environmental desires, sustainable expectations, and green needs (CHEN; CHANG, 2012).

The GPV contemplates four sub-constructs called functional value, conditional value, social value, and emotional value (SANGROYA; NAYAK, 2017). The functional value contemplates the basic values consumers seek on a product. It is related to consumers' perceptions of utilitarian benefit, product quality, price in the decision-making process of consumption (WOO; KIM, 2019). Conditional value refers to perceived utility derived from personal benefits obtained from green products over conventional products in different situations (BISWAS; ROY, 2015). It is the conditional perceived utility attained by different physical, economic, social, or environmental situations and circumstances a consumer can face (LORENZONI; NICHOLSON-COLE; WHITMARSH, 2007). The social value relates to consumer motivation to behave in the same way their social class (CANDAN; YILDIRIM, 2013). It is the perceived utility obtained by the association of social group and peers influence to consume green products (BISWAS; ROY, 2015). Sangroya and Nayak (2017) described emotional value as the perceived value derived from the feeling of arousal or the affective state associated with the available alternative in green products. It is the association of feelings and emotions with the consumption of green products (SUKI; SUKI, 2015).

Other studies have indicated consumers are conscious of green food products considering health concerns, environmental awareness, nutritional quality, and sustainability (JOSHI; RAHMAN, 2015; WONG; TZENG, 2019). These factors have positively influenced consumers' purchase intentions at farmers' markets, which indeed are considered to be a

pathway aimed at shifting the food system towards one that is more just and sustainable (MAYE; DUNCAN, 2017). Among these researches, results from a study developed by Vilas Boas et al. (2020) showed food safety and food security values guiding consumers purchasing at farmers' markets.

Even studies showing health and sustainable factors influencing green food products purchase intention, and the GPV mentioned to influence attitudes to purchase green products, there is a literature gap to examine food safety and food security values aligned to the GPV constructs toward the intention to purchase green food products. Thus, considering a) the literature review establishing a relationship among green food products purchase intention to the multidimensional GPV scale; b) the need to examine the relationship of new values added to the GPV scale (SANGROYA; NAYAK, 2017); c) the perception for the possibility to establish a relationship among food safety value and food security value to GPV (KHAN; MOHSIN, 2017; VILAS BOAS et al., 2020); and d) the absence of a scale specifically measuring perceived value for a green food product, the present doctoral thesis, proposes the following research question: **What is the relationship among food safety and food security aligned to green perceived value toward intention to buy green food product?**

Since food safety and food security values were observed for the intention to purchase green food products, it is important to understand its relationship among the GPV scale. A more complete and new scale may better explain consumers' food purchase intention. Results are expected to elucidate a literature gap over the relationship between food safety value and food security value toward the attitude and intention to purchase green food products. Findings also support public policies, marketing strategies formulation aimed at minimizing environmental impacts through a friendlier environmental food system and advance towards consumers healthier food purchase habits. Yet, results can contribute to green food products producers and traders providing subsidies for their marketing campaigns. Social development opportunities may also be thought from the research results, for example at small food producers organizations which can gain a better understanding over green food consumers behaviors.

Additionally, it must be considered this study development was done during the Covid-19 pandemic. Even not being this research target to evaluate the impact of the pandemic on green food consumer behavior, the results may contribute to shed some light on this scenario. It is well known the Covid-19 pandemic scenario enhanced food insecurity and nutrition safety due to worsening of poverty, hunger, and lack of access to healthy food, as well as the excess consumption of foods considered unhealthy (VENTURA et al., 2020). The Covid-19 pandemic effects, raised the need for a new way of arranging the production, distribution, and

consumption of food, giving new meaning to the relationship between food, eating, and the environment (MARTINELLI et al., 2020). Thus, this research results lead to a better reflection over strategies for appropriate healthy, adequate, and sustainable access to green food products in Brazilian farmers' markets intending to strengthen a more sustainable food system.

## **1.1. Objectives**

### **1.1.1. Main purpose**

Analyze the relationship among food safety and food security values to the green perceived value constructs, toward the attitudes and intention for purchasing green food products.

### **1.1.2. Specific Objectives**

To reach the research main purpose it was defined the following specific objectives:

- a) validate a new scale, involving the food safety value and food security value constructs to the functional value, conditional value, social value and emotional value;
- b) measure the level of functional value, conditional value, social value, emotional value, food safety value and consumer food security value on farmers' markets consumers;
- c) identify the level of attitude to buy green food products at farmers' markets;
- d) identify the level of intention to purchase green food products at farmers' markets.
- e) Develop a bivariate analysis among the following constructs (functional value, conditional value, social value, emotional value, food safety value, food security value, consumers attitudes and consumers intention to purchase green food products) to the sample demographic profile.
- f) identify how each of the constructs (functional value, conditional value, social value, emotional value, food safety value, food security value, and consumers attitudes) relate to the exogenous construct.



## 1.2. Justification

The very beginning idea for this thesis development started with the need to understand attributes guiding consumers to purchase fresh fruits in different market channels in the U.S. (TORRES; LANGENHOVEN; BEHE, 2020). Based on this study, other two studies were developed from a partnership between the Federal University of Lavras - Ufla and Purdue University, through the CAPES/Print Program. Both surveys presented interesting findings for the relationship between food safety and food security toward the purchase of fresh produce at farmers' markets.

The work conducted by Marques et al. (2021) investigated the attributes guiding consumers to choose their marketplace channels to purchase fresh fruits. Based on the results we identified a need to investigate values influencing customers to purchase fresh fruits through different market channels in U. S, and could identify food safety concerns guiding consumers to purchase at farmers' markets. The other research conducted by Vilas Boas et al. (2020) aimed to study attributes, consequences, and values guiding customers to purchase fresh fruit at farmers' markets. Results identified food safety and food security values in addition to assumptions associated with GPV (functional value, conditional value, social value, and emotional value), proposed by Woo and Kim (2019), for green product purchase intention.

In addition, studies suggested the need to explore consumers' actual buying behavior, using interview techniques (WOO; KIM, 2019) and yet examine the relationships among the GPV constructs with others consumer behavior constructs (SANGROYA; NAYAK, 2017). Also, studies reported that elements of food safety and food security were observed for the intention to purchase green food products ( LOBO; CHEN, 2012; JOSHI; RAHMAN, 2015; WONG; TZENG, 2019). For example, Lobo and Chen (2012) reported over health influencing consumers' green food product purchases. Rana and Paul (2017) discussed ethical matters, from the belief people base their behavior favoring environmental issues, such as pest management, and fertilizers adoption for soil treatment. Themes such as "purchase intention", "green products", "food safety" and "food security" present many peculiarities, are strongly related, and as a result, remain being importantly studied. It is necessary to fill these mentioned studies gaps, and yet propose an investigation of a new model that might improve GPV measurement for green food product purchase intention. Consequently, propose a new measurement scale for the GPV theory advancement over green food product purchase.

Moreover, it was observed the population has increasingly perceived environmental issues due to food production's negative impacts on environmental sustainability (WITZLING;

SHAW, 2019). Thus, from an economical point of view, it becomes essential that green product traders own a better understanding of consumer behavior, through perceived values towards intention to purchase green food products. Thus, strategic planners and marketing professionals can intensify their actions in order to increase sales in this market segment. Acquiring a better understanding of what consumers want, how their needs have changed, and how immediately address these changes - being market-oriented - is not only a success factor for farmers and food retailers but also a survival necessity (FREIRE; RUDKIN, 2019).

These research results can offer new subsidies to legislators to formulate more comprehensive programs addressing the consumption of green food products. Results can contribute to raising managers' awareness of the responsibility sense for personal health (food safety) as well as to the sense of environmental responsibility which indeed can contribute to food access in the future (food security), which are essential nowadays.

It was evident the importance of more study contributing to the literature on a new perspective to analyze the intention to purchase green food products. Also, studies favoring marketing insights for market and public policymakers aim to increase demand for this specific segment. Thus, this research's main purpose was to analyze the relationship among food safety and food security aligned to the GPV multidimensional construct toward the intention to purchase green food products, through a new scale proposal.

## **2 CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT**

This theoretical section presents the research main approaches related to consumer behavior, the GPV constructs aligned to the concepts of food safety and food security values, the definition of the established relationships among the constructs towards attitudes and intentions to purchase green food products, and the proposed model to be analyzed. It also describes the proposed new scale as a formative second-order one. This section aims to provide a better understanding of the theoretical research content.

### **2.1. Consumer behavior perspective**

Studies on human beings' individual behavior or subjective processes have gone beyond the more traditional psychological circumscriptions contexts. For example, issues involving personal and collective health or sustainability over decision-making purchase situations have expanded psychological concepts study and also diversified research methods. For a long time, researchers on individual subjective behavior and processes that human beings act as consumers, have appropriated psychological knowledge. This psychological knowledge comes from the most diversified fields such as marketing, economics, anthropology, sociology and has been called "consumer behavior" (KOLLAT; ENGEL; BLACKWELL, 1970).

Consumer behavior can be defined as the study of customers and how they behave while deciding to buy a product that satisfies their needs. According to Mowen and Minor (2003) consumer behavior means the study of purchasing units and exchange processes involved in the acquisition, consumption, and disposition of goods, services, experiences, and ideas. Yet consumer behavior means the processes involved when individuals or groups select, buy, use or discard products, services, ideas, or experiences to satisfy needs and desires (SOLOMON, 2016). Additionally, consumer behavior explores the impact these processes have over immediate actors and general society (EVANS; JAMAL; FOXALL, 2006).

The decision-making for product or service purchase constitutes a wide range of consumer's psychological activities. Knowing such processes has been seen as valuable scientific discoveries for many consumption areas. For example, through consumer behavior studies, marketers and society are advancing for controlling human consumption behavior, as well as consumer education and protection (BLACKWELL; MINIARD; ENGEL, 2000; KOTLER, 2000; HAWKINGS; BEST; CONEY, 2004; EVANS; JAMAL; FOXALL, 2006; SOLOMON, 2016).

Consumers encounter various products information when making a purchase. Buying behavior for food purchase is built by several aspects such as health perceptions and environmental issues provoked for instance by a particular food production system (JAISWAL; KANT, 2018). Consumers are increasingly considerations over sustainable and green food products mainly as a result of health concerns and environmental sustainability. These kinds of concerns have brought consumers to a complex form of ethical decision-making, led by a type of socially responsible behavior.

Green food product purchase indicates the consumer choice for environmentally friendly products, avoiding products that harm the environment (JAISWAL; KANT, 2018). Green purchasing is most often measured as green purchase intention and behavior (JOSHI; RAHMAN, 2015). The green food products purchase intention indicates consumers' willingness to purchase green food products. Intentions capture the motivational factors influencing consumers' green food product purchase behavior (RAMAYAH; LEE; MOHAMAD, 2010). The behavior taken into account by green food product consumers care the public and private attempt to make social changes. Green food products meet consumers' needs without damaging the environment, contributing towards a more sustainable world (SHAMDASANI; CHON-LIN; RICHMOND, 1993). Green food products are environmentally superior and have a low environmental impact, and yet these food products are produced using eco-friendly components, are low in calories, and are healthier for consumers (JAISWAL; KANT, 2018).

Derived from the consumer behavior theory, many researchers have attempted to explain consumer green food product purchase behavior (MAICHUM; PARICHATNON; PENG, 2017; YOGANANDA; BALAKRISHNAN NAIR, 2019). Previous studies have focused on describing the underlying values, attitudes, and intentions toward green food products (WOO; KIM, 2019). Lauret and Benedetti (2018) explained the green food market has become one of the crucial market segments which can be seen as a path for environmental damage reduction and an increase of food nutrition availability. For example, consumers' eco-friendly buying intentions can reduce the negative environmental effect from food production (MAICHUM; PARICHATNON; PENG, 2017), and yet consumers looking for green food production use to perceive higher food nutritional intake, contributing to consumers health (MAYES, 2013).

Woo and Kim (2019) following some other researchers such as Sheth et al. (1991); Chen and Chang (2012); Sangroya and Nayak (2017) have identified four consumption values influencing consumer choice behavior for the green food product. These are called functional

value, conditional value, social value, and emotional value. These values compose the so-called perceived value theory. The consumer decision may be influenced by any or all of these consumption values. Several disciplines (including economics, sociology, several branches of psychology, marketing, and consumer behavior) have contributed to the development of the perceived value theory.

Considering the global warming era and health problems due to food consumption, environmental and health considerations in consumption have become widely accepted by consumers, and more people are paying attention to green food products (WOO; KIM, 2019). Based on environmental issues and the food impact on human health, aligned with consumers' motivation to purchase green food products, Chen and Chang (2012) have developed the GPV theory.

## **2.2. The association of green foods products and farmers' markets products**

Green foods are characterized as good quality foods, safe for consumption, nutritious, concerned with animal welfare, and healthy, produced under the principle of sustainable development (LIU; PIENIAK; VERBEKE, 2013). Also, presenting ecological values that affect the dependency of green customers on green items (HARTMANN; APAOLAZA-IBÁÑEZ, 2012).

Green foods consist of two groups. The first group of green foods allows the use of a certain limit of chemicals, but the second group refers to organic foods, which are generally accepted as natural foods, free from artificial chemicals, such as fertilizers, herbicides, pesticides, antibiotics, and genetically modified organisms (GAD MOHSEN; DACKO, 2013).

The consumers' awareness of environmental pollution, increased consciousness of social responsibility. Food crises, as well as the perception of an elevated prevalence of malnutrition and the influence of food on well-being, have motivated consumers' attention and expanded their interest to know how, where and by whom the food is produced (EUROPEAN COMMISSION, 2013). People consume green food or green products when their needs and desires for quality, availability, convenience, performance, and accessibility are met and when consumers realize that green food and products can help solve environmental problems (VARNER; OTTO, 2008). Studies indicate that food purchases in farmers' markets are increasing worldwide, characterizing a heightened proliferation of agricultural markets (HALIMATOU et al., 2017). Other studies are managing to prove that buyers are looking for sustainable products from these alternative food markets, rather than modern, resource-

intensive agri-food supply chains (FORSSELL; LANKOSKI, 2015; MUNDLER; LAUGHREA, 2016).

Farmers' markets surge as an alternative to conventional production for food wastage diminish. Food products at farmers' market mostly come from nearby farms which reduce storage time and also the need for long distances transport (MELO, 2018). For example, it is estimated one-third of the world's food production is wasted, and most losses occur in the post-harvest period (NATIONS et al., 2018). This is one scenario that farmers' markets use to contribute to better food security in terms of food waste reduction and on the same hand, farmers' markets support food safety due to fewer input products to keep the food properties for long travel situations. Freedman et al. (2012) postulated farmers' markets are an environmental intervention and a community health promotion through access increase for green food products, such as organic fruits and vegetables.

Not only through this perspective, but it is also possible to associate the farmers' markets products to the availability of green food products. The slow food movement is also highly observed in farmer's market contexts. This slow food movement can be seen as a demonstration dedicated to preserving and strengthening local food cultures and traditions, rekindling consumers' interest in the food they eat, rebuilding lost connections between consumers and producers; and combatting the ever-accelerating pace of life demanded by the global capitalist system (PETRINI, 2003). Slow food, locavorism, and community-supported agriculture perpetuate the highly consider market-coordinated actions of socially responsible consumers as the most efficacious means to redress systemic social and health problems (THOMPSON; KUMAR, 2018). Petrini (2015) associated farmers' market visits with the slow food movement since these consumers value what is traditionally prepared with fresh ingredients as a unique source of pleasurable experiences that, in turn, inspire a critical stance toward the industrialized system of food production.

Making a comprehensive assessment of farmers markets' benefits in terms of sustainability is even more important today (RANA; PAUL, 2017). Not only to help farmers improve their marketing strategies but especially to stimulate and support policymakers further developing local economies and consumers access to healthy green food products. This is why studies indicated the potential farmers' markets obtain to increase the sustainability of food systems, both in terms of socioeconomic equity and environmental and local development (MUNDLER; LAUGHREA, 2016).

### 2.3. Green Perceived Value (GPV)

Perceived value is understood as a subjective concept that relies on distinct attributes of many different products (SÁNCHEZ et al., 2006). It can be known as a consumer overall evaluation of a product or service based on a cost-benefit assessment (ZEITHAML, 1988), and it has been perceived as a key determining factor of consumer buying behavior (SWEENEY; SOUTAR, 2001; MOHD SUKI, 2016). Extant literature recognizes perceived value as the foundation of all effective marketing activity (SÁNCHEZ et al., 2006). The concept of value hence, plays a meaningful function for marketer and customer, being seen as one of the most valuable elements linked to some business segments. From industries and academic areas, perceived value primarily reflects people's attitude toward the benefits perceived of a product. It reflects the consumers' general achievement which is a subjective evaluation of product attributes, performance, and the consequences of using that product (PATTERSON; SPRENG, 1997).

Perceived values are associated with the following functional or utilitarian aspects for example quality and price (SWEENEY; SOUTAR, 2001), conditional aspects related to discounts and product availability (WALSH; SHIU; HASSAN, 2014), and can also be related to hedonic aspects such as social and emotional aspects (SWEENEY; SOUTAR, 2001). Holbrook and Hirschman (1982) emphasized that generally, customers would experience both utilitarian and hedonic values in consumption situations, and the emphasis on the values depends on the buyer's personal characteristics (BLOCH; RICHINS, 1983).

Scholars such as Sanchez et al. (2006); Chen and Chang (2012), developed a perceived value construct from the consumer green perspective. Chen and Chang (2012), in particular, developed a construct called GPV. And, they defined GPV as a general consumer assessment of the net benefits of a product or service between what is received and what is given based on the consumer's environmental desires, sustainable expectations, and green needs (CHEN; CHANG, 2012).

From the aspect of environmental and green consumption, the value of green products or services is based on the environmental friendliness attributes which are significant to customers (HARTMANN; APAOLAZA-IBÁÑEZ, 2012). Green food products are characterized as a subset of quality, profits, and ecological values that affect the green clients' dependence on green items (HARTMANN; APAOLAZA IBÁÑEZ; FORCADA SAINZ, 2005).

### 2.3.1. The green perceived value scale

In this environmental and green marketing context, Chen and Chang (2012) introduced the unidimensional GPV construct, for the study on enhancement of green purchase intentions. However prior studies that informed the unidimensional nature of the GPV scale did not completely explain the intricate and multidimensional nature of perceived value (HARTMANN; APAOLAZA-IBÁÑEZ, 2012; MASINI; MENICHETTI, 2013). Therefore, based on this studies associated with Hur; Kim; Park (2013); Sangroya and Nayak (2017) proposed a multidimensional scale to evaluate GPV based on four sub-constructs named functional value, conditional value, social value, and emotional value (HUR; KIM; PARK, 2013; SANGROYA; NAYAK, 2017). From this perspective, the GPV understood as a multidimensional construct could be analyzed in a more systematic manner (SANGROYA; NAYAK, 2017).

Functional values are related to consumers' decision making including attitudes, perception, and behavior, involved in weighing various costs and benefits of practical utilities that consumers can obtain in the process of consumption (SWEENEY; SOUTAR, 2001; SCHUITEMA et al., 2013; HAN et al., 2017; SANGROYA; NAYAK, 2017). For example, the value for money issues can be considered as a decisive aspect influencing consumers' favorable attitude toward green food products (LIANG, 2016).

Conditional Values according Biswas and Roy (2015) are explained as the perceived utility acquired by an alternative as the result of the specific situation or set of circumstances facing the choice maker. Discount, promotion, and incentives are extrinsic circumstances that could be predicted or unpredicted, creating alternative choices, characterizes the conditional value (SHETH; NEWMAN; GROSS, 1991). These extrinsic conditions might be a way for consumers to participate in environmentally friendly consumption (CAIRD; ROY; HERRING, 2008).

Social values are associated with the perception about what the society would think or how it would respond when an individual buys some product (SANGROYA; NAYAK, 2017). Consumers' behavior is formed by the references composed by social groups where each individual belongs (KIM; EVES; SCARLES, 2009). Social value can enable consumers to develop an attitude toward certain products (NELISSEN; MEIJERS, 2011). Since food's image often reports to consumers' self-image, consumers are motivated to indicate their social position and express their identity to others through their food choice purchase (HALL; WINCHESTER, 2001; KIM; EVES; SCARLES, 2009).



The emotional values are related to feelings and emotions buyer experiences while purchasing products (WIEDMANN; HENNIGS; SIEBELS, 2007). Nowadays emotions are considered the key factor in every stage of the buying process. Hartmann et al. (2005) explained the powerful emotional feeling when consumers purchase green products. Consumers that use to buy eco-friendly products, develop a strong sense due to moral satisfaction for being able to contribute to the environment.

Consumers who have some environmental knowledge and positive past experience with ecological product purchases have a higher tendency to expose solid intentions for green products purchase owing to its green attributes (LIN; HUANG, 2012a; SUKI; SUKI, 2015). Sangroya and Nayak (2017) stated the GPV scale as a multidimensional construct, better explained consumers' behavior toward green products consumption, and based on reliability and validity tests, the proposed GPV scale appeared robust and credible.

From this explanation of the constructs forming the GPV scale and especially for the main purpose to test other two constructs in addition to these previous ones, it is necessary to validate and hypothesize a new correlation to the attitude toward green food products. Then, based on this literature review and according to the main understanding of relations among the four sub-constructs forming the GPV to the attitudes for green food products purchase, it was developed the following hypothesis:

***H1. Functional value is positively associated with attitude toward purchasing green food products.***

***H2. Conditional value is positively associated with attitude toward purchasing green food products.***

***H3. Social value is positively associated with attitude toward purchasing green food products.***

***H4. Emotional value is positively associated with attitude toward purchasing green food products.***

The relationship between these previous GPV constructs to the attitude toward purchasing green products was already established according to the work by Woo and Kim (2019), but not with the inclusion of the food safety and food security constructs. Since it is proposed to include the food safety and food security construct to develop a new scale for measuring perceived value specifically related to green food purpose, all the relationships must be newly tested and hypothesized. The idea of studying new values that can be added to the four constructs mentioned above was suggested by Sangroya and Nayak (2017) who developed the multidimensional GPV scale. From a literature review, relationships were found among

food safety and food security leading to attitudes toward purchasing green food products, for example (JOSHI; RAHMAN, 2015; ETEA et al., 2017; RANA; PAUL, 2017). Rana and Paul (2017) found the greater consumers' concerns for environmental issues, the higher the probability for green food product purchase. Etea et al. (2017) stated socioeconomic factor especially related to health consciousness and environmental protection has led to a green food product purchase. Joshi and Rahman (2015) found safety values favoring attitudes towards green food product purchase due to consumers' sense of eating healthier. They went further stating that future research is needed for more specific issues on food safety effects for green food product purchase. Thus, it is proposed to test the relationship among food safety and food security to the GPV constructs. This test result's importance is twofold: First for the attempt to develop a new scale that can contribute to measuring consumers perceived value specifically related to green food products, and second to analyze these measurements with the attitude and intention to purchase green food products.

#### **2.4. Food safety value**

Chemicals usage in agriculture (heavy metals, pesticide residues, persistent organic pollutants, volatile organic compounds, hydrocarbons, and other chemical compounds) are chemical contaminants constantly discharged in nature and therefore researched in many studies (GIZAW, 2019). In addition to the negative impacts on environmental sustainability, research reports chemical concentration exceeding tolerable limits for consumable food items (RATHER et al., 2017). As a result, food contamination by harmful chemicals is one of the major public health concerns related to the food market (HA; SHAKUR; PHAM DO, 2019). It affects people of all sexes, ages, races, and income levels across the world, making food safety in the food market one of the main focus areas (GIZAW, 2019).

The concept of safe and nutritious food encompasses a multitude of different elements. Food contains all the nutrients and biologically active substances which consumers need to maintain their health. Also, the concept of safe food refers to that aliment free from toxins, pesticides, chemical, physical and bacterial contaminants such as bacteria and viruses that can affect the consumer health (BONCIU, 2018).

Food safety in this study is understood as the opposite of suffering any food risk due to food consumption, especially related to chemical contamination that can induce or be related to disease contraction (HENSON; TRAILL, 1993). Foodborne illnesses can be defined as sickness resulting from the ingestion of spoiled or poisonous foods, contaminated by microorganisms or

toxins, which can occur at any stage of the food process, from production to consumption (SCALLAN et al., 2011). Contamination can also occur associated with environmental issues, such as the use of chemicals, water pollution, soil contamination, or air pollution. Clinical symptoms represent a wide spectrum of diseases, from acute sickness to long-term illnesses, which include gastrointestinal infections, immune disorders, neurological complications, multiple organ failure, and even cancer (AL-MAMUN et al., 2018).

Studies report food safety as the probability of not suffering some hazard from consuming a specific food (HENSON; TRAILL, 1993). The food safety issue has made consumers become more concerned and supportive of local farmers to ensure their food safety (HATTON, 2015). Safe food is healthy, nutritious, and environmentally friendly by green, sustainable and clean production (ZHANG et al., 2018). Consumers' concerns about several food hazards, particularly chemical hazards which were perceived to be invisible, having long-term effects and serious health consequences (HA; SHAKUR; PHAM DO, 2019). Along with this finding, farmers' markets buyers reported a worry for long-term impacts from chemical hazards in fresh fruits (VILAS BOAS et al., 2020). Hence, this is one of the reasons consumers look for buying their food from farmers' markets on a belief food is free from chemicals (RANA; PAUL, 2017).

Consumers who attribute a value to the reduction of food risk are in fact, requesting an increase in food safety. The reduction of the morbidity risk is a non-market factor of value to the consumer, who generally requires a change in one or more food characteristics, such as food toxins or chemical residues, which could impair consumers' health. A food product is safe when the risk of contamination is excluded or reduced below the maximum allowed level. A variation in safety implies a variation in the probability of survival. Thus, a demand for food safety is in fact a demand for health preservation or a decrease in morbidity, which in this sense is perceived as a value (IBANEZ; STENGER, 2000). Based on these consumers' fundamental beliefs that guide and motivate their actions toward healthier food choices, food safety can be considered as a value.

## **2.5. Food security value**

The food security term at the national and global level focus on the supply side of the food equation. Pinstrup-Andersen (2009) proposed the following question to be answered by food security: is there enough food availability, where food is usually interpreted to mean dietary energy? There is not a simple answer to this question considering food availability does

not assure access, and enough calories do not assure a healthy and nutritional diet (WORLD HEALTH ORGANIZATION, 2020). The distribution of available food is critical. This was widely recognized by scholars and practitioners in the mid-1970s, and food security was defined as access by all people to enough food to live a healthy and productive life. This definition was subsequently amplified by the Food and Agriculture Organization to include the nutritional value and food preferences. Thus the definition agreed upon at the World Food Summit in 1996 is that food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food which meets their dietary needs and food preferences for active and healthy life (WORLD HEALTH ORGANIZATION, 2001).

The food systems and sustainable agriculture need to afford sufficient and nutritious food for all while minimizing environmental impingement and allowing producers to make a decent living (WILLETT et al., 2019). Effective planning and management of limited environmental resources to meet current and future socio-economic demands for sustainable development are challenging (ZHANG; VESSELINOV, 2017). For example, agricultural production is the largest consumer of water globally, accounting for about 90% of global freshwater consumption in the past century (HOFF, 2011; KHAN; HANJRA, 2009). Eventually, the indiscriminate use of chemicals led to environmental deterioration, contaminating waters, fauna, and flora hence putting food security at risk for the entire world population (RANA; PAUL, 2017).

Most understand an urgent need on the agriculture and food systems in order to first, quit the environmental damages, and make progress on several sustainable development goals at planetary boundaries. However, there are intense debates on how to achieve this sustainable development, with two dominating narratives discussion: improve efficiency in conventional agriculture through incremental steps while reducing negative externalities versus a transformational rethinking of farming systems based on agroecological principles (EYHORN et al., 2019).

These agroecological principles interact with people supporting local food initiatives, such as farmers' markets, community kitchens, and urban agriculture. These types of initiatives fall under the umbrella of food security values. These values are perceived in an effort and situation where community residents can obtain a safe, culturally appropriate, and nutritionally adequate diet through a sustainable food system (BELLOWS; HAMM, 2001). This food security value adopted by the British Columbia Ministry of Health's Food Security Core Public Health Program highlights supporting a sustainable food system through small-scale agriculture. For instance, Rideout; Seed and Ostry (2006) understood the food security value

from a narrow definition of hunger to a broad view of structural issues. In this sense, farmers' markets have also been studied as a way to minimize the economic, social, and environmental impacts on the communities. Farmers' markets operate and broadly can be studied on a way for increasing food security by sustainable food production and affordability of healthy diets from sustainable food systems (RANA; PAUL, 2017; WILLETT et al., 2019).

## **2.6. Food safety and food security values as a credence attribute**

Consumers can consider three types of product attributes when making a purchase: search, experience, and credence attributes (MOSER; RAFFAELLI; THILMANY, 2011). Credence products are those whose relevant attribute information is difficult to ascertain directly by consumers at any stage of purchase, even after the food consumption (TORJUSEN et al., 2001; GRUNERT; BREDAHL; BRUNSØ, 2004; DARBY et al., 2008). Credence characteristics play an important role in the modern food marketing system. Consumers' food choices are increasingly influenced by credence cues, as other links of trust and direct relations with the producers have vanished within the globalized food system.

Credence's good category incorporates a wide range of quite intangible and often interdependent characteristics such as outcomes related to public health, environmental conservation, origin, job placement, supporting small scale agriculture and local rural communities, farmers living and producing in marginal and/or disadvantaged conditions and workers' rights (DARBY et al., 2008; CARRILLO et al., 2011).

Food safety and food security values are formed based on considered food products credence attributes. Literature supports consumers, looking for safety and security products when purchasing food products (JOSHI; RAHMAN, 2015; AL-MAMUN et al., 2018; GIZAW, 2019). Consumers consider several credences attributes such being health as an influential purchase factor (CARRILLO et al., 2011). Other examples are environmental concerns influenced by specific issues such as pest management, fertilizer usage, and soil treatment (HUGHNER et al., 2007; RANA; PAUL, 2017). Ethical issues also contribute to consumer credence attributes, for example, fair trade (GRANKVIST; LEKEDAL; MARMENDAL, 2007). Lastly, without exhausting possibilities, the food production distinction as industrialized and sustainable also plays a credence attribute factor (SIRET; ISSANCHOU, 2000). These characteristics involving food safety and security values must be considered in this research analysis.

## **2.7. Food Safety and the relation to Attitude toward purchasing green food products**

Consumer concerns about food quality and safety have grown (YOGANANDA; BALAKRISHNAN NAIR, 2019), and yet green foods products characterized as having fewer chemical residues have become more popular worldwide (BEARTH; COUSIN; SIEGRIST, 2014). Studies indicated consumers believe that safe foods, such as organic and green foods, are related to healthy living life (JOSHI; RAHMAN, 2015), associated with a lower pesticide mortality related risk (YU; GAO; ZENG, 2014).

The rising concern for future generations, also the health consciousness increased knowledge for well-being have also contributed to the growing popularity of green movements. Thereafter, the green consumer behavior has altered the importance consumers attribute to decisive factors leading to the intention to purchase a product (WEI; ANG; JANCENELLE, 2018). A study by Abdul (2009) indicated consumers were more likely to have a positive attitude toward green food when they were more concerned about their health. Teng et al. (2012) discussed consumers' attitudes towards the environment, health, and food safety are made up of beliefs consumers accumulate in their lifetime.

Attitudes describe what consumers like or dislike through an assessment process that can be positive or negative. This process has a very strong connection with the consumers' behavioral intentions (MAICHUM; PARICHATNON; PENG, 2017). For the consumer environmental concern and personal health context, attitude consists of characteristics that are not instinctive but are learned through a compilation of beliefs that a consumer maintains in relation to activities they develop throughout their choices (SENTOT et al., 2015). The attitude towards environmental issues and health-related issues has an effect on the purchase of green food products (YADAV; PATHAK, 2017).

Considering that food safety has become a significant factor for food products choice (LANGIANO et al., 2012), and as consumers are increasing the willingness to purchase green food products due to health issues (LAHERI, 2015), the following hypothesis is established:

***H5. Food safety value is positively associated with attitude toward purchasing green food products.***

## **2.8. Food Security and the relation to Attitude toward purchasing green food products**

The consumption of goods and services has tremendously increased worldwide, leading to depletion of natural resources and serious environmental damage (BAER-NAWROCKA;

SADOWSKI, 2019). Some of the serious repercussions of environmental damage are global warming, increased environmental pollution, and flora and fauna declining (FITTON et al., 2019).

The world population is expected to reach 9,7 billion by 2050. This scenario will lead to increased food demand, aggravating environmental issues due to intensive agricultural production (SKAF et al., 2019). The combination of environmental suppression and damage with the food production increase to meet consumption needs has attracted attention in relation to food security worldwide.

The food security issue can be studied through four dimensions: 1) the availability and food supply in an area, 2) the physical and economic capacity people have to access food, 3) the adequate consumption of food items, and 4) the production stability and sustainability of food supply (NATIONS et al., 2018). Several countries around the world realized the threat of food insecurity and are working to minimize the damaging impact of their business activities on the environment (WORSLEY; WANG; BURTON, 2015). This perception and concern for the environment and society have led to the emergence of "sustainable development", which emphasizes the need to promote sustainability and defend a form of development that minimizes the negative impact on the environment and society.

Sustainable development further encourages eco-innovation and green consumption. Eco-innovation focuses on the incorporation of environmental sustainability practices in all phases of the products and services creation. Environmentally responsible purchasing is vital, as products' unplanned purchases can cause irreversible damage to the environment (FITTON et al., 2019). Consumer support for pro-environmental food policies and green food products purchase is important for the adoption of successful environmental strategies. Many food consumers seem to be concerned about these impacts on the food system, as evidenced by the growing demand for environmentally friendly food products (MCEACHERN; WARNABY, 2008). This movement is not so new. Lea and Worsley (2008) showed that a substantial number of consumers had by that time strong environmental values and practiced pro-environmental eating behaviors.

Consumer perception towards environmental issues highly influences the successful adoption and implementation of sustainable consumption and production practices. Consumers' behavior and attitudes in daily activities have various effects on the environment (JONKUTÈ, 2015). Therefore, the motivation and barriers studies over effective practices for sustainable behaviors among consumers are crucial. Consumers play significant roles in decision-making

effects since uncontrolled actions lead to unsustainable production, consumption, and a deteriorating environment (REDMAN; REDMAN, 2014).

However, due to the causes described above, sustainable environmental actions must be largely strengthened. Through the association of environmental concerns in line with food security considerations, studies have identified changes in consumer behavior towards a more sustainable consumption (EYHORN et al., 2019; WONG; TZENG, 2019). Thus, based on these findings, this study hypothesis is described as:

***H6. Food security value is positively associated with attitude toward purchasing green food products.***

## **2.9. Attitudes towards purchasing green product and purchase intention**

Studies dealing with interest and consumer choice for green food products in the Western context are not uncommon (FEIL et al., 2020). The literature states a great impact of green perceived values on consumers' attitudes towards green food consumption (WOO; KIM, 2019). In addition, personal values, especially the ones related to the GPV, affect (usually positively) people's attitude and environmental behavior, purchase intention, and behavior towards ecological food, e.g. green food products (DE BARCELLOS et al., 2015). For example, Lago et al. (2020) found green food product quality, its cleaner production, and price aligned to consumers' concern for health, lifestyle, and environmental concerns were determinants for green food purchase.

Attitude towards a product purchase is aligned with consumers' preference and the perception of how products satisfy the buyers (SOLOMON, 2016). There are several studies relating attitudes towards the purchase of various products considering attributes such as food security (LIM; YONG; SURYADI, 2014), product sustainability (HONKANEN; YOUNG, 2015), and organic products benefits (FOTOPOULOS; KRYSTALLIS, 2002). Previous studies have identified a relationship among purchasing decisions for a product choice, considering sustainability or a product not damaging the environment (FELIX; BRAUNSBERGER, 2016; GUPTA; OGDEN, 2009). Choices for products considered sustainable generate a positive image that reflects consumers' attitude to purchase green products and consequently impact their intention to buy this kind of product (THØGERSEN et al., 2015).

Purchase intention is a predicted or planned activity in the future, which is the likelihood of predisposition turning beliefs and attitude toward a product into purchase actions (AJZEN, 2001; LAROCHE; BERGERON; BARBARO-FORLEO, 2001; MANAKTOLA; JAUHARI,



2007; CHOU; CHEN; WANG, 2012). Previous marketing studies on sustainable products have shown that consumers' attitude towards ecological behavior influences their environmental knowledge and intention to purchase green products (BARBER; TAYLOR; STRICK, 2009; FLAMM, 2009). Similarly, Yadav and Pathak (2017), stated that consumer's attitude towards green products influenced their intention to buy green. Corroborating these studies, consumers with positive attitudes towards sustainable products incorporate these habits into their lifestyle (MOSTAFA, 2009). Therefore, this thesis proposes the following hypothesis:

***H7. Attitude toward purchasing green food products is positively associated with purchase intention.***

## **2.10. The Green Food Perceived Value (GFPV) proposal as formative second order construct**

This thesis proposal is also intended to validate a new scale measuring green perceived value, especially for food products. There is a literature gap of a scale assessing green food product perceived value (SANGROYA; NAYAK, 2017; WOO; KIM, 2019). So this study proposes to call this scale to be validated as Green Food Perceived Value (GFPV). This new scale, as mentioned before, is based on the association of the functional value, conditional value, social value, emotional value, food safety value, and food security value to measure green food perceived value. So from now on in this study, whenever it is intended to mention the new formative scale proposal, it is called GFPV. The proposed new GFPV scale is then measured by six first-order constructs and is considered as a formative second-order construct. This study followed four criteria established by Jarvis; Mackenzie; Podsakoff (2003) to determine whether a construct is formative or reflective: (1) the causality direction flows from the construct to the formative value to be measured; (2) the measurement variables must not be interchangeable; (3) the covariation among indicators should not be present; and (4) the measures do not necessarily capture the same aspects of the construct domain, therefore, they are not necessarily interchangeable.

The establishment of the GFPV scale as a second-order formative construct could be verified according to the following reasons: The theoretical definitions of GFPV causality were expected to move from the dimensions to the GFPV construct. Any variation in the values dimension would affect the GFPV, but not necessarily a variation in the GFPV would affect its dimensions. Therefore, each of the GFPV's measurement dimensions has a distinct form of contribution to the GFPV construct (LIN; SHER; SHIH, 2005). The withdrawal of any

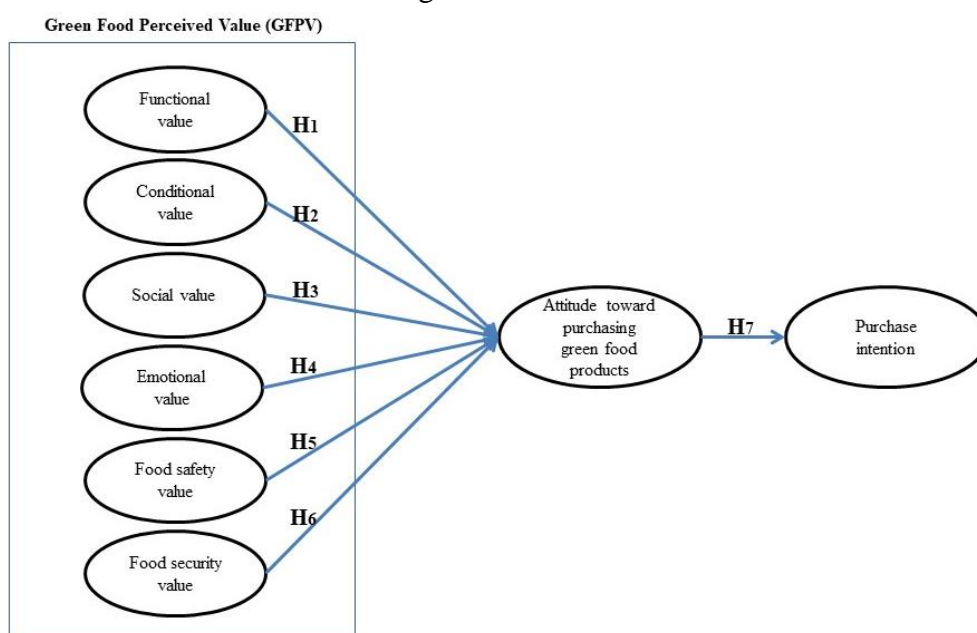
formative dimension would affect the GFPV theoretical explanation. Consequently, the dimensions cannot be interchanged. Thirdly, it was assumed no covariation among the GFPV formative constructs, since each measurement has its respective value. For example, a green food consumer may rank low on conditional value but highly on the food safety one due to their health concern.

The measurements do not necessarily capture the same aspects of the construct domain. For example, in a study by (PERSAUD; SCHILLO, 2017), various dimensions of social factors positively shaped consumers' purchases. Nevertheless, they did not find the social influence positively influencing perceived value. These potentially divergent formative dimensions of the GFPV construct demonstrate the formative character composing the scale.

## 2.11. Proposed model to verify the relationship among GFPV's constructs, to the attitudes and intention on purchasing green food products

The thesis's main objective was to analyze the relationship among the green perceived values aligned to the food safety value and food security value toward attitudes and intention for green food products purchasing at farmers' markets. It seeks, through the following theoretical model, to answer the research question and analyze the relationship between the constructs through the presented hypotheses.

Figure 1– Theoretical model.



Source: Elaborated by the author

### **3 RESEARCH CONTEXT**

#### **3.1. Agriculture in Brazil and Minas Gerais**

Brazil is one of the world's leading producers and food suppliers (YOUNG, 2013). Recent years have shown important productivity gains obtained through technology and local farmers' entrepreneurship as well as agriculture chain organization. The agribusiness sector has vital importance to the Brazilian economy in terms of gross domestic product (GDP) as well as employment rates. For example, agribusiness represents 24% of Brazilian GDP (YOUNG, 2013) and has been increasing steadily since 2012. Brazilian agriculture generates around 30.5 million direct and indirect jobs, contributing to 81.86 billion US Dollars to the Brazilian trade balance (AQUINO; GAZOLLA; SCHNEIDER, 2018).

Minas Gerais is a state in Southeast Brazil. It ranks as the second most populous state, the third by GDP, and the fourth largest by area in the country. Agribusiness in Minas Gerais generated BRL 190 Billion in terms of GDP and represents 14% of total Brazilian Agribusiness GDP. These numbers show the importance of the Minas Gerais food production system to the Brazilian economy. There is a vast literature over agriculture in Minas Gerais and more specifically related to food safety and food security (TENUTA; TEIXEIRA, 2017; PEREIRA; CARNEIRO; OLIVEIRA, 2019; OLIVEIRA; PAES; AZEVEDO, 2021). Although these studies contemplate only some part of the state or a specific type of agricultural crop or livestock production. There is a literature gap over food safety and food security values guiding consumer purchase in Minas Gerais State and more specifically, contemplating access to a green food product at farmers' markets (OLIVEIRA; PAES; AZEVEDO, 2021). This study shed light on farmers' markets consumers in Minas Gerais State considering food safety and food security values.

#### **3.2. Small food producers in Brazil**

Since the 1970's the unbridled search for higher productivity rates, has accelerated the agricultural mechanization process. This process has led to the emergence of a food market based on intensive and disorderly artificial inputs usage, such as pesticides and fertilizers. However, this mass production model has shown its economic and social unsustainability, as well as environmental losses (SCHULTZ; PEDROZO; NASCIMENTO, 2001; RICOTTO, 2002).

The so-called conventional food production system has mostly contributed to this unsustainable scenario. On the other hand, the world, and more specifically in Brazil has surged the eco-friendly consumers which have forced the conversion from conventional practices to sustainable ones, mostly developed by small agricultural producers (ASSIS, 2006). Most Brazilians' journals refer to small food producers as family farmers. In this study, it is adopted the term, small food producer. Altogether, small food producers in Brazil are the predominantly rural segment. For example, this segment accounts the majority of rural properties and produces most of the food consumed in Brazilian markets (FRANÇA; DEL GROSSI; MARQUES, 2009).

These small food producers are widening committed to the increased demand for green food products sold at farmers' markets in Brazil (SEVERO; DE GUIMARÃES; MORAIS, 2020). Morel; Rezende; Sette (2015) have pointed out five reasons for green food product higher demand: 1) consumers concern for health and food ingestion with no chemical substances; 2) environmental organizations like NGOs, favoring farmers markets and a more organized green food producers associations; 3) the religious and spiritual influences for a human equilibrium through healthy eating foods considering the natural harmony; 4) organized corporation actions against modern and conventional agriculture; 5) marketing tools used by large networks to induce green food product demand for specific consumer segments.

The increased green food product demand on the same hand represents an opportunity for farmers market expansion in Brazil. Although some challenges must be accomplished. Aquino et al. (2018) revealed 90% of Brazilian organic farmers are small food producers and they are responsible for 70% of Brazilian organic production. The farmers' markets represent a higher percentage of green food product sales (36,66%), compared to conventional supermarkets (33,22%). Conventional supermarkets can be exemplified as Carrefour, Pão de Açúcar. The remaining 30,12% sell green food products at specialized stores or home deliveries. Even small food producers representing the majority in agricultural rural areas, there is a dichotomy on Brazilian agrarian policy related to big food companies. The Brazilian credit policy, consciously or not, has contributed to maintaining and even increasing the productive gap between small and big food producers. A better understanding of this situation can be strategic for sustainable food production advancing towards small food producers' improvement, consequently increasing food safety and food security. In a study carried out by Aquino et al. (2018), results have shown that small food producers hold 4.366.267 farms representing 84,36% of the total. The big food producers own 809.369 farms, comprising 15,64% of existing farms. This is a considerable difference, but only 24,01% of arable land is

kept by small food producers, that is 18 hectares on average for each small rural producer. On the other hand, big food-producing farmers occupy 75,99% of arable land with an average of 313 hectares per farm. It means, an average 20 times greater than small rural producers.

Based on Dardot and Laval (2017) principle, the task for a new society construction and a new environmental protection framework for food sustainability comes essentially from the political and ideological struggle. Therefore, it is fundamental to know the agricultural scenario so that strategies can be traced. For instance, the Brazilian agricultural sector is compounded by 16,6 million direct jobs (GASQUES et al., 2011). Small food producers account for 12,3 million people in Brazil, corresponding to 74,38% of total directed employed food producers. On the other hand, big farmers' food producers account for 4,2 million people, representing 25,62% of the total food producers in Brazil (AQUINO; GAZOLLA; SCHNEIDER, 2018). This data information illustrates the common logic for food security is wrongly treated. For example, the government financial resources for small food producers through rural credit have dropped from 17% in 2009 to 13% of the total amount in 2016. It means 87% of the total Brazilian government financial resources for agricultural food products are destined to big food producers (AQUINO; GAZOLLA; SCHNEIDER, 2018).

This food system financial profile reflects the so-called “agribusiness”, capturing rural credit growing resources portion. This system highlights unfairness engenders by government interests, demeriting small food producers. It is worth mention small food producers are the ones who contribute to the variety and quality nutritious food to the population with less environmental damage (MOREL; REZENDE; SETTE, 2015). The Brazilian agricultural framework, which is an example of agricultural procedures existent in the world, especially in under-developed countries, supports the logic of favoring the large-scale agriculture business. It has been mostly done for an economic purpose like GDP increase through selling raw food as commodities. This process is already known to be environmentally unsustainable, aggravate social disparities, and yet a high workforce swindle.

Authors posited over the support importance for small food producers development from institutions such as the Brazilian Service for Support of Micro and Small Enterprises (SEBRAE), the National Service for Rural Learning (SENAR), and the National Service for Commercial Learning (SENAC) (GUIMARÃES; GUILLAUMON, 2020). These institutions can collaborate with green food producer training, even financing green food producers, as well as providing green food marketing strategies. These actions can boost green food product selling in an attempt to approximate food producers to their proper demand. It is only through concrete actions favoring small food producers, who have few production resources available,

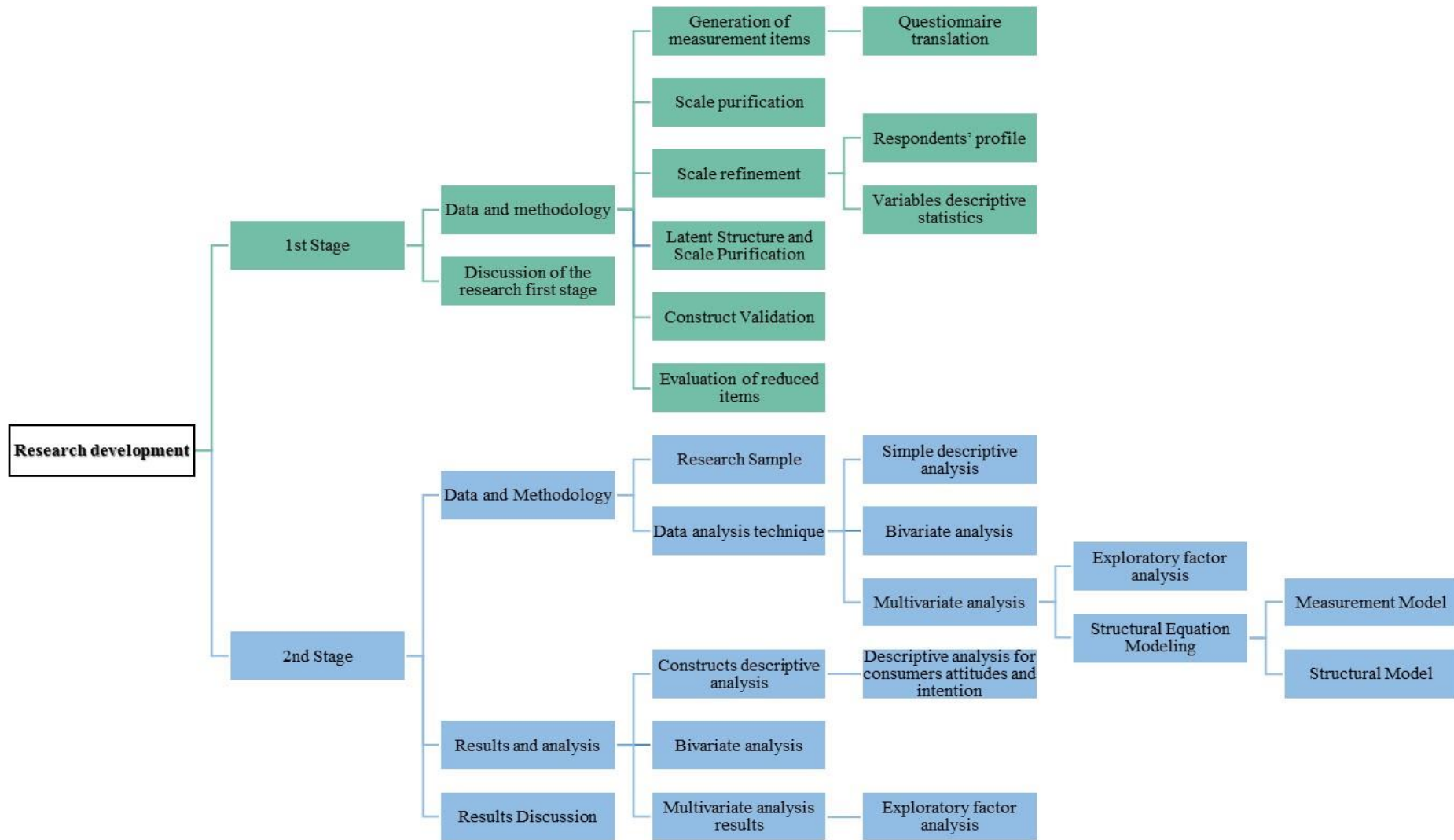
that higher commerce in farmers' markets will be consolidated. Thus, it is essential to understand farmers' markets as a social improvement that provides economic and social benefits to small rural producers, and for the local economy as well.

In this context, where each one has a responsibility share, academy work, through scientific research, can contribute to shedding light on the important role developed by farmers markets. It is well-known farmers' market contributes to social development, the local economy and can be a path to food safety and food security.

#### **4 RESEARCH DEVELOPMENT**

To reach the thesis's main purpose, after the literature review, it was necessary to separate the research development into two stages. The first stage involved the GFPV scale validation. The second stage consisted of analyzing the relationship between the GFPV concerning attitudes and purchase intentions for green foods products. It means that before executing the proposed model to assess the GFPV relationship to attitudes and intentions to purchase green food products, the GFPV scale first needed to be validated. Figure 2 details the research development structure to a better understanding of both stages.

Figure 2 – Research Development Structure



Source: Elaborated by the author

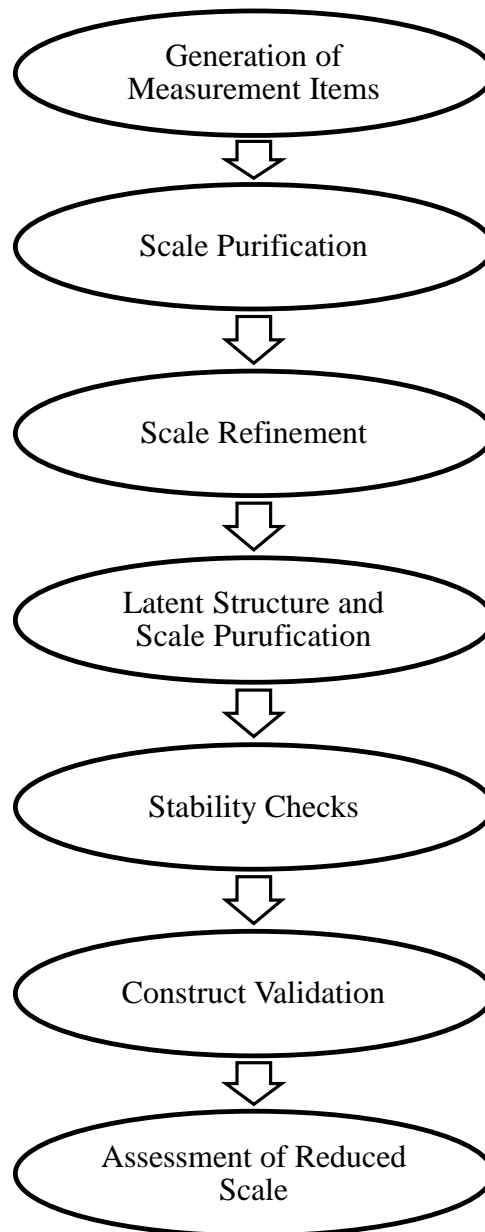


## **4.1. First stage**

### **4.1.1. Data and methodology of the first stage**

At this research stage, it is intended to accomplish the first specific objective, which is to validate the GFPV scale. In doing so, both exploratory (qualitative) and descriptive (quantitative) studies were used to develop a more comprehensive scale. Before starting data collection, this quantitative and descriptive study was firstly approved by the Brazilian National Research Ethics Committee (CONEP) under the number 44037021.3.0000.5148, and the approval term can be seen in Appendix A. For the scale development and validation purpose, it was applied the processes and methods recommended by Churchill (1979), in detail described in the following sections. Figure 2 displays the phases it was used for the scale validation.

Figure 3 – GFPV scale development process.



Source: Churchill (1979).

***a) Generation of measurement items***

This stage started from the analysis of food safety and food security values guiding fresh fruit consumers at farmers' markets. From the research conducted by Vilas Boas et al. (2020), which aimed to study attributes, consequences, and values guiding customers to purchase fresh fruit at farmers markets, it was identified food safety and food security values related to assumptions associated with GPV (functional value, conditional value, social value, and emotional value). For the generation of the questionnaire measurements items, it was then

developed a content analysis among 30 farmers' markets interviews. Based on this content analysis among the fresh fruits consumer's responses, which was carried out in-depth interviews, it was found a relationship among the food safety and food security values to the assumptions forming the GPV scale. The associations among food safety and food security values to the assumptions of the GPV scale (functional value, conditional value, social value, and emotional value) subsidize the beginning of the statements' formation of the GFPV scale. The interviews were carried out in farmers' markets in the State of Indiana, U.S. from April to October 2020.

After the notion of the relationship among the constructs, it was developed a literature review to better understand the values meaning, and its possible association for the GFPV constructs formation. Following the sentences provided by the interviewees as well as several studies such as Sangroya; Nayak (2017); Al-Mmamun et al. (2018); Eyhorn et al. (2019); Woo; Kim (2019) a preliminary list of measurements was created. These items were screened by a board of three marketing expert professors, two agri-business experts, and one professor from the horticulture and economic area.

It was followed Woo and Kim (2019) assertive for the four measured GPV (functional value, conditional value, social value, and emotional value). Thus, it was adapted fourteen items. For the food security and food safety values it was proposed five items to each value totalizing twenty-four items measuring the GFPV scale. All the measurements items were coded for software inputs.

#### i. Questionnaire translation

The intended questionnaire needed to be adapted to Portuguese, since our sample was Brazilian farmer's markets consumers living in the state of Minas Gerais, Brazil. Then a literature review was accomplished to better understand and propose the most suit translation for the term "green food product". After literature review and appointments with farmers markets sellers, one marketing and one sociologist professional, the best interpretation for the term "green food product" in Brazilian understandings was defined as "Produtos Sustentáveis".

For the questionnaire translation, it was used the Collaborative and Iterative Translation technique proposed by Douglas and Craig (2007). The collaborative approach ensured that different points of view were represented for better questionnaire development. Firstly, a translation was independently done by an administration doctorate student, a marketing expert, and food safety and food security researcher. This procedure ensured a more accurate

translation. Next, the team got together on an online group meeting to discuss and propose the most appropriate assertive.

To perform the questionnaire pre-test, it was interviewed nine green food products consumers to validate and understand whether the items were properly measuring the respective constructs. It was conducted a cognitive interview, based on the Think Aloud technique to purify and examine the scale psychometric properties and stability (SHAFER, 2005). Consumers had the opportunity to verbalize their thoughts and how they interpreted each item. No major changes were applied to the twenty-four items. Table 1 indicates the English assertive, the respective Portuguese translation, and the proposed codes for software inputs. Appendix B shows the whole questionnaire.

Table 1 – English and portuguese assertive with codes.

		(continue)
<b>Assertive</b>	<b>Translation proposal</b>	<b>Codes</b>
<i>Functional value</i>		
Purchasing green food product offers value for money	Comprar alimentos sustentáveis oferece bom custo-benefício	FV1
Green food product is reasonably priced	Os alimentos sustentáveis possuem preços justos	FV2
Green food product is well made for reducing environment distortion	A forma como alimentos sustentáveis são produzidos reduz os danos ambientais	FV3
Green food product has an acceptable quality level	Alimentos sustentáveis possuem um nível aceitável de qualidade	FV4
<i>Conditional value</i>		
I would purchase green food product if offered a discount	Eu compraria alimentos sustentáveis se me fosse oferecido algum desconto	CV1
I would purchase green food product if offered a promotional incentives	Eu compraria alimentos sustentáveis se me fosse oferecido um incentivo promocional	CV2
I would purchase green food product when it is easily available	Eu compraria alimentos sustentáveis se estivessem facilmente disponíveis	CV3

Table 1– English and portuguese assertive with codes.

		(continue)
<b>Assertive</b>	<b>Translation proposal</b>	<b>Codes</b>
<i>Social Value</i>		
Purchasing green food product would make a good impression on others	Comprar alimentos sustentáveis faz com que os outros tenham uma boa impressão sobre mim	SV1
Purchasing green food product would improve the way I am perceived by others	Comprar alimentos sustentáveis melhora a maneira como sou percebido pelas outras pessoas	SV2
Purchasing green food product would help me to feel accepted by others	Comprar alimentos sustentáveis ajuda a me sentir bem aceito pelas outras pessoas	SV3
Purchasing green food product would give me social approval	Comprando alimentos sustentáveis obtenho aprovação social	SV4
<i>Emotional value</i>		
I enjoy purchasing green food product	Eu gosto de comprar alimentos sustentáveis	EV1
I feel relaxed after purchasing green food product	Eu me sinto tranquilo/relaxado depois de comprar alimentos sustentáveis	EV2
Purchase of green food product would make me feel good	Comprar alimentos sustentáveis me faz sentir bem	EV3
<i>Food safety value</i>		
Green food product improve my health	Alimentos sustentáveis melhoram a minha saúde	FSA1
Green food product are free from chemical	Alimentos sustentáveis são livres de produtos químicos	FSA2
Eating green food product avoid contract disease	Comer alimentos sustentáveis previne doenças	FSA3
Green food product contribute to my life quality	Os alimentos sustentáveis contribuem para a minha qualidade de vida	FSA4
Green food product contribute to my nutritional needs	Alimentos sustentáveis contribuem para suprir as minhas necessidades nutricionais	FSA5
<i>Food security value</i>		
Purchasing green food product contribute to ecosystem	Comprar alimentos sustentáveis contribui para o ecossistema	FSE1
Purchasing green food product support sustainable food production	Comprar de alimentos sustentáveis apoia a produção alimentar sustentável	FSE2

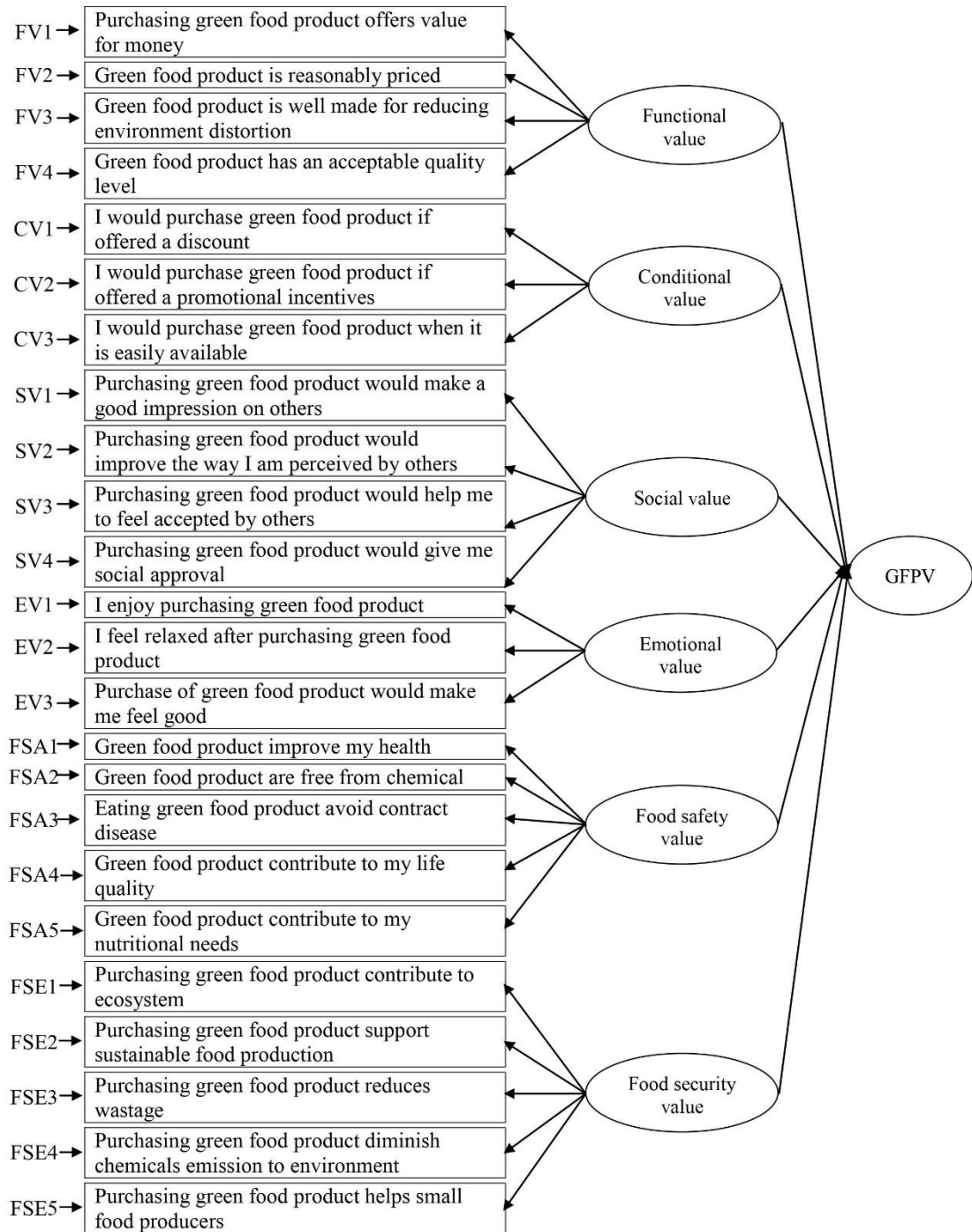
Table 1– English and portuguese assertive with codes.

(conclusion)		
<b>Assertive</b>	<b>Translation proposal</b>	<b>Codes</b>
Purchasing green food product reduces wastage	Comprar de alimentos sustentáveis reduz o desperdício (alimentos, água e outros recursos naturais)	FSE3
Purchasing green food product diminish chemicals emission to environment	Comprar de alimentos sustentáveis diminui a emissão de produtos químicos no meio ambiente	FSE4
Purchasing green food product helps small food producers	Comprar de alimentos sustentáveis ajuda os pequenos produtores agrícolas	FSE5

Source: Developed by the author

Thus, the final questionnaire contained 4 (four) assertive to measure the Functional Value, 3 (three) assertive to measure the Conditional Value, 4 (four) assertive measuring the Social Value, 3 (three) assertive to measure the Emotional Value, 5 (five) assertive measuring the Food Safety Value, and lastly 5 (five) more assertive measuring the Food Security Value. Therefore, for this first stage this amount of assertive, divided into six constructs, composed the GFPV scale proposal. Figure 3 details the proposed scale model and its respective assertive.

Figure 4 – The proposed GFPV scale.



Source: Developed by the author

### ***b) Scale purification***

At this stage, it is aimed to observe the scale variables' initial factor structure for better refinement. A questionnaire was submitted to 109 farmers market consumers at the time of purchase in the state of Minas Gerais, Brazil. These questionnaire answers were collected 50%

at a farmer market in Montes Claros, MG, and the other 50% were collected in Belo Horizonte, the state capital. The consumers were entirely explained about the research purpose. As they were at the moment of purchase, it was possible to contextualize the GFPV dimensions related to green food products. After eliminating respondents for a variety of reasons (i.e. failure to pass attention checks in the questionnaire, and incomplete responses), 99 valid questionnaires have remained. Respondents were asked to evaluate each questionnaire statement concerning their degree of agreement. A five-point Likert scale was used for the measurement items, with points ranging from 1 (strongly disagree) to 5 (strongly agree), having 3 indicating neutral. A factor analysis was carried out to verify the necessity to exclude some items not contributing to the construct indexes.

For the reflective characteristics of the first-order constructs, it was verified the items' outer loadings. According to Hair et al. (2009), items loadings less than 0,50 should be eliminated from its constructs measurements. It was verified the construct reliability and validity, wherein constructs should have scored over 0,70 (TENENHAUS; AMATO; VINZI, 2004). To assess discriminant validity, the Fornell and Larcker (1981) criterion was used. Each construct's AVE should be compared to the squared inter-construct correlation (as a measure of shared variance) of that same construct and all other reflectively measured constructs in the structural model. The shared variance for all model constructs should not be larger than their AVEs (HAIR et al., 2019). Table 2 presents the scores. It was run a factor analysis through the Smart PLS 3 software.

Table 2 – Scale purification for outer loadings, composite reliability, AVE, discriminant validity.

(continue)				
<b>Constructs / Items</b>	<b>Outer Loadings</b>	<b>Composite Reliability</b>	<b>AVE</b>	<b>Discriminant Validity</b>
Functional value		0,906	0,709	yes
FV1	0,781			
FV2	0,754			
FV3	0,911			
FV4	0,909			
Conditional value		0,937	0,832	yes
CV1	0,940			
CV2	0,921			
CV3	0,874			



Table 2 – Scale purification for outer loadings, composite reliability, AVE, discriminant validity.

<b>Constructs / Items</b>	<b>Outer Loadings</b>	<b>Composite Reliability</b>	<b>AVE</b>	(conclusion)
				<b>Discriminant Validity</b>
Social value		0,954	0,838	yes
SV1	0,908			
SV2	0,934			
SV3	0,931			
SV4	0,888			
Emotional value		0,905	0,761	yes
EV1	0,805			
EV2	0,918			
EV3	0,889			
Food safety value		0,940	0,759	yes
FSA1	0,900			
FSA2	0,812			
FSA3	0,837			
FSA4	0,927			
FSA5	0,876			
Food security value		0,952	0,800	yes
FSE1	0,929			
FSE2	0,921			
FSE3	0,792			
FSE4	0,921			
FSE5	0,902			

Source: Developed by the author

### *c) Scale refinement*

The goal at this stage was to confirm the scale factor structure. The survey was carried out with farmers' markets consumers, some at the time of purchase (20%), and part through an online questionnaire link (80%) to examine the scale psychometric properties and stability. The online questionnaires were distributed to farmers' markets consumers from three cities in the state of Minas Gerais (Belo Horizonte, Montes Claros, and Lavras). At the farmers' markets, it was collected the email address of green food products consumers. In the questionnaire, the consumers were explained about the green food products meaning. Visits to farmers' markets occurred from the beginning of March 2021 to the beginning of May 2021. It was assured the confidentiality of the information provided by each consumer and they were not identified.

The sample of this study was composed of 519 respondents. After eliminating respondents for a variety of reasons (i.e. failure to pass attention checks, and incomplete responses), it was reached a response rate of 92,68% of the total submitted questionnaire. The theoretical model was examined using structural equation modeling (SEM). It was examined the validity (convergent and discriminant) and reliability. The factor analysis, measurement, and structural tests were carried out using Smart PIs 3 software.

#### **i. Respondents' profile**

The sample descriptive statistics are shown in Table 3. The vast majority of respondents were female in accordance with previous studies about farmers' markets consumers (BRANDÃO et al., 2015; MOHAMMAD et al., 2020). It was only interviewed consumers over 18 years old, which are considered the beginning of Brazilians' adulthood age and almost 60% of respondents were over 40 years old. More than half of respondents were married, consistently with (VASCONCELOS FILHO, 2019). Approximately 70% of respondents had a college degree or more, which showed respondents were highly graduated. The highest average of respondents earned four to six minimum wages per month.

Table 3 – Descriptive statistics of respondents.

	Research sample	
	N=519	%
<b>Birth</b>		
18 to 25 years old	60	11,56%
26 to 40 years old	155	29,87%
41 to 61 years old	207	39,88%
62 to 74 years old	90	17,34%
75 years old or more	7	1,35%
<b>Gender</b>		
Female	330	63,58%
Male	189	36,42%
<b>Marital Status</b>		
Single	164	31,60%
Married	288	55,49%
Widowed	16	3,08%
Divorced	51	9,83%
<b>Scholar</b>		
No schooling	7	1,35%
Less than high school	36	6,94%
High school	121	23,31%
College Degree	144	27,75%
Post-graduation	125	24,08%
Master's degree	58	11,18%
Doctorate degree	28	5,39%
<b>Monthly Income</b>		
Less than a minimum wage	14	2,70%
From 1 to 3 minimum wage	154	29,67%
From 4 to 6 minimum wage	146	28,13%
From 7 to 10 minimum wage	137	26,40%
More than 10 minimum wage	68	13,10%

Source: Developed by the author

## ii. Variables descriptive statistics

Data were examined for missing value, normality, outliers, and multicollinearity. It was found no major issues for these exams. From the standard deviation analysis, no outliers were found. From the skewedness and kurtosis analysis, it was found all variables were normally distributed. Table 4 describes the descriptive analysis of GFPV items. The data descriptive statistics showed the mean scores of all items were above three on a five-point Likert Scale demonstrating purchasing green food products is valuable considered by the consumers. The highest scores for each construct were: FSA1 (M=4,62); FSE5 and FSE2 (M=4,58); EV1 (M=4,55); FV3 (M=4,47); CV3 (M=4,41); SV1(M=3,81). As it was checked, a variable from the food safety value had the highest scores among others.

Table 4 – Total sample measurement model.

<b>Constructs/ Assertive</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Outer loadings</b>	<b>C.A.</b>	<b>rho_A</b>	<b>C.R.</b>	<b>AVE</b>	<b>VIF</b>
Functional value				0,825	0,837	0,884	0,656	2,235
FV1	4,32	1,04	0,829					
FV2	3,84	1,15	0,733					
FV3	4,47	1,02	0,835					
FV4	4,34	1,02	0,838					
Conditional value				0,854	0,861	0,911	0,773	1,380
CV1	4,18	1,24	0,912					
CV2	4,04	1,21	0,882					
CV3	4,41	1,11	0,843					
Social value				0,858	0,879	0,902	0,698	1,160
SV1	3,81	1,14	0,864					
SV2	3,78	1,11	0,823					
SV3	3,71	1,17	0,850					
SV4	3,77	1,17	0,803					
Emotional value				0,808	0,815	0,886	0,722	2,377
EV1	4,55	0,85	0,854					
EV2	4,04	1,07	0,817					
EV3	4,42	0,93	0,877					
Food safety value				0,898	0,905	0,925	0,713	3,130
FSA1	4,62	0,83	0,899					
FSA2	4,19	1,00	0,737					
FSA3	4,31	0,97	0,838					
FSA4	4,51	0,89	0,883					
FSA5	4,47	0,89	0,856					
Food security value				0,905	0,910	0,930	0,726	2,873
FSE1	4,55	0,89	0,893					
FSE2	4,58	0,82	0,881					
FSE3	4,20	1,02	0,765					
FSE4	4,47	0,90	0,890					
FSE5	4,58	0,84	0,825					

Source: Developed by the author

#### *d) Latent Structure and Scale Purification*

At this phase of the GFPV scale validation, it was run a factor analysis aiming to discern the latent factor structure and refinement of the developed scale. All measurement variables presenting outer loadings lower than 0,50 would be removed (SARSTEDT et al., 2019). The results of the factor analysis are presented in Table 4. The measurement variables adequately captured the six first-order constructs and contributed to the explanation of each construct. All

six dimensions met the unidimensionality criterion. The factor analysis divided 24 items into six constructs which all highly affect the GFPV construct.

It was then performed the discriminant validity test to assure the constructs effectively measure the different aspects of the GFPV scale. Table 5 shows all the constructs presented discriminant validity according to Fornell and Larcker (1981) criteria.

Table 5 – Discriminant validity.

	<b>Conditional value</b>	<b>Emotional value</b>	<b>Food safety value</b>	<b>Food security value</b>	<b>Functional value</b>	<b>Social value</b>
Conditional value	0,879					
Emotional value	0,433	0,850				
Food safety value	0,427	0,699	0,845			
Food security value	0,402	0,666	0,774	0,852		
Functional value	0,459	0,635	0,673	0,656	0,810	
Social value	0,289	0,297	0,195	0,149	0,262	0,836

Source: Developed by the author

It was also run a Heterotrait-Monotrait Ratio (HTMT) test based on Henseler; Ringle; Sarstedt (2012) providing another approach to access the constructs' discriminant validity. Table 6 describes the HTMT scores, which was possible to check all the values were lower than 0,90 accomplishing to HTMT criteria (HENSELER; RINGLE; SARSTEDT, 2012).

Table 6 – Heterotrait-monotrait ratio (HTMT).

	<b>Conditional value</b>	<b>Emotional value</b>	<b>Food safety value</b>	<b>Food security value</b>	<b>Functional value</b>
Emotional value	0,511				
Food safety value	0,475	0,815			
Food security value	0,446	0,771	0,853		
Functional value	0,528	0,765	0,768	0,745	
Social value	0,332	0,354	0,221	0,158	0,310

Source: Developed by the author

Based on the construct's outer loadings and discriminant validity tests, the results permitted to move to the next analysis for construct validation.

### *e) Construct Validation*

Following the higher-order construct theory, this model has been analyzed as a reflective-formative construct (SARSTEDT et al., 2019). The PLS-SEM is the preferred approach when formative constructs are included in the structural model (HAIR et al., 2016; SARSTEDT et al., 2019). To better understand the GFPV formative construct, it was evaluated the construct reliability and validity, the convergent validity, the collinearity of the indicators, and significance tests.

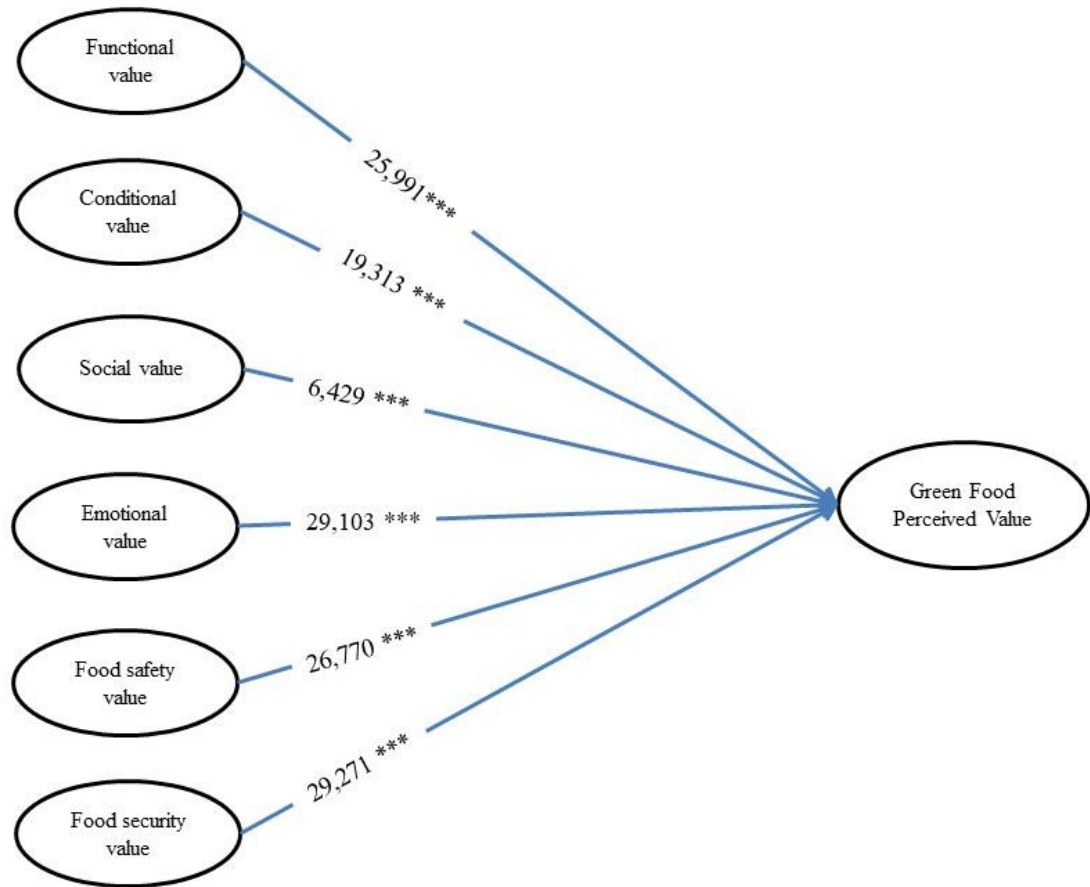
To test the constructs' convergent validity, it was handled the criterion proposed by Fornell and Larcker (1981). The AVE is guaranteed when the shared percentage variance among the latent construct and its indicators ranging from 0% to 100% is greater than 50% (HENSELER; RINGLE; SARSTEDT, 2012). Table 4 describes the AVE presented in the model. All constructs presented AVE over 65%, demonstrating the convergent validity.

To measure the reliability of the constructs, it was adopted Cronbach's Alpha (C.A.) and Composite Reliability (C.R.). According to the C.A. and C.R. indicators must be greater than 0,70 for constructs reliability, and for exploratory research scores over 0,60 are also accepted (HAIR et al., 2009). All the constructs presented Cronbach's Alpha over 0,80 and Composite Reliability over 0,88. These scores demonstrated the reliability and validity of the constructs, see Table 4. It was yet presented the rho\_A. All the scores were above 0,80 which also described the reliability and validity of the constructs.

It was also checked for potential collinearity among the lower-order GFPV constructs. The model analysis produced the variance inflation factor (VIF) values of 2,235 for Functional Value; 1,380 for Conditional Value; 1,160 for Social Value; 2,377 for Emotional Value; 3,130 for Food Safety Value; 2,873 for Food Security Value. These scores were lower or around the value of 3 (three) which demonstrated no collinearity issues (HAIR et al., 2019).

For the next step, the significance and relevance of the relationships between the six lower constructs and the second-order GFPV construct were tested. The test was performed through a bootstrapping with 5000 subsamples, percentile method, and a two-tail test type. Figure 4 shows the results. Appeared as path coefficients in the PLS path model, these relationships represent the higher-order construct's weights (Hair et al., 2019). The social value constructs showed the smallest weight (6,429;  $P < 0.001$ ). The highest score was attributable to the food security construct towards the GFPV (29,271;  $P < 0.001$ ). These results offered clear support for the validity of the reflective-formative higher-order construct scale.

Figure 5 – Second order confirmatory statistic analysis of GFPV.



Source: Developed by the author

#### *f) Evaluation of reduced items*

The validation of the GFPV model developed in this thesis stage was based on the previous multinomial GPV scale which adopted four constructs (social value, functional value, emotional value, conditional value). Including the food safety and food security constructs new items were added in the GPV scale measurement. Therefore, the load over the respondents can increase with the addition of the number of measurement items. It was then important to examine a possibility to construct the GFPV scale with a lower number of measurement items (Widaman et al., 2011).

It was removed two items from the food safety construct (FSA2, FSA3) and food security constructs (FSE3, FSE5). The items were chosen based on the lower factor loadings. The proposed reduced scale became with 20 items. New tests for significance and relevance of the constructs reduced items were done. However, the significance of both constructs (food safety and food security) have been reduced toward the GFPV scale. Through this procedure,

it showed some important measurement items have been removed. Therefore, the proposed 24 items measurement scale was the most appropriate for examining the values perceived by green food consumers.

#### **4.1.2. Discussion of the research first stage**

Findings suggested the food safety and food security values were positively related to the GFPV. Both, food safety and food security values in addition to the social value, functional value, emotional value, conditional value were shown to predict the GFPV by green food consumers. Some interesting analysis could be done by the inclusion of food safety and food security values. For example, the highest and positive relation perceived by green food products buyers comes from the food security value. This finding suggested consumers perceived that non-sustainable food production would damage the eco-system, produces more food wastage, increase chemical emission impairing the environment.

Independently from consumers' concerns toward health and the environment, the functional and conditional values also highly influenced green food buyers. These results followed previous findings (SANGROYA; NAYAK, 2017; WOO; KIM, 2019). More specifically, in this study, the function and conditional values represented consumers' value for money, price, quality, discounts, promotional incentives, and easy availability.

Previous studies support the knowledge that consumption based on positive values leads to affirmative emotions at consumers' subconscious level (SHETH; NEWMAN; GROSS, 1991; WIEDMANN; HENNIGS; SIEBELS, 2007). Adding two new constructs to the scale, it was shown that positive emotional values related to green food purchases go beyond the positive notion related to price, quality, or accessibility. The values related to food safety and food security also contribute to consumers' positive feelings. The combination of all these values resembles the emotional relaxation, good feelings, and joy of buying a green food product. Based on these findings, producers, handlers, and retailers of green foods should increase consumers' knowledge about the benefits of a green food product. Their focus can be health and environmental benefits acquired from consumers' purchases.

The social value has also proven to positively influence green food products purchase. The fact that social value was the less important value related to green food purchase complements previous studies like Sangroya and Nayak (2017); Woo and Kim (2019).

Based on these findings, the methodological first stage was accomplished through the validation of the GFPV scale. From reliability and validity tests, the scale proved to be robust



and credible. The proposed values significantly influenced consumers' GFPV. The expanded scale proved to be reliable as it considers others constructs that were not measured before. These results guarantee the accomplishment of the second stage of this thesis.

## **4.2. Second stage**

At this stage, it is described the procedures to accomplish the main thesis purpose, which was to analyze the relationship among the new scale proposal called GFPV to the attitudes and intention to purchase green food products. It was included in the questionnaire two questions on the demographic part related to consumer purchase frequency, and the addition of the attitudinal and intentional constructs. It means the proposed questionnaire was composed of twenty-four assertive related to the GFPV construct, three assertive for attitudes toward green food product purchase, and three others for intention to purchase green food products. A five-point Likert scale was employed for these measurement items, with points ranging from 1 (strongly disagree) to 5 (strongly agree), having 3 indicating neutral. The demographic part of the questionnaire was composed of nine questions. The complete questionnaire can be seen in Appendix B.

### **4.2.1. Data and Methodology**

#### **4.2.1.1. *Research Sample***

The study sample was composed of farmers' markets consumers from Minas Gerais State, Brazil. It was applied a non-probability sampling technique. This sampling technique does not use random selection but instead relies on researcher judgment for data collection. It was made sure to perceive a representative sample from Minas Gerais farmers markets consumers. Some of the questionnaires were collected at the time of purchase (20%), and part through an online questionnaire link (80%). The online questionnaires were distributed to farmers' markets consumers from three cities in the state of Minas Gerais (Belo Horizonte, Montes Claros, and Lavras). At the farmers' markets, it was collected the email address of green food products consumers. At the farmers' markets, consumers were explained about the green food products meaning. Visits to farmer's markets occurred from the beginning of March 2021 to the beginning of May 2021. The online questionnaire was distributed to consumers in Belo Horizonte, representing the state capital and central region, in Montes Claros representing the

north part of the state, and in Lavras revealing south part consumers perceptions. Since the main objective was to have an overview of values guiding farmer's market green food product purchase in Minas Gerais, there was not a need to have a stratified sample (SHAHROKH ESFAHANI; DOUGHERTY, 2014).

The sample of this study was composed of 519 respondents. It was decided to collect an online questionnaire due to COVID-19 social restrictions. In the questionnaire, consumers were explained about green food products meaning and the requirement to be a farmer market consumer. After eliminating respondents for a variety of reasons (i.e. failure to pass attention checks, and incomplete responses), it was reached a response rate of 92,68% of the total submitted questionnaire.

This amount of responses guaranteed the needed number to run the SEM technique. There is a rule in the literature about the sample sensitivity of the PLS-SEM method (BARCELAY; HIGGINS; THOMPSON, 1995). According to this rule, for path analysis in the structural model, there is a requirement of the sample size to be ten times the number of assertive measuring the model. For example, this model has 30 assertive in the proposed structure, so the minimum sample needed must be over 300 responses. This study sample was composed of 519 valid questionnaires, efficiently accomplishing the proposed rule (BARCELAY et al., 1995).

#### **4.2.1.2. *Data analysis technique***

This section indicated and described the procedures for the data analysis. Thus, it was proposed a chronological order of steps developed in this second stage of the methodological procedures. Table 7 shows the codes and the adapted assertive version to run the analysis, including the attitude and intention constructs.

Table 7 – Assertive, translation and code with attitude and intention construct.

(continue)		
<b>Assertive</b>	<b>Translation proposal</b>	<b>Codes</b>
<i>Functional value</i>		
Purchasing green food product offers value for money	Comprar alimentos sustentáveis oferece bom custo-benefício	FV1
Green food product is reasonably priced	Os alimentos sustentáveis possuem preços justos	FV2
Green food product is well made for reducing environment distortion	A forma como alimentos sustentáveis são produzidos reduz os danos ambientais	FV3
Green food product has an acceptable quality level	Alimentos sustentáveis possuem um nível aceitável de qualidade	FV4
<i>Conditional value</i>		
I would purchase green food product if offered a discount	Eu compraria alimentos sustentáveis se me fosse oferecido algum desconto	CV1
I would purchase green food product if offered a promotional incentives	Eu compraria alimentos sustentáveis se me fosse oferecido um incentivo promocional	CV2
I would purchase green food product when it is easily available	Eu compraria alimentos sustentáveis se estivessem facilmente disponíveis	CV3
<i>Social Value</i>		
Purchasing green food product would make a good impression on others	Comprar alimentos sustentáveis faz com que os outros tenham uma boa impressão sobre mim	SV1
Purchasing green food product would improve the way I am perceived by others	Comprar alimentos sustentáveis melhora a maneira como sou percebido pelas outras pessoas	SV2
Purchasing green food product would help me to feel accepted by others	Comprar alimentos sustentáveis ajuda a me sentir bem aceito pelas outras pessoas	SV3
Purchasing green food product would give me social approval	Comprando alimentos sustentáveis obtenho aprovação social	SV4
<i>Emotional value</i>		
I enjoy purchasing green food product	Eu gosto de comprar alimentos sustentáveis	EV1
I feel relaxed after purchasing green food product	Eu me sinto tranquilo/relaxado depois de comprar alimentos sustentáveis	EV2
Purchase of green foodproduct would make me feel good	Comprar alimentos sustentáveis me faz sentir bem	EV3

Table 7 – Assertive, translation and code with attitude and intention construct.

(continue)

<b>Assertive</b>	<b>Translation proposal</b>	<b>Codes</b>
<i>Food safety value</i>		
Green food product improve my health	Alimentos sustentáveis melhoram a minha saúde	FSA1
Green food product are free from chemical	Alimentos sustentáveis são livres de produtos químicos	FSA2
Eating green food product avoid contract disease	Comer alimentos sustentáveis previne doenças	FSA3
Green food product contribute to my life quality	Os alimentos sustentáveis contribuem para a minha qualidade de vida	FSA4
Green food product contribute to my nutritional needs	Alimentos sustentáveis contribuem para suprir as minhas necessidades nutricionais	FSA5
<i>Food security value</i>		
Purchasing green food product contribute to ecosystem	Comprar alimentos sustentáveis contribui para o ecossistema	FSE1
Purchasing green food product support sustainable food production	Comprar de alimentos sustentáveis apoia a produção alimentar sustentável	FSE2
Purchasing green food product reduces wastage	Comprar de alimentos sustentáveis reduz o desperdício (alimentos, água e outros recursos naturais)	FSE3
Purchasing green food product diminish chemicals emission to environment	Comprar de alimentos sustentáveis diminui a emissão de produtos químicos no meio ambiente	FSE4
Purchasing green food product helps small food producers	Comprar de alimentos sustentáveis ajuda os pequenos produtores agrícolas	FSE5
<i>Attitude toward green food products</i>		
I think purchasing green food product is a valuable behavior	Eu acho que comprar alimentos sustentáveis é um comportamento muito importante/valioso	AT1
I think purchasing green food product is a positive behavior	Eu acho que a compra de alimentos sustentáveis é um comportamento positivo	AT2
I think purchasing green food product is a beneficial behavior	Eu acho que a compra de um alimento sustentável é um comportamento benéfico	AT3

Table 7 – Assertive, translation and code with attitude and intention construct.

		(conclusion)
<b>Assertive</b>	<b>Translation proposal</b>	<b>Codes</b>
<i>Purchase Intention</i>		
My willingness to repurchase the green food product is very high	A probabilidade de eu continuar comprando alimentos sustentáveis é muito alta	INT1
Overall, I am glad to repurchase green food product because it is environmental friendly	De forma geral, me sinto feliz em comprar novamente alimentos sustentáveis porque é um produto ambientalmente correto	INT2
I intend to rebuy green food product because of environmental concern	Tenho a intenção de continuar comprando alimentos sustentáveis pois me preocupo com o meio ambiente	INT3

Source: Developed by the author

It was done missing data and outliers analysis. It was verified whether each respondent adequately filled all the questionnaire assertive and questions. The questionnaire with more than 10% of missing data was excluded from the survey, while some other missing answers were imputed by the specific variable mean. Subsequently, the analysis of outliers was performed, for the identification of different pattern observations.

After that, it was checked for normality and linearity analysis. By definition, the data set does not have a univariate nor even a multivariate normal distribution, since the data were limited to a discrete and finite scale. The PLS approach, as described by (VINZI et al., 2010), provides the best alternative rather than the traditional approach based on covariance matrix (CBSEM), since it does not require normality assumptions for residuals. Thus, data normality was not a problem since was adopted the SEM.

To verify data linearity, through Spearman's correlation matrix (HOLLANDER; WOLFE; CHICKEN, 2013), the correlations of the variables were initially analyzed in pairs. A significant correlation coefficient at 5% level is a linearity existence indicative. In addition, the Bartlett test proposed by (MINGOTI, 2007) was performed to verify the linearity in each construct. It was used the software SPSS version 17.0.

#### 4.2.1.2.1. Simple descriptive analysis

To run a simple descriptive analysis, for the demographic and sample profile, it was performed tests based on absolute and relative frequencies. For the constructs descriptive analysis, it was executed tests for measuring position, central tendency, and dispersion.

The descriptive analyses for the six constructs were calculated based on the average score of each respondent. It was obtained by adding the respondents' answers for each assertive (which varied on a Likert scale from 1 to 5) and dividing by the amount of assertive each construct has (total items proposed by each construct). The analysis was provided by each assertive, then a general average for each construct. It was also analyzed based on the standard deviation and its proper confidence interval at 95% certainty. It was used the software SPSS version 17.0.

#### 4.2.1.2.2. Bivariate analysis

After the simple descriptive analysis, it was developed bivariate tests. This assessment was proposed to relate each value and dimension to the demographic and sample profile, based on Mann-Whitney and Kruskal-Wallis tests (HOLLANDER; WOLFE; CHICKEN, 2013). Thus, was developed an analysis among each value and dimension data with the demographic and sample characteristic variables proposed in the research. It was used the software SPSS version 17.0.

#### 4.2.1.2.3. Multivariate analysis

This section is intended to perform the constructs multivariate analysis. Therefore, exploratory factor analysis was carried out to validate the existing measurement models and after a structural equation modeling to analyze the relationships among the constructs. It was used for the multivariate analysis, the software Smart –PLS version 3.0.

#### 4.2.1.2.4. Exploratory factor analysis

The GFPV is a second-order construct, which means it is not accessed directly by its items (questions), but through other latent variables (dimensions). To address this structure measurement characteristic, it was developed the “Two-Step” approach (SANCHEZ, 2013). First, we extracted the scores for the latent variables through factor analysis. The exploratory factor analysis must be done for the functional value, conditional value, social value, emotional value, food safety value, food security value, to verify the need to exclude any item (assertive) from the dimensions that were not contributing to the formation of the indexes (HAIR et al.,

2009). This was done to access the assumptions for validity and quality of the respective dimensions and constructs development.

As the first-order constructs were reflective, indicators were represented as single-headed arrows pointing from the latent construct outward to the indicator variables; the associated coefficients for these relationships are called outer loadings in PLS-SEM (SARSTEDT et al., 2019). The outer loadings values with a factor less than 0,50 must be eliminated from the constructs. It has to be done to not impair the access of the basic assumptions for validity and quality of the indicator that represents its constructs. The same procedure was accomplished for the first-order constructs, the attitude and intention to purchase green food products.

For the first-order constructs quality and validity analysis, it was assessed the constructs reliability and validity, and discriminant validity. The first-order constructs were assumed to be reflective constructs (SARSTEDT et al., 2019). To measure the reliability of the constructs, it was applied Cronbach's Alpha (C.A.) and Composite Reliability (C.R.). According to Tenenhaus; Amato; Vinzi (2004) the C.A. and C.R. indicators must be greater than 0,70 for constructs reliability, and for exploratory research scores over 0,60 are also accepted (HAIR et al., 2009). To assess discriminant validity and convergent validity, the Fornell and Larcker (1981) criterion were used. Each construct's AVE should be compared to the squared inter-construct correlation (as a measure of shared variance) of that same construct and all other reflectively measured constructs. The shared variance for all constructs should not be larger than their AVEs (HAIR et al., 2019).

#### 4.2.1.2.4.1. Structural Equation Modeling

The SEM was applied to assess the relationship among all the constructs functional value, conditional value, social value, emotional value, food safety value, food security value, attitudes toward purchase green food products consumption, and intention for green food product purchase. SEM is divided into two parts: Measurement Model and Structural Model. The measurement model and the structural model will be performed using the PLS method. PLS-SEM is a non-parametric method since it does not have any distributional assumption (Hair et al., 2016). It is also an explanatory approach, which is why it is preferred in exploratory research. In other words, when the theory is under development and relations need to be explained, it can be said SEM is preferred to be used (RIGDON, 2012).

#### 4.2.1.2.4.1.1. Measurement Model

For the measurement model analysis, it was verified convergent validity, discriminant validity, and reliability of the construct dimensions. Convergent validity ensures that construct dimensions are correlated enough to measure the latent concept. The discriminant validity verifies whether the dimensions effectively measure different aspects of the GPV constructs, the attitudes toward purchasing green products, and the purchase intention construct. Reliability reveals the consistency of the scores in measuring the concept they intend to measure.

#### 4.2.1.2.4.1.2. Structural Model

It was applied in this research a multivariate technique through SEM, which is an advance of the regression analyses and factorial analyses approach (HAIR et al., 2009). SEM allows examining several dependency relationships at the same time, while those statistical techniques permit only verifying and examining a single relationship between the variables at a time.

Through the SEM it was possible to evaluate the coefficients path in the structural model, also assess the determination coefficients from the  $R^2$  value. It was attained to verify the  $F^2$  value and utilize the blindfolding procedure to check the predictive relevance ( $Q^2$  value) of the path model (HAIR et al., 2009). To run this analysis, it was used the Smart-PLS software version 3.0.

### 4.2.2. Results and analysis

This section it is presented the results and analysis for research purposes. It included the accomplishment of the main purpose and specific ones. In addition, this section indicates data collections results which were analyzed in light of the theoretical frameworks supporting this thesis. Following the same order presented by the data analysis technique, initially, it is discussed the missing data analysis, followed by outliers tests, then the simple descriptive analysis, and so on.

For the sample descriptive statistics analysis, it was accomplished tests to identify missing values, outliers, normality, and linearity. It was not found question without an answer, which means there was no missing data. For outliers analysis, it was found 5 unusual univariate



observations (0,02%). Instead of eliminating these observations, it was decided to leave it for further analyses to have a more general view (HAIR et al., 2009).

Results from normality and linearity analysis showed the dataset not presenting a univariate, not even a multivariate normal distribution, since the data were limited to a discrete and finite scale. Thus, using the PLS approach, proposed by Vinzi et al. (2010), the data normality absence, was no longer a relevant problem for structural equations modeling. For linearity analysis, it was adopted Spearman's correlation matrix (HOLLANDER; WOLFE; CHICKEN, 2013). Based on the constructs assertive, it was found 870 correlations, and yet 95,63% of the correlations were significant at a 5% significance level. Furthermore, all constructs had p values lower than 0,05 indicating linearity within the constructs.

The demographic descriptive analysis is presented in table 8. Results were presented and discussed at the time of scale validation and yet were asked questions related to consumers' health and purchase frequency. It was requested the frequency consumers visit farmers' markets for green food product purchase, and the vast majority (80,2%) had visited farmers' markets in the last month. It demonstrated consumers' assiduousness for farmers' markets visits and willingness for green food product purchase. When asked whether consumers had contracted any disease in the last 6 months, 86,1% answered they had not contracted any disease. It was advised for except COVID-19 relate to disease. This is an interesting result due to the association between farmers markets' green products and consumer healthiness (BONCIU, 2018; SĂVESCU, 2017). These results suggested the healthier status over the green food product sold at farmers' markets.

Table 8 – Descriptive statistics of respondents.

(continue)

Variables	Research sample	
	N=519	%
<i>Birth</i>		
18 to 25 years old	60	11,56%
26 to 40 years old	155	29,87%
41 to 61 years old	207	39,88%
62 to 74 years old	90	17,34%
75 years old or more	7	1,35%
<i>Gender</i>		
Female	330	63,58%
Male	189	36,42%

Table 8 – Descriptive statistics of respondents.

(conclusion)

Variables	Research sample	
	N=519	%
<i>Marital status</i>		
Single	164	31,6%
Married	288	55,49%
Widowed	16	3,08%
Divorced	51	9,83%
<i>Scholar</i>		
No schooling	7	1,35%
Less than high school	36	6,94%
High school	121	23,31%
College degree	144	27,75%
Post-graduation	125	24,08%
Master's degree	58	11,18%
Doctorate degree	28	5,39%
<i>Monthly income</i>		
Less than a minimum wage	14	2,7%
From 1 to 3 minimum wage	154	29,67%
From 4 to 6 minimum wage	146	28,13%
From 7 to 10 minimum wage	137	26,4%
More than 10 minimum wage	68	13,1%
<i>Purchase frequency</i>		
Last 4 weeks	416	80,2%
Last 2 months	47	9,1%
Last 3 months	13	2,5%
Last 4 months or more	43	8,3%
<i>Health status last six months</i>		
No disease	447	86,1%
With disease	72	13,9%

Source: Developed by the author

#### 4.2.2.1. Constructs descriptive analysis

A descriptive analysis was done for measuring the GFPV sub-constructs and for a better understanding of the values composing the scale. This analysis was accomplished for the achievement of the specific research objective to measure the level of functional value, conditional value, social value, emotional value, food safety value, and consumer food security value. Table 9 presents the descriptive results for the functional value, conditional value, social value, emotional value, food safety value, and food security value.

Table 9 – GFPV Constructs descriptive analysis.

<b>Constructs</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>CI - 95%</b>
FV1	4,33	1,04	[4,24; 4,42]
FV2	3,85	1,14	[3,76; 3,95]
FV3	4,47	1,02	[4,38; 4,56]
FV4	4,35	1,00	[4,27; 4,44]
General FV	4,25	0,85	[4,16; 4,34]
CV1	4,21	1,23	[4,10; 4,31]
CV2	4,11	1,20	[4,01; 4,22]
CV3	4,43	1,10	[4,33; 4,52]
General CV	4,25	1,04	[4,15; 4,35]
SV1	3,51	1,40	[3,39; 3,63]
SV2	3,47	1,38	[3,35; 3,59]
SV3	3,35	1,45	[3,23; 3,48]
SV4	3,38	1,44	[3,25; 3,50]
General SV	3,43	1,32	[3,31; 3,55]
EV1	4,55	0,84	[4,47; 4,62]
EV2	4,06	1,06	[3,97; 4,15]
EV3	4,41	0,93	[4,33; 4,49]
General EV	4,34	0,81	[4,26; 4,42]
FSA1	4,61	0,83	[4,54; 4,69]
FSA2	4,22	1,00	[4,13; 4,30]
FSA3	4,33	0,97	[4,24; 4,41]
FSA4	4,51	0,90	[4,43; 4,59]
FSA5	4,47	0,89	[4,40; 4,55]
General FSA	4,43	0,78	[4,35; 4,51]
FSE1	4,54	0,90	[4,47; 4,62]
FSE2	4,56	0,84	[4,49; 4,63]
FSE3	4,18	1,04	[4,10; 4,27]
FSE4	4,47	0,90	[4,39; 4,55]
FSE5	4,58	0,84	[4,51; 4,65]
General FSE	4,47	0,77	[4,39; 4,54]

Source: Developed by the author

According to Sheth et al. (1991) the different proposed values are effective in choosing behavior. Findings from Yogananda and Nair (2019) also showed safety and security issues influencing buying behavior. Then it was proposed in this study that the higher the construct score, the higher is its influence on the choice behavior. The opposite was well adopted. Just to remind, a five-point Likert scale was used for the measurement items, with points ranging from 1 (strongly disagree) to 5 (strongly agree), having 3 indicating neutral.

For the function value analysis, results presented an average score of 4,25. It suggested consumers were highly influenced by the functional and utilitarian aspects provided by green food products acquisition, following Sheth et al. (1991) findings. For example, the higher score

was shown for FV3, which was aligned to a previous study developed in Brazil by Molinillo et al. (2020). Findings suggested environmental concern affecting consumers' functional perceptions for green food product purchase. Confirming the consumers' functional perception of green food products, the value for money (FV1) was highly informed by farmers' markets consumers in Brazil. Findings from Aschemann-Witzel and Niebuhr Aagaard (2014) also reported the value for money contributing to the willingness to purchase green food products. This economic value is related to financial perception and the cost-benefit involved in the product trade. For green food products, due to their credence characteristics of being healthier, environmentally friendly, pesticide-free, demonstrated the cost-benefits have performed a function of indicating how high was the product acceptance regarding its attributes. Product quality (FV4) has also demonstrated highly influence on green food product purchases. This finding was in accordance with a Brazilian study developed by Watanabe et al. (2020) who has found quality attributes influencing green food product purchase. Brazilian farmers' markets consumers understand green food products are not so reasoned priced. The confidence interval was around the neutral consumer accordance. The assertive FV2 presented a score of 3,85, the lowest one for functional value. This score showed consonance to some Brazilian studies such as Santos (2014), Sawaya et al. (2019) which have found price differences among conventional and green food products on average was around 40 percent in other countries and 200 percent in Brazil (that can reach a peak of 600 percent price difference).

The next construct to be analyzed was the conditional value presenting an average score of 4,25, demonstrating decidedly consumer acceptance for diverse incentives for green food product purchase. The highest score for condition value was attributed to the product availability (4,43). A study developed by Marx; De Paula; Sum (2010) had demonstrated this issue over green food product availability, and it is still a concern for this segment of consumers. It was also checked consumers at Brazilian farmers' markets used to highly consider discounts (4,21) and promotional incentives (4,11) for purchasing green food products. These results complement analysis from Molinillo; Vidal-Branco; Japutra (2020), which suggested some more understanding over discounts and promotions influencing green food product purchase in developing countries.

Among the GFPV constructs, the social value was the one presenting the lowest average score (3,43). Based on the confidence interval, it demonstrated a neutral perception for social relationships, considering peer and group opinion towards the behavior for green food product purchase. Social acceptance and social approval were the lowest scores for social value (3,35), (3,38). The social subjective norm construct has demonstrated contrasted literature findings.

For example, Watanabe et al. (2020) found no relation to social values influencing green food products in Brazil. On the other hand, Teng et al. (2012) had found significant positive results. Social impression (SV1) and perception (SV2) had similar results, also indicating a neutral perception from Brazilians' farmers' markets consumers, respectively (3,51) and (3,47).

The Emotional Value was the following construct presented in table 9, perceiving an average score of 4,34. Hartmann; Apaolaza Ibáñez; Forcada Sainz (2005) have informed when a consumer is buying green products, the emotional effects are stronger than the functional ones. This study has agreed to that topic as the functional value perceived a 4,25 average score. The highest emotional score was EV1 followed by EV3 suggesting consumers develop good feelings when purchasing green food products. Even with the EV2 being around the neutral average, it is valid to mention the relaxed feeling consumer perceives when buying green food products (4,06).

Surprisingly the two added constructs to the GFPV scale were the most valuable ones. The food safety value presented an average score of 4,43. This score demonstrated farmers' markets consumers highly believe green food products contribute to their health and carry benefits such as nutritional importance and chemical additives reduction. Health was the most important benefit perceived on food safety value (4,61). This credence attribute of the food safety value has been proved to be very important for green food product purchase behavior (MANUELA et al., 2013; RANA; PAUL, 2017). Life quality has also been mentioned to be very important for Brazilian farmers' markets consumers (4,51). Korbukova et al. (2020) informed consumers health and duration of their active life are clearly integral indices of life quality closely associated with the peculiarities of nutrition and the state of the environment. The benefits of green food products' nutrition attributes were also really manifested (4,47). This can be associated with two issues for example the search for balanced nutritional foods, and the pursuit of healthiness since this is a credence attribute (LEE; HWANG, 2016). Consumers also believed farmers' market green food products help them to avoid diseases (4,33) and are free from chemicals (4,22). For farmers' markets consumers, health request is very related to the search for chemical-free products. Lee and Yun (2015) reported green food product attributes related to health and free from chemicals are important influencers for consumers' attitudes and purchase intentions.

Food security was the most cited important value in the GFPV scale for farmers' markets consumers (4,47). This result suggested when pursuing an environmentally friendly product, consumers feel a sense of well-being due to the moral satisfaction gained for contributing to the environment. Interestingly, the most important food security mentioned factor was related to

supporting small food producers and local farmers (4,58). It demonstrated consumers understand the importance to value the base of the food chain, suggesting consumer awareness of food security comes at first from a sustainable system. It can be perceived from all others food security assertive. For example, FSE2 and FSE1 were highly mentioned as important (4,56) (4,54), as sustainable food production can be achieved by a positive purchase behavior for green food products. These results were in accordance with Marx et al. (2010) who cited consumer understanding that sustainable production and consumption are met through social engagement maximizing positive impacts in environmental, economic, social, and ethical dimensions. Same sense, consumers indicated FSE4 as a very important issue. It can be seen explained by Azzurra et al. (2019) who reported food production and consumption causing negative impacts on environmental sustainability. For example, worldwide agriculture has been linked to substantial proportions of chemical emission on environmental, greenhouse gas emissions, land degradation, water usage, and food wastage (ALAM; BELL; BISWAS, 2019; DUONG, 2020). Food wastage was also very considered by farmers' market consumers (4,18). Lago et al. (2020) demonstrated farmers' markets consumers' concern for overconsumption of natural resources and food wastage.

After the GFPV constructs descriptive analysis, it was possible to realize the importance each assertive had for its constructs. It became conceivable to identify the meaning and definition of green food products on the statements chosen by the consumers. In other words, farmers' markets consumers use to purchase green food products based on their idea of sustainable practice, which while helping the environmental system and local producers, also contributing to their own health.

#### 4.2.2.1.1. *Descriptive analysis for consumers attitudes and intention*

The next descriptive analysis was done for the consumers' attitudes and intentions for green food product purchases. It was possible to accomplish the specific research objective of identifying the level of attitude to buy green food products and identify the level of intention to purchase green food products at farmer's markets. Each construct was formed by three assertive, which scores can be seen in table 10. The study proposed to investigate the relationships between the GFPV and consumers' attitudes toward purchasing green food products. Patterson and Spreng (1997) reported perceived value as reflecting people's attitude toward general desired attributes or behaviors. In this point of view, attitude can be commonly treated to be a summative evaluation for goods and services (AJZEN, 2001). As farmers' markets consumers

have reported significant scores for the GFPV constructs, it was also expected elevated attitudinal behavior scores for green food products. The average score for attitudinal behavior was 4,55. These results agreed with the study proposed by Han et al. (2017), which had postulated when consumers perceived values meet their expectations, consumers develop a more positive attitude toward these products, hence deciding to purchase. Thus, the consumers' attitudinal factors for green food products have been demonstrated to be valuable (4,54), positive (4,62), and beneficial (4,50) behavior. It means the sample as a whole had positive attitudes towards green food product purchase.

Table 10 – Constructs descriptive analysis for attitudes and intention.

<b>Constructs</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>CI - 95%</b>
AT1	4,54	0,86	[4,47; 4,61]
AT2	4,62	0,82	[4,55; 4,69]
AT3	4,50	0,84	[4,43; 4,57]
General AT	4,55	0,75	[4,48; 4,62]
INT1	4,46	0,88	[4,38; 4,53]
INT2	4,45	0,84	[4,37; 4,52]
INT3	4,56	0,80	[4,49; 4,63]
General INT	4,49	0,73	[4,41; 4,56]

Source: Developed by the author

The green food product purchase intention was the last construct to be investigated at this research stage. The average score for green food product purchase intention was 4,49. It represented and described a significant score for predicted and planned action toward green food product purchase. The assertions were done for consumer assessment of green food product repurchase. Even studies had shown attitude being a good predictor for consumer purchase intention SANGROYA; NAYAK, 2017; WOO; KIM, 2019, when asked about the intention to repurchase it was intended to diminish the discrepancy or gap among consumers expressed favorable attitudes and the actual purchase intention (JOSHI; RAHMAN, 2015). The environmental concern was also highly considered by farmers' markets consumers (4,56) (4,45). The consumers' willingness to repurchase green food product were also greatly scored (4,46). This score suggested the intention to repurchase green food product function as a prerequisite for actual purchase (VOON; NGUI; AGRAWAL, 2011).

#### 4.2.2.2. *Bivariate analysis*

For the bivariate analysis, some of the demographic and sample profile items had to be recorded due to their low answer frequency. Changes had to be done over the birth category, which was grouped the average for 75 years old or more to the average for 61 years old or more. For the marital status category, people who answered to be widowed were subsumed to the divorced and separated group. For scholar inquire, due to the low frequency over people who answered “without schooling”, it was grouped into the “less than high school” interval. For the same reason, masters and doctors were also grouped. For the monthly income, people who said to perceive less than a minimum wage were incorporated to the "less than 3 minimum wage" rate. The report of the number of adults at home, the last class was incorporated to the “4 adults or more” averaging. The same procedure was accomplished for the number of children at home question. The number of children inquires has become (no child, 1 child, 2 children, 3 children or more). Lastly, the frequency people use to purchase green food products was altered from “4 months or more”, to “last 3 months or more”.

Findings from this bivariate analysis were mostly correlational in nature, not causal. While results were suggestive for a causal relationship, there was a higher probability to perceive unobserved characteristics, including some other variables, for instance, distance to farmers’ markets or green food diversity that may simultaneously determine different values than the studied ones.

The bivariate analysis for the demographic and sample profile related to the functional value can be seen in table 11. The functional value was significantly different for gender (p-value=0,000), monthly income (p-value=0,046), number of child at home (p-value=0,006), and purchase frequency (p-value=0,000).

The female gender presented a higher mean for the functional value towards green food product purchase. This result complements Rahnama (2017) findings for green food product purchase, having females being significantly influenced by product quality and price. Thus, differently from men, the female was highly influenced by the green food product functional perceived benefits.

It was also found a significant difference among the income averages considering the consumers' functional values. Interesting analysis can be done since many studies have shown the higher the consumers' income, the higher the willingness to pay for green food products (WANG et al., 2019; ZAIDI et al., 2021). However, this research results suggested lower-income consumers had a higher functional value towards green food products. Thus, even the



functional construct considering over values for money, price, and quality, attention must be carried for the relationship among lower-income consumers and a higher functional value perceive. Studies have demonstrated the positive relation between functional value and green food products purchase (WOO; KIM, 2019; ZAIDI et al., 2021). Even Khan and Mohsin (2017) affirming the difficulty to correlate green food behavior to income factor, this research results brought interesting findings for marketers and food producers for green food products market position. It reinforces a need for better communication to lower-income consumers regarding the quality, price, and even an affordable price by this consumer segment.

The number of child at home presented a significant difference in functional value. The higher mean was attributed for one child at home rate followed by no child at home. These results complement the study proposed by Berg and Preston (2017) which showed the increasing number of children at home diminish the farmers' markets purchase. These results suggested a lower sense of consumers' functional value when the number of children at home increases.

Another interesting result is related to the purchase frequency, which has shown a significant difference. Results demonstrated the positive relationships among the functional value by farmers' markets frequency increase for green food product purchase. It suggested the more consumers purchase green food products, the higher their functional value.

Table 11 – Bivariate analysis for functional value.

<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	<b>P-value</b>
<i>Gender</i>		12,914	0,000
Female	277,65		
Male	229,18		
<i>Birth</i>		1,718	0,633
18 to 24 years old	278,41		
25 to 39 years old	265,48		
40 to 60 years old	253,36		
61 years old or more	254,04		
<i>Marital Status</i>		3,455	0,178
Single	269,40		
Maried	261,63		
Widowed/Divorced/Separated	230,00		
<i>Scholar</i>		6,683	0,083
Less than high school	284,26		
College degree	247,40		
Post-graduated	245,88		

(continue)

Table 11 – Bivariate analysis for functional value.

<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	<b>P-value</b>
Master's or doctorate	255,35		
<i>Monthly Income</i>		7,989	0,046
3 minimum wage or less	271,42		
4 to 6 minimum wage	275,83		
7 to 10 minimum wage	247,73		
More than 10 minumim wage	222,51		
<i>Number of aduts at home</i>		4,266	0,234
1 adult	290,83		
2 adults	254,09		
3 adults	251,06		
4 or more adults	262,28		
<i>Number of child at home</i>		12,440	0,006
No child	258,48		
1 child	279,89		
2 children	247,97		
3 children or more	158,45		
<i>Purchase frequency</i>		21,135	0,000
Last 4 weeks	273,55		
Last 2 months	235,12		
Last 3 months or more	180,20		
<i>Health problems</i>		1,065	0,302
No	262,69		
Yes	243,31		

Source: Developed by the author

The bivariate analysis among the demographic and sample profile to conditional value was significantly different for birth (P-value=0,002) and monthly income (0,001). The conditional value in this study was accessed by the consumer's perceived sense of product discounts, promotional incentives, and availability. Results showed consumers from 25 to 39 years old the ones highly sensitive to these discounts, incentives, and product availability. It was closely followed by the 18 to 24 years old consumers. It suggested younger consumers are more involved in conditional situations such as different incentives, promotions, and subsidies than older consumers.

The income presented significant differences influencing consumers' conditional value. Shuai (2014) suggested the higher income levels the more is the consumer's willingness to pay for green products. Consumers who obtained higher income have demonstrated to perceive a stronger sense of conditional values. A study conducted by Wang et al. (2014) has also found

higher-income significantly influencing consumers conditional values for green product purchase. Table 12 below presents the results for conditional values.

Table 12 – Bivariate analysis for conditional value.

(continue)			
<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	<b>P-value</b>
<i>Gender</i>		0,118	0,731
Female	258,35		
Male	262,88		
<i>Birth</i>		14,444	0,002
18 to 24 years old	284,20		
25 to 39 years old	290,13		
40 to 60 years old	241,69		
61 years old or more	235,97		
<i>Marital Status</i>		2,760	0,252
Single	271,62		
Maried	258,69		
Widowed/Divorced/Separated	237,17		
<i>Scholar</i>		0,103	0,991
Less than high school	262,62		
College degree	258,18		
Post-graduated	258,04		
Master's or doctorate	260,88		
<i>Monthly Income</i>		16,387	0,001
3 minimum wage or less	260,91		
4 to 6 minimum wage	279,68		
7 to 10 minimum wage	221,11		
More than 10 minumim wage	293,83		
<i>Number of aduts at home</i>		7,461	0,059
1 adult	238,87		
2 adults	271,14		
3 adults	239,76		
4 or more adults	282,74		
<i>Number of child at home</i>		4,306	0,230
No child	256,03		
1 child	276,79		
2 children	237,15		
3 childrem or more	261,89		

Table 12 – Bivariate analysis for conditional value.

<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	(conclusion)
			<b>P-value</b>
<i>Purchase frequency</i>		0,068	0,967
Last 4 weeks	259,27		
Last 2 months	264,77		
Last 3 months or more	261,45		
<i>Health problems</i>		0,053	0,817
No	259,41		
Yes	263,65		

Source: Developed by the author

The consumers social value was significantly influenced by the consumers scholar variable (p-value=0,000), monthly income (p-value=0,014), number of child at home (p-value=0,000), and purchase frequency (p-value=0,000). These results were expected as they suggested characteristics that can affect social value by adhering to some specific group norm and displaying a green consumption behavior (BISWAS; ROY, 2015). Table 13 presents the complete results.

Consumers with low scholar levels have developed a higher sense of social values than the higher educated ones. This result is adversely from Kerin; Jain; Howard (1992) findings. For example, they had found higher educated strata could develop a stronger sense of social development towards pro-environmental attitudes. According to Missimer; Robert; Broman (2017), it looks lower educated consumers were more likely to consider social groups' opinions and develop a sense of belonging as they face a higher need for sustainable practices and a real need of changing consumption patterns.

The monthly income variable has presented a significant difference for consumers' social value. Banerjee and McKeage (1994) had discussed people pursuing exalted amounts of money or ensuing materialism values use to develop competing orientations toward environmentally-friendly consumption. The present research complements this study as the lower-income rates consumers have demonstrated a need to be accepted for their group and perceive social approval towards the contribution for a more sustainable practice. On the other side, consumers perceiving a higher amount of money were less likely to consider social approval.

It was also found a significant correlation between the number of children in the family and social value perceive. Families with one child had demonstrated a higher sense of social value. Zavali and Theodoropoulou (2018) have also found the increasing number of children in

a family is negatively related to green products purchase. The results showed families with one child seem to be more likely to go green for their social approval, compared to bigger families.

The purchase frequency rate has also demonstrated a significant difference in consumers' social value. The highest class average was attributed to consumers often visiting the farmer's markets. This result was expected due to the assumption the more consumer purchases green food products and visit the farmers' markets, the more they get perceived and accepted by their social groups.

Table 13 – Bivariate analysis for social value.

(continue)			
<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	<b>P-value</b>
<i>Gender</i>		1,545	0,214
Female	266,16		
Male	249,24		
<i>Birth</i>		0,506	0,918
18 to 24 years old	268,31		
25 to 39 years old	255,14		
40 to 60 years old	258,60		
61 years old or more	265,61		
<i>Marital Status</i>		0,555	0,757
Single	267,02		
Maried	256,15		
Widowed/Divorced/Separated	259,40		
<i>Scholar</i>		18,240	0,000
Less than high school	298,48		
College degree	247,87		
Post-graduated	250,29		
Master's or doctorate	221,04		
<i>Monthly Income</i>		10,587	0,014
3 minimum wage or less	284,28		
4 to 6 minimum wage	258,31		
7 to 10 minimum wage	253,82		
More than 10 minumim wage	216,09		
<i>Number of aduts at home</i>		3,810	0,283
1 adult	247,02		
2 adults	273,12		
3 adults	244,67		
4 or more adults	258,77		
<i>Number of child at home</i>		24,063	0,000
No child	234,43		
1 child	301,91		
2 children	272,76		
3 childrem or more	200,76		

Table 13 – Bivariate analysis for social value.

<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	(conclusion)
			<b>P-value</b>
<i>Purchase frequency</i>		47,431	0,000
Last 4 weeks	282,45		
Last 2 months	169,84		
Last 3 months or more	168,89		
<i>Health problems</i>		0,275	0,600
No	261,38		
Yes	251,44		

Source: Developed by the author

The consumers emotional value has presented significant differences for gender (p-value=0,000) and purchase frequency (p-value=0,000) variables. Table 14 presents the results. The emotional value measurement considered how enjoyable, relax, and satisfied a consumer feels when going to a farmer market for a green food product purchase. Females were more likely to be affected by emotional values than men. This significant difference is in accordance with a study developed by Syahrul and Mayangsari (2020) which have also found emotional value in guiding a woman through the enjoyable and gratifying sense for green food product purchase.

For the purchase frequency, consumers that visit farmers' markets for green food product purchases were more likely to develop emotional value. Lin and Huang (2012) had emphasized the need to stress the importance of environmental concepts, enhancing consumers' emotional value for green products by exploiting their growing environmental concerns. This research results seemed to be aligned to this finding as consumers who continuously visit farmers' markets, feel they are emotionally contributing to a better environment.

Table 14 – Bivariate analysis for emotional value.

<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	(continue)
			<b>P-value</b>
<i>Gender</i>		19,305	0,000
Female	281,33		
Male	222,75		
<i>Birth</i>		5,934	0,115
18 to 24 years old	230,48		
25 to 39 years old	257,81		
40 to 60 years old	257,40		
61 years old or more	287,31		

Table 14 – Bivariate analysis for emotional value.

			(conclusion)
<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	<b>P-value</b>
<i>Marital Status</i>		1,311	0,519
Single	254,55		
Married	266,22		
Widowed/Divorced/Separated	246,61		
<i>Scholar</i>		2,145	0,543
Less than high school	268,25		
College degree	266,89		
Post-graduated	251,28		
Master's or doctorate	245,40		
<i>Monthly Income</i>		6,321	0,097
3 minimum wage or less	268,45		
4 to 6 minimum wage	274,32		
7 to 10 minimum wage	233,94		
More than 10 minumim wage	260,88		
<i>Number of aduts at home</i>		3,360	0,339
1 adult	271,30		
2 adults	251,42		
3 adults	255,47		
4 or more adults	283,90		
<i>Number of child at home</i>		1,603	0,659
No child	258,24		
1 child	269,48		
2 children	244,47		
3 children or more	265,00		
<i>Purchase frequency</i>		21,148	0,000
Last 4 weeks	274,16		
Last 2 months	221,95		
Last 3 months or more	186,76		
<i>Health problems</i>		0,000	0,989
No	260,03		
Yes	259,78		

Source: Developed by the author

For the food safety bivariate analysis, it was only found a significant difference among the consumer gender. Female has shown a higher mean compared to man. Table 15 presents the results. Studies have demonstrated women are more concerned with health issues than men. For example, Amberg and Fogarassy (2019) have described female consumers use to spend more time to gain a deeper understanding of green food products compared to men, and are more concerned about chemical and other non-natural substances presented on foods. Khouryieh et al. (2019) have reported female consumers to use to care more about healthy

practices compared to men when purchasing at farmers' markets. These results become interesting due to the ample evidence in marketing literature that men and women have different behavioral and attitudinal orientations towards purchasing decision making, given their different genetic and social profiles (MARTÍNEZ, 2015).

Table 15 – Bivariate analysis for food safety value.

(continue)			
<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	<b>P-value</b>
<i>Gender</i>		9,306	0,002
Female	274,93		
Male	233,94		
<i>Birth</i>		0,492	0,921
18 to 24 years old	261,06		
25 to 39 years old	266,56		
40 to 60 years old	256,81		
61 years old or more	255,66		
<i>Marital Status</i>		0,599	0,741
Single	267,36		
Maried	256,64		
Widowed/Divorced/Separated	256,42		
<i>Scholar</i>		0,681	0,878
Less than high school	255,21		
College degree	256,30		
Post-graduated	267,88		
Master's or doctorate	263,88		
<i>Monthly Income</i>		5,783	0,123
3 minimum wage or less	267,60		
4 to 6 minimum wage	275,93		
7 to 10 minimum wage	236,33		
More than 10 minumim wage	254,70		
<i>Number of aduts at home</i>		1,444	0,695
1 adult	272,22		
2 adults	252,97		
3 adults	259,63		
4 or more adults	270,42		
<i>Number of child at home</i>		3,195	0,363
No child	265,00		
1 child	256,59		
2 children	240,08		
3 children or more	300,21		



Table 15 – Bivariate analysis for food safety value.

<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	<b>(conclusion)</b>
			<b>P-value</b>
<i>Purchase frequency</i>		2,409	0,300
Last 4 weeks	260,28		
Last 2 months	283,41		
Last 3 months or more	238,27		
<i>Health problems</i>		0,365	0,546
No	258,43		
Yes	269,74		

Source: Developed by the author

The consumers' food security value was significantly different for gender (p-value=0,001), marital status (p-value=0,024), scholar (p-value=0,025), monthly income (p-value=0,011), and number of child at home (p-value=0,024) variables. Table 16 present the bivariate results for food security value. Food security value in this study was treated as people's access to sufficient and nutritious food. For the gender variable, females presented a higher significant difference compared to males for food security issues when making green food purchase. Angelovska et al. (2012) have also found a significant effect for females considering ecological awareness, raising pro-environmental actions compared to men.

Married consumers had the highest mean for food security value. These results are in accordance with Men (2017) who informed a married couple has more food security sense than the divorced couple. Hernandez and Pressler (2013) found no significant difference over marital status related to food security. Even they studied a limited scope of low-income households, future studies are considered for shedding light on this issue, which can facilitate public policies and market strategies for governments and farmers.

For the scholar variable, post-graduated consumers followed by masters and doctors had the higher mean for food security value. Men (2017) informed lower educated person tends to have higher odds of food insecurity. Both results are complementary for a better understanding of the food security value related to educational attainment.

The monthly income has also presented a significant difference in food security value. Consumers who earn 4 to 6 minimum wage per month were the most concerned for food security. It can be explained by the percentage amount of their salary that has to be invested in food purchases. Especially when consumers consider the benefits of green food products purchase, they use to spend a higher amount of their salary (FLORO; BALI SWAIN, 2013).

The number of child at home variable also showed a significant difference in consumers' food security value. Households with no child have presented a higher mean food security

value. This result can be used for further analysis, for example, to optimize green food product access in farmer's markets targeting households with no child based on consumer food security issues.

Table 16 – Bivariate analysis for food security value.

<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	<b>P-value</b>
(continue)			
<i>Gender</i>		10,920	0,001
Female	276,04		
Male	231,99		
<i>Birth</i>		3,698	0,296
18 to 24 years old	235,55		
25 to 39 years old	276,00		
40 to 60 years old	256,62		
61 years old or more			
<i>Marital Status</i>		7,437	0,024
Single	261,62		
Maried	269,43		
Widowed/Divorced/Separated	215,49		
<i>Scholar</i>		9,384	0,025
Less than high school	231,30		
College degree	270,59		
Post-graduated	276,98		
Master's or doctorate	272,32		
<i>Monthly Income</i>		11,206	0,011
3 minimum wage or less	231,65		
4 to 6 minimum wage	285,07		
7 to 10 minimum wage	261,38		
More than 10 minumim wage	273,43		
<i>Number of aduts at home</i>		3,298	0,348
1 adult	281,15		
2 adults	248,73		
3 adults	264,07		
4 or more adults	266,67		
<i>Number of child at home</i>		9,452	0,024
No child	270,31		
1 child	267,67		
2 children	217,03		
3 childrem or more	224,37		

Table 16 – Bivariate analysis for food security value.

<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	(conclusion)
			<b>P-value</b>
<i>Purchase frequency</i>		0,104	0,949
Last 4 weeks	259,10		
Last 2 months	261,21		
Last 3 months or more	265,68		
<i>Health problems</i>		0,036	0,850
No	259,51		
Yes	263,01		

Source: Developed by the author

For the attitude construct there was a significant difference for the variables gender (p-value=0,000), birth (p-value=0,035), scholar (p-value=0,032), number of adults (p-value=0,014), and number of child at home (p-value=0,000). Table 17 presents the results for the bivariate analysis. Consumers' attitudes in this study consider the environmental context which is not instinctive but learned from a collection of beliefs a consumer holds towards environmental activities. The consumer's positive or negative evaluation process has a straight link to behavioral intentions.

From the gender variable, the woman has presented a higher mean compared to the man. This result is in accordance with Aertsens et al. (2011) findings where the female subjective norms were positively influenced towards the attitudes for green food products purchase. The birth variable also showed a significant difference in the attitude towards green food product purchase. Contrary to Ellen (1994), this research has found older age the most favorable for attitudes toward green food product purchase.

For the scholar variable, which presented a significant difference for consumers' attitudes, the ones over graduated presented the highest mean for the attitudes towards green food product purchase. Several researchers have also found a positive relationship from higher levels of education towards attitudes toward green food products (GRACIA; DE MAGISTRIS, 2007; STOBBELAAR et al., 2007).

The number of adults at home showed significantly different for the attitudes toward green food product purchase. The highest mean was conquered by families with 4 or more adults. These results complement Abelló et al. (2014) which has found a positive relationship for the adults' number in a family and visits to farmers' markets. Results suggest families with a great number of adults use to increase the number of visits to farmers' markets searching for green food products. From a different perspective, the number of child at home, which presented a significant difference in attitudes towards green food products, had the highest mean

for lesser or no child at home average. It means the fewer the number of children in a family, the more likely consumers look for green food products.

Table 17 – Bivariate analysis for the attitude construct.

<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	<b>P-value</b>
<i>Gender</i>		15,089	0,000
Female	277,83		
Male	228,88		
<i>Birth</i>		8,611	0,035
18 to 24 years old	229,82		
25 to 39 years old	278,16		
40 to 60 years old	274,47		
61 years old or more	276,39		
<i>Marital Status</i>		0,783	0,676
Single	252,13		
Maried	263,91		
Widowed/Divorced/Separated	262,45		
<i>Scholar</i>		8,795	0,032
Less than high school	236,99		
College degree	258,33		
Post-graduated	279,55		
Master's or doctorate	278,84		
<i>Monthly Income</i>		3,972	0,265
3 minimum wage or less	253,39		
4 to 6 minimum wage	274,97		
7 to 10 minimum wage	246,22		
More than 10 minumim wage	271,96		
<i>Number of aduts at home</i>		10,603	0,014
1 adult	273,38		
2 adults	246,53		
3 adults	252,22		
4 or more adults	303,99		
<i>Number of child at home</i>		18,421	0,000
No child	272,88		
1 child	269,03		
2 children	197,76		
3 children or more	254,66		
<i>Purchase frequency</i>		0,771	0,680
Last 4 weeks	262,61		
Last 2 months	274,24		
Last 3 months or more	251,30		
<i>Health problems</i>		2,142	0,143
No	256,44		
Yes	282,11		

Source: Developed by the author

The last bivariate analysis was done for the intention to purchase green food products. There was a significant difference for the variables gender (p-value=0,000), marital status (p-value=0,028), monthly income (p-value=0,013), and purchase frequency (p-value=0,000). Table 18 demonstrates all the bivariate results for this construct. For gender, the female was the one who presented the highest mean. This result is in accordance with Sun et al. (2018) which also found females developing a stronger intention for green food product purchase compared to males.

From the marital status perspective, married consumers have demonstrated the highest mean and a significant difference among the other classes toward green food product purchase. A study conducted by Yang et al. (2021) has also found married consumers significantly and positively intended to purchase green food products, compared to single and widowed consumers.

The monthly income variable showed a significant difference in the intention to purchase green food products. The highest average was concentrated for those who earned from 4 to 6 minimum wage, followed by the next category, 7 to 10 minimum wage. This amount of money, from a Brazilian social-economic perspective, people are considered upper-middle-class (MENEZES, 2017). The study conducted by Shamsi and Siddiqui (2017) had not found a significant relationship between income and green product purchase. Since these bivariate analyses were not intended to establish causal relationships, these findings shed light on the debate among income and green food product purchase intention.

The purchase frequency has presented a significant difference for consumers' intention toward green food products purchase. Consumers who often go to farmers' markets to make green food products purchases are more likely to pursue a higher sense of environmental concern and a strong intention to go green (JOSHI; RAHMAN, 2015). Agreed to Dou et al. (2016), the consumer practice to often visit a farmer's market, contribute to developing a strong intention to purchase green products.

Table 18 – Bivariate analysis for the intentional construct.

<b>Variables</b>	<b>Mean</b>	<b>Chi-square</b>	<b>P-value</b>
<i>Gender</i>		17,691	0,000
Female	280,04		
Male	225,01		
<i>Birth</i>		3,136	0,371
18 to 24 years old	230,57		
25 to 39 years old	264,71		
40 to 60 years old	26,48		
61 years old or more	269,66		
<i>Marital Status</i>		7,127	0,028
Single	236,52		
Maried	273,92		
Widowed/Divorced/Separated	257,65		
<i>Scholar</i>		3,201	0,362
Less than high school	246,78		
College degree	257,33		
Post-graduated	276,25		
Master's or doctorate	266,06		
<i>Monthly Income</i>		10,580	0,013
3 minimum wage or less	242,87		
4 to 6 minimum wage	292,63		
7 to 10 minimum wage	252,45		
More than 10 minumim wage	247,46		
<i>Number of aduts at home</i>		2,309	0,511
1 adult	269,35		
2 adults	253,82		
3 adults	254,70		
4 or more adults	279,57		
<i>Number of child at home</i>		5,392	0,145
No child	262,62		
1 child	270,52		
2 children	225,78		
3 children or more	270,58		
<i>Purchase frequency</i>		19,173	0,000
Last 4 weeks	273,44		
Last 2 months	219,29		
Last 3 months or more	194,34		
<i>Health problems</i>		1,811	0,178
No	256,60		
Yes	281,11		

Source: Developed by the author

### 4.2.2.3. *Multivariate analysis results*

As described before these results are presented based on the same order proposed on the data analysis technique. Following, the results for the multivariate stage are presented.

#### 4.2.2.3.1. Exploratory factor analysis

The measurement model exploratory factor analysis was conducted before investigating the existing relationship among constructs for the hypothesized model. The outer loading was first examined for the reflective constructs, followed by Cronbach's Alpha (C.A.) test, composite reliability (C.R.), and AVE.

The functional value outer loading factors were all above 0,72 demonstrating all the items substantially contributed to the respective construct. The functional value also presented reliability on its measure showing the C.A. over 0,82 and the C.R. over 0,88. The AVE was the lowest record among the other constructs (0,661), but it is still considered an acceptable number for convergent validity measure.

The items measuring the conditional value presented outer loadings factors over 0.85. The C.A. value was scored over 0,81 and the C.R. 0,91 which according to Hair et al. (2009) demonstrated internal consistency for the conditional value. The AVE score (0,771), measuring the convergent validity was also above the minimum accepted.

Social values items expressed the respective outer loading factors over 0,91. The C.A. (0,947) and C.R. (0,962) scores were highly above the cutoff point, demonstrating construct reliability. The AVE fairly explained the constructs' errors, showing a score of 0,863 (HAIR et al., 2019).

All outer loadings factors for the emotional value were above 0,85 satisfying Hair et al. (2009) statistical measure. The C.A (0,814) and C.R. (0,890) demonstrated the emotional value construct had reliability, measured by its items. The AVE showed a score of 0,729 which followed the Fornell and Larcker (1981) criterion.

The two new constructs added to the previous GPV scale, the food safety value and the food security value have also presented convinced statistical measures. For outer loading factors, both constructs presented scores over 0,73. The food safety value reliability was reached by the C.A. (0,902) and C.R. (0,928), and the AVE (0,720) which demonstrated the construct convergent validity. For the food security value, the C.A. score was 0,908 and the

C.R. was 0,932. The food security value presented an AVE score of 0,732 which also demonstrated convergent validity.

The construct measuring the consumers' attitude for green food products had all items outer loading presenting a score over 0,88. The construct displayed internal consistency through the C.A. (0,873) and C.R. (0,922). The attitude construct AVE had a score of 0,798. Finally, the intentional construct had all the outer loading scores over 0,84. The C.A. value was 0,845 and C.R. was 0,906. The construct also had convergent validity (0,764). Table 19 shows all the results for the outer loadings test, the Cronbach's Alpha results, the composite reliability, and the AVE.

Table 19 – Factorial analysis outer loadings, Cronbach's Alpha, Composite Reliability and AVE measurements.

(continue)				
<b>Constructs</b>	<b>Outer Loading</b>	<b>Cronbach's Alpha</b>	<b>Composite Reliability</b>	<b>AVE</b>
<i>Functional value</i>		0,829	0,886	0,661
FV1	0,829			
FV2	0,720			
FV3	0,846			
FV4	0,849			
<i>Conditional value</i>		0,851	0,910	0,771
CV1	0,900			
CV2	0,868			
CV3	0,856			
<i>Social value</i>		0,947	0,962	0,863
SV1	0,935			
SV2	0,931			
SV3	0,933			
SV4	0,916			
<i>Emotional Value</i>		0,814	0,890	0,729
EV1	0,850			
EV2	0,824			
EV3	0,886			
<i>Food safety value</i>		0,902	0,928	0,720
FSA1	0,903			
FSA2	0,735			
FSA3	0,840			
FSA4	0,892			
FSA5	0,860			



Table 19 – Factorial analysis outer loadings, Cronbach's Alpha, Composite Reliability and AVE measurements.

(conclusion)				
<b>Constructs</b>	<b>Outer Loading</b>	<b>Cronbach's Alpha</b>	<b>Composite Reliability</b>	<b>AVE</b>
<i>Food security value</i>		0,908	0,932	0,732
FSE1	0,892			
FSE2	0,883			
FSE3	0,770			
FSE4	0,893			
FSE5	0,833			
<i>Attitude</i>		0,873	0,922	0,798
AT1	0,890			
AT2	0,910			
AT3	0,881			
<i>Intention</i>		0,845	0,906	0,764
INT1	0,848			
INT2	0,864			
INT3	0,909			

Source: Developed by the author

All the constructs presented discriminant validity, indicating each construct measures its proper different aspects. The presented results followed Fornell and Larcker (1981) criteria and can be seen in table 20.

Table 20 – Discriminant validity.

<b>Constructs</b>	<b>AT</b>	<b>CV</b>	<b>EV</b>	<b>FSA</b>	<b>FSE</b>	<b>FV</b>	<b>INT</b>	<b>SV</b>
AT	0,893							
CV	0,421	0,875						
EV	0,733	0,456	0,854					
FSA	0,760	0,458	0,715	0,848				
FSE	0,796	0,431	0,685	0,780	0,856			
FV	0,643	0,478	0,628	0,687	0,667	0,813		
INT	0,781	0,412	0,761	0,733	0,716	0,632	0,874	
SV	0,246	0,459	0,353	0,242	0,233	0,299	0,279	0,929

Source: Developed by the author

As the exploratory factory analysis has presented satisfactory statistical results, the next steps were developed to analyze the structural model. For the structural model, the Smart Pls 3 software was set to develop a path weighting scheme, and run with one thousand maximum

interactions to calculate the PLS results. The stop criterion, where the PLS algorithm stops when the change in the outer weights between two consecutive iterations is smaller than this stop criterion value was set to be ( $10^{-7}$ ). Based on these settings, as the GFPV is a formative type of model, the first step was running the PLS algorithm to assess the first-order constructs collinearity test. The variance inflation factor (VIF) indicated the amount of variance each coefficient increased related to the other uncorrelated independent variables. VIF values above 5,000 are indicative of probable collinearity issues among the predictor constructs (BECKER et al., 2015). Results showed no collinearity issue among the GFPV constructs since all the constructs' VIF scores were way under 5,000 (five). Table 21 describes the results.

Table 21 – Structural model VIF.

<b>Constructs</b>	<b>Attitude</b>	<b>Intention</b>
Functional value	2,249	
Conditional value	1,585	
Social value	1,331	
Emotional value	2,467	
Food safety value	3,305	
Food security value	2,957	
Attitude		1,000

Source: Developed by the author

Following the structural model, the next step was the coefficient of determination ( $R^2$ ) assessment. Following Hair et al. (2016), the  $R^2$  is the most common measure for structural model analysis. The  $R^2$  statistically explains the variance in the endogenous variable, explained by the exogenous variable. The  $R^2$  ranges from 0 to 1, with higher scores indicating a greater explanatory power. As a guideline,  $R^2$  values of 0,75; 0,50, and 0,25 can be considered substantial, moderate, and weak (HENSELER; RINGLE; SARSTEDT, 2012; HAIR et al., 2016). Results showed the GFPV constructs explained 72% of the attitude to purchase green food products. The intention construct has presented an  $R^2$  score of 0,61. According to Rigdon (2012) these results also greatly explain the in-sample predict power. Following Hair et al. (2016) the  $R^2$  score for the endogenous variable attitude and intention were considered significantly moderate to the substantial variance explained. Table 22 displays the complete results.

Table 22 – Structural model R<sup>2</sup>.

<b>Constructs</b>	<b>R Square</b>
Attitude	0,719
Intention	0,610

Source: Developed by the author

The following step for structural model assessment is the path coefficient analysis. It was then processed a Bootstrapping procedure. For path coefficient analysis the values and significant scores indicate how much the constructs relate to one another. The scores vary from -1,0 to +1,0 indicating negative and positive relations (HAIR et al., 2019). The more the scores are close to zero, the weaker the relationship. The path coefficient analysis showed a weak and negative relation for the social value to attitude. The functional value and the conditional value have also demonstrated a weak relation to the attitude to purchase green food products. All the others GFPV constructs had a positive relation to attitude, where the food security value has demonstrated the strongest one among the GFPV constructs. The attitude construct has also displayed a positive and strong relation to the intention to purchase green food products. Table 23 presents the path coefficient results.

The next step was accomplished through the T-Student test. It measured the significance of the proposed constructs' relation. T-tests scores over 1,96 demonstrated a significance level of 95% confidence. Table 23 displays the T-tests results.

Table 23 – Structural model significant test.

<b>Constructs Relation</b>	<b>Path Coefficient</b>	<b>T Value</b>	<b>P Values</b>
Functional Value -> Attitude	0,059	1,252	0,211
Conditional Value -> Attitude	0,005	0,173	0,863
Social Value -> Attitude	-0,015	0,555	0,579
Emotional Value -> Attitude	0,268	5,621	0,000
Food Safety Value -> Attitude	0,206	3,435	0,001
Food Security Value -> Attitude	0,414	6,477	0,000
Attitude -> Intention	0,781	20,784	0,000

Source: Developed by the author

Among the presented constructs, three of them had a non-significant relation with T-values under 1,96 and p-values over 0,05 (Functional Value to GFPV; Conditional Value to GFPV; Social Value to GFPV). The other relations have shown significant results (Emotional

Value to GFPV; Food Safety Value to GFPV; Food Security Value to GFPV; GFPV to Attitude; and Attitude to Intention).

The next test that was run refers to the  $F^2$ . It was decided to run this test since a variable in a structural model may be influenced by a certain number of different variables. Then, it was important to understand whether removing an exogenous variable, the dependent variable would be affected. Basically, the  $F^2$  is the change in  $R^2$  when an exogenous variable is removed from the model (HAIR et al., 2019). The  $f^2$  is the effect size of the exogenous variable, and guidelines described  $f^2$  greater than 0,02 has a small influence in the  $R^2$ ;  $f^2$  greater than 0,15 has a median impact in the  $R^2$  and  $f^2$  higher than 0,35 has a large effect in the  $R^2$  value (COHEN, 2013). Table 24 presents the  $F^2$  results.

Table 24 – Structural model f square results.

<b>Constructs</b>	<b>Attitude</b>	<b>Intention</b>
Functional value	0,006	
Conditional value	0,000	
Social value	0,001	
Emotional value	0,103	
Food safety value	0,046	
Food security value	0,206	
Attitude		1,564

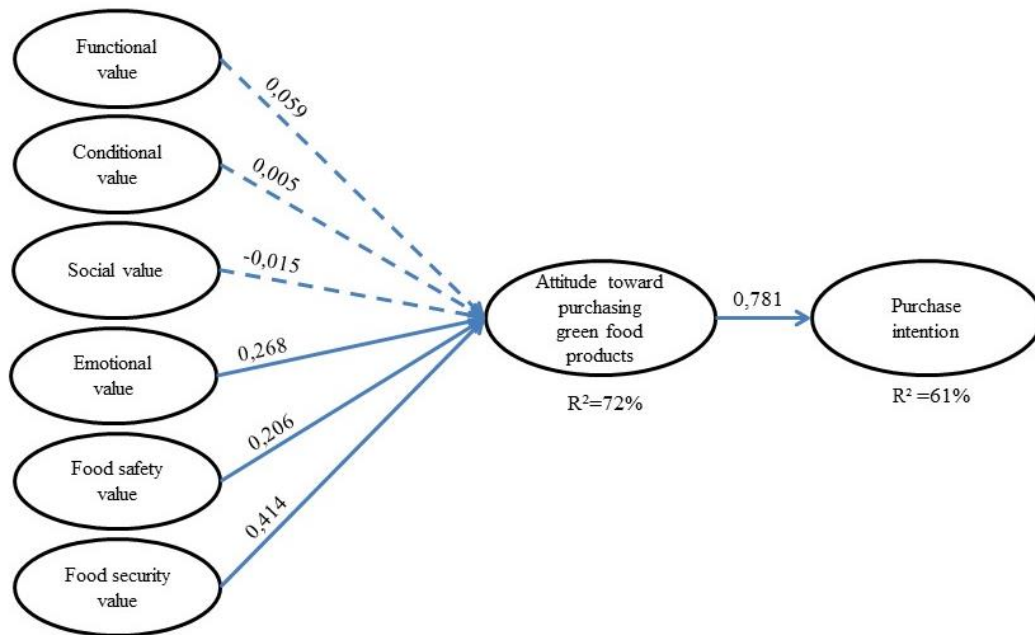
Source: Developed by the author

Analyzing the results, the functional value, the conditional value, and the social value could be removed from the model with no effect on the endogenous  $R^2$ . The emotional value and the food safety value comprised a small influence for the endogenous  $R^2$  value. From the GFPV perspective, the  $f^2$  for food security value (0,206) was the one that, if removed would most affect the  $R^2$ . As expected, the attitude had a large impact on the intention to purchase green food products. Figure 5 describes the path coefficients values and the  $R^2$  of the constructs.

Lastly, to assess the model predictive relevance ( $Q^2$ ), it was run a Blindfolding procedure in Smart PLS-3 to discover the  $Q^2$  value. Hair et al. (2016) emphasized the need to process the  $Q^2$  value of Stone –Geisser, where values over 0,000 (zero) show the model has predictive relevance. The presented model demonstrated great predictive relevance where all the values were above 0,000 (zero). The attitude to purchase green food products presented the  $Q^2$  score of 0,565, and the  $Q^2$  score for intention to purchase green food products was 0,459.

Based on these results, it could be inferred all the exogenous constructs had great predictive relevance over the endogenous constructs.

Figure 6 – Path coefficients values.



Source: Developed by the author

#### 4.2.3. Results Discussion

This thesis's main purpose was to analyze the relationship between food safety and food security values to green perceived value constructs, toward the attitudes and intention on purchasing green food products. Through an SEM technique, it was possible to perform the different aspects influencing consumers' green food perceived value toward the attitudes and intention to purchase green food products.

The addition of the constructs food safety value and food security value caused some changes in the previous GPV scale when analyzing consumer attitude and intention to purchase green food products. Following Following Woo and Kim (2017), it was proposed for **HI** a positive relation between function value towards the attitude to purchase green food products. In this study, it was not found a significant relation between these constructs (T-test=1,252; P-value=0,211). Khan and Mohsin (2017), and Adhitiya and Astuti (2019) also had not found a relationship among the functional value related to quality and price for consumer behavior towards green products choice. These last mention studies, it was included an environmental

value construct to measure consumers' choice for green products. Results suggest when an environmental construct is included as an exogenous variable for green choices measures, the functional value turns out to be insignificant. Following this logic, a study conducted by Danish et al. (2019) found a significant relationship between functional value and green products although not applying any environmental exogenous construct.

Different from Who and Kim (2017), but in accordance with the research developed by Biswas and Roy (2015), this study has found the conditional value not significantly influencing the attitude to purchase green food products. This outcome contradicted the **H2**. This result proposes when including food safety and food security values in a measurement model, consumers would not significantly consider the conditional aspects toward attitudes to purchase green food products. The same analysis was found in studies developed Khan and Mohsin (2017); Adhitiya and Astuti (2019) suggesting when an environmental variable and also a safety value variable is included in an assessment model, the conditional value seems insignificant for green food products consumers.

The **H3** was proposing the social value positively influencing the attitude to purchase green food products. This hypothesis was not supported in this study, since the social value has shown a negative relation to attitude towards green food products. Even though a negative relation, the relationship was not significant (path coefficient=-0,015; T-Value=0,555; P-Value=0,579). This is an important result since limited studies are evidencing the social value perspective towards the attitude to purchase green food products ( COSTA; ZEPEDA; SIRIEIX, 2014; AAGERUP; NILSSON, 2016). Caniëls et al. (2021) have informed green food consumers instead of going green for environmental and sustainable purposes, consumers were intended to look good for society when purchasing green food products. This argument aligned with this thesis result, suggests when an environmental variable (food security value) is added to measure attitudes to go green, the social value seems to be non-significant. For example, in a study developed by Khan and Mohsin (2017), when adopting an environmental construct to be analyzed simultaneously to the social value, results showed a non-significant relation towards attitudes to purchasing green products.

The consumer emotional value was positively and significantly related to the attitude to purchase green food products. Following Woo and Kim (2017) assumption, the **H4** was supported in this study. This is an important result since a recent study developed by Lago et al. (2020) to understand the purchase decision for green products in Brazil, mentioned the need to better comprehend the influence of emotional value over Brazilian consumers toward green products purchase. Thus, even including the food safety and food security construct in the

GFPV scale, the emotional value stood to be significantly considered by green food products consumers. A study conducted by Danish et al. (2019), also found that emotional value positively influences consumer behavior for green products. Therefore, special attention must be given to consumers' feelings on green purchases.

One of the greatest contributions of this study was to shed light on the food safety value towards the intention to purchase green food products. In this study it was found a positive and significant relationship between food safety value and the attitude to purchase green food products, confirming **H5**. As far as it was possible to check, this is the first study to establish a relationship among the food safety value in a GFPV scale to predict attitudes to purchasing green food products. These results arouse attention for everyone involved in the food chain for the importance to consider the safety aspects related to food, especially related to green food products.

Another important study finding is the assessment of the positive and significant relationship between the food security value towards the attitude to purchase green food products. The **H6** was confirmed and it brought the need for a special look over the consumers' concerns about the urgency of food supply issues. Many researchers have informed the problem over the food demand and food shortages (CARVALHO, 2006; HAMEED; WARIS; AMIN UL HAQ, 2019). This study treated food security as a value, which means consumers' beliefs and perceptions over the need for sustainable practices are latent and must be hearkened.

The last proposed hypothesis, **H7** as expected was accepted. Following studies like Ajzen (2001); Laroche et al. (2001); Manaktola and Jauhari (2007); Chou et al. (2012); Woo and Kim (2019) consumers attitude, based on beliefs and values, turned their actions into intentions to purchase green products. The attitude to go green has played a mediate role in the relationship among the GFPV and the intention to purchase green food products. Then, according to the proposed hypothesis, Table 25 describes the results.

Table 25 – Results for proposed hypothesis.

<b>Hypothesis</b>	<b>Results</b>
H1. Functional value is positively associated with attitude toward purchasing green food products	Not supported
H2. Conditional value is positively associated with attitude toward purchasing green food products	Not supported
H3. Social value is positively associated with attitude toward purchasing green food products	Not supported
H4. Emotional value is positively associated with attitude toward purchasing green food products	Supported
H5. Food safety value is positively associated with attitude toward purchasing green food products	Supported
H6. Food security value is positively associated with attitude toward purchasing green food products	Supported
H7. Attitude toward purchasing green food products is positively associated with its purchase intention	Supported

Source: Developed by the author



## 5 RESULTS IMPLICATIONS

Every thesis must bring a unique and original contribution to the academic community and society. These doctorate study findings are presented in terms of implications related to new academic perspectives, managerial renewal through economical aspects, and social viewpoints. It is worth mentioning, the idea to develop this doctorate study, started from the perception of food safety and food security values related to assumptions associated with GPV (functional value, conditional value, social value, and emotional value). Then, after a thorough theoretical and methodological study the implications are presented.

### 5.1. Academic perspective

One of the research-specific objectives was to validate the GFPV scale. As it was possible to perceive, the GPV scale has been updated since its first disclose. At first, the GPV scale was presented as a unidimensional scale (CHEN; CHANG, 2012). Considering the environmental and green marketing literature, Sangroya and Nayak (2017) proposed the GPV measured through a multidimensional scale, considering four sub-constructs (functional value, conditional value, social value, and emotional value). They tested and validated this multidimensional scale pertaining to green energy. Woo and Kim (2019) applied the GPV scale for understanding consumer behavior intentions to buy green food products. This was the first attempt to relate the GPV scale to the green food perspective.

Advancing the investigation over green food issues, especially related to consumer behavior, it was possible to conceive that aspects related to health and environmental perspectives were not properly taken into consideration in the GPV scale. Themes such as food safety and food security were already correlated in the literature linked to consumer behavior aspects but not applied in a scale to measure GFPV. Other two facts contributed to the need for a new measurement scale: a) the awareness of interconnection among the food safety value and food security value linked to the previous GPV surmises, and b) a literature gap demanding the addition of other constructs for the GPV measurement scale (SANGROYA; NAYAK, 2017; WOO; KIM, 2019).

This doctorate research provided strong arguments contributing to the green perceived value theory advancement. Theoretically, it has extended the theory especially related to green food products, by adding the food safety value and food security value constructs into the model. These constructs are vital for a better understanding of green consumer behavior and

consumer credence attribute bringing new insights to green behavior theory and green marketing.

From the food safety perspective related to attitude, most research in the literature uses to study the opposite direction from the proposed one in this doctorate thesis. Most of the studies use to research the understanding based on consumers' attitudes to food safety practices. For example, Li et al. (2017) studied food safety practices through microbiological food analysis based on the population practices. This study instead, contributes to the comprehension of the food safety value towards attitudes to purchasing green food products. This seems to be an advance in the literature, as it was not found in other studies, this proposed relation assessment, especially related to the GFPV constructs.

The Brazilian consumers pertained value for food safety contributing to the attitude to purchase green food products, can be seen as a valuable example of governance political results aligned to consumer safety perception. For example, the Brazilian National Council for Food and Nutritional Safety has developed public policies integrating health promotion, environmental sustainability towards a balanced and healthy diet (“III Conferência Nacional de Segurança Alimentar e Nutricional - por um desenvolvimento sustentável com soberania e segurança alimentar e nutricional.”, 2007). Thus this survey result informed Brazilian consumers seem to be more aware of issues related to healthier eating, especially at farmers' markets. This finding advances on literature need to better understand the policies action developed by Brazilian governments to improve consumers access to healthier foods (AQUINO et al., 2020).

Same sense, many researchers, for example, Martinelli et al. (2020); Ventura et al. (2020) have advised for the need for a better understanding of consumers willing for contributing to the environment through sustainable behavioral practices. This is a worldwide urgent need since our planet is facing nature depletion for large-scale agriculture purposes. This research results translate environmental workforce commitment into a new understanding of the food security value composing the GFPV constructs.

Researchers had already studied environmental issues towards sustainable consumers behavior, Khan and Mohsin (2017); Hameed; Waris; Amin Ul Haq (2019) although not relating the food security understanding as a value, neither correlating to food safety issues and the GPV sub-constructs. The food security value, among the studied constructs (functional value, conditional value, social value, emotional value, food safety value) was of the highest importance for green food products consumers. This is a very important finding as according

to Zeithaml (1988) consumers perceived values influence the building of customer relationships.

Including the food safety and food security value forming the GFPV scale, results showed a non-significant relation from the functional value, the conditional value, and the social value toward attitude to purchase green food products. This plight may have occurred due to the subsist Covid-19 pandemic situation when data were collected. The pandemic situation has raised the issue related to agricultural disruption, food shortages, public and private health problems among other complex issues. For example, people become more concerned over the world's major challenges for humans such as the increase of globalized food crop systems and their regulation mechanisms, or the global health issue of international food security and nutritional food safety. These are just some examples of situations experienced by green food products consumers that can interfere in this research results. Therefore, this is one of the future study suggestions to run this research in a similar context but with a non-pandemic situation to assess and compare to this specific result.

## **5.2. Managerial perspective**

This study provides important guidelines to marketing managers regarding the formulation and implementation of marketing strategies at Brazilian farmers' markets. Studies so far had assigned considerable importance over the functional value, also the conditional value, and social value toward attitudes to purchasing green food products (BISWAS; ROY, 2015; JOSHI; RAHMAN, 2015; WOO; KIM, 2019). Interestingly, recent studies when inserting an environmental construct on its measurements, the functional value and conditional value (ADHITIYA; ASTUTI, 2019), and also the social value (RIAN; GUSMAN; FATIMAH, 2021) had its significance abrogated. These results suggested that farmers' markets managers need to be attentive to food safety and food security advertisements. Informative posters can be attached on the food market stands, as well as social media campaigns reinforcing food safety and food security benefits achievement through consumer purchase.

Aligned the importance of the food safety and food security value, the emotional value has also developed a positive and significant relation toward attitudes to go green, and this can also be very well developed by green food market managers. Uhlmann; Lin; Ross (2018) postulated emotional feelings predict environmental concerns, so people exposed to a green environment, use to properly behave toward a better ecosystem. Managers and policymakers can explore this green emotional feeling to convene consumers' wants to marketers and policies

maker needs. The pleasure and the accomplishment sense of a green food product purchase can be aligned to the reward feeling for food safety and food security contributions. Marketers can, on its talk, convince consumers to purchase with proper words such as “feel good”, or “being relaxed”, as well as “improve your health” or “sustainable production”. It seems to be capable to turn a wish into buying.

Considering this research was developed during the Covid-19 pandemic, managerial strategies can be traced to overcome the tough situation caused in the health context, also highly aggravated by environmental issues. From these results analysis, it becomes essential for governments, policies makers, farmers' markets managers, small food producers' organizations to discuss and propose adequate actions healthily and sustainably in an inseparable way. This can be accomplished given the contemporaneous impact of these phenomena in food production and, in turn, in social and health inequalities, especially in a developing country like Brazil. This research higher scores for food safety value and food security value toward attitudes to purchasing green food products can be used as a key to reducing malnutrition and environmental discrepancies. This is the time for governments and policies maker to stimulate and capacitate farmers' markets for sales improvements contributing to population healthy food access. have informed for an effective diet, food must come from local and agro-ecological systems, produced and processed by small food producers, free from chemicals and other contaminants. This conscious and integral consumption, when promoted by governments, farmer's markets, and small food organizations becomes the drivers that potentially promote a healthy and sustainable food system, in other words, a sustainable diet. So, these research results highlight the need to activate food security and healthy information, communication, and education actions aiming to slant politically food consumption. These actions can generate healthy food habits based on daily food choices, in line with environmental and healthy causes.

Still on managerial implications, for the green marketing perspective, these results informed the role of food safety and food security, aligned to the emotional values seemed to develop paramount importance. These values were highly predictive in shaping consumer behavior for the adoption of sustainable products. Then, managers need to design strategies by considering the vital aspects of these values. Marketing programs appealing to consumers' safety and security instincts and conforming to the emotional feeling of pleasure and satisfaction, would lead consumers toward positive behavior. Farmer's marketers should focus on providing transparent information related to safety and security towards green food products attitude and intention as this will increase consumers' trust and willingness to purchase their products.

Furthermore, results show that consumers' attitudes towards green food products predicted their intention to purchase these products. Conjointly, research results proposed instead of intentionally promoting strategies for a price discount, or promotional incentives and social approval, green food marketers must invest in the healthy and sustainable aspects of the green food product, appealing for consumers' emotional aspects.

### **5.3. Social viewpoint**

Whenever the object of study is a beneficial product for the population such as green food products, the social advantageous or unfavorable understandings are also assimilated to the managerial point of view. It means that increasing the benefits for marketers, governments, or even food producers' associations, through the stimulus of green food products acquisition, earning are also shared as a social advance. Promoting access to green food products is a valuable achievement for the whole society considering farmers market vendors, small food producers as well as consumers, and the environment itself.

These research results are imperative for everyone in the food chain aforesaid Brazilians small food producers and consumers that use to purchase green food products. Investing in communications over the food safety and security benefits for the consumers seem to be an important strategy stimulating farmers' markets sales, hence small food producers' developments. The strengthening of small food producers is a necessary strategy due to the function they develop to guarantee food nutrition sovereignty and security, jobs generation in rural areas, interaction among local culture, and recognition of local eating habits, among all the benefits for environmental damage reduction.

Stimulating green food purchases can contribute to the vulnerable situation of small food producers in Brazil. Pedroso; Corcioli; Foguesatto (2020) demonstrated the historical function of small food producers in Brazil which develop agroecological practices, preserving the planet's cultural and environmental diversity. Then, from this research results, strategies can be taken for the enhancement of small food producers and agroecological food production. These results also support improvement on the food supply chain strengthening better communication over food safety and security. It can assure better consumers access to healthy, adequate, and sustainable food, enhancing consumers and population over the healthy and security importance of green food products.

## 6 CONCLUSION

This thesis proposes that food safety and food security values aligned to the functional, conditional, social, and emotional values predict the attitudes and intention to purchase green food products. To address this consumers' behavior perspective, it was first validated the new GFPV scale for that purpose and investigated consumer behavior for green food products purchase intention. Focusing on Brazilians' farmers' markets consumers, it was found food safety and security values aligned to emotional value predicting green food products purchase. These findings highlight the importance of providing consistent information over the benefits of safety and security aspects of green food products, focusing on consumers' emotional values. These results are consistent with the literature reporting consumers' behavior toward green products, suggesting safety and security elements aligned to emotional values lead farmers' markets consumers to a healthy and sustainable food purchase (KHAN; MOHSIN, 2017).

The fact that food safety and security were considered important values for green food products purchase has important implications. These results suggest farmers' markets managers should not focus their advertisement campaigns on prices, or stimulating discounts incentives, but rather emphasize green food products' benefits for the consumers' health and environmental gains. Results also suggest as long as farmers' markets managers provide green food products appealing to the consumer's emotional feelings, consumers may be satisfied with green food products buying.

Not only for managerial implications these results are important. Governments must arouse consumers' access to green food products to stimulate small food producers to sell their produce. This act goes beyond small food producers' profit but yet creates and develops alternative food production despite large investments in big food farms producers. There are some governments' actions toward broad access to food produced by small food producers in Brazil. For example, the Brazilian National School Feeding Program (PNAE) foment food access from small food producers. So yet, based on these research results, school teachers can encourage students to have food produced by small producers at student homes, based on a healthy and sustainable aspect of green food products. When managers and governments experience higher green food access by the whole population the advantages also serve for social development. For example, alternative ways of food production can be developed considering consumers' willingness to have healthier food and this behavior may reduce government expenses on public health (FUNG; WANG; MENON, 2018).

Having the food safety and food security values an important topic when making a purchase decision, contributes to inserting one more brick toward the consumer behavior theory knowledge, especially related to green marketing. A better understanding of consumers' green needs can help marketers to develop green marketing strategies. This green marketing is a practical tool for collective social responsibilities, enticing consumers who are concerned over society, stimulating and demanding healthy and pro-environmental actions. From a safety and security marketing perspective, green marketing strategies can contribute to the three facets of sustainability: economic prosperity, environmental quality, and social health equity.

Another important contribution of this study was the non-significant relations of the functional value, conditional value, and the negative and non-significant relation of social value toward the attitudes to purchasing green food products. These results suggest consumers, based on the GFPV scale, tend to higher consider the safety and security values aligned to emotional value in comparison to functional, conditional, and social values. Interestingly, others studies such as Khan and Mohsin (2017), and Adhitiya and Astuti (2019), had found similar results. For example, when mediated by the emotional value Khan and Mohsin (2017) found a non-significant relation from a functional value towards a green product consumer behavior. For the consumer behavior theory, this is an important fact to be considered. As it was considered in this study, the consumers' values predicting behaviors, health, and environmental issues become to be a sociocultural construct and its measure is a relevant theme for the consumer behavior theory. Uhlmann et al. (2018) had notified a research gap whether people concerned over food security used to make more ethical and sustainable food choices. This study sheds light on this gap and suggests farmers' markets consumers have a stronger pro-environmental sense of developing a sustainable behavior compared to the functional or conditional perception.

The consumers' social value could be highly impacted by the Covid-19 pandemic situation as people were advised to restrict social contact and behavior. The non-significant result for the social value toward green food product purchase might be attributed to that issue. Future research should focus on that matter when the pandemic situation would be finished. It is also valuable to mention, even with the pandemic analysis not being the focus of this research, the results can be used to shed light on the consumer behavior after the Covid-19 condition. Extreme situations like a pandemic can be strategically managed to deal with consumer behavior. For example, from this thesis results pro-environmental and pro-healthy policies can be directed to better consumer behavior, having the pandemic as a background to be avoided. Then, Caniëls et al. (2021) findings that consumers were mostly intended to look good for

society when purchasing green food products, can be changed to an environmental and healthy value incorporated to green food consumers.

It is still valid to reinforce and explore some reasons results have shown a not significant relationship among the three mentioned constructs to the attitudes toward green food products. Definitely, this research sample was different from other studies relating to these constructs. Also, the research context and scenario were different from previous studies. One possible explanation for these results might be elucidated through the bivariate analysis it was carried out for each of the constructs. It is a path to start finding the motive these results were not supported. For example, it is known perceived values reflect people's attitudes toward general performances or behaviors (PATTERSON; SPRENG, 1997), for the function value not supported result, the reason could be related to the significant result presented on the bivariate analysis. It is valid to pay attention to the sample related to the function value for gender, monthly income, the number of child at home and the frequency consumers visit the farmers' markets to purchase green food products.

Same sense, the analysis can be done for the conditional value where birth and monthly income have shown a significant impact on its value. Attention could be done to young consumers and buyers with a high monthly income. Following Lin and Huang (2012), a variety of tools can enhance the conditional value for ecological performance, a deep examination over consumers who are young and with a high monthly income can be the path to understand the not supported results for the conditional value. Lastly, and not less important, the social value could be further examined for the consumers' schooling profile, also the monthly income, the number of child at home, and the consumers purchase frequency at farmers' markets. These were the classes that have shown significant results for the social behavior towards attitudes to purchasing green food products, considering the bivariate analysis. Following Kim et al. (2009), as the social value express consumers identity to others through their choice of food, inquire can be done over these classes of consumers with less school degree, lower monthly income, with fewer children at home and highly visiting the farmer's markets for green food product purchase.

All the specific objectives were completed aiming this thesis's main purpose accomplishment. It was possible to measure the level of functional value, conditional value, social value, emotional value, food safety value, and food security value of Brazilians' consumers. These farmers' markets consumers have demonstrated more concern to food security issues, followed by the food safety and emotional values when visiting a farmer market. The three last scored constructs predicting the GFPV interestingly were the ones that had not



presented a significant relation towards green food product purchase (functional value, conditional value, social value). This result raises the need for more strategic actions over the benefits of healthy food purchase, with improvements to environmental needs, based on consumers' emotional values. These are the three pillars that need to be managed for healthier and more sustainable consumer behavior.

Also, this study confirmed the relationship between the attitude and intention to purchase green food products. This result follows previous studies for example Woo and Kim (2019); Ajzen (2001); Chou et al. (2012); Laroche et al. (2001); Manaktola and Jauhari (2007) where attitudes functioned as a mediate role for consumer intention behavior. In other words, whenever a consumer has the attitudes towards a green food product, results suggest this consumer perceives the intention to purchase this product. This finding sustains the importance to motivate green food consumers to visit farmers' markets and get closer contact with the green food product. Farmers markets managers can apply multiple marketing communications channels, from mass media to specific social media to underline and stimulate consumers' attitudes towards green food products.

Another important research result was the new proposal of a scale to measure perceived value towards green food products. The latest GPV scale measuring food products access was adapted from Woo and Kim (2019), and it was not expressively composed of food safety and food security values. Results from this research make it imperative to consider both values for green food products purchase. Thus, the present study advances the existing literature developing the GFPV scale by adding two new constructs to the aforementioned ones and, contributing to better access to green food products measures. According to what was proposed by Sangroya and Nayak (2017), the addition of two other constructs (food safety value and food security value) has proven to be significant to perceive values measures. From the previous definition of the GPV theory, firstly proposed by Chen and Chang (2012) it is proposed to include the health subject on it when related to food. Then, it is suggested the definition of GFPV as "a general consumer assessment of the net benefits of a product or service between what is received and what is given based on the consumer's environmental desires, health, sustainable expectations and green needs for green food product purchase".

### **6.1. Recommendations for future research**

The very first idea for the development of this thesis proposal was thought based on an in-depth interview which was processed through a laddering technique with USA farmers'

markets consumers. Results then have proved to be an interesting idea combining in-depth interview data with quantitative data procedures. Future studies should develop qualitative data surveys on Brazilian farmers' markets focusing on food safety and food security aspects of green food product purchase. Then, on the same logic of this study, after the COVID-19 pandemic situation, a new round of data collection would be worthily conceived, to have the results compared. Additionally, as this scale was first tested in this study, other tests on different contexts and countries would be very recommended. As it could be seen, the GFPV scale has great predictive relevance and can be used to improve other markets' contexts abroad.

Even the new proposal scale has shown this great predictive relevance, this study came out with three hypotheses that were not supported. Some of the possibilities for these results were discussed in this thesis, although many others can be explored and studied to a better understanding of how and why the hypotheses were not confirmed. Future studies can explore cultural factors associated with farmers' markets consumers in Brazil, and as well compare these future results to other cultures to have a more elucidated scenario at farmers markets. Also, economical factors should be explored in future research to improve the explanation of the not supported hypotheses. This can be done especially in the Brazilian context since most of the cited literature was foreign ones, a better view adopting Brazilian studies that might explain these not supported hypotheses can improve local farmers' markets knowledge.

The social point of view was highly considered in this study, especially regarding the benefits these results can improve for the farmers' markets matter of contention. It also was cited the Covid-19 pandemic situation that has pledged during these study processes, then it is strongly recommended to run this study after a pandemic situation to have a better picture of the Brazilian farmers' markets. Then, the results can be compared and new aspects may surge and can be very important to be studied and understood.

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## APPENDIX A – Ethics committee approval

UNIVERSIDADE FEDERAL DE  
LAVRAS



### PARECER CONSUBSTANCIADO DO CEP

#### DADOS DO PROJETO DE PESQUISA

**Título da Pesquisa:** A relação entre segurança alimentar e a intenção de compra de alimentos sustentáveis

**Pesquisador:** JULIANO MARTINS RAMALHO MARQUES

**Área Temática:**

**Versão:** 2

**CAAE:** 44037021.3.0000.5148

**Instituição Proponente:** Universidade Federal de Lavras

**Patrocinador Principal:** Financiamento Próprio

#### DADOS DO PARECER

**Número do Parecer:** 4.639.641

#### Apresentação do Projeto:

Resumo:

Após o entendimento de que "Food Safety" e "Food Security" são observados para a intenção de compra de alimentos sustentáveis, é importante entender sua relação com a escala que mede esta intenção (GPV). Uma escala mais completa pode explicar melhor a intenção de compra de alimentos sustentáveis pelos consumidores. Os achados podem contribuir para a formulação de estratégias de marketing de políticas públicas visando minimizar os impactos ambientais por meio de um sistema alimentar mais amigável ao meio ambiente. Ainda assim, os resultados podem contribuir para fornecer subsídios para suas campanhas de marketing dos produtores e comerciantes de alimentos sustentáveis

#### Objetivo da Pesquisa:

Esta pesquisa tem como objetivo entender a sua intenção de compra de produtos alimentícios sustentáveis. Esse novo estudo visa contribuir com a literatura sobre uma nova perspectiva para analisar a intenção de compra de alimentos sustentáveis e que possa contribuir com políticas de marketing para fomentar a demanda por este segmento de mercado.

Endereço: Campus Universitário Cx Postal 3037

Bairro: PRP/COEP

CEP: 37.200-900

UF: MG

Município: LAVRAS

Telefone: (35)3829-5182

E-mail: coep.nintec@ufla.br

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LAVRAS



Continuação do Parecer: 4.639.641

**Avaliação dos Riscos e Benefícios:**

Riscos:

Os riscos dessa pesquisa são mínimos. Algum possível risco de constrangimento com as perguntas são minimizados com a opção "prefiro não responder". O participante não será identificado em nenhum momento.

Benefícios:

A participação contribui para a ciência no desenvolvimento de uma nova escala que pode ajudar a teoria de valores percebidos sustentáveis.

Especialmente no intuito de fomentar a venda de produtos sustentáveis, o que por consequência pode fomentar a venda de alimentos por pequenos produtores rurais, diminuindo o impacto ambiental causado pelas grandes plantações e melhorando a economia local.

**Comentários e Considerações sobre a Pesquisa:**

Project presented to the UFLA Administration Graduate Program as a requirements for thesis development.

Main area: Administration

Research Area: Strategic Management, Marketing and Innovation

Advisor Professor: Dr. Luiz Henrique de Barros Vilas Boas

**Considerações sobre os Termos de apresentação obrigatória:**

Vide campo de conclusões ou pendências

**Recomendações:**

A pendencia critério de exclusão não foi resolvida. Sugere-se ao pesquisador o critério de exclusão: Participantes que são maiores de 18 anos, mas não são consumidores de alimentos sustentáveis vendido em feiras livre. Assim da amostra que foi incluída esta parte será excluída.

**Conclusões ou Pendências e Lista de Inadequações:**

Não há pendencia.

**Considerações Finais a critério do CEP:**

Ressalta-se que cabe ao pesquisador responsável encaminhar os relatórios parciais e final da

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Continuação do Parecer: 4.639.641

pesquisa, por meio da Plataforma Brasil, via notificação do tipo "relatório" para que sejam devidamente apreciadas no CEP, conforme norma operacional CNS n°001/13, item XI.2.d.

**Este parecer foi elaborado baseado nos documentos abaixo relacionados:**

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_1709378.pdf	31/03/2021 17:34:17		Aceito
Outros	Carta_resposta.pdf	31/03/2021 17:33:38	JULIANO MARTINS RAMALHO MARQUES	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TCLE_novo.pdf	31/03/2021 17:32:45	JULIANO MARTINS RAMALHO MARQUES	Aceito
Folha de Rosto	Folha_de_Rosto_Juliano_Marques.pdf	03/03/2021 17:57:34	JULIANO MARTINS RAMALHO MARQUES	Aceito
Projeto Detalhado / Brochura Investigador	Projeto_de_pesquisa.pdf	02/03/2021 10:09:25	JULIANO MARTINS RAMALHO MARQUES	Aceito
Solicitação registrada pelo CEP	Comentarios.pdf	28/02/2021 16:57:54	JULIANO MARTINS RAMALHO MARQUES	Aceito
Declaração do Patrocinador	Declaracao_custos.pdf	28/02/2021 16:56:53	JULIANO MARTINS RAMALHO MARQUES	Aceito
Orçamento	Orcamento_detalhado.pdf	28/02/2021 16:54:43	JULIANO MARTINS RAMALHO MARQUES	Aceito
Cronograma	Cronograma_pesquisa.pdf	28/02/2021 16:53:33	JULIANO MARTINS RAMALHO MARQUES	Aceito

**Situação do Parecer:**

Aprovado

**Necessita Apreciação da CONEP:**

Não

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Continuação do Parecer: 4.639.641

LAVRAS, 09 de Abril de 2021

---

**Assinado por:**

**ALCINÉIA DE LEMOS SOUZA RAMOS**  
**(Coordenador(a))**

**Endereço:** Campus Universitário Cx Postal 3037

**Bairro:** PRP/COEP

**CEP:** 37.200-900

**UF:** MG

**Município:** LAVRAS

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**E-mail:** coep.nintec@ufla.br



## APPENDIX B – Complete questionnaire

05/10/2021 10:50

Pesquisa sobre a intenção de compra de alimentos sustentáveis

# Pesquisa sobre a intenção de compra de alimentos sustentáveis

Termo de Consentimento Livre e Esclarecido - TCLE

Prezado(a) Senhor(a), você está sendo convidado(a) a participar da pesquisa de forma totalmente voluntária da Universidade Federal de Lavras. Antes de concordar, é importante que você compreenda as informações e instruções contidas neste documento. Será garantida, durante todas as fases da pesquisa: sigilo; privacidade; e acesso aos resultados.

Esta pesquisa tem como título: A relação entre segurança alimentar e a intenção de compra de alimentos sustentáveis. O pesquisador responsável é o Juliano Martins Ramalho Marques, aluno de Doutorado do Programa de pós-graduação em Administração da Universidade Federal de Lavras/ Departamento de Administração e Economia. O telefone para contato é o (31)983847007 e a forma de coleta dos dados é online através do preenchimento deste questionário.

Esta pesquisa tem como objetivo entender a sua intenção de compra de produtos alimentícios sustentáveis. Esse novo estudo visa contribuir com a literatura sobre uma nova perspectiva para analisar a intenção de compra de alimentos sustentáveis e que possa contribuir com políticas de marketing para fomentar a demanda por este segmento de mercado.

Você deverá ser maior de 18 anos para participar dessa pesquisa. A sua participação consiste em responder as assertivas do questionário abaixo. A resposta ao questionário é totalmente voluntária e você poderá desistir de responder a qualquer momento. Você não será identificado em momento algum tanto na pesquisa, quanto em algum banco de dados. O risco de sua participação nesta pesquisa é mínimo. Se você se sentir constrangido por alguma pergunta, por favor, fique a vontade em não respondê-la ou desistir de responder o questionário.

A sua participação é muito importante nesse processo da coleta de dados, pois contribuirá de maneira efetiva no avanço teórico em relação à intenção de compra produtos alimentícios sustentáveis. Dessa forma, por exemplo, poderão se criar maneiras de fomento à compra desses produtos, estimulando a economia local através do possível aumento das vendas dos pequenos produtores agrícolas locais.

**ATENÇÃO!** Os gastos relativos aos procedimentos de realização da pesquisa serão custeados por mim, Juliano Marques, responsável pela pesquisa. Ao participante é garantido o ressarcimento de eventuais gastos decorrentes de sua participação.

Por sua participação, você não terá nenhum custo, nem receberá qualquer vantagem financeira. Devido aos riscos da pesquisa serem mínimos você não será indenizado em caso de eventuais danos decorrentes da pesquisa; e terá o direito de desistir a qualquer momento, retirando o consentimento sem nenhuma penalidade e sem perder quaisquer benefícios.

Uma vez concluída a coleta de dados, o pesquisador fará o download dos dados

<https://docs.google.com/forms/d/1JZuvgBHW24hffPPI9SaFDe0ZWfPDHSpDnFg3cNybRc/edit>

1/14

05/10/2021 10:50

Pesquisa sobre a intenção de compra de alimentos sustentáveis

coletados para um dispositivo eletrônico próprio, apagando todo e qualquer registro de qualquer plataforma virtual, ambiente compartilhado ou "nuvem".

Sendo só coloco-me a disposição para quaisquer esclarecimentos. O pesquisador deve garantir o ressarcimento de gastos ao participante da pesquisa.

Em caso de dúvida quanto aos seus direitos, escreva para o Comitê de Ética em Pesquisa em seres humanos da UFLA. Endereço – Campus Universitário da UFLA, Pró-reitoria de pesquisa, COEP, caixa postal 3037. Telefone: 3829-5182. Após a sua participação você pode optar por receber uma cópia de sua resposta bem como deste termo de consentimento

---

**\*Obrigatório**

1. **TERMO DE CONSENTIMENTO** Declaro que fui informado sobre os procedimentos da pesquisa e, que recebi de forma clara e objetiva as explicações pertinentes ao projeto. Eu fui informado que posso me retirar do estudo a qualquer momento. \*

*Marcar apenas uma oval.*

- Tenho 18 anos ou mais, resido no Estado de Minas Gerais e aceito participar da pesquisa.
- Sou menor de 18 anos e não participarei da pesquisa.

"Alimentos sustentáveis são caracterizados como alimentos de boa qualidade, seguros para o consumo, nutritivos, preocupados com o bem-estar animal e saudáveis, produzidos sob o princípio do desenvolvimento sustentável, além de apresentarem valores ecológicos que contribuem na aceitação e na demanda de produtos alimentícios sustentáveis pelos consumidores".

As frases a seguir estão relacionadas à sua INTENÇÃO DE COMPRA DE ALIMENTOS produzidos sob uma perspectiva SUSTENTÁVEL, vendidos ou comercializados em feiras de produtores locais ou mercados municipais, provenientes do pequeno produtor rural.

05/10/2021 10:50

Pesquisa sobre a intenção de compra de alimentos sustentáveis

2. Indique o quanto você CONCORDA ou DISCORDA de cada sentença, indicando o que melhor representa sua resposta. \*

Marcar apenas uma oval por linha.

	1 - Discordo Totalmente	2 - Discordo parcialmente	3 - Não concordo, nem discordo	4 - Concordo parcialmente	5 - Concordo totalmente
Comprar alimentos sustentáveis oferece bom custo-benefício	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Os alimentos sustentáveis possuem preços justos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A forma como alimentos sustentáveis são produzidos reduz os danos ambientais	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alimentos sustentáveis possuem um nível aceitável de qualidade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

05/10/2021 10:50

Pesquisa sobre a intenção de compra de alimentos sustentáveis

3. Indique o quanto você **CONCORDA** ou **DISCORDA** de cada sentença, indicando o que melhor representa sua resposta. \*

Marcar apenas uma oval por linha.

	1 - Discordo Totalmente	2 - Discordo parcialmente	3 - Não concordo, nem discordo	4 - Concordo parcialmente	5 - Concordo totalmente
Eu compraria alimentos sustentáveis se me fosse oferecido algum desconto	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eu compraria alimentos sustentáveis se me fosse oferecido um incentivo promocional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marque "concordo parcialmente" para garantir que você está lendo todas as perguntas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eu compraria alimentos sustentáveis se estivessem facilmente disponíveis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

05/10/2021 10:50

Pesquisa sobre a intenção de compra de alimentos sustentáveis

4. Indique o quanto você **CONCORDA** ou **DISCORDA** de cada sentença, indicando o que melhor representa sua resposta. \*

Marcar apenas uma oval por linha.

	1 - Discordo Totalmente	2 - Discordo parcialmente	3 - Não concordo, nem discordo	4 - Concordo parcialmente	5 - Concordo totalmente
Comprar alimentos sustentáveis faz com que os outros tenham uma boa impressão sobre mim	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comprar alimentos sustentáveis melhora a maneira como sou percebido pelas outras pessoas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comprar alimentos sustentáveis ajuda a me sentir bem aceito pelas outras pessoas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comprando alimentos sustentáveis obtenho aprovação social	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

05/10/2021 10:50

Pesquisa sobre a intenção de compra de alimentos sustentáveis

5. Indique o quanto você CONCORDA ou DISCORDA de cada sentença, indicando o que melhor representa sua resposta. \*

Marcar apenas uma oval por linha.

	1 - Discordo Totalmente	2 - Discordo parcialmente	3 - Não concordo, nem discordo	4 - Concordo parcialmente	5 - Concordo totalmente
Eu gosto de comprar alimentos sustentáveis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marque "discordo parcialmente" para garantir que você está lendo todas as perguntas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eu me sinto tranquilo/relaxado após comprar alimentos sustentáveis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comprar alimentos sustentáveis me faz sentir bem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

05/10/2021 10:50

Pesquisa sobre a intenção de compra de alimentos sustentáveis

6. Indique o quanto você **CONCORDA** ou **DISCORDA** de cada sentença, indicando o que melhor representa sua resposta. \*

Marcar apenas uma oval por linha.

	1 - Discordo Totalmente	2 - Discordo parcialmente	3 - Não concordo, nem discordo	4 - Concordo parcialmente	5 - Concordo totalmente
Alimentos sustentáveis melhoram a minha saúde	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alimentos sustentáveis são livres de produtos químicos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comer alimentos sustentáveis previne doenças	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Os alimentos sustentáveis contribuem para a minha qualidade de vida	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alimentos sustentáveis contribuem para suprir as minhas necessidades nutricionais	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

05/10/2021 10:50

Pesquisa sobre a intenção de compra de alimentos sustentáveis

7. Indique o quanto você **CONCORDA** ou **DISCORDA** de cada sentença, indicando o que melhor representa sua resposta. \*

Marcar apenas uma oval por linha.

	1 - Discordo Totalmente	2 - Discordo parcialmente	3 - Não concordo, nem discordo	4 - Concordo parcialmente	5 - Concordo totalmente
Comprar alimentos sustentáveis contribui para o ecossistema	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comprar alimentos sustentáveis apoia a produção alimentar sustentável	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comprar alimentos sustentáveis reduz o desperdício (alimentos, água e outros recursos naturais)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comprar alimentos sustentáveis diminui a emissão de produtos químicos no meio ambiente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comprar alimentos sustentáveis ajuda os pequenos produtores agrícolas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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Pesquisa sobre a intenção de compra de alimentos sustentáveis

Atitude em relação à compra de alimentos sustentáveis

8. Indique o quanto você **CONCORDA** ou **DISCORDA** de cada sentença, indicando o que melhor representa sua resposta. \*

*Marcar apenas uma oval por linha.*

	1 - Discordo Totalmente	2 - Discordo parcialmente	3 - Não concordo, nem discordo	4 - Concordo parcialmente	5 - Concordo totalmente
Eu acho que comprar alimentos sustentáveis é um comportamento muito importante/valioso	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marque "concordo parcialmente" para garantir que você está lendo todas as perguntas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eu acho que a compra de alimentos sustentáveis é um comportamento positivo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eu acho que a compra de um alimento sustentável é um comportamento benéfico	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Pesquisa sobre a intenção de compra de alimentos sustentáveis

9. Indique o quanto você CONCORDA ou DISCORDA de cada sentença, indicando o que melhor representa sua resposta. \*

Marcar apenas uma oval por linha.

	1 - Discordo Totalmente	2 - Discordo parcialmente	3 - Não concordo, nem discordo	4 - Concordo parcialmente	5 - Concordo totalmente
A probabilidade de eu continuar comprando alimentos sustentáveis é muito alta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De forma geral, eu me sinto feliz em comprar novamente alimentos sustentáveis porque é um produto ambientalmente correto	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tenho a intenção de continuar comprando alimentos sustentáveis pois me preocupo com o meio ambiente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Por favor, selecione somente uma resposta para cada questão abaixo:

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Pesquisa sobre a intenção de compra de alimentos sustentáveis

10. Quando foi a última vez que você comprou alimento sustentável? Marque apenas uma alternativa. \*

*Marcar apenas uma oval.*

- Nas últimas 4 semanas
- Nos últimos 2 meses
- Nos últimos 3 meses
- Nos últimos 4 meses ou mais
- Nunca

11. Você teve algum problema de saúde nos últimos 06 (seis) meses? (Não relativos à COVID-19)

*Marcar apenas uma oval.*

- Sim
- Não
- Prefiro não responder

12. Quantos adultos (com 18 anos ou mais) vivem em sua casa, incluindo você? \*

*Marcar apenas uma oval.*

- 1 adulto
- 2 adultos
- 3 adultos
- 4 adultos
- Mais de 4 adultos

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Pesquisa sobre a intenção de compra de alimentos sustentáveis

13. Em que ano você nasceu? \*

*Marcar apenas uma oval.*

- 2003 ou depois
- De 1996 a 2002
- De 1981 a 1995
- De 1960 a 1980
- De 1946 a 1959
- 1945 ou antes

14. Por favor diga-nos o seu sexo.

*Marcar apenas uma oval.*

- Masculino
- Feminino
- Prefiro não responder

15. Qual é seu estado civil? \*

*Marcar apenas uma oval.*

- Solteiro(a)
- Casado(a)
- Viúvo(a)
- Divorciado(a)/separado(a)
- Prefiro não responder

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Pesquisa sobre a intenção de compra de alimentos sustentáveis

16. Qual é a sua escolaridade? \*

*Marcar apenas uma oval.*

- Sem escolaridade
- Ensino fundamental
- Ensino médio
- Graduação
- Pós-graduação
- Mestrado
- Doutorado
- Prefiro não responder

17. Quantas crianças (com 18 anos ou menos) vivem em sua casa? \*

*Marcar apenas uma oval.*

- Nenhuma
- 1 criança
- 2 crianças
- 3 crianças
- 4 crianças
- Mais de 4 crianças

18. Qual a sua renda familiar? \*

*Marcar apenas uma oval.*

- até um salário mínimo
- De 01 até 03 salários mínimos
- De 04 até 06 salários mínimos
- De 07 até 10 salários mínimos
- Mais de 10 salários mínimos
- Prefiro não responder

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Pesquisa sobre a intenção de compra de alimentos sustentáveis

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