# Credibility of food processing companies in terms of food safety: perspective of Generation Z consumers

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## Abstract

**Purpose** – The authors aimed to identify the opinions of young adult consumers regarding food processing companies' (FPCs) credibility in terms of food safety (FS).

**Design/methodology/approach** – The authors surveyed Generation Z (GenZ) consumers. The authors assessed the reliability of the research questionnaire using Cronbach's alpha statistics. The authors used descriptive statistics and one-way ANOVA analysis of variance in the data analysis to determine intergroup variability. The authors performed statistical analyses using IBM SPSS Statistics. 27.

**Findings** – The most valued determinants for consumers were competence and skills, and the most valued family members' opinions on FS, followed by experts' opinions. FS concerns are more associated with FPCs than with farmers. The ethics of conduct and moral responsibility play an important role in assessing the FPCs' credibility.

**Research limitations/implications** – The questionnaire did not focus on specific food industries, such as fruit and vegetables, fish, meat, dairy, etc. In the future, a similar survey on producers' credibility should consider the issue of FS risks associated with the specifics of a particular industry.

**Originality/value** – The authors proposed a set of factors that may determine young adult consumers' perception of the FPCs' credibility, which they may use for research within other consumer groups.

**Keywords** Food processing company, Credibility, Trust, Food safety, GenZ, Students

**Paper type** Research paper

## Introduction

Enterprises operating in a competitive market look for new and more diversified ways of gaining an advantage over their competitors. The conditions that certainly bring various organizations closer to achieving this goal include the company's credibility and building trust among customers (Malak, Ferreira, de Queiroz Falcão, & Giovannini, 2021). The indicated values are of particular importance in the case of food business operators (Benson, Lavelle, Spence, Elliott, & Dean, 2020). This is because food is a basic good that directly impacts health, proper functioning and life of every human being. Any deviation from the assumed, declared food quality and safety, often turning into scandals in the food market,

exposes consumers to serious damage and the producers to the loss of their reputation (Ladwein & Sánchez Romero, 2021). A situation of this kind also contributes to the loss of trust in institutions responsible for official food supervision (Wiśniewska & Kowalska, 2022). Credibility and trust are of particular importance in the context of the global recession, environmental uncertainty and financial collapse (Kużelewska & Tomaszuk, 2022), e.g. caused by the coronavirus pandemic or the war in Ukraine. In such a situation consumers become more attentive and their purchases more rational (Garner, 2022). The indicated rationality, cautiousness and pragmatism, in particular currently characterize the group of consumers referred to as Generation Z (GenZ) (Reif, Wiszowata, Suchecki, Stefański, & Modrzyński, 2019), also defined as "Fresh Foodies," which covers the people born between 1996 and 2010, representing the largest consumer base through to 2030 (In Stylos, Rahimi, Okumus, & Williams, 2021).

In writing this article, we were inspired by the less optimistic results of the official inspection of the food industry in Poland. For example, due to non-compliance with hygiene and health requirements, food inspectors, compared to the previous year, issued 80% more decisions on the termination of the activity of a given food enterprise or its part. Moreover, the number of requests for punishment increased, among others, due to non-compliance with labeling requirements for foodstuffs placed on the market, placing non-food products on the market as food; and obstructing or preventing the official control of food (GIS, 2021). Moreover, according to a survey conducted among 20,000 people in 18 European countries and presented in The EIT Food Trust Report (2021), Polish consumers have less confidence in FPC and authorities than the European average. Trust in food processing companies (FPCs) and authorities is 44% and 30% respectively, which indicates that Polish consumers are more skeptical than other consumers across Europe. Meanwhile, trust in farmers is the highest among all groups in the food industry. In total, 65% of Polish consumers express such trust. However, the report only gives some overall picture of what choices European consumers make and how motivated they are to make healthy and sustainable food choices (The EIT Food Trust Report, 2021). The presented results are general and do not show what the opinions are in individual age groups. Hence, it is interesting to recognize the opinions of people belonging to GenZ, who are considered very skeptical. Most importantly, there is a research gap in this area. We confirmed it by searching among scientific databases available from the level of the home university repository (phrases: "food company AND credibility," and "food producer AND credibility," databases: Ebsco, Emerald, Science Direct, SAGE, Scopus, Springer, Taylor & Francis, Web of Science). After removing duplicates, out of 28 papers, only three addressed the issues of interest to the authors (Castro-González, Bande, & Fernández-Ferrín, 2021; Zhang *et al.*, 2016; Wu, Zhang, van Klinken, Schrobback, & Muller, 2021), however, none of these articles took into account the perspective of the manufacturer's credibility in terms of food safety (FS), and none of them refers to GenZ.

Considering the above conditions, the study aimed to identify the opinions of GenZ regarding FPCs' credibility in terms of FS.

The structure of the article is as follows. After the introduction, we will present the literature foundations for the development of research questions. Next, we will discuss the methodology and assumptions of the study. Then, we will present the results and, finally, we will conclude the article with a discussion of the theoretical and practical implications of the study, followed by limitations and proposed future directions for further research.

## Literature background and research questions development
Food products are essential to life, hence food security and FS are basic human rights. Billions of people in the world are at risk of unsafe food. Many millions become sick while hundreds of thousands die yearly (Fung, Wang, & Menon, 2018; Griffith, 2000; Kowalski & Kowalska,

2022). Due to the key importance of the food business for the health and life of consumers, we can certainly include it among organizations of public trust (Arnot, Vizzier-Thaxton, & Scanes, 2016). Losing this trust directly affects the credibility and image of a given food business and contributes to the loss of consumer loyalty (Hao, Zhang, Zheng, & Wetzstein, 2022). According to Regulation (EC) No 178/2002 of the European Parliament and of the Council of January 28, 2002, laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of FS "food business means any undertaking, whether for profit or not, and whether public or private, conducting any of the activities related to any stage of production, processing, and distribution of food." In turn "'food business operator' means the natural or legal persons responsible for ensuring that the requirements of food law are met within the food business under their control." Processed food is food that has been treated or prepared by a special method, especially to preserve it (Diatta, Grzebisz, Potarzycki, & Andrzejewska, 2017). Food processing plays an essential role in providing edible, safe and nutritious foods to the population and in food preservation. However, in the food industry, many different types of processes may bring both benefits and risks depending on the context (Sadler *et al.*, 2021). Therefore, due to the content of many valuable nutrients, unprocessed or minimally processed food plays an important role (Collado-López *et al.*, 2022). Scholars notice that consumer confidence in the producers of mass-produced food is declining, in favor of the one obtained from farmers (Macready *et al.* (2020), Ladwein and Sánchez Romero (2021), Wu *et al.* (2021), Cruz, Puigdueta, Sanz-Cobeña, and González-Azcárate (2021)). At the same time, processed food is widely promoted by marketing strategies with the potential to replace unprocessed/minimally processed food (Souza *et al.*, 2021). This type of food is mainly obtained directly from farms, the so-called primary producers and "primary production," according to Regulation (EC) No 178/2002 means the production, rearing, or growing of primary products including harvesting, milking and farmed animal production prior to slaughter. It also includes hunting and fishing and the harvesting of wild products. The article, particularly in its research section, makes an intentional distinction between food business operators. The term "food processing company" (FPC) used in the article means the food business operator, excluding the producer operating at the primary production stage. On the other hand, the term "farmer" stands for a primary food producer. We did it because the existing legal definitions do not allow for such a distinction, as there is no *de facto* definition of those producers who operate outside the primary production.

Regardless of the source of origin, as well as the degree of processing of the food product, its most important feature is safety. According to Codex Alimentarius (FAO/WHO, 2020) FS is an "assurance that food will not cause adverse health effects to the consumer when it is prepared and/or eaten according to its intended use." Assurance is a process that provides sufficient guarantees about the existence of a sufficient level of trust to continue with a particular action (www.igi-global.com). Importantly, the mentioned action (e.g. making a decision and buying a product), resulting from the existing trust, is closely related to the credibility of a given manufacturer (Castro-González *et al.*, 2021; Nagy, Lakner, & Temesi, 2022). To generate trust, all actors responsible for food production must be credible (Nagy *et al.*, 2022). "Trust" and "credibility" are applied synonymously but most often credibility is perceived as the source of trust, and trust is a direct function of credibility (Rittenhofer & Povlsen, 2015). Trust reflects a positive belief about the perceived reliability of, dependability of and confidence in a person, object, or process (Tseng & Fogg, 1999). In the context of this article, it seems important to note that Grudzewski, Hejduk, Senkowska, and Wańtuchowicz (2007) and Zieliński (2012) believe that trust is when an individual agrees to depend on another, (e.g. a person, an institution, an object), being aware of a sense of relative, probable security and the occurrence of possible negative consequences. In turn, we may define credibility as the quality that somebody/something has that makes people believe or trust

them (www.oxfordlearnersdictionaries.com). This means a certainty that allows one to gain confidence in the product, as well as in its manufacturer. Credibility also means solidity, relationship-building and honesty (Strycharczyk, 2009). Buist (2004) concluded that credibility consists of several determinants: reliability, integrity, integrity/honesty, competence credibility, empathy, disinterestedness and pro-social attitude (lack of selfishness). As Dirks and Skarlicki (2009) argue, goodwill also affects credibility, showing that credibility is connected with attitudes of support and understanding of other people's expectations. Bugdol (2010) convinces that the kind treatment of customers is an important factor for a sense of satisfaction.

We may characterize traditional company credibility by three determinants: trustworthiness, expertise and attractiveness (Desfiandi, Suman Rajest, Venkateswaran, Palani Kumar, & Singh, 2019). Company trustworthiness means that the company is reliable, so if the company is dishonest or misleading consumers, it will fail because of losing customer loyalty and patronage (Desfiandi *et al.*, 2019). We may associate this category with such features as the fulfillment of a promise, moral honesty, openness in the meaning of transparency, traceability and information access (Cruz *et al.*, 2021). Manufacturers' promises materialize in the form of certificates and labels associated with the quality of the product, i.e. in the form of various information provided to consumers (Castro-González *et al.*, 2021). Given the variety of food products and the overflow of information in the market, certification labels are intended to encourage consumers to select healthier and more sustainable product options (Kaczorowska, Prandota, Rejman, Halicka, & Tul-Krzyszczuk, 2021). Many of these labels are addressed to responsible and more educated consumers who are looking for natural, low-processed, or ethical products that are suitable for their diet (e.g., plant-based diet, gluten-free, vegan). Certificates help to reduce possible hesitation during the purchasing process (Kaczorowska *et al.*, 2021). The observation provided by Wu *et al.* (2021) seems also interesting. They confirmed that consumers trust more opinions issued by scientists than by FPCs themselves or by government agencies. Trust in experts indicates the value of scientific testing for food quality and safety assurance. This is also confirmed by the research conducted by Wunderlich and Gatto (2015) concerning consumer perception of genetically modified organisms and sources of information. Rupprecht, Fujiyoshi, McGreevy, and Tayasu (2020) argue that experts are more highly trusted as sources of food information than government/administration and producers' associations. This type of food information source has taken on particular importance in the era of COVID-19 (Laguna, Fiszman, Puerta, Chaya, & Tárrega, 2020). Nevertheless, according to a survey conducted by Reif *et al.* (2019), representatives of the GenZ in Poland value their family's opinion the most (at 65%) before making any purchases, not just food purchases. Borda, Mihalache, Dumitraşcu, Gafiţianu, and Nicolau (2021) studied the behavior of Romanian consumers and reached similar conclusions.

With the above considerations in mind, our first two research questions are as follows:

*RQ1.* Do GenZ consumers' concerns about FS relate mainly to FPCs?

*RQ2.* Do GenZ consumers trust more scientists' and doctors' opinions on FS than the opinions of FPCs?

The moral attitude of the FPCs also requires attention (Havinga, 2019), more so because consumers' trust and confidence have been shaken by numerous food incidents. Food scandals threaten the integrity of the food supply chain, understood as ensuring that the food that is offered is not only safe and of the nature, substance and quality expected by the purchaser but also captures other aspects of food production, such as the way it has been sourced, procured and distributed and being honest about those elements to consumers (Elliot, 2014). Loss of this integrity, i.e. any disruption in the supply chain, unethical, immoral

behavior of the manufacturer, misleading the consumer, or abuse of his/her loyalty contribute to the destruction of its reputation and, consequently, loss of trust in a given brand. Brand image plays a pivotal role in enabling consumers to distinguish products or services from their counterparts. According to Aarikka-Stenroos and Makkonen (2014), we may define reputation as the distribution of opinions (the overt expressions of a collective image) about a person or other entity, in a stakeholder or interest group or as the source of knowledge about the social world mediated by others' experience. As Cruz et al. (2021) indicate, we may understand the reputation of the manufacturer as a perception of honesty and responsibility towards customers. Therefore, we proposed the following research question:

*RQ3.* Does the reputation of a FPC affect the credibility of food products in terms of their safety?

The expertise of the company is determined by how competent and capable it is in producing and delivering its products or services It is the extent to which a specific brand has good knowledge, skills and competencies (Desfiandi et al., 2019). Skills and competencies are especially relevant, because the food industry has recently faced rapid and constant changes due to the current industrial revolution (Goti et al., 2022). Usually, the term skill is used to refer to a level of performance, in the sense of accuracy and speed in performing particular tasks (skilled performance) (Winterton, Delamare-Le Deist, & Stringfellow, 2006). In turn, scholars usually define competency as a set of skills, knowledge, attributes and behaviors that enable an individual to perform a task or an activity successfully within a given job (The EIT Food Trust Report, 2021). Research studies confirm that there is a positive influence between the competencies possessed by a food business actor and the performance of the food business (Sabuncu & Karacay, 2016; Talaat, Saleh, & Abdelaal, 2021) and between knowledge, competency, skillfulness and credibility (Kang & Namkung, 2019). Keeping the above in mind, we proposed the next question:

*RQ4.* Do GenZ consumers believe that the credibility of a FPC is demonstrated by its competence and skills?

As the third dimension of credibility, attractiveness shows to what extent a brand is evaluated in terms of personality or physical determinants (Desfiandi et al., 2019). In the situation of mass production, the attractiveness of the food business appears through the personification of its features. We may assume that this is an additional feature of credibility that exceeds the required "must be," (e.g. the necessary level of product safety or its nutritional value). It can include, for example, producers' openness to new requirements, e.g. unexpected needs of the consumer or ability to offer the product in an attractive package (e.g. more convenient than before). Attractiveness may manifest through more modern and convenient forms of communication with the consumer and may also be supported by the specific, unique characteristics of employees who serve customers. As a result, they create exceptional customer value. These features may be important in numerous situations, e.g. in direct sales. Thus the characteristics that determine the "trustworthiness" and "expertise" categories (as higher trustworthiness and expertise) may also determine the attractiveness of a manufacturer in building a customer-oriented company. They are like connected vessels that contribute to overall credibility. The catering industry can be a good example of this.

To sum up, the credibility of a food business contributes to trust towards actors operating within it (Nagy et al., 2022). As Grandison and Sloman (2003) convince, the underlying assumption of trust is the belief of a trustor (e.g. food consumers) in a trustee (e.g. FPC) who has competence in satisfying a trustor's requirements honestly in a given context. According to Macready et al. (2020), lack of trust is an issue in itself, but in the current situation when the food integrity is threatened, a lack of trust in food chain actors also most likely leads to a decline in consumer confidence in their ability to make informed food choices. According to

Cruz *et al.* (2021), in the absence of sufficient information, consumers need trust to simplify food-related decision-making processes and minimize the risks associated with feeding. Therefore trust can serve as a substitute for full knowledge. The studies by Machado, Teixeira, Ladeira, and de Oliveira Santini (2020) and Hsu, Huang, Mahmudiono, and Chen (2022) confirmed that trust positively correlates with FS risk perception. An increase in risk perception reduces consumers' willingness to buy certain foods, e.g., highly processed food, genetically modified organisms (GMO) food and those with a high technological or microbiological risk (Machado *et al.*, 2020; Hsu *et al.*, 2022). On the other hand, the increase in the perception of integrity and ethics in action increases the willingness to buy and trust the food company (Benson *et al.*, 2020). Taking these considerations into account, we hypothesized:
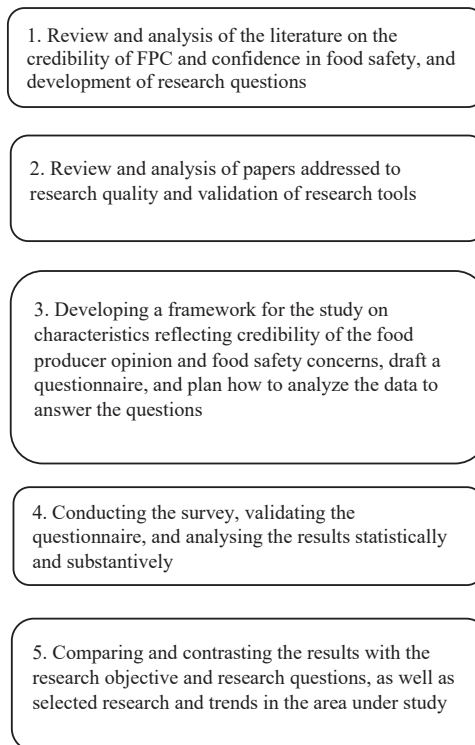
*RQ5.* Do consumers' opinions about the goodwill, honesty and ethics of a FPC significantly differentiate their overall levels of trust and attitudes toward risk?

**Methodology**
In our study, we followed the scheme described in Figure 1.

*Sample*
We conducted the research in the March-May 2022 period. Our respondents were young adult consumers of GenZ. We chose this group of respondents because of its importance in the modern economy. GenZ's influence will increase and therefore companies, including food ones,



1. Review and analysis of the literature on the credibility of FPC and confidence in food safety, and development of research questions

2. Review and analysis of papers addressed to research quality and validation of research tools

3. Developing a framework for the study on characteristics reflecting credibility of the food producer opinion and food safety concerns, draft a questionnaire, and plan how to analyze the data to answer the questions

4. Conducting the survey, validating the questionnaire, and analysing the results statistically and substantively

5. Comparing and contrasting the results with the research objective and research questions, as well as selected research and trends in the area under study

**Source(s):** Own elaboration

Figure 1.
Five-step research
process

must be prepared for their needs and make them part of their business strategy. Although their incomes are lower than those of other generations, their purchasing power should not be underestimated (Hodgson, 2018; Thangavel, Pathak, & Chandra, 2022). GenZ is rather skeptical and somewhat reserved about different brands, products and services. GenZ wants to be able to trust the brand and the search for the truth is at the root of all GenZ behavior. Their consumption is anchored on ethics, dialog, freedom, openness and individual expression (Francis & Hoefel, 2018). Born in a time of economic recession and financial turmoil GenZ prefers products that offer them value and reflect real life (Hodgson, 2018). Thanks to easy accessibility, we selected for the study students from a major university in Poland. We surveyed students from five out of the seven faculties of the university. This group of people already have or will soon form households and are already making or will soon be making food-purchasing decisions. Moreover, the inclusion of students in the research is part of the trend observed by Simonson, Carmon, Dhar, Drolet, and Nowlis (2001). Qian *et al.* (2022) and Gelinder *et al.* (2020) also emphasize the value of student participation in research. We addressed the research questionnaire to 3961 students. Considering the number of students in Poland in 2021 in higher education institutions in Poland (1218.2 thousand) (https://stat.gov.pl). and assuming a confidence level of α = 0.95 and a maximum measurement error of 5%, the required minimum number of people in the survey was 384. We received a total of 397 questionnaires, including 388 correctly completed forms. We removed nine surveys were removed due to large missing responses to metric or questionnaire questions and the respondent's age being over 35. Table 1 presents the characteristics of our respondents' group.

| Elements of respondents' characteristics | | Women | Men | Total |
|---|---|---|---|---|
| Number of persons in the household | 1 | 1.7 | 6.7 | 2.9 |
| | 2 | 12.5 | 7.9 | 11.5 |
| | 3 | 22.4 | 27.0 | 23.4 |
| | 4 or more | 63.4 | 58.4 | 62.2 |
| Total | | 100.0 | 100.0 | 100.0 |
| The income per capita in the family | Up to 1000 PLN | 17.4 | 18.0 | 17.5 |
| | 1001–2000 PLN | 47.1 | 23.6 | 41.6 |
| | 2001 PLN or more | 35.5 | 58.4 | 40.8 |
| Total | | 100.0 | 100.0 | 100.0 |
| Place of permanent residence | Up to 1 thousand inhabitants | 37.2 | 39.3 | 37.7 |
| | 1–10 thousand | 24.2 | 21.3 | 23.6 |
| | 10–50 thousand | 15.7 | 14.6 | 15.4 |
| | 50–100 thousand | 9.2 | 5.6 | 8.4 |
| | Above 100 thousand | 13.7 | 19.1 | 14.9 |
| Total | | 100.0 | 100.0 | 100.0 |
| Socio-economic group | Family of a worker in a labor position | 44.2 | 38.2 | 42.8 |
| | Family of a worker in a non-labor position | 11.3 | 12.4 | 11.5 |
| | Family of a farmer | 19.9 | 29.2 | 22.0 |
| | Family of a pensioner | 7.5 | 2.2 | 6.3 |
| | Family of a self-employed person | 16.8 | 16.9 | 16.8 |
| | Family living from unearned sources | 0.3 | 1.1 | 0.5 |
| Total | | 100.0 | 100.0 | 100.0 |
| Who decides on food purchases | I decide on food purchases | 42.7 | 38.6 | 41.7 |
| | Another person decides on food purchases | 57.3 | 61.4 | 58.3 |
| Total | | 100.0 | 100.0 | 100.0 |
| The main place to buy food | Regular store | 14.9 | 18.0 | 15.6 |
| | Supermarket | 78.3 | 70.8 | 76.6 |
| | Other | 6.8 | 11.2 | 7.8 |
| Total | | 100.0 | 100.0 | 100.0 |
| **Source(s):** Own elaboration | | | | |

Table 1.
Characteristics of the respondents
(%) N = 388

## Methods
Students' participation was voluntary, it did not relate to their studies, and their behavior during the study did not have the slightest impact on their grades during normal academic classes. The university authorities granted the permission for research. We conducted the research using the direct survey method. When starting the study, we asked the students to agree to participate in the study. Before completing the survey, we explained to students the purpose and essence of the survey and the nature of the questions. We distributed the questionnaires in paper form to a group of students, they completed them, and finally, we collected them. It took about 10 minutes to complete the questionnaire. We divided the survey questions into two sections including metrics questions describing the respondents in terms of gender, age, family size, income per family member, place of residence and socio-economic background of the household head, who decides on food purchases, the main place to buy food, sources of information on FS, self-assessment regarding the overall level of trust and attitude to risk and type of customer. We scaled the questions on a 5-point scale with a neutral value. Based on the literature analysis, we proposed a set of factors that may determine GenZ's consumer perception of the credibility of FPC, such as skills, competence, moral integrity, loyalty, reputation, openness, fulfillment of a promise, willingness to meet requirements and goodwill. We asked the respondents to what extent various determinants reflect the credibility of the FPC (does not matter, to a small extent, to a medium extent, to a large extent, to a very large extent); and how much they trust the FS opinion of various people (neither trust nor distrust, do not trust, somewhat trust, trust, definitely trust). Next, we asked to what extent the reputation of the FPC affects its credibility on FS (does not matter, to a small extent, to a medium extent, to a large extent, to a very large extent), to what extent FS concerns are related to the FPC and the farmer (not significant, to a small extent, to a medium extent, to a large extent, to a very large extent) and to what extent FS trust is related to the FPC and the farmer (not significant to a small extent, to a medium extent, to a large extent, to a very large extent). We also asked students to respond to the following two statements: "food processing companies should be especially sensitive to food safety" and "honesty and ethics should characterize every food processing company" (rated on a 5-point Likert scale, from strongly disagree to strongly agree with a middle value of neutral).

### Statistical analysis
We assessed the reliability of the questionnaire using Cronbach's alpha statistics. We used descriptive statistics and one-way ANOVA analysis of variance in the data analysis to determine intergroup variability. We performed statistical analyses using IBM SPSS Statistics. 27. We calculated Cronbach's alpha to assess the scale, which is considered reliable if Cronbach's alpha coefficient is $\leq 0.700$. To explain the variability of respondents' answers, we used descriptive statistics and one-way ANOVA analysis of variance.

## Results and discussion
The FPCs' credibility is reflected more by their competence and skills than by their goodwill or openness (Figure 2), which helps to answer RQ4. The Cronbach's alpha coefficient for this question in the questionnaire was 0.795, indicating that traits reflecting an FPC's credibility were reliably examined with this question.

The results obtained confirm the rank of knowledge, skills and abilities in the food industry (Kang & Namkung, 2019). According to research conducted in 2021 in Europe under the EuFooD-STA (2021) project about what competencies and skills are required in the food and drink industry the technical skills and competencies are rated by 67% of the respondents as very important, followed by practical skills (58%), communication skills (36%), managerial and
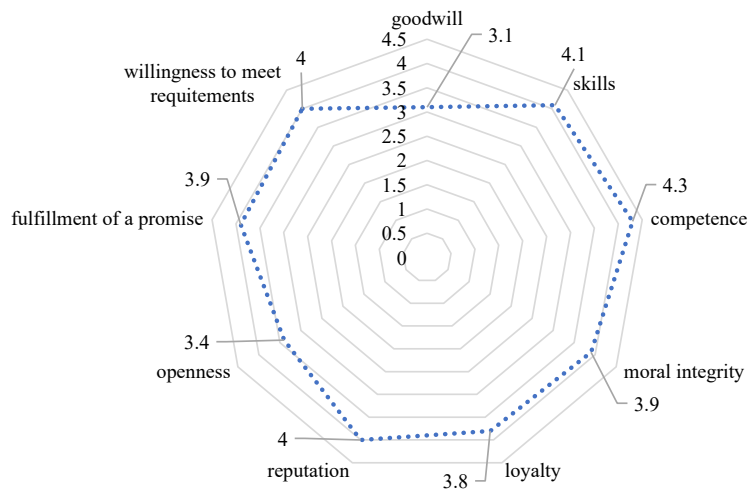
**Figure 2.**
Evaluation of
characteristics
reflecting the
credibility of the FPC
(scale of 1–5); N = 386

**Source(s):** Own elaboration

business skills (35%), marketing and commercial skills (24%) and information and communication technology (ICT) skills (www.food-sta.eu). The importance of skills and competencies follows directly from quality and/or FS management system standards (e.g. ISO 9001, ISO 22000, BRCGS, or IFS Standard) which are widely used in the food industry.

Based on a one-factor ANOVA analysis of variance, we determined a significant variability in respondents' opinions on individual characteristics in groups of people differentiated by gender, place of purchasing food products and the person deciding on food purchases, as well as by the overall level of respondents' trust. However, significantly different opinions on the subject concerned people who identified labels as the main source of information on FS and those who described themselves as decisive customer compared to other customers (Table 2).

Having in mind the rating of individual features, the credibility of the FPC was significantly different according to the place of permanent residence (rating of the skill feature $F_{(4, 378)} = 2.66$, $p = 0.03$), socio-economic group (rating of the goodwill feature $F_{(5, 378)} = 2.49$, $p = 0.03$), attitude to risk (reputation trait score $F_{(4, 379)} = 2.67$, $p = 0.03$), per capita family income (promise fulfillment trait score $F_{(2, 378)} = 3.24$, $p = 0.04$), customer type (goodwill, skills, reputation trait scores, respectively: $F_{(1, 382)} = 4.85$, $p = 0.03$; $F_{(1, 380)} = 4.10$, $p = 0.04$, $F_{(1, 380)} = 3.72$, $p = 0.05$) and main source of information on FS (trait rating reputation $F_{(1, 38)} = 4.28$, $p = 0.04$).

The data in Table 3 show that the level of trust in opinions on FS to family members (4.0) and scientists, doctors and people we know well (3.8) is significantly higher than to farmers (3.3), FPCs (3.0) and traders (2.5). Thus, we answered RQ2 and were able to confirm that family is the most reliable source of opinions for our respondents, which coincides with the results of a report prepared in Poland by Reif *et al.* (2019). We also confirmed the convergence of our research results with those by Wunderlich and Gatto (2015), Rupprecht *et al.* (2020) or Laguna *et al.* (2020), according to which experts' and scientists' opinions, from the independent community, are at the highest price in this regard. It means that overall consumer trust depends on the source of knowledge.

Trust in FPCs' opinions on FS was significantly different according to the overall level of trust ($F_{(4, 383)} = 4.26$, $p = 0.002$), advertising as the main source of FS information ($F_{(1, 383)} = 3.13$, $p = 0.01$) and type of customer (balanced, skeptical, analytical, respectively:

| Dependent variable | | | Test value and probability | | | |
|---|---|---|---|---|---|---|
| | M1 | M7 | M8 | M11 | M9e | M13j |
| 1a | | F(1, 371) = 4.01, p = 0.05 | F(2, 381) = 4.61, p = 0.01 | F(4, 382) = 3.25, p = 0.01 | | |
| 1b | | | F(2, 380) = 4.86, p = 0,01 | | F(1, 381) = 5.85, p = 0.02 | |
| 1c | | | | | F(1, 381) = 3.97, p = 0.05 | F(1, 380) = 6.47, p = 0.01 |
| 1d | F(1, 383) = 3.89, p = 0.05 | F(1, 371) = 4.88, p = 0.03 | | | F(1, 382) = 4.66, p = 0.03 | |
| 1e | | | | | F(1, 380) = 6.70, p = 0.01 | F(1, 380) = 9.19, p = 0.00 |
| 1f | | | F(2, 379) = 3.01, p = 0.05 | | | |
| 1g | | | | F(4, 381) = 7.11, p < 0.00 | F(1, 381) = 5.81, p = 0.02 | |
| 1h | F(1, 382) = 4.79, p = 0.03 | | | | | F(1, 381) = 5.22, p = 0.02 |
| 1i | | | | | F(1, 380) = 11.24, p < 0.00 | |

**Note(s):** *We included only significant differences between group averages
1a – goodwill, 1b – skills, 1c – moral integrity, 1d – loyalty, 1e – competence, 1f – reputation, 1g – openness, 1h – fulfillment of the promise, 1i – willingness to meet requirements
M1 – gender, M7 – who decides on food purchases, M8 – the main place to buy food, M11 – self-assessment of the level of trust, M9e – labels as the main source of food safety information, M13j – self-assessment of customer type: determined
**Source(s):** Own elaboration

Table 2.
The results of the
intergroup analysis of
variance due to some
characteristics of
respondents*

| Evaluation | 2a | 2b | 2c | 2d | 2e | 2h | 2i | 2j |
|---|---|---|---|---|---|---|---|---|
| Neither trust nor distrust | 2.3 | 1.3 | 16.1 | 2.1 | 1.6 | 3.4 | 8.5 | 6.2 |
| I do not trust | 4.6 | 3.1 | 52.6 | 4.7 | 4.9 | 24.3 | 38.9 | 9.8 |
| I trust a bit | 19.8 | 30.7 | 28.2 | 26.1 | 24.4 | 47.8 | 43.8 | 42.9 |
| I trust | 37.9 | 48.8 | 2.6 | 47.0 | 52.1 | 21.4 | 8.3 | 32.3 |
| I definitely trust | 35.3 | 16.0 | 0.5 | 20.2 | 17.1 | 3.1 | 0.5 | 8.8 |
| The average on a scale of 1–5 | 4.0 | 3.8 | 2.2 | 3.8 | 3.8 | 3.0 | 2.5 | 3.3 |

**Note(s):** 2a – family members, 2b – people we know well, 2c – people we meet for the first time, 2d – scientists, 2e – medicine doctors, 2h – FPCs, 2i – salesmen (traders), 2j – farmers
**Source(s):** Own elaboration

Table 3.
Trust in opinions of
different groups of
actors on food safety
(% of indications)

$F(1, 383) = 4.95$, $p = 0.03$, $F(1, 383) = 16.50$, $p < 0.001$, $F(1, 332) = 5.35$, $p = 0.02$. Confidence in farmers' opinions was differentiated by socio-economic group ($F(5, 379) = 3.59$, $p = 0.03$), school/college as the main source of FS information ($F(1, 383) = 7.09$, $p = 0.01$) and

respondent's self-assessment of customer type (balanced, skeptical, unsure, respectively: $F_{(1,383)} = 6.97$, $p = 0.01$, $F_{(1, 383)} = 6.97$, $p = 0.01$, $F_{(1, 383)} = 4.90$, $p = 0.03$).

Trust in doctors' opinions was significantly differentiated by gender ($F_{(1, 3823)} = 10.82$, $p = 0.001$) and self-reported type of client (familial, sensitive, insecure: $F_{(1, 382)} = 4.33$, $p = 0.04$), $F_{(1, 383)} = 4.95$, $p = 0.03$, $F_{(1, 282)} = 4.19$, $p = 0.05$) and trust in scientists' opinions on FS: gender ($F_{(1, 384)} = 6.47$, $p = 0.01$), place of food purchase ($F_{(2, 382)} = 3.86$, $p = 0.02$), respondent's self-assessment of their overall level of trust ($F_{(4, 383)} = 6.95$, $p < 0.001$), overall attitude toward risk ($F_{(4, 382)} = 5.63$, $p < 0.001$), customer type identified as balanced ($F_{(1, 383)} = 4.95$, $p = 0.03$) and school/college as the main source of FS information ($F_{(1, 383)} = 7.13$, $p = 0.01$).

Regarding RQ3, the respondents' opinions on the impact of FPC's reputation on the credibility of food products significantly related to their attitude to risk ($F_{(4, 381)} = 2.68$, $p = 0.03$), while there were no significant differences in respondents' opinions due to self-assessment of their overall trust level. Nevertheless, in our research, we have shown the importance of risk perception and awareness in the decision-making process, which was also emphasized by Machado *et al.* (2020) and Hsu *et al.* (2022). Other characteristics of respondents did not significantly differentiate opinions on this topic.

The data in Table 4 indicate that respondents' FS concerns are usually related to FPCs rather than farmers. Thus, we answered RQ1. It means that our findings are similar to those described in The EIT Food Trust Report (2021), which concludes that farmers are more trusted. Significant variation in FS concerns toward FPCs relates to customers who described themselves as family customers compared to others ($F_{(1, 382)} = 4.65$, $p = 0.03$) and toward farmers relates to customers who described themselves as impulsive ($F_{(1,382)} = 3.90$, $p = 0.05$).

The level of FS trust in FPCs was significantly different among men and women ($F_{(1, 380)} = 9.93$, $p = 0.00$) and those for whom television or radio is the main source of FS information ($F_{(1, 379)} = 6.71$, $p = 0.01$). In contrast, the level of trust for farmers differed significantly among socio-economic groups ($F_{(5, 376)} = 2.28$, $p = 0.05$). Other characteristics of respondents did not significantly differentiate opinions on this topic.

The data presented in Figure 3 shows that the majority of our respondents strongly agree or agree with the listed statements related to manufacturers' attitudes toward safety. Only 6.5% and 4.7% of respondents had no opinion on the subject, respectively. Thus we may conclude that the surveyed group of respondents – which is a feature of GenZ – are consumers who are aware of their needs, but also of their rights, being part of the widely understood safety and quality of life. The ethics of conduct and integrity are important to them (Francis & Hoefel, 2018). Indeed, at a general level, qualities such as ethics, responsibility, authenticity and truthfulness are highly valued in this group (Reif *et al.*, 2019).

The results of one-way ANOVA analysis of variance regarding the statements showed that respondents' opinions varied according to selected socio-demographic and character traits such as type of customer, the general level of trust and attitude to risk (Table 5).

| | Concerns | |
| --- | --- | --- |
| Evaluation | FPC | Farmer |
| does not matter | 3.9 | 6.8 |
| slightly | 8.8 | 18.4 |
| moderately | 36.9 | 34.8 |
| at a high degree | 36.9 | 27.5 |
| to a very high degree | 13.5 | 12.5 |
| Average (1–5 scale) | 3.5 | 3.2 |
| Source: own elaboration | | |

**Table 4.**
Consumer concerns regarding food safety with FPCs and farmers (% of indications)
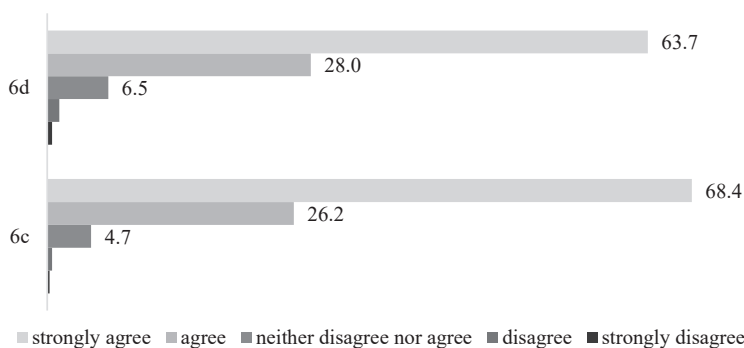
■ strongly agree  ■ agree  ■ neither disagree nor agree  ■ disagree  ■ strongly disagree

**Note(s):** 6c – Food processing companies should be especially sensitive to food safety
6d – Honesty and ethics should characterize every food processing company
**Source(s):** Own elaboration

| Respondents' characteristics | Test value and probability FPCs should be especially sensitive to food safety | Honesty and ethics should characterize every FPC |
|---|---|---|
| Gender | $F_{(1,383)} = 7.81$, $p = 0.05$ | |
| Socio-economic group | $F_{(5, 378)} = 2.77$, $p = 0.02$ | $F_{(5, 378)} = 2.62$, $p = 0.02$ |
| The overall level of confidence | | $F_{(4, 382)} = 2.58$, $p = 0.04$ |
| The overall attitude toward risk | $F_{(4, 381)} = 2.76$, $p = 0.03$ | $F_{(4, 381)} = 2.44$, $p = 0.05$ |
| School/University – the main source of food safety information | | $F_{(1, 382)} = 4.49$, $p = 0.04$ |
| Customer type – familiar | | $F_{(1, 382)} = 5.70$, $p = 0.02$ |
| Customer type – skeptical | | $F_{(1, 382)} = 4.46$, $p = 0.04$ |

**Note(s):** * Only significant differences between group averages are included
**Source(s):** Own elaboration

With regard to RQ5, according to the results, we found that respondents' overall trust level did not significantly differentiate opinions regarding the need for FPCs to be particularly sensitive to FS for the customer. The above may mean that it is not the fact of being sensitive, but the ethical and moral aspects that matter most in this case. Compliance with the values of professional ethics and different normative requirements is a fundamental duty of any FPC, especially since companies of this type are recognized as organizations of high public trust (Arnot *et al.*, 2016).

## Conclusions
Based on the literature analysis, we proposed a set of factors that may determine GenZ consumers' perception of the FPCs' credibility. They can serve to design appropriate marketing but also management strategies based on the competencies and skills of the food business personnel, as these are the determinants most valued by young consumers. By answering the research questions we observed that in building a product strategy focused on GenZ consumers, the food business operators should bear in mind that this group of young people values ethics of conduct and moral responsibility, truth and meeting declared requirements. We can also conclude that our respondents are aware of their needs, but also of their rights, being part of the widely understood safety and quality of life.

*Research implications*
We believe our research fills a research gap in the body of science. Until now, research dealing with the credibility of FPCs did not take into account the opinions of GenZ consumers, a generation that is considered very skeptical and rational in its decisions and choices. This study proposed an original set of determinants of FPCs' credibility, which can be used for research within other consumer groups, also outside Poland.

*Practical and social implications*
The results offer managerial implications to marketers and food business operators, including farmers, allowing them to create more lasting market relationships, communicate more effectively with GenZ representatives and better identify their concerns and values. Thus, they also allow for strengthening the brand of a given company more effectively. The social implication stems from the fact that the issue raised is critical for the well-being of society, as the safety of the food consumed is fundamental to its health and life. It is also directly linked to food security, which is at risk in the absence of this safety.

*Limitations and further studies*
There are limitations to our study that scholars should address in future studies. Firstly, the use of a convenience sampling method limits the scope of the conclusions and the results' generalizability. Nevertheless, the obtained observations constitute an interesting comparative study and are a starting point for further research in this regard. Secondly, the questions in our questionnaire did not focus on specific food industries, such as fruit and vegetable, fish, meat, dairy, etc.

Indeed, we believe that in the future, a similar survey on FPCs' credibility should consider the issue of FS risks associated with the specifics of a particular industry. It also seems that phenomena such as food adulteration, the threat of coronavirus SARS-CoV-2, or concerns arising from the war in Ukraine could also be an interesting context for similar future research.

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