



COMFOCUS

Community on Food Consumer Science



D4.5 Guideline for harmonisation of measures and protocols for consumers as agents in the food system



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Glossary

Abbreviation	Full form
WP4	Work package 4

Executive Summary

The overall objective of Work Package 4 (WP4) is to harmonise the self-report measures for the most commonly used concepts in surveys studying factors related to food choices in order to enable creation of comparable data across different studies. The specific object of Deliverable 4.5 is to discuss some of the broader constructs and related concepts and measures most relevant to consumers as agents in the food system.

The deliverable consists of three chapters. The first chapter of this deliverable presents a short introduction of consumers as agents in the food system and the process of selecting the 6 broader constructs and related concept measurements for harmonisation in task 4.5. The second chapter presents the summary documents for each of the constructs and measurements including a definition, background information, its use in the literature and other criteria related to its selection, such as reliability, validity and use in different countries. The third chapter summarises the learnings from this process and suggests next steps.

The following broader constructs and related concept measurements are included as recommendations for COMFOCUS: 1) Food Citizenship, 2) Sense of community, 3) Responsibility, 4) Trust, 5) Risk Perception and 6) Social (descriptive) Norms.



CHAPTER 1

Constructs related to
consumers as agents in the
food system

1. Introduction and Method

1.1 Background

COMFOCUS introduces a logical framework where individual food choice is sought to be understood by examining “an individual, giving expression, about a target in a particular context” (van Trijp & van Kleef, 2021). As in previous deliverables from WP4, we seek to provide harmonised self-report measures, which in this case capture aspects relevant to consumers as agents in the food system. We thus focus here on individuals, using specific self-reported measures of concepts related to broader constructs (e.g., Trust, Risk perception, Food Citizenship), about a particular target (e.g. food - kale; behaviour – e.g., choosing a product with a food safety sensor; one or more actors – e.g., farmers or even the food system as a whole) in a particular context. In this deliverable we focus on individual perceptions of how their interactions in society influence their operation as agents within the food system.

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The broader constructs mentioned above are complex and not easily measured, especially when relying only on self-reported measures which present the individual perspective. For the purposes of COMFOCUS and consumer food science research, we have suggested measures of concepts which capture aspects of these broader constructs, but which are by no means comprehensive or definitive. An illustration of connections between these broader constructs and associated measurable concepts is included in Figure 1. This deliverable therefore provides a starting point related to these broader constructs and more focus concepts associated with consumers as agents in the food system and will gradually be enriched as more research in this area is carried out.

Figure 1. Connections between these broader constructs and associated measurable concepts

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1.2 Method

1.2.1 Process

The process adopted in selecting the broader constructs and associated concepts for this task was similar to that used for the other tasks in Work Package 4 and is described in detail in Deliverable 4.2 (Stancu & Lähteenmäki, 2022). One notable difference is that the constructs related to consumers as agents in the food system tend to be more complex and multifaceted than those related to other WP 4 tasks, such as psychosocial characteristics or product and food experiences.

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Food citizenship can encompass habits, attitudes, knowledge, values and future beliefs and so is referred to as a broader construct as opposed to narrower concepts such as food neophobia or subjective knowledge. As in the case of the other WP4 tasks, regular discussions within the WP4 work group and consultations with the wider COMFOCUS community led to the selection of the broader constructs included here.

1.2.2 Selecting constructs

The following 9 initial constructs were selected for Task 4.5 (related to consumers as agents in the food system): Food Citizenship, Sense of Community, Responsibility, Trust, Risk Perception, Social (descriptive) norms, Social Identity, Self-Efficacy and Orientation to Sustainability. Further discussions within the WP4 work group led to the agreement that Self-Efficacy and Orientation to Sustainability might be better situated in Task 4.2 (related to the individual's psycho-social characteristics). Furthermore, as Social Identity and Self-Identity (included in Task 4.2) were very similar, it was decided best to drop Social Identity from the list of constructs in Task 4.5.

1.2.3 Selecting the harmonised measures for the broader constructs and measured concepts

Constructs were researched in the literature mainly through Scopus, Google Scholar, Psych Info and PubMed. Our aim was to conduct a scoping review of each of the constructs and their measures as used within the food domain. After examining the original constructs and prioritising relevant recent reviews, where available, we noted a scarcity of measures for the broader constructs and chose to focus on measurements available for related concepts. For each broader construct we selected one or more existing measurements for the construct itself or related concepts, which, although not always ideal, were valid, reliable, parsimonious, and adapted (or adaptable) to food consumer science. The review was by no means comprehensive but sought to provide an initial collection of harmonised measures associated with consumers as agents in the food system. Future research may result in the current suggested measures being superseded by others found to be more suitable.

1.2.4 Background documents

A background document was created for each broader construct and related concept measures including a definition, background information, used measurements and additional information on the measurement of choice, including its reliability and validity and justification for its suggested adoption. The documents were peer-reviewed by other WP4 colleagues according to the table below. Further details on the review process can be found in Deliverable 4.2 (Stancu & Lähtenmäki, 2022).

Concept	Reviewer
Food Citizenship	Liisa Lähteenmäki (Aarhus University)
Sense of Community	Machiel Reinders (Wageningen University)
Responsibility	Catalin Stancu & Liisa Lähteenmäki (Aarhus University)
Trust	Liisa Lähteenmäki (Aarhus University)
Risk Perception	Lluís Guerrero (Institute of Agrifood Research and Technology)
Descriptive Norms	Morten Heide (Nofima)

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CHAPTER 2

Broader constructs and measured concepts

2. Broader constructs and measured concepts

2.1 Broader construct: Food Citizenship; Measured concepts: “Green attitude”, Awareness of consequences, Perceived consumer effectiveness

Definition

The best currently available definition of Food Citizenship is comprised of a model proposed by Lozano-Cabedo and Gómez-Benito (2017) and composed of 8 core ideas: 1) an extended concept of the right to food; 2) the promotion of justice, fairness and sustainability in food systems; 3) autonomy and right to truthful, sufficient and comprehensible information; 4) the assumption of responsibilities to future generations, other living beings, other actors and the environment; 5) the empowerment of all actors of the agri-food system; 6) the combination of public and private behaviour, individual and collective participation; 7) participation in the governance of the food system; and 8) the cosmopolitan character of food citizenship. A measure which combines these ideas is not currently available, so we chose to suggest the measurement of 3 related constructs: “Green attitude” (from Haws et al. 2014), Awareness of consequences (from Tittarelli et al., 2022, part of the Norm Activation Model originally from Schwartz 1977) and Perceived consumer effectiveness (original from Webster 1975 and Antil, 1978).

Harmonised measures

GREEN Scale (Haws et al. 2014)

Please rate your agreement with the following statements from: 1 strongly disagree to 7 strongly agree (*Note: the original scale and the one used by Tittarelli et al. 2022 employed a 5-point Likert scale, however the WP4 team elected to consistently adopt a 7-point scale to improve comparability across measures*)

1. It is important to me that the products I use do not harm the environment.
2. I consider the potential environmental impact of my actions when making many of my decisions.
3. My purchase habits are affected by my concern for our environment.
4. I am concerned about wasting the resources of our planet.
5. I would describe myself as environmentally responsible.
6. I am willing to be inconvenienced in order to take actions that are more environmentally friendly.

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Awareness of the consequences (Note: this concept is part of the Norm Activation Model by Schwartz 1977 but was used by Titarelli et al. 2022 to develop a measurement in Italian adapted to their exploration of Food Citizenship. We have reworded the statements here to be more fluid in English. Studies with different targets have adapted measurements of Awareness of consequences accordingly. Thus, the reliability and validity of other adapted measurements of this concept which have been used in the past must be assessed accordingly before being accepted as an entry ticket into COMFOCUS)

Please rate your agreement with the following statements from: 1 strongly disagree to 7 strongly agree: (Note: The original scale employed a 5-point Likert scale, however the WP4 team elected to consistently adopt a 7-point scale to improve comparability across measures)

1. My purchasing choices also have an impact on climate change (original: The temperature increase on earth also depends on my purchasing choices)
2. My purchasing choices also have an impact on biodiversity (original: Biodiversity depends also on my purchasing choices)
3. If everybody made ethical choices (regarding the working conditions of those in the food sector [original: respect for workers], local producers and animal welfare) the food market would orient itself accordingly

Perceived Consumer Effectiveness (original items worded by Webster 1975 and Antil, 1978, cited in Roberts, 1996)

Please rate your agreement with the following statements from: 1 strongly disagree to 7 strongly agree: (Note: The original scale employed a 5-point Likert scale, however the WP4 team elected to consistently adopt a 7-point scale to improve comparability across measures))

1. It is worthless for the individual consumer to do anything about the environment. (target used by Tittarelli et al., 2022; original: pollution in Webster 1975)
2. When I buy products, I try to consider how my use of them will affect the environment and other consumers. (Webster, 1975)
3. Since one person cannot have any effect upon pollution and natural resource problems, it doesn't make any difference what I do. (Antil, 1978)
4. Each consumer's behavior can have an effect upon decreasing environmental deterioration and the depletion of natural resources (Antil, 1978)

Reliability – evidence provided

Validity – evidence provided

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2.1.1 Background information

(redacted)

2.1.2 Used measures

(redacted)

2.1.3 Description of chosen measurement scale

(redacted)

2.1.4 Information on scale characteristics

(redacted)

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2.2 Broader construct: Sense of Community; Measured concepts: Needs fulfilment, Membership, Influence, Emotional connection

Definition

McMillan (2011) suggested that PSOC is a neutral force, or a sense of connectedness with others, which can have helpful (fulfilling a need to belong and contribute to something bigger) or detrimental (excluding or generating ill-feelings against others which are not part of the community) effects, also determined by the vision of the particular community (e.g., an inclusive, welcoming association or a racist/extremist group).

Harmonised measure

The chosen measurement scale is the 8-item Brief Sense of Community Scale (BSCS) developed by Peterson et al. (2008) based on concepts by McMillan & Chavis (1986). It is a scale composed of 4 dimensions which together represent one underlying PSOC construct (Peterson et al., 2008): Needs fulfilment (NF); membership (MB); influence (IN); emotional connection (EC). Buckley et al. (2022) report summing the subscale scores for an overall score. Although Peterson et al. (2008) use the word neighbourhood, we have chosen to also include some alternative targets in italics which may be more suitable for research questions related to communities beyond a geographical neighbourhood.)

Brief Sense of Community Scale (BSCS) (Peterson et al. 2008)

Please indicate your agreement with the following statements on a scale from: 1 strongly disagree to 7 strongly agree (*Note: The original scale employed a 5-point Likert scale, however the WP4 team elected to consistently adopt a 7-point scale to improve comparability across measures*):

1. (NF) I can get what I need in this *neighbourhood/group/community*.
2. (NF) This *neighbourhood/group/community* helps me fulfil my needs.
3. (MB) I feel like a member of this *neighbourhood/group/community*.
4. (MB) I belong in this *neighbourhood/group/community*.
5. (IN) I have a say about what goes on in my *neighbourhood/group/community*.
6. (IN) People in this *neighbourhood/group/community* are good at influencing each other.
7. (EC) I feel connected to this *neighbourhood/group/community*.
8. (EC) I have a good bond with others in this *neighbourhood/group/community*.

Note: Subscales based on the concepts by McMillan & Chavis (1986) NF: needs fulfilment; MB: membership; IN: influence; EC: emotional connection

Reliability – evidence provided

Validity – evidence provided

The scale has also consistently performed well in different countries and in different age groups (e.g., Lardier et al., 2018, Wombacher et al., 2010, Buckley et al., 2022).

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2.2.1 Background information

(redacted)

2.2.2 Used measures

(redacted)

2.2.3 Description of chosen measurement scale

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2.2.4 Information on scale characteristics

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2.3 Broader construct: Responsibility; Measured concept: Ascription of responsibility

Definition

Responsibility can be described as a commitment or obligation based on standards imposed on individuals or groups (Kraak et al., 2014) and is related to accountability, which can be viewed as the ability to justify actions and decisions (Swinburn et al., 2015). It can also be thought of as a multifaceted construct that considers a responsible **actor** (their motivations, intentions, identities), their **actions**, and the **rules or norms** through which these actions are judged (Timotijevic et al., 2021). It can be focused on understanding past actions as well as on developing a set of rules that will focus on new challenges (Pellizzoni, 2004).

Harmonised measure

For COMFOCUS we have chosen the ascription of responsibility measure used by Shin et al. (2018). The original measurement scale of ascription (or denial) of responsibility by Schwartz (1967) captures the general tendency of an individual to ascribe responsibility for common activities to one's self or others (i.e., "When things go wrong for me it is often not my own fault") as part of the Norm Activation Model. Since then, it has been adapted numerous times in the literature (e.g., Gärling et al., 2003, Onwezen, Antonides, & Bartels, 2013, Han, Lee & Hwang, 2016, Shin et al. 2018), with each adaptation providing some measure of the scale's acceptable reliability and validity. Sections *in italics* below could be adapted to different individuals (e.g., *person shopping at a large supermarket* instead of *restaurant consumer*) and/or targets (e.g., *unfair prices paid to small framers for their produce* instead of *environmental problems caused by the food industry*).

Ascription of responsibility (originally part of the Norm Activation Model by Schwartz, 1977. Adapted by Han, Lee & Hwang, 2016; Shin et al., 2018)

Please indicate your agreement with the following statements on a scale from 1 = strongly disagree to 7 = strongly agree:

- 1) I believe that every *restaurant customer* is partly responsible for *environmental problems* caused by *the restaurant industry*. (option to highlight causal responsibility: *I believe that every person who has eaten in a restaurant is partly responsible for the environmental problems the restaurant industry has caused*)
- 2) I feel that every *restaurant customer* is jointly responsible for *the environmental deteriorations* caused by *the restaurant industry*. (option to highlight prospective responsibility: *I believe that every person who chooses to eat in a restaurant in the future is partly responsible for the environmental problems the restaurant industry will cause*)

3) Every *restaurant customer* must take responsibility for *the environmental problems* caused by *the restaurant industry*.

Reliability – evidence provided

Validity – evidence provided

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2.3.1 Background information

(redacted)

2.3.2 Used measures

(redacted)

2.3.3 Description of chosen measurement scale

(redacted)

2.3.4 Information on scale characteristics

(redacted)

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2.4 Broader construct: Trust; Measured concepts: Overall trust in food system actors, Confidence in the integrity of food products (healthy, safe, sustainable, authentic and tasty)

Definition

Trust is a relational construct which is closely linked with the challenge of uncertainty: it is an attitude of confidence in the future outcomes based on uncertain or imperfect current information and has a psychological role in reducing social complexity and uncertainty (Luhmann, 1979; Simmel, 2004). In food consumer science, trust has been examined in relation to trust in the food chain and consequent consumer confidence (Macready et al., 2020). It is difficult for average consumers to know whether a food is enriched with omega-3 fatty acids, free from bacteria, organic, sustainably sourced, and/or any other claim associated with products which the consumer is unable to verify him- or herself. They therefore must trust the various actors in the food chain (i.e., producers, manufacturers, retailers, institutions) that these claims are true, as most people are employed outside agriculture and/or food manufacturing and cannot verify these for themselves (Meagher, 2019).

Harmonised measures

The measure selected to capture trust in food system actors was used by Macready et al. (2020) and adapted from Sapp et al. (2009). Depending on the target of interest for the study (or if the target includes all the food system actors), one or more of the following items could be chosen. A mean level of overall trust in food system actors can also be calculated and used to make cross-country comparisons as in Macready et al. (2020).

Overall trust in food system actors (Macready et al., 2020, adapted from Sapp et al., 2009)

Please indicate your overall level of trust in the following actors. From: 1 = very little trust to 7 = very high level of trust

1. Farmers (producing plants and animals for human consumption)
2. Food manufacturers (preparing, preserving, and packaging food)
3. Retailers (supermarkets, markets, food stores)
4. Authorities (government agencies at national and EU level)

Depending on the target of interest for the study in terms of the dimension of the integrity of food (or if the target includes all the above dimensions of food integrity), three or more of the following items could be chosen. A mean level of consumer confidence in the integrity of food can also be calculated and used to make cross-country comparisons as in Macready et al. (2020).

Consumer confidence in the integrity of food (healthy, safe, sustainable, authentic and tasty) (Macready et al., 2020, adapted from de Jonge et al., 2007).

Please indicate your level of agreement with the following statements, on a scale from 1 = strongly disagree to 7 = strongly agree.

1. I am confident that food products are safe
2. I am satisfied with the safety of food products
3. Generally, food products are safe
4. I am confident that food products are healthy
5. I am satisfied with the healthiness of food products
6. Generally, food products are healthy
7. I am confident that food products are produced in a sustainable way (i.e., environmentally friendly, resource efficient, ethically responsible)
8. I am satisfied with the sustainability of food products (i.e., that they are produced in a way that is environmentally friendly, resource efficient, ethically responsible)
9. Generally, food products are produced in a sustainable way (i.e., environmentally friendly, resource efficient, ethically responsible)
10. I am confident that food products are authentic (real, honest, genuine, not fake or artificial)
11. I am satisfied with the authenticity of food products (that they are real, honest, genuine, not fake or artificial)
12. Generally, food products are authentic (real, honest, genuine, not fake or artificial)
13. I am confident that food products are tasty
14. I am satisfied with the taste of food products
15. Generally, food products are tasty

Reliability – evidence provided

Validity – evidence provided

The scales were written in English and then translated to, and back translated from French, German, Polish and Spanish and have been used and tested in the UK, France, Germany, Poland and Spain (Macready et al., 2020).

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2.4.1 Background information

(redacted)

2.4.2 Used measures

(redacted)

2.4.3 Description of chosen measurement scale

(redacted)

2.4.4 Information on scale characteristics

(redacted)

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2.5 Broader construct: Risk Perception; Measured concepts: Dread, Knowledge

Definition

The instinctive ability to recognise and avoid hazards that is necessary for survival has also been referred to as intuitive risk judgements or “risk perception” (Slovic, 1987).

Harmonised measure

We have selected the measurement scale adopted by Jenkins et al. (2021) for COMFOCUS, due to its extended list of risk characteristics and comparability to previous literature.

This measure involves the use one or more targets, which can be a food or something perceived as a food related-hazard, such as a food-related technology (i.e., 3-D printing), things extraneous to food (pathogens, plastics, pesticide residues, heavy metal contamination), food quality (mishappen or blemished food), and even food security, being obese or being a junk-food addict. Participants are given a list one or more chosen targets (hazards) and rate them according to the hazard characteristics listed below. Both targets (hazards) and characteristics should be presented in a random order, to control for previously reported order effects (Fife-Schaw & Rowe, 2000) It is important to note that the reliability and validity of other measurements using the selected target(s) be assessed accordingly before being accepted as an entry ticket into COMFOCUS.

Risk Perception (Jenkins et al. 2021)

Please rate the following hazards within the context of personal risks (i.e., what they mean for you, personally) according to each of the following characteristics: (*Note: text in parentheses represents anchor points of the 7-point Likert scale*):

- Controllability: In general, how much control do people have over whether they (insert target here)? (*1: No control, to 7: Total control*)
- Likelihood of harm to health: How likely is it that your health will be damaged by (insert target here) (*1: Not likely at all, to 7: Extremely Likely*)
- Seriousness of harm to health: How seriously do you think (insert target here) harm your health? (*1: Not seriously at all, to 7: Extremely seriously*)
- Worry: How worried are you about potential risks associated with (insert target here) (*1: Not worried at all, to 7: Extremely worried*)
- Natural/mankind: To what extent are the risks to your health from (insert target here) or the fault of mankind? (*1: They are natural risks, to 7: Man is entirely to blame*)
- Knowledge (personal risk): To what extent are the risks associated with (insert target here) known precisely by those (insert target here)? (*1: The risks are not known at all, to 7: The risks are known precisely*)

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- Knowledge (scientific risk): To what extent are the risks associated with (insert target here) known to science? (1: *The risks are not known at all*, to 7: *The risks are known precisely*)
- Familiarity: I am very familiar with the risks associated with (insert target here) (1: *Strongly disagree*, to 7: *Strongly agree*)
- Newness: Is (insert target here) old or new? (1: *Extremely old*, to *Extremely new*)
- Immediacy of effects: Would any damage to your health from (insert target here) be immediately apparent, or would it only become apparent at a later date? (1: *Immediate*, to 7: *Delayed*).
- Benefits: How great do you think are the benefits associated with (insert target here)? (1: *No benefits at all*, to 7: *Very great benefits*)

Overall risk rating for each target(s):

How risky do you consider (insert target here) to be? from 1 (Not at all risky) to 7 (Highly risky).

Scores for ‘controllability’, ‘knowledge of hazard presence’, ‘knowledge of risk (personal and scientific)’, ‘familiarity’ and ‘benefit’ need to be recoded so that higher scores for each hazard characteristic are associated with higher risk, as in Siegrist et al. (2006). In the study by Jenkins et al. (2021), ratings were averaged across individuals to focus on public perception of differences among hazards. The average ratings by risk characteristics have often been analysed using Principal Components Analysis and identified the presence of two dimensions distinguishing among the hazards: the first, related to dread/severity and the second related to knowledge/familiarity/technology (Finucane & Holup, 2005; Fischhoff et al., 1978; Gaskell et al., 2004; Kaptan et al., 2018; Ueland et al., 2012). Alternatively, individual hazards can be analysed separately, such as by regressing perceived risk on to the qualitative risk characteristics (Jenkins et al, 2021). Overall mean risk ratings can also be compared using a one-way ANOVA and a Tukey HSD Post-hoc test (Jenkins et al, 2021).

Reliability – evidence provided

Validity – evidence provided

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2.5.1 Background information

(redacted)

2.5.2 Used measures

(redacted)

2.5.3 Description of chosen measurement scale

(redacted)

2.5.4 Information on scale characteristics

(redacted)

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2.6 Broader construct: Social (descriptive) Norms; Measured concepts: Descriptive norms

Definition

According to the Theory of Normative Conduct (Cialdini et al., 1990), descriptive norms are defined as what most people do, given that when a decision is needed, people tend to imitate the majority (Cialdini et al., 1990) or those who are most successful (Henrich & Ensminger, 2014). They include collective norms (i.e., the prevalence of what people actually do) or perceived descriptive norms (i.e., what people think others do) (Rimal & Lapinski, 2015).

Harmonised measure

For COMFOCUS, the three-item scale used by Wang and Brown-Devlin (2022) could be adapted for food consumer science purposes. The target behaviour could include choosing a type of food (e.g., choosing a banana) or a type/category of foods (e.g., choosing fruits and vegetables). It is important to note that the reliability and validity of adapted measurements be assessed accordingly before being accepted as an entry ticket into COMFOCUS.

Descriptive norm (adapted from Wang & Brown-Devlin, 2022)

Based on your own observation and belief, please rate the following on a scale from 1: Strongly Disagree to 7: Strongly Agree:

1. Choosing (target food/food category/type of food) is very common *among people like me*. (*Option in italics to add a greater level of identification with the respondent*).
2. Most people *like me* have a habit of choosing (insert target food/food category/type of food). (*Option in italics to add a greater level of identification with the respondent*)
3. Most people *like me* choose (insert target food/food category/type of food) on a regular basis. (*Option in italics to add a greater level of identification with the respondent*)

*Please estimate a percentage of how many people *like me* currently choose (insert target food/food category/type of food here): _____. (*Option in italics to add a greater level of identification with the respondent*)

**Additional question suggested by, but not included in the original study (Wang & Brown-Devlin, 2022)*

Reliability – evidence provided

Validity – evidence provided

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Guideline for harmonisation of measures and protocols for consumers as agents in the food system

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2.6.1 Background information

(redacted)

2.6.2 Used measures

(redacted)

2.6.3 Description of chosen measurement scale

(redacted)

2.6.4 Information on scale characteristics

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3. Conclusion and next steps

In this deliverable we present an overview of broader constructs relevant to consumers as agents in the food system. It is distinct from the other WP deliverables in that the broader constructs it addresses, including Food Citizenship, Responsibility, Trust, Risk Perception, Sense of Community, and Descriptive Norms are complex and interrelated, therefore short, comprehensive, theory-based, valid and reliable relevant measures are scarce or absent. Despite these challenges, including these constructs as a part of COMFOCUS contributes towards better understanding “an individual, giving expression, about a target in a particular context”.

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COMFOCUS

Community on Food Consumer Science