



# What is culturally appropriate food consumption? A systematic literature review exploring six conceptual themes and their implications for sustainable food system transformation

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## Abstract

There is increasing recognition that sustainable diets need to be ‘culturally appropriate’. In relation to food consumption, however, it is often unclear what cultural appropriateness—or related terms, such as cultural or social acceptability—actually means. Often these terms go undefined, and where definitions are present, they vary widely. Based on a systematic literature review this paper explores how cultural appropriateness of food consumption is conceptualised across different research literatures, identifying six main themes in how cultural appropriateness is understood and applied. The paper then critically analyses these themes in relation to sustainable food system transformation. We explore how the themes conceptualise change, finding that cultural appropriateness is viewed in two main ways: either as a relatively static obstacle to be overcome, or as a dynamic and negotiated process. Both perspectives, we argue, entail different scientific, practical and political effects. Each perspective offers particular affordances for understanding and governing sustainable food system transition, although between perspectives there is likely to be a trade-off between theoretical sophistication and practical operationalizability. Based on this analysis we argue that researchers, policymakers and practitioners should be explicit about their commitment to a particular understanding of cultural appropriateness, as this will have implications for scientific and societal applications of their work. This is particularly the case, we suggest, in relation to the transdisciplinary collaborations necessary to effectively address the ‘wicked problem’ of food system sustainability. We conclude by offering a tentative general definition of cultural appropriateness as it relates to food consumption.

**Keywords** Cultural appropriateness · Cultural acceptability · Social acceptability · Dietary change · Sustainability · Transition

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## Abbreviations

CA	Cultural appropriateness/acceptability
FAO	Food and Agriculture Organization of the United Nations
SA	Social acceptability/appropriateness

## Introduction

A transformation towards a sustainable and healthy food system is urgently needed, as current practices of producing and consuming food contribute significantly to sustainability and health problems (Willett et al. 2019). While some sustainability gains can be achieved through improving production (Herrero et al. 2020), major shifts in consumption are widely deemed necessary to remain within planetary boundaries (Ivanova et al. 2020; Herrero et al. 2023).

Significant shifts in food consumption, however, are difficult to achieve. New foodways cannot simply be imposed: they must easily integrate with people's everyday lives, involving foods that people actually want to eat. Accordingly, the 'sustainability' of diets involves factors beyond the nutritional or environmental characteristics of food, such as the affordability or accessibility of diets (e.g. Blay-Palmer et al. 2016; Alemu 2022). In this context, there is increasing recognition that sustainable diets need to be 'culturally appropriate' (or 'culturally acceptable'—the terms are generally used interchangeably) (Béné et al. 2019; Willett et al. 2019; iPES FOOD 2021). Indeed, the notion of cultural acceptability as a central issue affecting sustainable diets is enshrined within the FAO definition of the latter term (Burlingame and Dernini 2012, 7, emphasis added):

Sustainable Diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, *culturally acceptable*, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources.

But what exactly does it mean for foods, diets or food consumption (henceforth 'food consumption') to be culturally appropriate? How is cultural appropriateness of food consumption established, maintained and changed? And how might efforts to ensure cultural appropriateness shape sustainable food system transformation? Although there is widespread recognition that sustainable diets must be culturally appropriate, we argue that insufficient attention has been paid to the connection between cultural appropriateness and sustainability, and the place of cultural appropriateness within a transition to a sustainable food system. More fundamentally, however, there is a lack of clarity around what cultural appropriateness—or related terminology, such as 'cultural acceptability', 'social acceptability' and (less frequently) 'social appropriateness'—actually means. Often these terms simply go undefined, whether in research on sustainability (e.g. Gazan et al. 2018a), food security (e.g. Pico et al. 2021), public health (e.g. Kavian et al. 2020), or novel foods (e.g. Toti et al. 2020). Where definitions are present, they often vary widely (e.g. Joassart-Marcelli et al. 2017; Chaudhary and Krishna 2019).

This paper addresses these issues across three main objectives. First, we clarify how cultural appropriateness of food consumption is conceptualised in different fields of literature. Based on a systematic literature review, we identify six main themes in how cultural appropriateness of food consumption is understood and applied.

Second, we critically analyse the six themes in relation to sustainable food system transition. Inspired by Fuchs et al.

(2016), we explore how each of the six themes (implicitly) conceptualises change. We identify two overarching perspectives, in which cultural appropriateness is viewed either as a relatively static obstacle to be overcome or as a dynamic and negotiated process.

Third, we consider the implications of this analysis for efforts to understand and accelerate sustainable food system transformation. Building on the sociological idea that concepts and theories shape reality (e.g. Larsen 2020) we argue that the different ways of conceptualising cultural appropriateness identified have different scientific, practical and political effects, and that both perspectives raise challenges and opportunities for efforts towards food system transformation. Rather than adjudicating between approaches we argue that both are potentially valuable, but emphasise that researchers should be explicit about their understanding of cultural appropriateness. This is likely, we suggest, to benefit the transdisciplinary collaborations that successful food system transformation requires.

In line with these objectives, we understand food consumption broadly. Theoretical work on eating (e.g. Warde 2016) suggests that a narrow view of food consumption as equivalent to ingestion elides the influence of acquisition and preparation activities, as well as situational and contextual aspects of eating. As such, our analysis mirrors this broader focus, rather than attending specifically to—for example—the cultural appropriateness of particular foods. We do not, however, include production. While production clearly has a bearing upon cultural appropriateness—for example, in terms of people's values about how food is produced (e.g. Hayes-Conroy and Sweet 2015)—our principal focus here is on consumption. As such our work differs from Hamelman and Hayes-Conroy's (2015) study, which articulated the various ways in which cultural appropriateness is an important part of activities across entire food systems, affecting activities from growing through to final consumption. While these authors' work provides a valuable building block for envisioning just and inclusive food systems, we extend the exploration of cultural appropriateness in a different direction.

In what follows, we first outline our methodology. We then present the results of our literature review, explaining the six key themes in how culturally appropriate food consumption is conceptualised. In the Discussion section we turn to the critical analysis outlined above, exploring how the different themes conceptualise change and the implications of this for sustainable food system transformation. In the Conclusion section we propose a tentative general definition of cultural appropriateness as it relates to food consumption. Given that the terms cultural/social appropriateness/acceptability are generally used interchangeably in the literature, and for the sake of readability, we use only the term 'cultural appropriateness' (henceforth 'CA') in what

follows, other than in cases where a clear distinction between terms is necessary.

### Methodology

To explore how CA is conceptualised in food-related scientific literature we conducted a systematic literature review. This method was chosen in light of the aforementioned lack of conceptual clarity around CA and the variable terminology used (i.e. cultural acceptability, social acceptability), which make for scattered and separated bodies of literature. A systematic literature review allows for integrating these literatures to achieve a more complete understanding of what CA means in relation to food consumption.

We focused on peer-reviewed scientific journal articles, book chapters and books (see in- and exclusion criteria, Table 2). We selected Scopus and Web of Science as two scientific databases that complemented each other, as Scopus has a slight European bias and Web of Science an American bias.

Figure 1 shows the data collection process. To develop our search string we first conducted an exploratory search

on cultural appropriateness and food in Google Scholar in June 2021. The searches for cultural and social appropriateness were conducted separately, as it emerged throughout scanning the cultural appropriateness literature that social appropriateness was closely related and also relevant. This resulted in the search strings illustrated in Table 1. A large body of literature on cultural appropriation, which was not analytically relevant, was also captured in the first search string. Therefore the search term "NOT "appropriation\*" was added in the second search string.

The Scopus search was conducted as the basic search, and duplicates were excluded in the Web of Science search. Together, these searches rendered 2006 publications. These were downloaded into EndNote and assessed on the in- and exclusion criteria based on title, abstract and keywords (for in- and exclusion criteria see Table 2). This reduced the number of publications to 439. Remaining publications were read in full and assessed against the in- and exclusion criteria. This resulted in a final number of 135 publications.

Two researchers (JH and AB) were involved in reviewing the literature. To ensure inter-coder reliability we randomly assessed a small number of publications individually and compared notes, which resulted in further fine-tuning of the

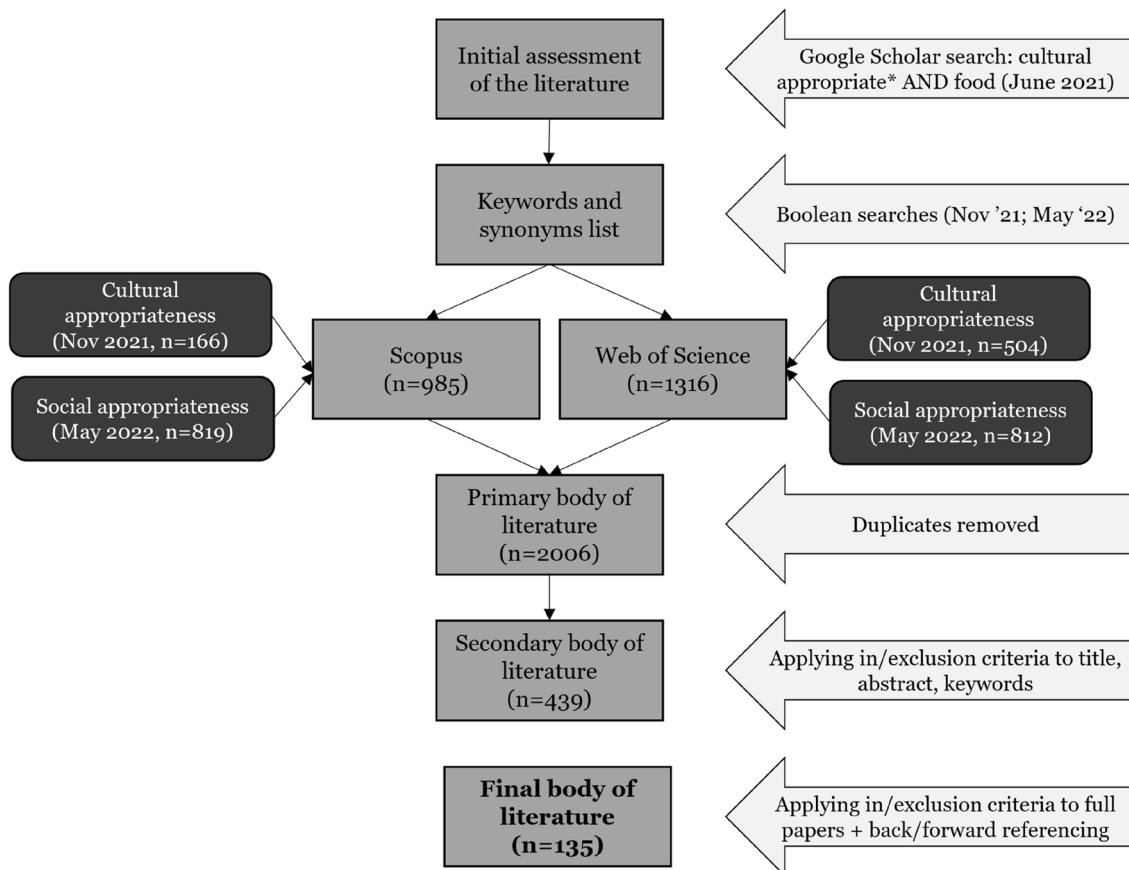


Fig. 1 Data collection process (modelled after Candel 2014)

**Table 1** Search strings

	Scopus	Web of science
<i>Cultural appropriateness/ acceptability</i>	TITLE-ABS-KEY ( "cultural approp*" OR "cultural accept*" AND food OR diet OR eat*)	TS= ("cultural approp*" NOT "appropriation*" OR "cultural accept*" AND (food OR diet OR eat*))
<i>Social appropriateness/ acceptability</i>	"social* approp*" OR "social* accept*" AND food OR diet OR eat*	TS= ("social* approp*" NOT "appropriation*" OR "social* accept*" AND (food OR diet OR eat*))

**Table 2** In- and exclusion criteria

Inclusion criteria	<p><i>Language:</i> English</p> <p><i>Research methods:</i> empirical and theoretical; qualitative and quantitative</p> <p><i>Time-frame:</i> unlimited</p> <p><i>Focus:</i> publications reflecting on and providing insights into cultural/social acceptability/appropriateness of food consumption</p> <p><i>Types of publications:</i> peer-reviewed academic publications, books, book chapters</p>
Exclusion criteria	<p><i>Language:</i> languages other than English</p> <p><i>Focus:</i> publications that do not reflect on and provide insights into cultural or social acceptability or appropriateness of food consumption. This includes:</p> <ul style="list-style-type: none"> <li>Publications about CA/SA of food among infants or children</li> <li>Publications about CA/SA of something other than food</li> <li>Publications about CA/SA of methodological aspects of food-related research (e.g. dietary recall questionnaire)</li> <li>Publications about CA/SA of food production rather than food consumption</li> <li>Publications mentioning CA/SA briefly (e.g. in the abstract) but not otherwise engaging with it</li> </ul> <p><i>Types of publications:</i> non-peer reviewed articles, grey literature</p>

in- and exclusion criteria. The body of literature was then divided, and papers were discussed together when questions arose.

A data extraction file was developed and filled out to keep track of the main characteristics and arguments of each publication (see Supplementary material). This involved the following categories: author(s), year, discipline, type of publication (empirical or theoretical), geographical focus, method, theory, type of appropriateness (social or cultural), whether a definition was included, how appropriateness was conceptualized, main arguments and insights, and recommendations. Based on these factors, the six themes that will be presented in the next section arose, through an iterative process between the researchers over time in discussing the data extraction table.

## Results

This section first discusses general characteristics of the final body of literature, then elaborates six key themes in how CA is conceptualised.

## General characteristics of the studies

Out of the final 135 publications, 49 addressed cultural appropriateness/acceptability and 86 social appropriateness/acceptability. Most literature was published after 2013 (see Fig. 2).

Figure 3 shows the geographic focus of countries/levels occurring more than once, with the USA and the global level being most strongly represented. Roughly 1 in 4 publications focused on (countries in) the global South. Methodologically, 30 of the 135 papers were narrative reviews: other common methods were surveys (n = 16), interviews (n = 12), linear programming (n = 11) and a combination of nutritional analysis and sensory testing (n = 10).

Figure 4 shows the disciplines most represented in the final set of publications (i.e. occurring more than twice). The majority of publications came from the social sciences. The discipline most represented among the final publications was public health & nutrition (n = 48). Twenty eight were published in a natural science discipline, most prominently food technology (n = 10) and sustainability science (n = 6).

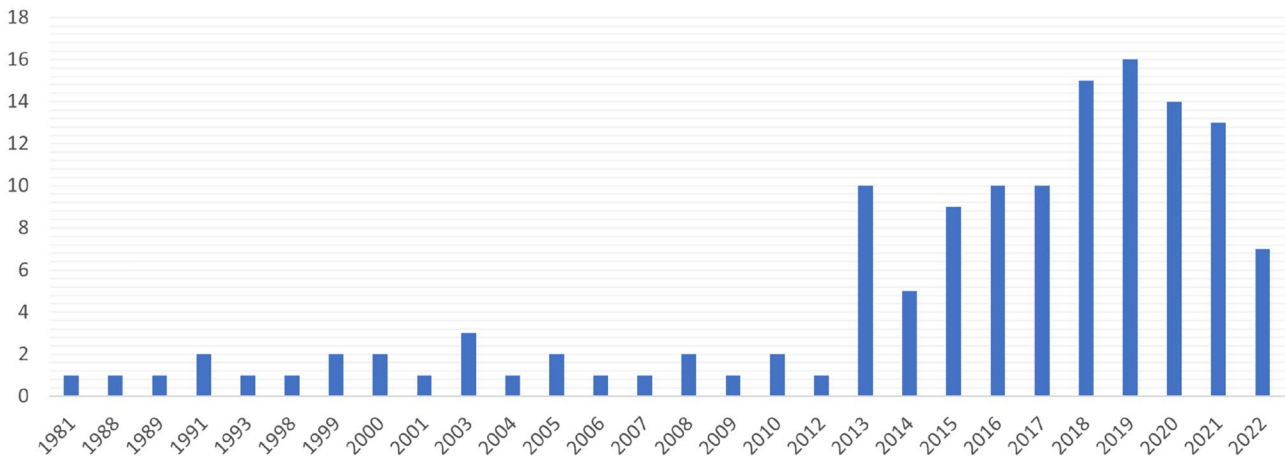


Fig. 2 Year of publication

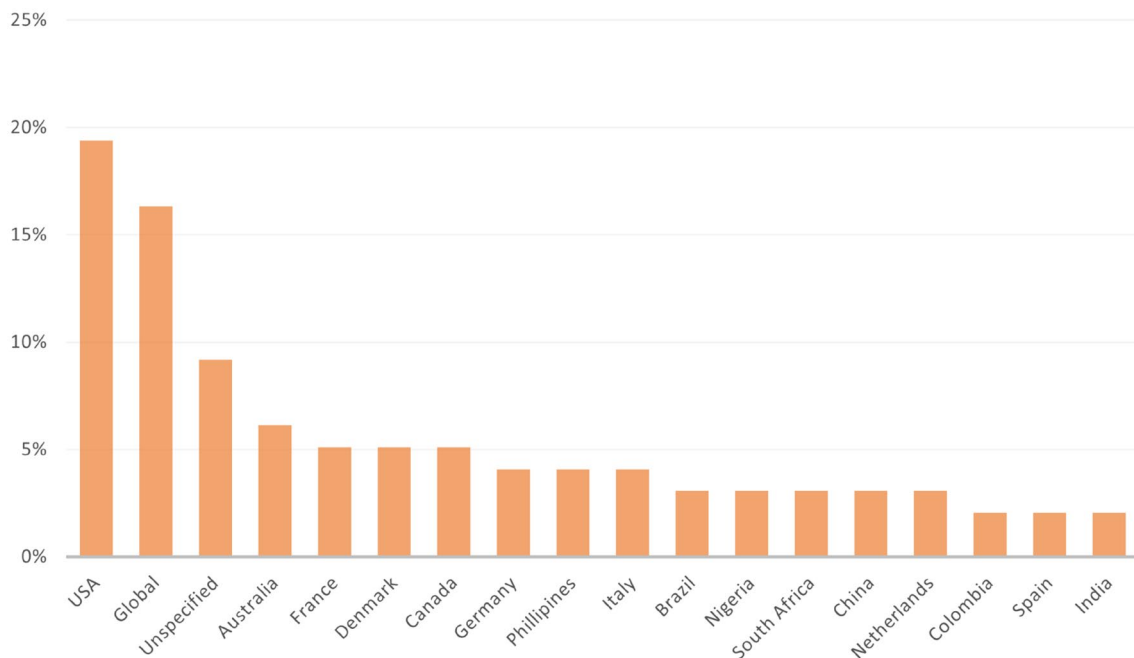


Fig. 3 Geographic focus

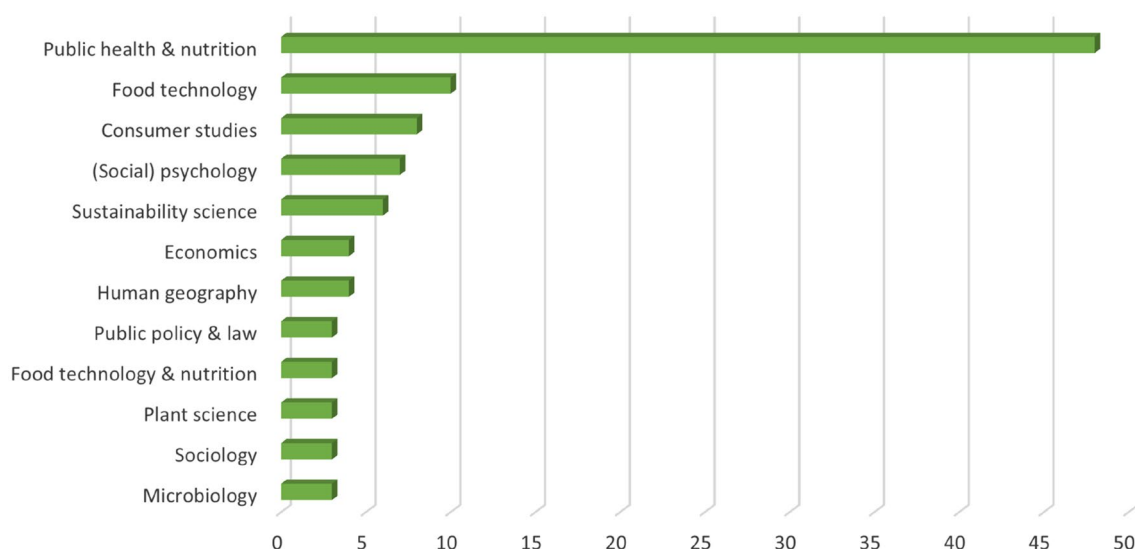
### Six themes on the cultural appropriateness of food consumption

Our analysis indicated that within academic debates around food, diets and eating, there are six main themes in how CA is conceptualised (see Table 3). These themes are not totally discrete. Researchers may employ two or more conceptualisations of CA within the same study. Despite the flexibility with which individual studies sometimes conceptualise CA, we have nevertheless sought to identify and explain the key themes present across the literature.

#### Theme 1: Cultural appropriateness as existing diets

In the first theme, CA is equivalent to *conforming with existing dietary customs*. The customary food practices of a particular group of people—typically a (sub-)population—are considered inherently CA. The consumption of particular foods evidences their appropriateness, commonly referred to as ‘cultural acceptability’.

The clearest formulation of this idea can be found in research that uses mathematical optimization techniques to identify ‘optimized dietary scenarios’ for a particular



**Fig. 4** Most frequently occurring disciplines (n > 2)

location (e.g. a country). This type of research—which mainly focuses on nutrition and public health—builds optimization models using inputs such as national dietary data and budgetary surveys, against which a number of ‘constraints’ are applied. These typically include factors such as cost, nutritional adequacy and sustainability. The aim is to identify dietary scenarios in which factors such as affordability and healthiness are adequately and simultaneously achieved (e.g. Parlesak et al. 2016; Gurmu et al. 2019; Broekema et al. 2020; Verly et al. 2020; Yin et al. 2020; Chaudhary and Krishna 2021; Yin et al. 2021).

Optimization modelling frequently includes CA as one of the ‘constraints’ applied. CA, in this sense, is defined as *minimised deviation from current diets*. Current diets are represented by the national dietary data that provides basic input for the model, and minimized deviation is achieved by specifying a set of parameters from which the optimized dietary scenarios may not deviate. The exact parameters used differ between studies, but typically address dietary/portion sizes (the absolute amount eaten must be, for example, between 80 and 120% of that which is currently consumed) and amounts of particular foods eaten (e.g. Perignon et al. 2016; Nykänen et al. 2018; Lauk et al. 2020). Some researchers also include factors—albeit unexplained—that are clearly aimed at cultural norms and proscriptions, such as Chaudhary and Krishna’s (2019) decision that alcohol, spices and stimulants must be kept at an equivalent level in various country-specific optimized diets.

Specifying that optimized diets should not deviate from current diets ensures models are sufficiently diverse and close to established eating patterns (Gazan et al. 2018b). Without CA constraints, for example, optimized diets may contain very few different foods, or many things not

currently eaten in a given location (e.g. Maillot et al. 2010; Parlesak et al. 2016; Faksová et al. 2019; Verly et al. 2020). Current diets thus offer a proxy for modelling CA diets.

The notion of CA food as ‘that which is currently consumed’ is also evident elsewhere in research on nutrition and public health, for example in the argument that “self-selected diets can be considered culturally acceptable” (Masset et al. 2014, 1460; see also Gazan et al., 2018a) or that locally-consumed plants are CA (Englberger et al. 2003). More qualitatively-focused work shares this conceptualisation, for example that food aid involving familiar foods is more CA (Slonim et al. 1981), or dietary interventions involving familiar foods in similar portions are more CA (Holm 1993).

## Theme 2: Cultural appropriateness as substitutability

The second theme conceptualises CA as *food that provides a satisfactory substitute for a conventional equivalent*: for example, cookies made with vitamin-enriched flour rather than standard flour, which do not disrupt established food practices by tasting substantially different than conventional equivalents (Dourado Gomes Machado et al. 2021). This relates to Theme 1 in that current diets are the primary reference category, but differs in explicitly addressing potential incorporation of new foodstuffs. Research of this type is principally situated within the domains of food and sensory science. It favours the terminology of cultural/social acceptability or acceptance, although these are rarely defined.

In this theme acceptability is empirically tested by providing participants with an ‘improved’ foodstuff such as reduced sodium bread (McMahon et al. 2016) or nutritionally-enriched porridge (Ntila et al. 2019). Participants must taste this alongside a ‘control’ foodstuff (i.e. the conventional

**Table 3** Six themes in how cultural appropriateness of food consumption is conceptualised

Theme	Disciplinary orientation(s)	Where does CA reside?	(How) is change conceptualised?	Who has agency/responsibility for change?
1. Existing diets	Public health & nutrition, food technology, sustainability science	<b>Who:</b> Population (i.e. national), group (e.g. ethnic groups) <b>What:</b> Foods <b>How:</b> Portion sizes, relative amounts	<b>Static:</b> Problem to be solved (supply-side of potential dietary changes)	Policy makers; dieticians; NGOs
2. Substitutability	Public health & nutrition, food technology, food technology & nutrition	<b>Who:</b> Population (i.e. national), group (e.g. poor rural communities) <b>What:</b> Foods	<b>Static:</b> Technical problem to be solved (product design)	Food producers; scientists
3. Acceptability	Food technology, consumer studies, economics, public health & nutrition	<b>Who:</b> Consumer attitudes, demographics <b>What:</b> Product characteristics	<b>Static:</b> Attitudinal or technical problem to be solved (product design, information provision)	Food producers; scientists
4. Preferences	Public health & nutrition, human geography, sociology, psychology	<b>Who:</b> Population (i.e. national), group (e.g. ethnic groups; dispositions + identity) <b>What:</b> Foods <b>Why:</b> Personal + cultural significance	<b>Dynamic and negotiated:</b> Evaluation of food	Consumers
5. Shaped by context of eating	(Social) psychology, public health & nutrition, sociology	<b>Who:</b> Population (i.e. national), group (e.g. poor people) <b>What:</b> Foods <b>When/where/why/how:</b> Context of eating	<b>Dynamic and negotiated:</b> Part of food-related practices	Consumers; co-eaters (people in immediate environment)
6. Shaped by context of acquisition and preparation	Public health & nutrition, assorted social sciences (shared focus on food security and poverty)	<b>Who:</b> Population (i.e. national), group (e.g. welfare recipients) <b>What:</b> Foods <b>When/where/why/how:</b> Context of acquisition and preparation	<b>Dynamic and negotiated:</b> Part of food-related practices	Consumers; co-eaters; relevant societal actors, principally governance of food (aid) and welfare

equivalent that the ‘improved’ version is intended to replace) and answer questions about the food’s hedonic properties, assessing aspects such as appearance, aroma, flavour, texture and ‘overall acceptability’ (e.g. Aril-dela Cruz et al. 2017; Loong and Wong 2018; Maimanah-Faizah et al. 2020). Although focusing mainly on the Global South and issues such as food security (Hurtada et al. 2020) or malnutrition (e.g. Yusufu et al. 2014; Govender et al. 2019; de Kok et al. 2021), this theme also investigates agricultural innovations in the Global North, such as selenium-enriched apples in Germany (Wortmann et al. 2018) insect-fed rabbit meat in Italy (Gasco et al. 2019), or bread made with industrial by-products in Lithuania (Bartkiene et al. 2021).

### Theme 3: Cultural appropriateness as acceptability

This is perhaps the most prominent theme. It understands CA as *the acceptance of specific foods*, whether by individual consumers or a broader group or society. CA is often undefined, but implicitly binary: would you eat this or wouldn’t you? Does society accept or reject genetically modified food? While some studies view acceptability as a continuum across which people are more or less inclined to eat particular things (e.g. Ritchie et al. 2018), this approach generally views CA as a yes/no matter. There is some overlap with Theme 2, as the foods considered more or less ‘acceptable’ are intended to supersede existing alternatives. However, the ‘acceptable’ theme has a less direct focus on substitution: instead, foods are investigated for potential inclusion in diets more generally.

This theme is also terminologically diverse: across studies the terms ‘acceptability’ and ‘acceptance’, with or without any of the modifiers ‘social’, ‘cultural’ or ‘consumer’, are used apparently interchangeably. Often this occurs within the same paper (e.g. Brown et al. 2015; Hartmann et al. 2015; Chee et al. 2019). Literature within this theme falls into two broad sub-themes.

The first sub-theme uses discipline-specific tools to measure the acceptability or acceptance of particular foods. Within more natural-scientific approaches—chiefly food and sensory science—acceptability is measured in hedonic and sensory terms. People are asked to rate food samples in a controlled setting, similar to Theme 2. However in this case the foods are not direct substitutes, but rather experimental vehicles for potential introduction of new ingredients or techniques: for example, an alternative ingredient for a popular Nigerian snack (Adeyeye et al. 2020), and new techniques for fermenting beef snacks in the Philippines (Balmori et al. 2018) or preserving a popular Nigerian drink (Sa’id et al. 2017). More social-scientific work within this theme typically investigates self-reported ‘willingness to eat’ particular foods in relation to psychological, demographic or product characteristics. Studies investigate similar general

variables (e.g. age, gender, neophobia) but differ in specific psychological or product-related focus. For example, three studies on willingness to eat insects focused respectively on Italian people’s knowledge about insects and the environmental impact of meat (Simeone and Scarpato 2021), the extent to which German and Chinese people regarded insect consumption as ‘primitive’ (Hartmann et al. 2015), and the relative acceptability of a range of different insect species for German people (Schäufele et al. 2019).

The second sub-theme conceptualises acceptability more broadly, as abstract acceptance/rejection of particular foods. This is largely implicit, as ‘acceptability’ or ‘acceptance’ generally remain undefined. Whereas the previous sub-theme usually does not define this either, research instruments (e.g. ‘willingness to pay’) demonstrate how acceptability is conceptualised. In the present sub-theme such indications are usually absent. Social-scientific work in this theme measures social acceptance of genetically modified food by surveying both overall acceptability of genetic modification and specific applications in various domains (Veličković et al. 2016; Olynk Widmar et al. 2017; Rousselière and Rousselière 2017), reflecting an abstract notion of CA that is shared by social-scientific review articles. For example, Bimbo et al.’s (2017) review identified patterns in the ‘acceptance’ of nutrition-modified and functional foods without enquiring how the different studies conceptualised it, and Gjerris et al.’s (2016) review of the ‘social acceptability’ of insects as food is wide-ranging but undefined, and thus rather abstract. Most of the work in this sub-theme, however, is broadly natural-scientific, encompassing papers in natural science journals (e.g. Sarwar et al. 2020) and in interdisciplinary journals authored by natural scientists (e.g. Fan et al. 2021). It consists mainly of review articles characterised by the idea of a general acceptance of, or rejection of/resistance to, proposed dietary changes, often at the level of ‘society’ rather than consumers (e.g. Moseley 1999; Anders et al. 2021). Studies typically address the (attempted) introduction of agricultural innovations or biotechnologies, most frequently genetic modification of crops or animals (Araki and Ishii 2015; Ishii 2017; Ishii and Araki 2017; Lassoued et al. 2018; Tyczewska et al. 2018; Fan et al. 2021). Other topics include nanotechnology (He et al. 2019), irradiation (Byun et al. 2009), edible insects (Chee et al. 2019; Toti et al. 2020), seaweed (Nakhate and van der Meer 2021), biofortified food crops (Sarwar et al. 2020), cultured meat (Chen et al. 2022), or an assortment of these (Thavamani et al. 2020).

### Theme 4: Cultural appropriateness as alignment with cultural preferences

The fourth theme conceptualises CA as *the alignment of food practices with people’s cultural preferences*. We follow



the literature here in using ‘cultural preferences’ (e.g. Kuhnlein 2000; Haggan et al. 2007) as this theme focuses more on socially and culturally shaped preferences (i.e. tradition) than individual differences (i.e. food neophobia). Although this theme resembles Theme 1 (current diets), it is distinct in two key ways. First, this theme views preferences as *shaping* food consumption as it is negotiated, rather than (as in Theme 1) fundamentally constraining diets. Second, this theme goes beyond Theme 1 in that it addresses the *reasons* for food preferences. Within this theme we identified six key dimensions: preferred food, identity, tradition, norms, knowledges and morality. We discuss each in turn.

The first dimension within this theme refers to foods that are familiar and preferred as a result of an individual’s socio-cultural background (Ford and Harris 1988; Violette et al. 2013; McKay and Dunn 2015; Kyeyune and Turner 2016; O’Connor et al. 2016; Tobin et al. 2016; Deng and Chan 2019): for example, specific preferences for typically Latino foods among migrants to the US (Mares 2013). This also applies to culturally *inappropriate* foods, such as the bread, pasta and canned tomatoes that immigrants in Canada did not like or know what to do with (Vahabi and Damba 2013). Culturally-specific preferences are nevertheless dynamic. Immigrants may ‘adjust’ their preferences to their new environment, for example (Vahabi and Damba 2013), in a process of ‘dietary acculturation’ (Deng et al. 2013; Barcena et al. 2021).

The second dimension associates CA with people’s ability to articulate their social and cultural identity through their food practices, which entails being able to select familiar and preferred foods (Joassart-Marcelli et al. 2017; O’Connell et al. 2019). Pico et al. (2021) argue that one of the main reasons that the diets of Venezuelan migrants in Colombia remain CA is because of their role in the maintenance of ethnic identity, which, in turn, is facilitated by the commonalities between Colombian and Venezuelan foodways.

The third dimension addresses tradition as a prominent aspect of food preference, and thus CA. Fundamentally this refers to foods with a significant history of consumption in a given community, such as the “native plants and terrestrial and aquatic animals that Native Americans have consumed for thousands of years” (Mucioki et al. 2018, 88; see also Diekmann et al. 2020; Kyeyune and Turner 2016; Mishra et al. 2003; Tobin et al. 2016). Like culturally-specific food preferences, the notion of foods as ‘traditional’ also changes: Mucioki et al. (2018) show that ‘Indian fry bread’ is a familiar and preferred dish among indigenous American communities, despite its relatively recent development using ingredients supplied through federal food aid.

In the fourth dimension, preferred food accords with cultural norms around ‘good food’ (Holm et al. 2008; Diekmann et al. 2020), including values around how food is produced (Hammelman and Hayes-Conroy 2015; Hayes-Conroy

and Sweet 2015; Capper 2017; Busse et al. 2019; Diekmann et al. 2020), and indeed foods that are seen as normal (Higgs and Thomas 2016; Heise and Theuvsen 2017; Stull et al. 2018; Berkowitz et al. 2020) or necessary, such as milk in Atlantic (and latterly Mediterranean) Europe (Nicolau-Nos et al. 2010; see also Maillot et al. 2010). Likewise this applies to foods with high cultural status and symbolic value, such as meat in Europe and the US (Holm et al. 2008; Nielsen et al. 2008; Sapp 1991; Sapp and Harrod 1989; see also Adams et al. 2000).

The fifth dimension explores how situated cultural knowledges around nutrition, health and the environment make foods (less-)preferred. Joassart-Marcelli et al. (2017) argue that while conventional US food outlets are judged by the standard of white middle-class ideas around food’s ‘healthiness’, part of ethnic markets’ CA is their acknowledgement of—and alignment with—multiple, situated knowledges around health and nutrition of foods. Likewise, Tobin et al. (2016) showed how rural Peruvians regard industrially-produced food as less preferred, in large part because of its perceived unhealthiness and nutritional inadequacy (Kuhnlein 2000; see also Diekmann et al. 2020). Reporting similar findings among rural migrants to an urban centre in Colombia, Hayes-Conroy and Sweet (2015) suggest that the notion of cultural (un)acceptability does not capture the complexity of how people “envision respectable relationships between food, bodies, land and community” (2015, 376).

The sixth dimension frames CA as “consistency with the *morality* of a community” (Marcoux et al. 2013, 677 emphasis added). This finds particularly strong expression in negative form: culturally *inappropriate* foods are those for which taboos exist (Wien and Sabaté 2015; see also Regan and Gutierrez 2005) or that are associated with “low cultural status” and thus stigmatising, causing shame and embarrassment (Cruz et al. 2014, 8; Barcena et al. 2021; Coates et al. 2006; Schäufele et al. 2019; Tobin et al. 2016; cf. Meel 2013). It also includes foods that are religiously proscribed, such as pig meat in Islam and Judaism (Kavian et al. 2020).

### Theme 5: Cultural appropriateness as shaped by the context of eating

The traditions and values discussed in Theme 4 broadly address two main themes: *what* is eaten and *how* it is eaten. These ideas are elaborated in Theme 5, which suggests that CA is not a fixed, inherent property of foods (cf. Fischer and Van Loo 2021) but rather that *CA is shaped by the context of eating*. The processes through which this is achieved fall into two main dimensions: meal structure and sequence (the what/how of eating) and eating situation (who/where/when/why). Although in practice these are of course related, they are treated to some extent as distinct in the literature. As such we discuss each in turn.

The first dimension is the structure and sequence of meals. In this theme, part of what makes meals CA—and consequently, difficult to change—is their format and structure (Holm et al. 2008; Nielsen et al. 2008), which relates to ideas of what a ‘proper meal’ is (cf. Mäkelä 1991). For indigenous communities in British Columbia this likely entails a large ‘table fish’ species such as cod or salmon (Haggan et al. 2007), whereas in places such as Ireland or Denmark ‘proper meals’ are typically centred around a piece of meat (Holm et al. 2008; Healy 2019). Conversely, meals that do not contain a typical range of ingredients in familiar proportions are likely to be seen as lacking, for example in low-income people’s diets in Canada and the Netherlands (e.g. Hamelin et al. 1999; Neter et al. 2020). This point was highlighted as an obstacle to dietary changes such as replacement of meat with legumes in France (Melendrez-Ruiz et al. 2019). It seems, however, principally to be a question of *relative* proportions. Medagama and Widanapathirana’s (2015) participants, for example, regarded portion-restricted versions of typical Sri Lankan main meals as appropriate. Beyond a meal’s internal structure, CA also includes the pattern or sequence of meals. For example, Campbell (1991, 409) argues that the ‘social acceptability’ of food is constituted of both “normal meal patterns” and “conventional sources of food” (see also Holm 1993; Kuhnlein 2000).

The second dimension identifies the eating situation as shaping CA. For example, Belon et al. (2016) note that for Canadian participants it was socially accepted to consume unhealthy foods as a reward and to celebrate a special event. The idea that particular occasions shape the CA of food consumption is reflected in a Danish dietary intervention, in which participants experienced difficulty adhering to a modified diet when eating out or eating with family: the normative demands of these “social eating events” lessened the appropriateness of intervention diets (Nielsen et al. 2008, 181). Studies in (social) psychology explore how social context shapes CA through social norms and peer influence: for example, people adjust the amount they eat to match a co-eater, particularly if appropriate portion sizes are ambiguous (Florack et al. 2013). This applies both to people who are physically co-present (Robinson et al. 2013) and people who are not, whose behaviour is inferred through environmental cues such as empty serving plates at a buffet (Raghoebar et al. 2019).

### **Theme 6: Cultural appropriateness as shaped by the context of food acquisition and preparation**

Theme 6 also directs attention to the situated dynamics of CA, but broadens focus from the eating context to the practices prior to consumption. In this view, *CA is shaped by the context of food acquisition and preparation*. Almost all work in this theme focuses on food security, and a large proportion

draws on Anderson et al.’s (1990, 1560) definition of the term, which emphasises that CA involves both the *what* (‘acceptable food’) and the *how* (‘socially acceptable ways’) of eating. Both are accordingly prominent across the five key dimensions within this theme. Two dimensions relate more to personal factors (ability to choose, psychosocial impacts), and three to more social factors (‘normal’ acquisition and preparation, gendered norms, social participation). We discuss each in turn.

The first dimension emphasizes that people’s (in)ability to *choose* the food they eat is of central relevance to CA (e.g. Campbell 1991). Greater freedom of choice in food acquisition enhances appropriateness, for example in Australian people’s preference for supermarket-style food aid rather than food parcels (Booth et al. 2018; see also Arduin and Saïdi-Kabeche 2022). Similarly, North American studies indicate how CA is impeded by lack of access to stores catering to ethnic minorities (Vahabi and Damba 2013; Joassart-Marcelli et al. 2017; Breger Bush 2021), and thus familiar and culturally-preferred foods (see Theme 4). A closely related finding within this dimension is that food people are obliged to eat—typically due to challenging circumstances—is often culturally inappropriate in various ways. It may be of insufficient quality or quantity, such as people receiving large amounts of unhealthy or culinarily incompatible products from a food bank (Neter et al. 2020; see also Beacom et al. 2020), or insufficiently diverse and monotonous (Neter et al. 2020; Arduin and Saïdi-Kabeche 2022). It may also be unfamiliar and thus difficult to prepare and cook (Vahabi and Damba 2013; see also Micheelsen et al. 2014).

The second dimension emphasizes the psychosocial impacts of culturally inappropriate food acquisition. Agency is central, and diminished agency in food acquisition—particularly in Western consumer societies—negatively impacts CA (Campbell 1991; O’Connell et al. 2019). A prominent example of this is how reliance on food aid or unorthodox methods of food acquisition (e.g. obtaining food from bins) jeopardise people’s dignity (Arduin and Saïdi-Kabeche 2022; Watson et al. 2022), leading to feelings of shame, stigma and embarrassment (Lentz and Barrett 2013; Vahabi and Damba 2013; Snelling et al. 2014; Tobin et al. 2016; Neter et al. 2020; Tims et al. 2021), or a feeling of “failure to meet personal expectations of self-sufficiency” (Quandt et al. 2001, 372).

The third dimension associates CA with the ability to acquire food in ‘normal’ ways, i.e. typical in a given social context. This includes conventional sites of food acquisition, such as grocery stores and restaurants in the West (Campbell 1991), as well as food acquisition strategies. In the West this typically involves buying food in a capitalist market exchange, rather than—for example—foraging (Schunko and Brandner 2022). For example, a food aid scheme in Australia where people could eat subsidised

meals at local cafes and restaurants (Doljanin and Olaris 2004) was experienced as more CA than food banks in the Netherlands (Neter et al. 2020). However, the relative ‘normalcy’ of food acquisition strategies is complex, operating as a kind of continuum. For example, Watson et al. (2022) contrast ‘orthodox’—i.e. socially acceptable—means of food acquisition for food insecure people (such as sharing food with or borrowing money from friends and family), with ‘unorthodox’, less acceptable strategies, such as begging, stealing, or exchanging sex for food or money to buy food (see also Hamelin et al. 1999). As with Themes 4 and 5 above, the relationship between (un)orthodox acquisition practices and CA is dynamic. For example, while obtaining food from bins (‘dumpster diving’) is used as a coping strategy (Watson et al. 2022), it may also become regarded as more acceptable (Eikenberry and Smith 2005; cf. Lehtonen and Pyyhtinen 2021). Similarly, the (in)appropriateness of food acquisition practices is also culturally relative: what is unacceptable in Bangladesh, for example, may not be in the US (Coates et al. 2006). Indeed, even in the same town, different ethnic and age groups may regard different forms of food aid as socially acceptable (Martin et al. 2003). This differentiation also extends into research. While Campbell (1991, 409) considers “conventional food sources” (in the West) to include government food aid alongside grocery stores and restaurants, Mares (2013) suggests that food aid itself is a fundamentally inappropriate way of making sure people have adequate food (see also Hamelin et al. 1999).

The fourth dimension of CA food acquisition relates to gendered norms around how food is obtained. Mares (2013), for example, shows how food aid for Latinx migrants to the US are more CA for men than for women, due to “gendered expectations about how men and women should interact with food and the social networks that are built and sustained in these kinds of public spaces” (2013, 11). Gendered differences in CA were also observed in Libya (Sehib et al. 2013), where norms around the inappropriateness of traditional markets for women are associated with the growth of supermarkets, which provide an alternative, female-friendly space.

The fifth dimension emphasises that CA food consumption allows for social participation, such as providing a meal for family or friends that accords with aforementioned norms about what, how, when and where things should be eaten (Healy 2019; O’Connell et al. 2019; Beacom et al. 2020). For example, a Dutch food aid recipient regretted being unable to serve a ‘proper meal’ to her visiting son (Neter et al. 2020, 1652). Forms of food aid resembling ‘conventional’ food practices (see above) may allow for greater social participation and thus be more CA (Doljanin and Olaris 2004; Lindberg et al. 2019).

## Discussion: Cultural appropriateness, conceptualisations of change, and sustainable food system transformation

Having identified six key themes in how CA is conceptualised in relation to food consumption we now critically reflect on our findings, exploring the implications of our analysis for sustainable food system transformation. This section builds on the foregoing discussion of what CA *is*, in the sense of charting its conceptual variability, to ask what CA *does*, in the sense that different ways of conceptualising CA entail different scientific, practical and political effects. In this vein we draw on the idea that theories and concepts are performative artefacts (Larsen 2020) that shape rather than reflect reality (Callon 1998). We examine how the six themes (implicitly) conceptualise *change* in relation to CA (cf. Fuchs et al. 2016), as change is fundamental to societal transformation. Rather than exploring general ideas of how dietary change works, however, we consider specifically how CA itself might change, or—perhaps more importantly—might be *maintained* in the face of changing food practices (e.g. following migration). We also consider who or what drives such change, and thus bears responsibility either for changing CA in food consumption or for maintaining CA as food consumption changes (cf. Díaz-Méndez and Lozano-Cabedo 2020).

Across the six themes, we identified two distinct perspectives on change (see Table 3). Below we explain how each perspective views CA in relation to food consumption. We examine the implications of these perspectives for efforts to understand and accelerate sustainable food system transformation.

### Perspective 1: Cultural appropriateness as static, a problem to be solved

In the first perspective, CA is seen as relatively static, and a problem to be solved. This perspective includes Theme 1, in which culturally appropriate foods conform with existing dietary practices; Theme 2, in which CA food provides a satisfactory substitute for a conventional equivalent; and Theme 3, in which CA is the acceptability of food to individuals.

All three themes view CA as a relatively intractable constraint hindering transition from a current (undesirable) state of affairs, where diets are suboptimal in one or more ways—e.g. nutritionally inadequate, environmentally damaging—to a future (desirable) state of affairs, where diets are optimally reconfigured (e.g. healthy, sustainable, affordable). The implicit assumption is that CA is unlikely to change (or cannot change), requiring food system

transformation efforts to work around this constraint: for example, through policy development and dietary guidelines (Theme 1), formulation of new foods (Theme 2), or convincing consumers to adopt new foods (Theme 3). However, while CA is viewed as a rather static phenomenon across all three themes, the extent of its immutability varies. Theme 2 is highly static: its focus on developing ‘improved’ foods that can easily substitute existing ones implies that current diets cannot change. Themes 1 and 3 are less static, implying dietary changeability through guidelines, product design, and information provision: however, current diets and implied consumer conservatism ultimately remain benchmarks for determining appropriateness.

Within this perspective, consumers are accorded a relatively diminished role, whereas other food system actors are (implicitly or explicitly) framed as responsible for maintaining CA during dietary change. These include policymakers and dietitians (Theme 1), food producers and scientists (Theme 2), and a set of unnamed information-providers (Theme 3). As such this perspective might be termed ‘top-down’, because responsibility for ensuring CA is imputed to actors associated with the ‘supply-side’ of food and its governance. Consumers themselves are framed as both a beneficiary of, and a hindrance to, such top-down efforts to ensure the CA of changing foodways.

Consequently, this perspective has particular implications for sustainable food system transformation, opening up certain analytic and practical possibilities and foreclosing others. For example, its prominent focus on individual food products generates insight into potential supply-side changes that could aid sustainability. This focus, however, may overlook the food practices into which new (or modified) products must ‘fit’, obscuring how consumers negotiate such products into established diets (cf. House 2019). Nevertheless, simplification can also be generative. It enables the development of concrete solutions, for example, such as foods that people may be more likely to want to eat.

This perspective also has implications for the levers or mechanisms available to steer sustainable food system transformation. Given that most research in this vein derives from the individually-focused social sciences, the apparent lack of emphasis on consumer responsibility in food system transformation may seem paradoxical. Consumers are accounted for, however: they are crucial for the success of such transformations, but are not assigned primary responsibility. Consequently, mechanisms for engendering sustainability transformations—such as product development and information campaigns—focus on targeted interventions to steer consumers into making better choices. CA, from this perspective, needs to be ensured by broader food system actors during societal transformation. To be clear, this view of food system governance is not inherently ‘good’ or ‘bad’.

However, we emphasise that particular understandings of CA are inextricably bound up with broader understandings of how societal change works and who is responsible.

Relatedly, one might argue that Perspective 1 is relatively politically conservative, as it typically accepts and works with the current state of affairs rather than against it. Researchers focus on solutions—such as developing new foods—that aim to ensure CA without significantly reconfiguring social, economic or political relations (contra Perspective 2). Again, this is not ‘good’ or ‘bad’: whether this orientation is appropriate depends on a researcher’s objectives. Small steps towards achieving sustainability within the current food system (e.g. fortified yoghurt) are arguably more worthwhile than a focus on more far-reaching systemic change (e.g. universal basic income). As above, we simply emphasise here that an apparently innocuous term like ‘cultural appropriateness’ has substantial scientific and practical implications.

### **Perspective 2: Cultural appropriateness as dynamic and negotiated**

The second perspective views CA as a dynamic and negotiated process. This includes Theme 4, where CA is alignment of food practices with people’s preferences; Theme 5, where CA is shaped by eating context; and Theme 6, where CA is shaped by the context of food acquisition and preparation.

These themes all view CA as simultaneously shaping food consumption and being fundamentally mutable. They differ, however, in focusing on varying manifestations of this phenomenon: people’s preferences (Theme 4) or the social context of consumption (Theme 5) and acquisition/preparation (Theme 6). Each theme views CA as a dialectic process: both a determining force on food consumption and something that demonstrably changes over space and time. Despite differences in emphasis regarding how malleable CA is, however, this perspective is nevertheless distinct from Perspective 1, where CA is viewed more as an obstacle to be overcome.

Perspective 2 emphasises consumer agency and creativity in maintaining CA during dietary change. It highlights, for example, the various strategies people employ to ensure the CA of food consumption despite the turbulence of migration, poverty, or illness. The responsibilities of other food system actors, such as policymakers, are not ignored: indeed, the focus of these literatures is often on enhancing inclusivity and effectiveness of public aid schemes, in which responsibility for effective food system governance is frequently ascribed to broader food system actors. But the greater emphasis on consumer agency here than in Perspective 1 shows a greater alignment with more ‘bottom-up’ approaches to change, in that consumers play a significant

role in ensuring the CA of changing foodways, or of shaping CA itself.

Perspective 2 has distinct implications for sustainable food system transformation. While it emphasises consumer agency—for example, in highlighting the creativity and resilience of people’s foodways in straitened circumstances—it is more ambivalent than Perspective 1 about the locus of responsibility for sustainability transformations. Here consumers are accorded a relatively larger share of responsibility for maintaining CA (e.g. creatively integrating unfamiliar foods into familiar or preferred dishes), implying a more ‘bottom up’ view of sustainable food system governance. As in Perspective 1 this seems paradoxical, because Perspective 2 contains a much larger proportion of work from less individually-focused disciplines (e.g. sociology, geography). This appears, however, to be an expression of the prevailing political tendencies in this work (see below), in which the agency of marginalised groups is recognized and celebrated. Responsibility for food system transformation is ascribed here, as above, to broader food system actors such as policymakers (e.g. reforming food aid, ensuring culturally-preferred foods are available). It is just that consumer agency in maintaining and dynamically shaping CA is also emphasised. So while consumers may not bear ultimate responsibility for maintaining CA in sustainable food system transformations, their role is framed more as something to work with, rather than to overcome.

Whether this approach is ‘good’ or ‘bad’, as we suggest above, depends on what researchers hope to achieve. We note, however, that conceptualising CA as dynamic and negotiated may raise difficulties for those wishing to intervene in the food system. It is one thing to emphasise consumer agency, but is it possible, or right, to suggest that consumers have the ultimate power to engender or inhibit food system transformation? In a similar vein, conceptual richness and theoretical complexity may lead to inertia or impotence: if things are so complex, what can we possibly do, other than provide retrospective critique? Where can we intervene—and can we intervene at all? There is arguably a trade-off between theoretical sophistication and practical operationalizability.

In any case, such decisions are unavoidably political. Perspective 2 arguably implies more far-reaching political change than Perspective 1, in that it often advocates more substantial food system reforms to achieve CA (e.g. overhaul of food aid). This does not make it ‘right’ or ‘wrong’. It is however illustrative of the divergent scientific and practical effects generated by different political orientations to food system research, which the often vaguely-defined term ‘CA’ may obscure.

Having examined both perspectives on CA, we argue that they are both potentially valuable: one is not ‘better’ than the other. Both, as we have shown, enable or constrain

different sets of scientific and societal objectives, bringing particular challenges and opportunities for understanding and accelerating sustainable food system transformation. While we do not wish to adjudicate between these perspectives, we do however wish to emphasise that researchers should be *explicit* about their commitment to a particular understanding of CA, because—as we show above—this has ‘downstream’ implications for scientific and societal applications of their work.

## Conclusion

This paper identified six main themes in how CA is conceptualised in relation to food consumption. We then critically examined these themes, considering their implications for sustainable food system transition. To do so we examined the implicit conceptualisations of change present in the themes, identifying two distinct perspectives on CA. Perspective 1 views CA as relatively static and a problem to be solved, whereas Perspective 2 views CA as a more dynamic, negotiated phenomenon. Both perspectives, we suggested, entail different scientific, practical and political effects, offering particular affordances for understanding and governing sustainable food system transformation. Whereas Perspective 1 focuses on specific, concrete steps, Perspective 2 tends towards more holistic accounts of why food consumption is or is not appropriate. The difference between these perspectives does not make one ‘better’ than the other. While the understanding of human activity in Perspective 1 could be viewed as less sophisticated than in Perspective 2, for example, Perspective 1 arguably provides a much clearer basis for designing successful food system interventions. There is likely to be a trade-off, we suggest, between theoretical sophistication and practical operationalizability. Such trade-offs are inevitable in the development and application of concepts: they do not render the term useless. However, it is important that the variability of CA is recognised and addressed in future uses of the concept, if only in the sense that researchers, policymakers or practitioners should be clear about what exactly they mean when they use it.

Given the clear need to define CA despite its complexity, we propose a tentative basic definition that we hope will offer a useful starting point for future researchers and practitioners. We define CA as follows:

Cultural appropriateness is the qualification of particular foods as appropriate to eat, in a particular manner, in a particular context. It is a relational phenomenon, arising through interaction between the embodied, enculturated dispositions of the eater(s) themselves and the socio-material context of consumption (includ-

ing socially-shared standards of normal or suitable conduct, available foodstuffs, and other social actors).

In relation to this basic definition, three key aspects of cultural appropriateness are important to highlight.

First, CA is both stable and dynamic. It is both a conservative force—as food consumers, we won't just eat anything—and a dynamic phenomenon, in that the bounds of CA demonstrably shift over time (e.g. Mucioki et al. 2018). This duality resonates with sociological theorisations of how social life is both essentially provisional, being enacted anew every day, while also being relatively stable, routinised and habitual (e.g. Shove et al. 2012). CA can and does change, but this is likely to be an incremental process.

Second, agency in the achievement of CA is distributed: no single actor is responsible. The two perspectives on CA we identified emphasised the agency of consumers, producers or other food system actors to different extents, relating to the perspectives' different practical and analytic objectives. Clearly, however, actors across the entire food system—including consumers—have some degree of agency in the establishment, maintenance and change of CA (cf. House 2018). The question of who has more or less power in this process, and how such changes work, is an empirical one.

Third, CA is more than just food. Previous research emphasises how CA encompasses diverse aspects such as food production, human rights and decision-making power within the food system (Hammelman and Hayes-Conroy 2015). Building on this, our analysis shows that even within the sphere of consumption alone there are a wide range of factors that shape whether or not CA is achieved. CA is not simply a property of what is eaten, but also where, when, how, with whom and why.

A final point, relating to the above discussion, is worth reiterating: CA is not an inherent property of foods. Its apparent stability is a property of recurrence in eating practices, from people generally eating in similar ways over time. While this stability makes it possible to talk about particular foods as 'being' culturally appropriate (e.g. 'pasta is appropriate for Italian people') in cookbooks, research articles or policy documents, such assertions are ultimately heuristic rather than ontological. Pasta was not 'appropriate' for Italian people, for example, in the centuries before it was recognised as a category of food (Serventi and Sabban 2002). Cultural appropriateness, while 'sticky', is ultimately mutable. However, this does not make it easy to deliberately change.

This point has particular implications for sustainable food system transformation. Although current sustainability challenges may contribute to unsustainable food consumption becoming culturally inappropriate (e.g. van der Horst et al. 2023), for example, this is not an automatic process. Indeed, the CA of proposed shifts in food consumption is a contested issue, as demonstrated by public resistance to meat

reduction initiatives (Michielsen and van der Horst 2022) or 'alternative proteins' such as insects (Berenbaum 2023). More abstract dietary propositions such as the EAT Lancet guidelines (Willett et al. 2019) also face challenges around CA, which are particularly evident when applied in practice (Wang et al. 2022). Researchers and practitioners should bear in mind that, when engaging in debates around sustainable food, the issue of CA—and the political implications of attempting to change its boundaries—will never be far away.

Despite the slipperiness and complexity of CA as a concept, it is nevertheless important to be clear about how the term is understood and operationalised. While CA has been frequently invoked in a range of research literatures to date, it generally remains undefined. This makes it difficult to understand, in many cases, what is actually being researched. But it also has more far-reaching implications, for example in relation to sustainable food system transformation. It is clear that sustainable food consumption will—among other things—need to be culturally appropriate too. But work in the area would provide more solid grounds for meaningful change if the question of what exactly CA *is* could be addressed head-on in the design and framing of research. This is particularly the case, we suggest, in relation to the transdisciplinary collaborations necessary to effectively address the 'wicked problem' of food system sustainability.

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## Declarations

**Conflict of interest** All authors declare that they have no conflicts of interest.

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