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Eating in Season—A Lever of Sustainability? An Interview Study on the Social Perception of Seasonal Consumption

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Abstract: Seasonality is a lever of sustainability. However, very little is known about the social perceptions of “in season” food consumption. We aimed to explore different French social groups’ perceptions of seasonality, “in season” food choices, and their respective advantages or disadvantages. We interviewed 73 individuals (general population = 32, clients of short supply chains = 28, Etiquettable (a sustainability app) users = 13). In-depth, semi-structured interviews using open-ended questions were conducted. Content and thematic, textual, and quantitative analyses were performed. We found four clusters of interviewees who differed in social backgrounds and motivations for eating “in season.” A social divide between individuals for whom “eating seasonally” was a priority (upper strata), and those who “eat unseasonally” (lower strata) was highlighted. An analysis of motivations showed a contrast between individuals who were familiar with seasonal food rhythms and aimed to support the local economy and the older generation for whom seasonal products gave better value for money. The implications of public action on sustainable consumption are discussed with respect to the knowledge of seasonality, targeted segments of the population, and a combination of arguments to encourage seasonal consumption.

Keywords: seasonality; food consumption; France; motivations; sustainability; social perception; social factors



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1. Introduction

Our food consumption model is moving toward incorporating sustainable food practices; this incorporation presents ecological, economic, and social challenges.

Food choices and diet are considered critical areas for sustainability today [1]. A quarter of the national greenhouse gas emissions come from food production [2]. As part of their daily activities, consumers must make choices that may have a serious impact on the environment [3]. One possible lever for consumers to limit the environmental footprint of their food choices remains relatively underdiscussed—consuming seasonal food, specifically fruit and vegetables, to reduce long-distance imports and unseasonal local production, both of which are energy-consuming [4].

The abundance of our societies has distanced us from seasonal rhythms. Technical innovation and developments in transportation and distribution networks have facilitated year-round consumption and allowed access to a large number of food products from elsewhere “in all seasons” [5]. Consequently, as part of an ecological transition, the return of seasonal foods is a matter of public action. Thus, the ADEME (the French Ecological Transition Agency) carried out several public information campaigns promoting “more virtuous” environmental practices with respect to seasonality.

On the political level, there was an amendment to the “Egalité et citoyenneté (Equality and Citizenship)” bill on 9 June 2016, which called for 40% of the products used in the food

service industry to be “local, seasonal and from sustainable sources” as of 1 January 2020. Lastly, “eating seasonally” is included in the recommendations of the French National Program on Nutrition and Health (www.mangerbouger.fr, accessed on 1 March 2022). Recently, consumers have also been increasingly interested in respecting seasonality. They have become more sensitive to the environmental impact of food choices in a bid to be committed to sustainable food consumption [6,7].

Through its presence in the public sphere, “eating seasonally” has become a new imperative. However, very little is known about the social perceptions of “in season” food consumption in France from a social point of view. The profile of individuals who follow the “eating seasonally” recommendations is yet to be determined. The perceptions of “seasonal” products have been analyzed in Anglo-Saxon countries [8,9], particularly with regard to the characteristics attributed to them, and have been perceived as having better taste, freshness, and quality [8,10], similar to qualities associated with “local” products [11]. However, they are associated with the idea of being more expensive, less practical, time-consuming, and less varied. For a long time in France, we have had only a small amount of survey data regarding this topic [12].

Considering the importance of seasonality toward more sustainable choices and the lack of knowledge regarding the perceptions of seasonality in France, our study aimed at:

- Examining the differences between social groups in terms of “seasonal” and off-season consumption practices and perceptions to assess the potential for generalization of “good practices” in terms of sustainability. The following three aspects relate to sustainability: environmental, social, and economic [13]. Which aspects are individuals referring to when discussing seasonality?
- Analyzing the values and perceptions of individuals, and the way they combine ecological, economic, hedonic, health, and ethical motivations. To what extent can seasonal food be considered a lever for more sustainable diets in the French context?
- Identifying the socio-economic and cultural factors that lead to the adoption of environmentally friendly food practices. From a social point of view, it is not known whether there are differences among social groups or socio-economic factors.

2. Materials and Methods

2.1. Study Design and Participants

To address these questions, our study used a qualitative survey to understand the diverse perceptions of seasonality. We used the 32-item consolidated criteria for reporting a qualitative research checklist [14].

We conducted in-depth, individual, and semi-structured interviews with 73 participants. Participants were asked open-ended questions about their food choices and perceptions of “eating seasonally.” The following areas were covered: daily dietary habits, perceptions of seasonality, perceptions of sustainability, and practices related thereto.

To ensure a diversity of interests, three sub-populations were considered (Table 1):

- (1) The “general” population (n = 32)

Table 1. Design of the qualitative sample.

Eating in Season: 3 Different Sub-Samples		
General Population Socially contrasted sample 32 interviews Urban, peri-urban, rural areas Paris and entire France	Individuals committed to the environment Clients of organic stores and AMAPs 28 interviews Urban, peri-urban, rural areas Paris and entire France	Users of a sustainable cooking app Etiquettable users 13 interviews Paris and other regions

This set represented the general perception of environmental issues. Interviews with the lower and underprivileged strata (Parisian suburbs, eastern and northern France), milieus comprising the middle class (western and southern France), as well as the upper

strata (Paris, eastern, western and southern France) were conducted. Participants were recruited from urban, peri-urban, and rural areas. We also incorporated different age groups to determine possible differences based on age, generation, and stage of life. Participants were recruited via personal social networks.

(2) Individuals committed to the environment through food choices (n = 28)

This group consisted of clients of organic stores and members of short-distance, local food supply systems or AMAPs (Association pour le Maintien d'une Agriculture Paysanne/Association for Maintaining Small-scale Family Farming) in the very same regions as the "general" population. Participants were recruited directly in stores or at associations via personal social networks and with the help of a recruitment agency specialized in recruitment for semi-structured interviews.

(3) Users of a collaborative sustainable cooking app (n = 13)

To evaluate the role of digital technology in the field of food [15] and in the promotion of sustainable food practices [16], interviews were conducted with Etiquettable (<https://etiquettable.eco2initiative.com>, accessed on 1 March 2022) users. Half of the users were in the Paris region so that interviews could be conducted in person, and the other half were individuals from a variety of social backgrounds who lived in different parts of France and were interviewed over the telephone.

Participants were interviewed for 1–2 h, most often in their own homes. All interviews were recorded, transcribed, and anonymized. Transcriptions were performed by a team of transcription consultants trained for homogeneity in processing. The three researchers who conducted the field surveys were warmly welcomed by participants, who were excited to relate their perspectives regarding their daily food habits and expound on familiar seasonal topics. The focus of the first part of the interview, regarding the question of daily dietary preferences, provided a positive start, thereby encouraging participants to describe their tastes and daily habits fully. Moreover, the researchers' non-judgmental attitude toward food choices (seasonal and non-seasonal) allowed participants with unseasonal food habits to respond and participate with confidence.

Qualitative data were also collected from field notes, and interviews were completed with additional ethnographic observations. The size of the sample made it possible to achieve sufficient saturation; that is, each new participant in each group did not bring any new, substantial, or relevant knowledge to the survey. The total sample provided sufficient internal variation to draw solid conclusions regarding differences between practices and perceptions in relation to the social status of the participating individuals.

Analyses of the data were double-checked by the three sociologists and discussed and validated with the team involved in the project (i.e., the researchers who were directly involved, and the scientific committee of five experts).

2.2. Ethics

The goals of the research were explained to the interviewees, and their consent was obtained for participation in the research and for recording, in accordance with the European GDPR (General Data Protection Regulation). All interviews were anonymized, and respondents were given fictitious names. The interviewees were thanked with gift cards (€20).

2.3. Quantitative and Qualitative Analysis

The analysis was based on a triangulation of methods [17] consisting of:

1. Both classical content and thematic analyses of interviews;
2. Lexical analysis of the corpus of 531,260 words, using Hyperbase software (Hyperbase 9.0, created by Pierre Brunet, CNRS, Université Nice Sophia Antipolis, Nice, France);
3. Quantitative analysis of the codification of the interview responses (with the creation of 32 quantitative variables) and of the words making up the corpus.

First, content and thematic analyses were performed according to the principal themes of the interview guides. Other themes emerged, such as the importance of one's stage of life for interest in and knowledge of seasonality. Content and thematic analyses were double-checked, using Hyperbase. This lexical analysis was based on the specificity tables drawn for each interview by Hyperbase, using Z-scores that measured the over- or under-representation of a word in an interview with respect to the corpus as a whole (531,260 words).

Subsequently, a quantitative analysis was performed. We considered 32 different practices derived from 73 interviews. The data were coded according to the themes of the interview guide and the new themes derived from the content and thematic analysis. The identified themes led to the characterization of 32 different practices, measured as dichotomous variables, and related to the following points:

1. Eating habits
 - a. Seasonal eating habits,
 - b. Stores where food is purchased,
 - c. Criteria for food choices.
2. Perceptions of seasonality
 - a. Definition of a "seasonal" product,
 - b. Motivations for eating in season.
3. Knowledge of seasonality
 - a. Sources of knowledge,
 - b. Trigger of interest in seasonality.
4. Seasonality and sustainability, and other eco-friendly eating practices.

A principal component analysis (PCA, see complete results in Appendix A) of the 32 active variables was performed using the Stata software (Stata 17, College Station, TX, USA). As a robustness check, we conducted a multiple correspondence analysis that produced very similar results. The first three axes generated a correlation circle, representing the 32 active variables, and the illustrative (sociodemographic) variables were represented on the principal plane. These first three axes, accounting for 35 of the total variances of the sample, were used as active variables of a hierarchical ascending classification (Ward's method, squared Euclidean distance), designed to provide a coherent grouping of those who share the same practices, perceptions, and motivations when it comes to seasons (Figures A1 and A2, Tables A1 and A2). The clusters are represented on the principal plane of the principal component analysis, and the significance of the correlation between the cluster group and the 32 active variables (Phi coefficient) is presented in the Appendix A (Table A3).

The same analyses were performed on the discourses after lemmatizing the corpus (Figure A3, Tables A4 and A5). We proceeded to conduct a reasoned lemmatization of the 12,708 vocables contained in the corpus (each word was only counted once, even if it appeared on more than one occasion. Lemmatization refers to the grouping together of forms of words to a single canonical form (verbal forms to the infinitive, plural nouns to singular, adjectives to the masculine singular (in French)). Automatic lemmatization of a corpus has its limitations, so we preferred a manual lemmatization of our corpus, systematically verifying each vocable. For example, the feminine and plural forms of the adjective "local" (in French) were grouped together under the "local" lemma). Of the 537 lemmas, we processed a second PCA (see in Appendix A) of the 158 most selective (without being rare) ones to create a proximity matrix to establish ascending hierarchical classifications (clustering in 5 groups, see in Appendix A) to group individuals with homogeneous characteristics within the heterogeneous entity of the 73 interviews. Furthermore, performing a factor analysis enabled us to identify the best differentiators between these 73 individuals and to assess the structure of their discourses (Figure 1).

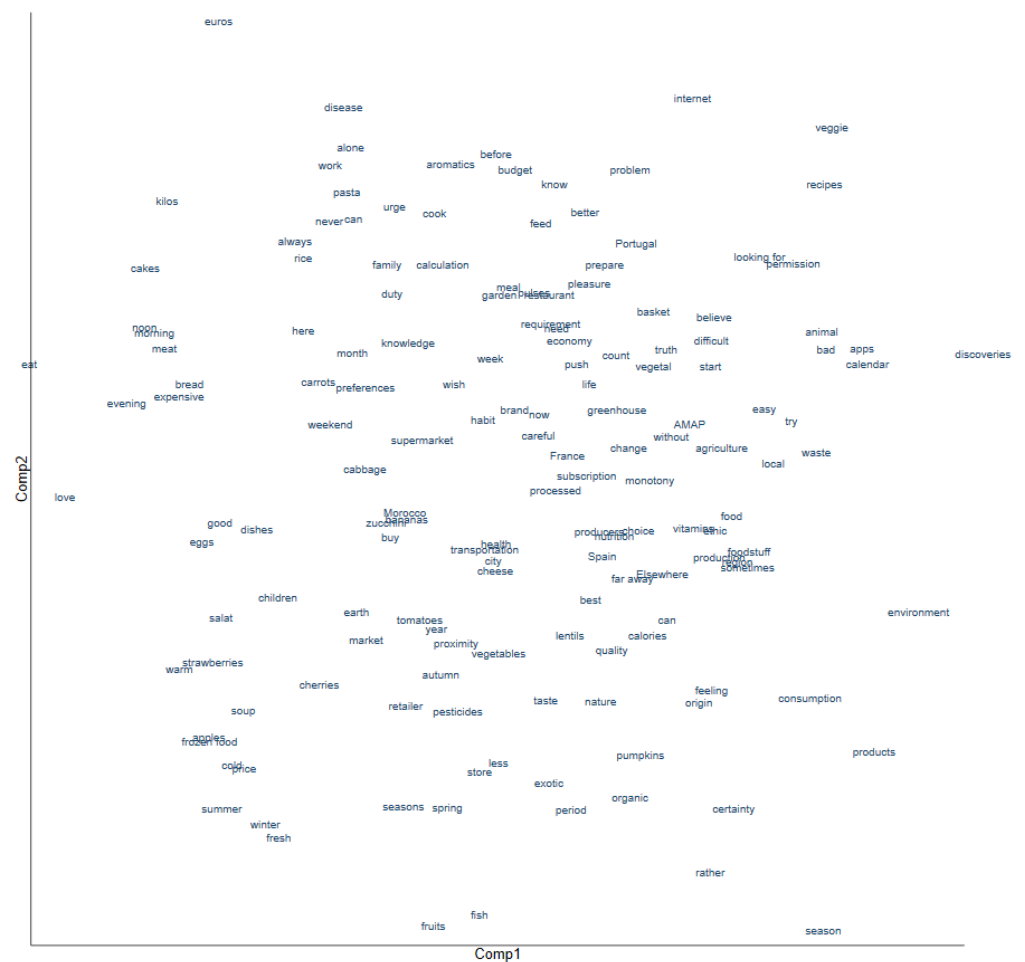


Figure 1. PCA correlation circle between components 1 and 2 of the 158 lemmas. Footnote: Components 1 and 2 are interpreted as “adhesion to eating seasonally” (7.8% of variance) and “motivations and constraints” (5.4%), respectively.

Both analyses (of the dichotomous 32 practices and of the 158 lemmas, see complete PCAs and clusters in Appendix A) delivered similar results. They have been synthesized in Figure 2.

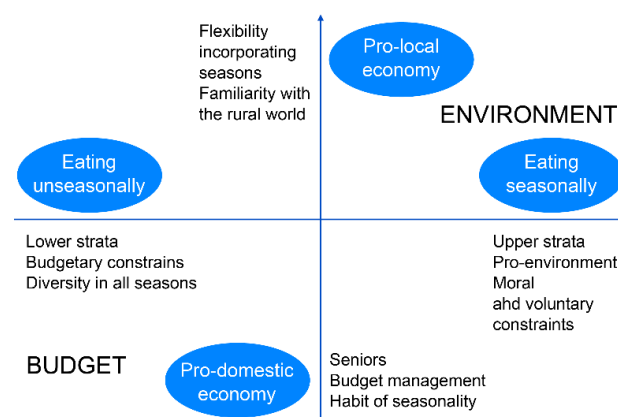


Figure 2. Perceptions of “eating in season”: Cleavages and motivations. Source: The diagram was derived from the static processing of the codified responses and words from the corpus. Axes 1 and 2 were derived from factor analyses. The third axis was derived from an in-depth interpretation of the material [18].

3. Results

3.1. Sociodemographic Characteristics

This contrasted sample included slightly more women than men (42 vs. 31). Women were a bit more eager to participate in a study related to food (Table 2) and more often in charge of the tasks related to food. We strove for a diversity of age, giving us access to different generations. Interviewees were aged between 19 and 73 years, with a mean age of 46 years. Interviewees also had diverse social profiles in terms of occupational status and standard of living, with participants belonging to the middle class (28), upper class (19), and working class (18). Eight participants were not engaged in active employment (retired people, students).

Table 2. Sociodemographic characteristics of the participants.

	Number	Percentage
Sex		
Female	42	58
Male	31	42
Age (in years)		
18–29	13	18
30–39	16	22
40–49	13	18
50–59	17	23
60+	14	19
Occupation		
Farmers	0	0
Self-employed	4	6
Upper management, experts, and professionals	19	26
Intermediate professions	24	33
Clerical	12	16
Manual workers	6	8
Retirees	3	4
Students	5	7
Total	73	100

3.2. Social Cleavage and a Diversity of Motivations

Two types of data processing revealed significant cleavage lines (Figure 2). The first cleavage contrasts individuals for whom “eating in season” is imperative (wealthy, urban, student categories) with those who eat “unseasonal” (lower strata). A second cleavage revealed opposition within the motivations to “eat in season” among individuals who were familiar with the seasons but adopted a more flexible approach. Some expressed their willingness to support the local economy, while others were motivated by a concern for the domestic economy. The third axis contrasts those for whom food choices are driven by sustainability issues (upper right), and those for whom choices are driven by budgetary issues (lower left) [18].

The differences in the four major groups of individuals’ relationship to the seasonality of food are depicted in Figure 2. The sample quotes for each group are furnished in Table 3.

Table 3. Groups, main themes, and quotes.

Group	Main Themes	Quote
Eating “in season”	An imperative	“In season, of course.”
	For the environment	“What I see, above everything else, is the ecological side.”
	Eco-gestures	“We try to be as clean as possible (. . .) we have stopped using chemical products.”
	Definition	“Something is in season if it does not have to be grown in a heated greenhouse.”

Table 3. Cont.

Group	Main Themes	Quote
Eating “out of season”	Positive view of seasons	“By following the seasons, we have already rediscovered products that we had forgotten about.”
	Budgetary constraint	“We mostly bought cheap vegetables. We went for the cheapest and not for “French” or “in season.”
	Disadvantages	“But it can be a little bland having to eat endives for two months.”
	A lack of knowledge	“I think it’s eating things based on [weather], like, having soup from December to February or March. After that, in the summer, barbecue.”
Pro-local economy	A refusal	“It’s as if it were an order. It’s imposed, totally imposed, on me. You have to eat this or that [. . .] when I want something, I want it.”
	An unattainable ideal	“Everything that is good has become a luxury.”
	Flexibly	“Normally, I try to buy in-season fruits and vegetables.”
	Familiarity with the rural word	“I was raised in it. We ate my father’s fruits and vegetables.”
	Local support	“I am all for supporting our producers.”
Pro-domestic economy	Nutritional benefits	“It is interesting nutritionally [. . .] it will be better for me in terms of minerals and vitamins.”
	Taste benefits	“I would say that it’s food that is full of flavor.”
	Price/quality ratio	“When a product is in season, it means that it’s less expensive. And that you have good products.”
	Self-evidence	“For me, it’s obvious. I’m not going to eat (. . .) a tomato salad in the winter.”
	A habit	“So (. . .) it’s a habit that I’ve had since I was very young, and it has persisted since then.”
	Quality of taste	“Buying something that isn’t good, I find that it gets expensive.”

3.3. Eating in or out of Season?

The first group—“eating in season”—included individuals for whom seasonality represented a binding imperative that drove their food choices. In most cases, these individuals belonged to the wealthy, educated, or student categories. Their choices were made with regard to seasonal variations. Out-of-season foods were viewed negatively and were often excluded.

These individuals reported “eating in season” mostly for environmental considerations (the “planet” and “carbon footprints”), thereby revealing the environmental dimension of sustainability through their comments. Seasonal eating was accompanied by other practices that were deemed environment-friendly (waste reduction, preferring the consumption of pulses to meat products). These individuals usually leveraged external knowledge, gained by consulting websites, referring to calendars, using applications such as Etiquettable, subscribing to vegetable baskets, or belonging to an association supporting small farming (AMAP).

This group included individuals who could define seasons most precisely, referring to natural production conditions and, in the case of those with the most expertise (who are also the most concerned about the environment), technical production conditions and, notably, the absence of heated greenhouses.

These individuals were interested in the seasons for all food items—not only fruits and vegetables but also meat, fish, and cheese. They emphasized that “eating in season” also helped them make new discoveries (vegetables that they were previously unfamiliar with or had never cooked before), which led them to follow the “eating in season” imperative in a particularly positive way.

Underprivileged Categories: Eating out of Season

Conversely, the individuals included in the “eating out of season” group belonged to underprivileged categories and were subject to the biggest financial constraints in the sample. These constraints were most evident when making purchases where price was the determining factor. Their purchases were predominantly made in supermarkets.

Seasonality was not a determining factor in these individuals' purchases or their diets, which led them to consume out-of-season products, either without explicitly stating so or, alternatively, in an assertive manner (by refusing the constraint of limiting their food choices to seasonal food items). They mentioned few benefits of "eating in season," referring to constraints such as a restrictive range of products and the weariness of eating seasonally instead.

Several sub-groups were identified. For the first sub-group, the lack of attention paid to seasonal rhythms stemmed from a lack of knowledge of seasonality. In fact, the interviews indicated an inability to define seasonal food and total ignorance of seasonal rhythms.

The price of certain out-of-season foods (especially fruits), led to seasonal purchase variations. Other individuals in this sub-group knew about seasonal cycles but claimed to enjoy being free of these constraints and appreciated the diversity of consuming "all-season" food.

The second sub-group included individuals who asserted that their refusal to eat "in season" food was a rejection of what they perceived as the limitation of their freedom of choice as consumers. They prioritized the pleasure of freely choosing food without constraints.

Finally, for the third sub-group of individuals, respecting seasonality represented an unachievable ideal. They perceived seasonal food to be something desirable but prohibitively expensive, which they would buy if they had the means.

3.4. Different Motivations

Alongside individuals who want to "eat in season" for the environment, the second cleavage revealed opposing motivations for following seasonal rhythms among those who follow the seasons without making it imperative.

3.4.1. Outside of Dense Urban Centers: "Eating in Season" to Support the Local Economy

A third group of individuals who were "pro-local economies" knew about the seasonal rhythms of food and followed their variations flexibly. For these individuals, seasonal purchasing habits were part of a routine that stemmed from their personal knowledge and familiarity with rural areas.

These participants spanned all social categories and generations; however, they shared the common trait of living outside urban centers, close to fruit and vegetable growing areas. They recognized the importance of seasonal rhythms and strived to follow them without making them imperative. For these individuals, respecting seasonality was an ideal that they targeted but did not always achieve. Eating out of season occurred; however, it was discouraged, not for ecological reasons, but due to the absence of taste in out-of-season food.

These individuals collectively displayed the greatest number of motivations that coexist; supporting the local economy, nutritional benefits (local and seasonal products are richer in nutrients), superior taste, and a greater sense of pleasure. They referred to the social and economic aspects of sustainability more than the environmental aspects.

3.4.2. Seasons and Household Budget Management among Working-Class Seniors

Finally, the fourth group included individuals who were "pro-household economy," and who demonstrated a strong concern for managing their budgets and seeking out the best quality/price ratios. Seasons, taken as a whole, were seldom part of the reflexive discourse. "Eating in season" was self-evident and an everyday fact, but they did not consider it to be an imperative. They made seasonal purchases a habit to manage their budgets better.

This group consisted of the oldest individuals in the study, belonging to the working and intermediate classes, and their attitudes were characteristic of the older generation in the study. Food shopping was conducted in both supermarkets and open-air markets.

Their motivations revolved around budget, taste, and quality. They sought the best quality/price ratio, and reconciling the economic and hedonistic aspects was paramount.

As such, buying out of season would lead to eating tasteless food (or wasting money), and they associated seasonal products with taste and quality.

4. Discussion

Several elements explaining these differences can be discussed here by highlighting the attention factors related to the seasons. Table 4 presents these factors using quoted examples.

Table 4. Explaining factors, main theme, and quotes.

Factor	Main Themes	Quote
Social status	Budget	"... [seasonal food] is quite expensive. When we see the price of vegetables, it makes us hesitate."
	Consumption of fruit and vegetables	"Never vegetables. I don't cook them. They usually just sit there and go bad."
	Knowledge	"I can't say 'this fruit' or 'this vegetable' is from which season."
Place of residence	Proximity to food-growing areas	"We want to prioritize local producers (...) give business to people from around here [...] Yes, I don't want it to come from the southern hemisphere while people from here, who can produce it, are unemployed."
	Familiarity with rural areas	"My reference points are what I had when I was a kid; what we had in the garden."
Trajectories	Individuals: life course	"It has always been present, this respect for seasonality and eating quality products from sustainable, organic agriculture rather than conventional agriculture. It has always been there. It's become systematic since we had children."
	Individuals: sickness and diet	"... the realization that as we age, one thing becomes important, which is to feel well tomorrow. This is determined by the way I eat."
	Collectives: seniors	"I come from a generation where that's the way it was. There was no globalization. We didn't have green beans or cherries at Christmas. So, it's become a habit."
	Collectives: young environmentalists	"[I eat local and in season] primarily for the planet."
Paths	Collectives: working class youth	"It's expensive anyway ... When you see the price of vegetables ... it cools you down a bit."
	Sustainable paths	"As we get interested in one subject, we get interested in the other, so it's like a snowball effect."
	Supply chains: product range in superstores	"When we go do our grocery shopping (at the supermarket), we no longer have the impression that there are seasons, because there are products available year-round, from all over the world."
	Supply chains: short and alternative food supply chains	"We had year-long vegetable baskets [...] it's a very good way to follow the seasons."

4.1. Social Perceptions of Seasonality

Our field results indicate that individuals who are most willing to eat seasonally belong to the wealthy categories, and those who are the most reluctant or least sensitive to seasons are part of the underprivileged categories. These results align with the econometric analyses of our project's purchasing data. Caillavet and Badji demonstrated that seasonal purchasing habits vary according to household types [19,20]. The youngest, least educated, and lowest-income households make the least seasonal purchases. Conversely, the oldest, most educated, and highest-income households make maximum seasonal purchases.

Our results align with studies on sustainability, revealing that individuals who are most concerned about the environment belong to the wealthy or middle classes. In terms of seasonality, those who pay the most attention to seasons and buy local products belong to the wealthy classes [8]. Similarly, individuals with the most environmentally driven

consumption belong to the wealthy, middle class, and highly educated categories, in both France and elsewhere [6,7,21].

Our qualitative data provide some explanation for these findings. Belonging to the lower strata brings budgetary issues that lead to favoring inexpensive food, whether in season or not. Furthermore, respecting seasonality is not a priority in the context of budgetary constraints. Being a part of the lower strata is also associated with lower consumption of fresh fruits and vegetables [22]. However, the results of the field survey revealed that interest in seasons was linked to the consumption of fruits and vegetables, the variety of vegetables consumed, and the form in which they were consumed (fresh rather than frozen or canned). The importance placed on fruits and vegetables in daily diets, without necessarily being tied to environmental issues, led them to be sensitive to seasonal rhythms, which was not the case for those who did not consume them regularly and who did not place much importance on them.

Finally, the pleasure of eating food and the valorization of abundance found in the lower strata [23] do not align with the limiting and ascetic character of “seasonal” consumption, which restricts food choices by excluding “out of season” products.

Social status refers to the skills related to knowledge and understanding. The ignorance of seasonal rhythms was especially prominent among the youth from the working classes. In higher social classes, calendars (whether on paper or in the digital format) proved to be a valuable source of knowledge for environmentally motivated individuals who were unfamiliar with the seasons and were far from rural areas.

Similarly, studies demonstrate strong links between concern for the environment (most evident in the wealthy categories) and the implementation of environment-friendly dietary practices [24].

4.2. Territorial Affiliation: Proximity to Rural Areas and Identification with a Territory

The second factor that shed light on seasonal practices was territorial affiliation. However, it is more than just an opposition between rural connoisseurs and urbanites who are unfamiliar with seasons. Familiarity with the season can be classified into two categories. First, we observed that living near vegetable-growing areas or residing in an urban environment close to a rural area, for example, in southwest France, led to familiarity with seasonal rhythms. Second, this familiarity also ran in the family (family members were farmers or had a vegetable garden) or the society (through professional experience in rural areas). These results reinforced the lessons stemming from the analysis of purchasing data, which revealed that having a vegetable garden or living close to growing areas encouraged seasonal fruit and vegetable purchases [19,20]. Here again, the field surveys provided an explanation. The desire among individuals living in rural areas to eat in season could be explained by their proximity to (or identification with) local producers whom they knew and wanted to support through their purchases. This attitude was observed in other contexts where it was described as an “ethnocentric trend”, leading consumers to favor the purchase of domestic products [25].

4.3. Individual and Collective Trajectories

Other factors stemmed from individual or collective trajectories; individuals in the sense that events, transitions, and disruptions over the course of one’s life constituted a trigger for focusing on seasons.

Life events have a significant influence on food choices [26]. For example, having a child results in more attention being paid to food [27]. Similarly, one’s stage of life can influence one to consume less meat, be it for health, environmental, or budgetary reasons [28]. Becoming a parent makes one pay more attention to seeking “better” food, which is most often characterized by “organic” and “seasonal” fruits and vegetables.

Finally, becoming older and experiencing illness drive a heightened interest in the impact of food on one’s health, specifically with respect to the natural growing periods of food. Some studies have shown that older adults may undergo positive dietary changes

after the onset of certain chronic health conditions [29]. Research on the impact of retirement on diets revealed that vegetable consumption increases with age [30].

4.4. *Generational Affiliation, a Key to Understanding Seasons*

Collective trajectories, as generational affiliations, provide a key to understanding the perception of seasons. The field results show that the seasonal practices and perceptions of the oldest individuals in our corpus differ greatly from those of other individuals in the study. They are mindful of seasonal rhythms without elaborating on them extensively. For them, eating in the season is a reflex, not something that they have to think about. Their choice to eat seasonally is not driven by the environment but rather by habit or household budget.

The characteristics of the older generation can be explained through several factors. First, sexagenarians and septuagenarians consume more fruits and vegetables than other age categories. Despite accounting for only 36% of the population of France, they purchase 45% of the fruits and vegetables [31]. We previously noted that eating fresh fruits and vegetables was associated with interest in seasons. They do most of their grocery shopping in outdoor markets, which is also considered a factor in the attention paid to the seasons.

Moreover, their precise knowledge of seasonality is linked to food socialization, where seasons were “taken for granted” and where unseasonal food was rare and costly. It is also linked to an era when there still existed a strong connection to the rural world (a time when close to 30% of the French society worked in agriculture, compared to 4% today). Undoubtedly, the rise of supermarkets in the 1950s and hypermarkets in the 1960s accelerated the standardization and de-seasonalization of the available fruits and vegetables. However, studies have also pointed to the importance of eating habits acquired by the youth [32].

Generational differences can also be observed in the analysis of the position of the younger generations. Two opposing profiles emerged among the younger generations. On the one hand, some of the young participants in the study (who mostly belonged to the lower strata) ate “without seasons” and displayed the most frequent out-of-season food practices. They did not know anything about seasonal rhythms, which was exacerbated by a dislike of vegetables by some of them—a common characteristic of the working classes [33]. The end of rural society distanced subsequent generations from the rural world. This could explain the “unseasonal” attitudes of the segment of the younger participants in the study who belong to the lower strata. In addition, the context of the economic crisis and the weakening of the wage-earning society and the working class [34] led to budget management becoming the determining factor for food choices. In 2018, 20% of the lowest-income households allotted six to seven points more to the food budget (eating at home) than the wealthiest 20% [35].

On the other hand, the study also revealed a second profile of young individuals—students who were very concerned about environmental issues and who consequently made “in season” food choices. They were the most sensitive and open to the environmental aspect of eating seasonally and had a strong desire for knowledge. They used digital technology as an access point for knowledge related to eco-gestures and sustainable food [36]. Our results align with other studies that highlighted the commitment of the young generation to sustainability issues [37], the diversity of a generation with different views on climate change, and the role that nutrition can play in it [38].

Finally, the generational divide also leads to the observation of a social inversion of the attention paid to the seasons. For the generations born before the Second World War, eating “out of season” was a practice reserved only for the “rich.” Today, the willingness to eat “in season” is more characteristic of the wealthy.

4.5. *The “Snowball Effect” of Seasonality*

Interest in the environment and the use of specific supply chains can shed light on the interest in the “eating in season” imperative. Studies have shown close links between the awareness of climate change and dietary choices [39].

Indeed, individuals in our sample described a “journey toward sustainability,” which gradually increased their interest in seasonality, starting with environment-friendly actions unrelated to food, which, through a snowball effect, led to sustainable eating habits. This journey, most often, started with environment-friendly actions unrelated to food (waste sorting, a desire to achieve “zero waste,” and making “homemade” cleaning or personal care products) and led to more sustainable food practices.

4.6. The Supply Chain

The type of shops that are patronized by the participants is another important lever of interest in seasons and knowledge of seasonality. The flexibility of the range of vegetables available throughout the year in superstores (the primary location of purchases) sheds light on the tendency toward de-seasonalization of dietary practices. About 62% of fruit and vegetable purchases are made at superstores (supermarkets, hypermarkets, and hard discount markets), as opposed to only 11% at outdoor markets [31]. Studies have shown that purchasing from superstores leads consumers to have lower exposure to information on the origin and seasonality of the products [9]. Similarly, the strategies employed by superstores in terms of the layout of their offerings allow them to dictate their seasonal rhythms [5].

These differences related to supply chains also reflect social differences: superstores and hard discount markets are favored by low-income households [40], while those who are most interested in seasons, i.e., seniors and individuals from the wealthiest categories, tend to make purchases at markets, short food supply chains, or local retailers [33].

In contrast, short or alternative supply chains raise awareness about seasonal rhythms, and studies have highlighted their role in sustainability [41]. In our sample, participants who made purchases from local food supply chains emphasized that access to short-distance, local food supply systems in all varieties [42] led to their awareness of seasonality and a desire to respect it.

5. Implications

Seasonal eating can constitute a lever of sustainability under certain conditions (see the recommendations of F. Régnier and F. Caillavet [19]). Consumer information can also be an important lever [43]. Thus, food knowledge should be expanded, especially for vegetables, which tend to be less noticeable than fruits in food offerings. In the absence of an official label, some simple reference points should be added for consumers who often confuse “local” or “organic” with “in season.” These results, which were obtained in a French context, are similar to those of other studies that have shown the difficulty of delimiting local produce [1].

In the area of sustainability, recent studies have suggested that eco-labels could be effective tools [44,45] to simplify communication about sustainable food issues. Our participants expressed a strong need for a label that would allow them to identify whether a product was seasonal easily. Likewise, the introduction of labels might help them differentiate “local” from “in season,” two terms that are important for consumers but are often confused with one another.

Finally, consumers should be informed about the environmental impacts of eating out of season—especially impacts that are poorly understood and incorrectly prioritized. A relevant example is the difference between food that is produced “in season” but comes from far away versus food that is produced in a heated greenhouse.

Certain targets were also identified in this study. First, it appears possible to target favorable dynamics, e.g., individuals outside the food industry who are committed to the environment and are quite open to making environment-friendly food choices, particularly with regard to the seasons. Those who are less interested in the seasons should also be targeted, particularly those belonging to the younger generation of the working class and, more globally, individuals from the lower strata. However, some checks and red flags must be established to ensure that an appeal to only eat “in season” does not lead to a reduction in the consumption of fruits and vegetables. This could begin by removing the barriers

to eating fresh fruits and vegetables experienced by the working class. Impediments to seasonal eating include cost, preparation time, risk of wastage due to perishability, and the often negative perception of vegetables.

Another important takeaway from our study is the necessity to refer to several arguments and to take the importance of social differences in the perception of seasons into account. The environmental aspect is not legitimate for everyone. Therefore, for those with less interest in seasonality (the less educated), different aspects of sustainability should be stressed (cost, taste, quality and price/quality ratio), rather than just environment-related aspects. In terms of product range, more work should be undertaken to create transparency and awareness about production related to seasonality.

Limitations

This is a qualitative study; the method of face-to-face interviews was particularly beneficial in obtaining first-hand access to participants' perceptions. In order to verify our results, we systematically discussed them with those obtained from the quantitative part of our project. The results were congruent.

Our analyses focused on the consumer. Further research is needed to understand the role of the offering (place of purchase, labeling, etc.) to augment the current study.

6. Conclusions

Eating “seasonally” has been included in public policy and generated substantial interest among food industry professionals and consumers alike.

Our study aimed at examining the social perceptions of seasonal consumption and the socio-economic factors of these differences. Thus, our paper sheds light on the importance of social differences, both in terms of the importance placed on seasonal rhythms and the reasons for seasonal eating. For a part of the population (urban, well-educated people), “eating seasonally” has become a requirement pertaining to environmental motivations. For those in proximity to rural areas, the concern for “local” is a motivating factor for eating seasonally, while for older generations and some part of the working class, seasonality is a way of managing the budget as well as a part of one's lifestyle.

These social differences should be addressed in public policies to take into account environmental and social issues simultaneously. Given the increase in social inequalities and climate crises, our study offers significant insights for combining social issues and environmental questions.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki. We strictly complied with the European RGD (“Règlement Général sur la Protection des Données”, “General Data Protection Regulation”, GDPR).

Informed Consent Statement: Informed consent was obtained from all participants involved in the study.

Data Availability Statement: Raw data from the interviews are not publicly available due to RGD. Anonymized data can be made available upon reasonable request.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

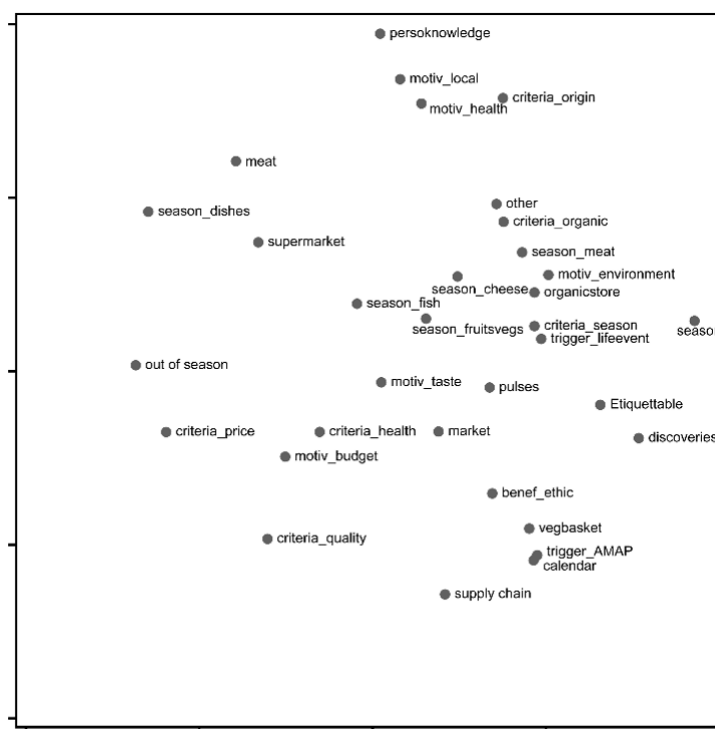


Figure A1. PCA correlation circle between axes 1 (horizontal) and 2 (vertical) of 32 practices. Footnote: Axes 1 (Comp1) and 2 (Comp2) are interpreted as the “adhesion to eating seasonally” (15.9% of variance) and “motivations for eating seasonally” (8.2%), respectively. See abbreviations in Table A1.

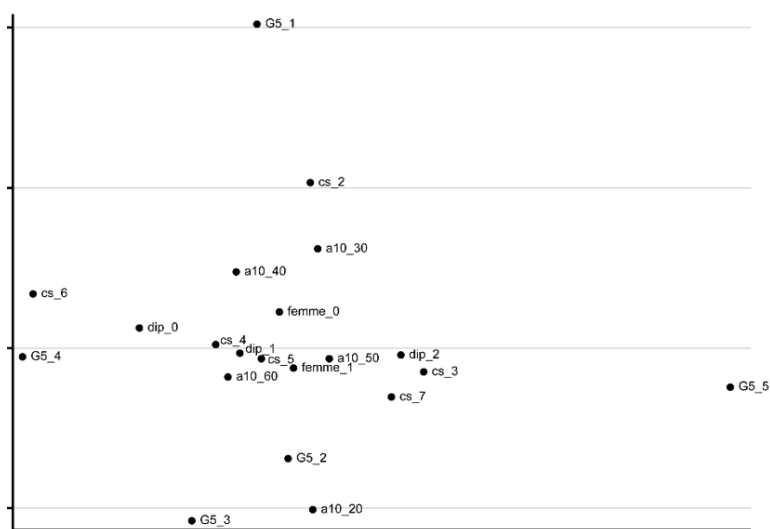


Figure A2. PCA of 32 practices: Principal plan axes 1 (horizontal) and 2 (vertical) of descriptive sociodemographic variables. Footnote: see Figure A1.

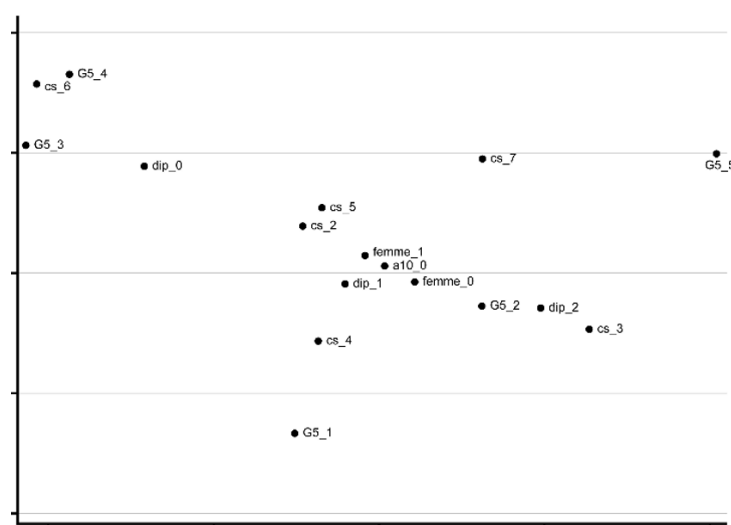


Figure A3. PCA of the 158 lemmas: Principal plan axes 1 (horizontal) and 2 (vertical) of descriptive sociodemographic variables. Footnote: Components 1 and 2 are interpreted as “adhesion to eating seasonally” (7.8% of variance) and “motivations and constraints” (5.4%), respectively.

Table A1. Abbreviations of descriptive and sociodemographic variables.

Variable	Abbreviation
Male	sex1
Female	sex2
Aged 18 to 29	age 10_20
Aged 30 to 39	age 10_30
Aged 40 to 49	age 10_40
Aged 50 to 60	age 10_50
Aged 60 and more	age 10_60
Farmers	cs_1
Self-employed	cs_2
Upper management, experts, and professionals	cs_3
Intermediate professions	cs_4
Clerical	cs_5
Manual workers	cs_6
Retirees	cs_7
Unemployed	cs_8
Students	cs_9
≤A level	dip_0
BA/BS degree	dip_1
≥Master’s degree	dip_2
Cluster 1	clu5_1
Cluster 2	clu5_2
Cluster 3	clu5_3
Cluster 4	clu5_4
Cluster 5	clu5_5

Table A2. PCA of 32 practices, details: components.

Variable	Comp1	Comp2	Comp3
season	0.3738	0.0596	−0.0285
out of season	−0.2728	0.0078	0.1174
meat	−0.1561	0.2428	0.0852
vegbasket	0.1816	−0.1811	0.1497
market	0.0769	−0.0694	0.1467
organicstore	0.1900	0.0924	0.2383
supermarket	−0.1315	0.1498	−0.0722
benef_ethic	0.1402	−0.1411	0.0352
motiv_budget	−0.1003	−0.0993	−0.2057
motiv_environment	0.2037	0.1126	−0.0845
motiv_taste	0.0121	−0.0127	−0.2680
motiv_health	0.0580	0.3111	0.1868
motiv_local	0.0336	0.3388	0.0384
Etiquetable	0.2661	−0.0389	−0.0656
discoveries	0.3104	−0.0773	−0.1701
season_fruitsvegs	0.0625	0.0599	0.0897
season_meat	0.1740	0.1369	−0.0244
season_fish	−0.0144	0.0786	0.2592
season_cheese	0.0989	0.1099	−0.0225
season_dishes	−0.2587	0.1859	0.1425
criteria_quality	−0.1199	−0.1925	−0.2372
criteria_price	−0.2379	−0.0696	−0.2875
criteria_health	−0.0607	−0.0691	0.4501
criteria_season	0.1872	0.0523	−0.1958
criteria_origin	0.1504	0.3170	−0.0294
criteria_organic	0.1553	0.1742	0.2692
trigger_AMAP	0.1934	−0.2117	0.0699
trigger_lifeevent	0.1963	0.0379	−0.0824
pulses	0.1378	−0.0191	−0.0451
persoknowledge	0.0103	0.3919	−0.2467
calendar	0.1882	−0.2187	0.0602
supply chain	0.0858	−0.2578	0.1454
other	0.1446	0.1931	−0.1757

Table A3. Correlation between active variables and clusters of 32 practices (Phi coefficients).

	Themes	Active Variables	g1	g2	g3	g4	g5
Eating habits	Eating in/out of season	Out of season	−0.0286	0.0662	−0.0540	0.4642 *	−0.4333 *
	Supply chains	Basket, AMAP	−0.2115	0.2391 *	−0.0427	−0.2500 *	0.3038 *
		Market	−0.1424	0.1354	−0.0522	−0.0294	0.1165
		Organic store	0.0341	0.1823	−0.3853 *	−0.1484	0.3825 *
		Supermarket	0.0867	−0.0080	−0.0659	0.2629 *	−0.2735 *
	Purchase criteria	Quality	−0.2020	−0.1605	0.5360 *	−0.0682	−0.1774
		Price	−0.0189	−0.3533 *	0.3453 *	0.2538 *	−0.2985 *
		Health	−0.1865	0.8760 *	−0.2737 *	−0.0895	−0.2146
		Season	0.0253	−0.1605	−0.0834	−0.1774	0.3958 *
		Origin	0.3694 *	−0.1267	−0.1742	−0.2932 *	0.2121
		Organic	0.1842	0.3109 *	−0.3434 *	−0.2722 *	0.1757

Table A3. *Cont.*

	Themes	Active Variables	g1	g2	g3	g4	g5
Perceptions of seasonality	Seasonal foods	Fruits and vegetables	0.1048	0.0833	−0.1051	−0.1629	0.0921
		Meat	−0.1460	−0.1160	−0.1636	0.0138	0.4399 *
		Fish	−0.0490	0.2723 *	−0.0892	−0.0651	−0.0344
		Cheese	0.0236	0.0955	−0.1114	−0.1660	0.1787
		Dishes	0.2222	−0.0029	−0.3264 *	0.5268 *	−0.3903 *
	Motivation for eating seasonally	Budget	−0.0388	−0.1167	0.4469 *	−0.1427	−0.2183
		Environment	0.1760	−0.1770	−0.0040	−0.2734 *	0.2533 *
		Taste	0.0249	−0.1217	0.2027	−0.0878	−0.0575
		Nutrition	0.3647 *	−0.0242	−0.3638 *	−0.0733	0.1185
		Local	0.6087 *	−0.1803	−0.2543 *	−0.1993	0.0014
Knowledge of seasonality	Trigger for eating seasonally	Discoveries)	−0.1919	−0.2178	−0.0744	−0.2408 *	0.7372 *
		Ethic	−0.0856	−0.0680	−0.0959	−0.0752	0.3411 *
		AMAP	−0.1577	0.0238	−0.1766	−0.1384	0.4889 *
		Life event	−0.0374	0.0311	−0.1512	−0.1809	0.3655 *
		Source of seasonality knowledge	Personal knowledge	0.4873 *	−0.3302 *	−0.0397	−0.1559
	Calendar		−0.1250	0.0516	−0.0168	−0.2509 *	0.3571 *
	Supply chain		−0.2996 *	0.3276 *	0.0656	−0.1677	0.1099
	Etiquettable		−0.2390 *	−0.0863	−0.0141	−0.2099	0.5652 *
	Others		Other	0.0131	−0.0833	−0.1174	−0.0921
		Season and sustainability	Meat consumption	0.3361 *	0.0418	−0.1366	0.1285
	Pulse consumption		−0.0144	0.0104	−0.2229	0.0370	0.2242

* = significance threshold 5%.

Table A4. PCA of the 158 lemmas, details: components.

Variable	Comp1	Comp2	Comp3
AMAP	0.0813	0.0256	0.0134
Spain	0.0467	−0.0260	−0.0622
France	0.0248	0.0176	0.0214
Morocco	−0.0312	−0.0089	−0.0281
Portugal	0.0506	0.0928	0.1222
subscription	0.0546	0.0028	0.0533
buy	−0.0369	−0.0188	−0.1857
agriculture	0.0823	0.0205	0.0399
Elsewhere	0.0704	−0.0331	0.0044
love	−0.1716	0.0005	−0.0339
food	0.1034	−0.0061	0.0796
foodstuff	0.1047	−0.0244	0.1776
animal	0.1256	0.0581	0.1003
year	−0.0120	−0.0547	0.0900
apps	0.1432	0.0515	0.0512

Table A4. Cont.

Variable	Comp1	Comp2	Comp3
aromatics	−0.0131	0.1320	−0.0029
careful	0.0127	0.0247	−0.0979
autumn	−0.0083	−0.0760	0.0654
before	0.0124	0.1274	−0.0265
bananas	−0.0198	−0.0081	−0.0572
need	0.0362	0.0628	0.1104
organic	0.0661	−0.1240	−0.1233
can	−0.0514	0.1105	−0.0951
good	−0.0970	−0.0094	−0.0096
budget	0.0034	0.1222	−0.0264
calculation	−0.0162	0.0877	0.0185
calendar	0.1417	0.0456	0.0600
calories	0.0646	−0.0523	0.1244
carrots	−0.0734	0.0384	−0.0363
cherries	−0.0750	−0.0728	−0.0565
certainty	0.1090	−0.1213	−0.0195
change	0.0571	0.0163	0.0278
warm	−0.1278	−0.0667	0.1567
expensive	−0.1089	0.0326	−0.0137
looking for	0.0965	0.0945	−0.0937
choice	0.0685	−0.0195	−0.0150
cabbage	−0.0579	0.0080	0.0636
start	0.0950	0.0526	0.0439
difficult	0.0989	0.0580	−0.1036
count	0.0597	0.0559	0.0089
know	0.0352	0.1168	−0.0004
consumption	0.1425	−0.0852	0.0729
pumpkins	0.0499	−0.1037	−0.0328
zucchini	−0.0487	−0.0157	−0.1165
believe	0.0826	0.0720	−0.0347
cook	−0.0263	0.1115	−0.2203
waste	0.1233	0.0182	0.0649
discoveries	0.1847	0.0574	−0.0107
duty	−0.0301	0.0738	−0.0427
economy	0.0440	0.0625	0.1213
children	−0.0721	−0.0378	0.0437
urge	−0.0282	0.1105	−0.0246
environment	0.1861	−0.0443	0.0819
try	0.1168	0.0238	−0.1104
summer	−0.1034	−0.1202	0.0314
ethic	0.0986	−0.0159	0.1537
euros	−0.0965	0.1829	−0.0473
exotic	0.0186	−0.1183	−0.0290
easy	0.1039	0.0353	−0.1174
family	−0.0465	0.0877	0.0261
fresh	−0.0809	−0.1363	−0.1035
strawberries	−0.0937	−0.0633	−0.1428
cold	−0.1048	−0.1036	0.1052
cheese	−0.0039	−0.0273	0.0712
fruits	−0.0272	−0.1706	−0.0463
cakes	−0.1256	0.0902	0.0811
taste	0.0313	−0.0854	−0.1200
habit	0.0056	0.0234	0.0274
winter	−0.0935	−0.1264	0.0508
here	−0.0645	0.0655	0.1261
feeling	0.0977	−0.0741	−0.0558

Table A4. Cont.

Variable	Comp1	Comp2	Comp3
processed	0.0408	0.0032	−0.0832
internet	0.0911	0.1572	0.0102
never	−0.0678	0.1013	0.0039
garden	0.0062	0.0806	−0.0372
kilos	−0.1250	0.1177	0.0076
vegetables	0.0190	−0.0641	−0.0320
pulses	0.0273	0.0732	0.0592
lentils	0.0409	−0.0608	0.0591
local	0.1142	0.0147	−0.1168
far away	0.0586	−0.0303	0.0129
store	0.0055	−0.1068	0.0459
now	0.0165	0.0257	0.1343
bad	0.1292	0.0582	−0.0517
disease	−0.0655	0.1494	0.1157
eat	−0.1753	0.0453	0.0418
market	−0.0385	−0.0543	−0.0651
brand	0.0121	0.0310	−0.0299
morning	−0.1300	0.0661	0.1096
best	0.0420	−0.0430	0.0604
noon	−0.1339	0.0635	0.0698
better	0.0477	0.1055	−0.1138
less	0.0057	−0.1024	−0.0042
month	−0.0520	0.0583	−0.0427
monotony	0.0763	0.0079	0.0218
nature	0.0549	−0.0830	0.0694
feed	0.0157	0.1039	−0.0958
nutrition	0.0415	−0.0147	0.0730
requirement	0.0395	0.0613	−0.0077
eggs	−0.1114	−0.0156	0.0236
bread	−0.1093	0.0377	0.0881
basket	0.0591	0.0738	−0.1087
sometimes	0.1173	−0.0306	0.0052
pasta	−0.0608	0.1207	−0.0281
period	0.0270	−0.1210	0.1060
permission	0.1222	0.0881	−0.0123
pesticides	0.0017	−0.0895	−0.0146
pleasure	0.0523	0.0842	−0.0541
dishes	−0.0973	−0.0192	−0.0413
rather	0.0823	−0.1454	−0.0368
fish	0.0038	−0.1691	0.0120
apples	−0.0999	−0.0933	−0.0428
push	0.0366	0.0491	−0.0543
can	0.0724	−0.0465	0.0875
preferences	−0.0597	0.0363	−0.1525
prepare	0.0379	0.0914	0.0457
spring	−0.0217	−0.1280	0.1090
price	−0.0886	−0.1129	−0.0582
problem	0.0578	0.1248	0.1284
producers	0.0332	−0.0166	−0.1444
production	0.0929	−0.0218	−0.0215
products	0.1431	−0.1025	−0.0870
origin	0.0782	−0.0869	0.0729
proximity	−0.0211	−0.0558	0.0486
quality	0.0588	−0.0656	−0.0766
recipes	0.1430	0.1237	−0.0833
region	0.1000	−0.0283	0.1094
meal	0.0028	0.0828	−0.0052

Table A4. Cont.

Variable	Comp1	Comp2	Comp3
restaurant	0.0372	0.0805	−0.1235
rice	−0.0770	0.0942	0.0966
season	0.1434	−0.1750	0.0026
seasons	−0.0213	−0.1206	−0.0483
salat	−0.1106	−0.0467	−0.0105
without	0.0645	0.0207	0.0787
health	−0.0037	−0.0212	0.1205
knowledge	−0.0182	0.0617	−0.1119
week	−0.0039	0.0554	0.1579
greenhouse	0.0384	0.0312	−0.0044
alone	−0.0602	0.1374	−0.0034
evening	−0.1509	0.0371	0.0556
soup	−0.0878	−0.0863	−0.0206
supermarket	−0.0244	0.0192	−0.1450
frozen food	−0.0949	−0.1013	−0.1063
earth	−0.0441	−0.0517	0.0403
tomatoes	−0.0357	−0.0546	−0.0725
always	−0.0654	0.0972	−0.0296
transportation	0.0004	−0.0236	−0.0162
work	−0.0678	0.1268	0.0813
vegetal	0.0585	0.0444	0.1878
veggie	0.1284	0.1416	−0.0728
retailer	−0.0220	−0.0812	0.0077
truth	0.0654	0.0520	−0.0005
meat	−0.1332	0.0522	0.0946
life	0.0375	0.0455	0.0246
city	0.0081	−0.0315	0.0131
vitamins	0.0827	−0.0152	−0.0095
wish	−0.0050	0.0382	0.1292
weekend	−0.0491	0.0256	0.0499

Table A5. Correlation between active variables, and clusters of the 158 lemmas (Phi coefficients).

G5	AMAP	Espagne	France	Maroc	Portugal	Abonne~t	Acheter	Agricu~e	Ailleurs	Aimer	Alimen~n	Aliments
1	AMAP	Spain	France	Morocco	Portugal	subscription	buy	agriculture	Elsewhere	love	food	foodstuff
2	−0.0583	0.0883	−0.1386	−0.1060	−0.1800	−0.0332	0.0104	−0.0442	0.2309	0.1989	0.1694	0.0522
3	0.2366	0.3495	−0.2965	0.0895	−0.2884	−0.1088	0.2218	−0.3606	0.0117	−0.1111	−0.0967	−0.0826
4	−0.6020	−0.5422	0.2624	0.0418	−0.0976	−0.2620	0.3596	−0.1370	−0.5611	0.2121	−0.6820	−1.0210
5	−0.1592	−0.1093	0.1345	0.3211	0.3452	0.2807	−0.2953	−0.7546	−0.6827	0.3194	−0.5477	0.1840
5	0.3240	0.0510	0.1293	−0.0054	0.3154	0.1582	−0.2260	0.4607	0.1656	−0.3858	0.3193	0.4618
G5	AMAP	Espagne	France	Maroc	Portugal	abonne~t	acheter	agricu~e	ailleurs	aimer	alimen~n	aliments
1	AMAP	Spain	France	Morocco	Portugal	subscription	buy	agriculture	Elsewhere	love	food	foodstuff
2	−0.0583	0.0883	−0.1386	−0.1060	−0.1800	−0.0332	0.0104	−0.0442	0.2309	0.1989	0.1694	0.0522
3	0.2366	0.3495	−0.2965	0.0895	−0.2884	−0.1088	0.2218	−0.3606	0.0117	−0.1111	−0.0967	−0.0826
4	−0.6020	−0.5422	0.2624	0.0418	−0.0976	−0.2620	0.3596	−0.1370	−0.5611	0.2121	−0.6820	−1.0210
5	−0.1592	−0.1093	0.1345	0.3211	0.3452	0.2807	−0.2953	−0.7546	−0.6827	0.3194	−0.5477	0.1840
5	0.3240	0.0510	0.1293	−0.0054	0.3154	0.1582	−0.2260	0.4607	0.1656	−0.3858	0.3193	0.4618
G5	AMAP	Espagne	France	Maroc	Portugal	abonne~t	acheter	agricu~e	ailleurs	aimer	alimen~n	aliments
1	AMAP	Spain	France	Morocco	Portugal	subscription	buy	agriculture	Elsewhere	love	food	foodstuff
2	−0.0583	0.0883	−0.1386	−0.1060	−0.1800	−0.0332	0.0104	−0.0442	0.2309	0.1989	0.1694	0.0522
3	0.2366	0.3495	−0.2965	0.0895	−0.2884	−0.1088	0.2218	−0.3606	0.0117	−0.1111	−0.0967	−0.0826
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5	−0.1592	−0.1093	0.1345	0.3211	0.3452	0.2807	−0.2953	−0.7546	−0.6827	0.3194	−0.5477	0.1840
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G5	AMAP	Espagne	France	Maroc	Portugal	abonne~t	acheter	agricu~e	ailleurs	aimer	alimen~n	aliments
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2	−0.0583	0.0883	−0.1386	−0.1060	−0.1800	−0.0332	0.0104	−0.0442	0.2309	0.1989	0.1694	0.0522
3	0.2366	0.3495	−0.2965	0.0895	−0.2884	−0.1088	0.2218	−0.3606	0.0117	−0.1111	−0.0967	−0.0826
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5	−0.1592	−0.1093	0.1345	0.3211	0.3452	0.2807	−0.2953	−0.7546	−0.6827	0.3194	−0.5477	0.1840
5	0.3240	0.0510	0.1293	−0.0054	0.3154	0.1582	−0.2260	0.4607	0.1656	−0.3858	0.3193	0.4618

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