

# **Boosting the protein transition with pulses: a practice theory perspective on pulse consumption in Almere**



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## Samenvatting

Peulvruchten - gedroogde en geconserveerde bonen, erwten en linzen - kunnen een sterke rol spelen bij de noodzakelijke vermindering van de vleesconsumptie. Echter zijn peulvruchten ondervertegenwoordigd in westerse consumptiepatronen. Onderzoek heeft aangetoond dat de huidige vleesrijke diëten negatieve gezondheidseffecten hebben en dat gerelateerde veehouderijsystemen het milieu en klimaat wereldwijd sterk belasten. Peulvruchten zijn daarentegen gezonde en duurzame eiwitbronnen. Deze thesis draagt daarom bij aan de overgang van voornamelijk dierlijke eiwitten naar voornamelijk plantaardige eiwitten in Nederland, door wetenschappelijke kennis over de consumptie van peulvruchten te vergroten, op een manier die toekomstige interventies dient om de consumptie van peulvruchten te stimuleren.

Er is gekozen voor een Social Practice benadering, door gebruik te maken van een aangepaste versie van het drie-elementenmodel van Shove. Dit aangepaste model omvat: materials (voorwerpen), meanings (betekenissen), competences (competenties), levensstijl en identiteit, en de institutionele context. De consumptie van peulvruchten werd bestudeerd als drie afzonderlijke maar onderling verbonden praktijken (social practices): het eten, bereiden en kopen van pulsen. Dit werd gedaan door de volgende onderzoeksvraag te beantwoorden: Welke praktijkenmerken zijn naar verwachting het belangrijkste voor interventies gericht op het stimuleren van de consumptie van peulvruchten?

Een kwalitatieve gevalstudie werd uitgevoerd in de stad Almere. Door middel van het synthetiseren van literatuur over peulvruchten verbruik werden potentiële kenmerken geïdentificeerd. Deze werden bestudeerd door middel van interviews, enquêtes, logboek observaties en winkel observaties. De interview- en enquêtesteekproef bevatte een mix van respondenten met Nederlandse en niet-Nederlandse culturele achtergronden. De respondenten waren ook divers in de mate van hun vleesconsumptie.

De resultaten tonen aan dat praktijken van peulvruchten consumptie niet uniform zijn en afhankelijk zijn van hun context. De belangrijkste praktijkenmerken die het meest effectief zijn om de aandacht op te richten, zijn samengevat in de volgende thema's: 1) bekendheid en sociaal-culturele perceptie van wat normaal is, 2) kookroutines in een drukke levensstijl, 3) de rol van peulvruchten als plantaardige eiwitbronnen, 4) recepten en competenties in een flexibele kookstijl, en 5) de invloed van de koopomgeving op (impulsieve) inkopen en op sociale normen. De thesis sluit af met verschillende suggesties voor beleidsinterventies die gericht zijn op de geïdentificeerde kernkenmerken van peulvruchten consumptie, en met aanbevelingen voor verder onderzoek.

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## Summary - English

Pulses –dried and conserved beans, peas and lentils– have the potential to play a strong role in the necessary reduction of meat consumption, yet they are underrepresented in western consumption patterns. Research has shown that current meat-rich diets have adverse health-effects, and that related livestock production systems are highly stressing the environment and climate worldwide. In contrast, pulses are healthy and sustainable protein sources. Therefore, this thesis aims to contribute to the transition from mainly animal-proteins to mainly plant-proteins in the Netherlands, by enhancing the understanding of pulse consumption, in a way that serves future interventions to increase performances of pulse consumption practices.

A social practice approach was taken, by making use of an adapted version of Shove's three element model which includes: materials, meanings, competences, lifestyle and identity, and the institutional context. Pulse consumption was studied as separate but interlinked practices of eating, preparing and buying pulses. This was done through answering the following research question: Which practice-characteristics can be expected to be most important to focus interventions stimulating pulse consumption on?

A qualitative case study was performed in Almere city. By means of synthesizing literature on pulse consumption, potential characteristics were identified. These were studied through the conduction of interviews, surveys, logbook observations, and store observations. The interview and survey samples contained a mix of people with Dutch and non-Dutch cultural backgrounds, and with meat-rich, low- or no-meat diets.

The results indicate that pulse consumption practices are not uniform, and depended on their context. The main practice characteristics identified to be most effective to focus interventions on, are summarized in the following themes: 1) familiarity and social-cultural norm-setting, 2) preparation routines in busy-lifestyles, 3) the role of pulses as plant-based protein sources, 4) recipes and free-style preparation competences, and 5) the influence of the buying environment on (impulsive) pulse buying and social norms. The thesis concludes with several suggestions for policy interventions that target the identified key characteristics of pulse consumption practices, and with recommendations for further research.

## Acknowledgement - English

After an intensive period, the time has come. By writing this word of thanks, I am putting the finishing touches to my thesis. The thesis period was not easy for me. However, it was a period in which I learned a lot, on a scientific level, but especially on a personal level. I would like to pay tribute to the people who have supported and helped me enormously in the past period.

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# 1. Introduction

## 1.1 Problem description

In 2016, the Food and Agriculture Organization of the United Nations (FAO) declared that year to be the International Year of Pulses. The term ‘pulses’ refers to low-fat beans, peas, and lentils categorized as protein source, excluding other legumes like soy beans and peanuts because of their high oil content, and fresh peas and beans because they are categorized as vegetables (Fischer & Garnett, 2016). The FAO provided pulses their special attention, in order to “heighten public awareness of the nutritional benefits of pulses as part of sustainable food production aimed towards food security and nutrition” (FAO, 2016a). Moreover, internationally, pulses are recognized as having the potential to play a strong role in the protein transition: the shift from a diet based on mainly animal proteins to one mainly based on plant-based proteins (Harwatt, Sabaté, Eshel, Soret, & Ripple, 2017; Nijdam, Rood, & Westhoek, 2012). The rest of this introduction will address the necessity of this protein transition and in specific the enhancement of pulse consumption, as well as the necessity of this specific study.

In the 20<sup>th</sup> century, and especially since the end of World War II, the consumption of animal proteins increased tremendously in Europe. Possible reasons mentioned in literature are especially a higher standard of living (e.g. higher GDP per capita) and a higher degree of urbanization. Furthermore, a lower price of meat (mainly a result of the intensification of meat production), and a larger global meat trade (e.g. larger per capita exports and imports) also contributed to the increase in meat consumption in Europe in the last decades (Kanerva, 2013). Thus, in most European countries, dietary patterns changed, and meat acquired a strong role in societies’ cultural identity (De Bakker & Dagevos, 2010). As a result, Europe is now the second largest animal consuming continent per capita after North America, and is expected to still be in 2030 (FAO, 2011). Although the rise in (nutritional) wealth and food security are matters to be thankful for, we now find ourselves in the realization that this agricultural system and consequent consumption patterns have locked us into a vicious circle with serious drawbacks.

To begin with, the average EU meat consumption is twice as high as the maximum recommended by the World Cancer Research Fund (Westhoek et al., 2011). Especially red meat and processed meat are, when consumed above recommended intake levels, associated with an increased risk for a number of health issues like cardiovascular disease and Type 2 diabetes (Abete, Romaguera, Vieira, Lopez de Munain, & Norat, 2014; Anand et al., 2015).

On top, dominating meat and dairy production systems lead to many environmental issues. Worldwide, the agriculture sector is increasingly under pressure. On international and national level, the sector is required to reduce its CO<sub>2</sub>-equivalent emissions and simultaneously to live up to the ever increasing demand for food. Even more, the agricultural emissions are expected to increase with about 70% from 2000 to 2070 in a business as usual scenario, having a negative effect on the global climate (Hedenus, Wirsenius, & Johansson, 2014). The main contributor to this sector’s strong negative environmental effects is caused by livestock production (EEA, 2015; FAO, 2011).



In itself, technical mitigation of livestock greenhouse gas emissions has a high potential. However, due to adopting constraints, high costs and trade-offs, only about ten percent of these technical solutions are viable (Herrero et al., 2016). Another often heard argument for continuing business as usual, is that cattle is effectively converting grass and by-products not suitable for human consumption into high value dairy and meat products. However, in Europe, only about 4% and 20% of feed for dairy and meat production respectively comes from natural grasslands. Instead, most grass is produced intensively with the use of nitrogen-rich fertilizers, and in certain cases on land that also could be used for food crops. Also, most protein rich feed comes from soy, for which the EU still relies on the world market (EEA, 2017), transferring the pressure to increase productivity at any cost to other continents. Moreover, besides the production of greenhouse gases, intensive farming systems also lead to soil degradation, erosion and pollution, depletion and pollution of water resources and loss of biodiversity (Leip et al., 2015).

In conclusion, the current trend of overconsumption of animal proteins in Europe over-stresses the agricultural sector worldwide and leads to adverse public health effects. Therefore, each country needs to take-up responsibility to decrease their meat consumption levels. This is why a protein-transition is necessary. It is called a protein transition rather than a meat-protein reduction, because there is a widespread consensus that meat needs to be replaced by other, mostly plant-based, protein sources (i.a. De Bakker & Dagevos, 2010; Fischer & Garnett, 2016; Hoek et al., 2011; Lang, 2017; Van Dooren & Aiking, 2015; Westhoek et al., 2011).

As mentioned at the start, pulses are identified as being very suitable for at least partially taking over the role of meat in a diet (ibid; Harwatt et al., 2017; Maphosa & Jideani, 2016). Pulses are particularly rich in protein, low in fat, have a low glycemic index, are rich in fibers, and most are also rich potassium, folate, iron and other vitamin and mineral sources (FAO, 2016d; Polak, Phillips, & Campbell, 2015; Rizkalla, Bellisle, & Slama, 2002). Furthermore, pulse-enriched diets are correlated with a number of health benefits, such as lower cholesterol and triglyceride levels, and lower systolic and diastolic blood pressure, especially relevant for preventing and treating diabetes (Hosseinpour-Niazi, Mirmiran, Hedayati, & Azizi, 2015; Jenkins et al., 2012) and obesity (Venn et al., 2010). Besides their health benefits, pulses also have environmental beneficial characteristics. Pulse crops are nitrogen-fixers, which means they increase soil fertility. On top, most pulse crops are water efficient, and able to adapt to changing climate conditions (FAO, 2016d).

Unlike most other meat-replacing protein sources, pulses have been part of human diets for centuries (Albala, 2017; Cubero, 2011; Mikić, 2012). Worldwide, they serve(d) as staple food and are a relatively cheap source of proteins. As opposed to meat however, pulse consumption decreased strongly over the past decades (Albala, 2017). Especially in Northern and Western European countries like the Netherlands, UK, and Finland, consumers are relatively unfamiliar with incorporating pulses in their dishes (De Boer & Aiking, 2018).

This raised the question of how to increase the uptake of pulses in modern western eating practices. Several European (semi-)governmental bodies already reformed their nutritional guidelines to include more plant-based protein sources, among which pulses (Fischer & Garnett, 2016). However, governments and non-governmental organizations have little scientific ground to base their interventions on, when it comes to understanding what it entails to consume pulses, and understanding the factors stimulating pulse consumption.

Two comprehensive studies on factors influencing pulse consumption have been done in Canada (Ipsos Reid, 2010) and Latin-America (Leterme & Carmenza Muñoz, 2002). A less comprehensive study has also been done in the United States (Lucier, Biing-Hwan, Allshouse, & Kantor, 2000). Although these studies are useful for first insights, their findings cannot directly be generalized to any other (European) society. More studies have focused on characteristics of soy consumption (Asgar, Fazilah, Huda, Bhat, & Karim, 2010; Schyver & Smith, 2005; Tu, Husson, Sutan, Tu Ha, & Valentin, 2012; Wenrich & Cason, 2004). Being also part of the legume family, soy beans share characteristics with pulses, yet they are different in nutritional composition, in how they are consumed, and their production is less environmental friendly. Moreover, except for Jallinoja, Niva, and Latvala (2016), none of the mentioned studies made use of a systematic theoretical approach to avoid flaws associated with approaching behavior merely as outcome of rational decision making. In other words, little is known about how pulses can most effectively be incorporated in existing European eating practices. This thesis is a response to this scientific knowledge gap.

Specifically, this thesis focusses on pulse consumption in the Dutch city Almere. The Netherlands is particularly interesting, firstly because the Dutch semi-governmental health and nutrition centre Voedingscentrum is one of the few in Europe to specifically aspire a population-wide increase in the consumption of pulses (Fischer & Garnett, 2016). Moreover, in their attempt to define a healthy, environmentally friendly, and cultural acceptable diet for the Dutch population, Van Dooren and Aiking (2015) concluded, that such a diet would (among other changes) imply a ten-folded increase in the average amount of pulses consumed by the Dutch: from 5 gram to 51 gram per day. Consequently, in personal contact, Voedingscentrum indicated that there is a need for more comprehensive research on the inclusion of pulses in the Dutch diet. Hence, beside responding to the identified research gap, this thesis responds to the practical need for increased understandings of how pulse consumption can be stimulated in the Netherlands.

Pulse consumption is in this thesis approached as eating, preparing and buying pulses, and researched taking a practice theory approach. A case study within the population of Almere was performed, making use of a mixed-methods research design with the accent on qualitative methods.

## **1.2 Research aim and research questions**

The aim of this thesis is to contribute to the protein-transition in the Netherlands, by enhancing the understanding of pulse consumption practices, in a way that serves future interventions to increase performances of pulse consumption practices.

The following research questions guide the thesis towards reaching this aims:

- o Main research question: *Which practice-characteristics can be expected to be most important to focus interventions stimulating pulse consumption on?*
- o Sub research question: *How does eating, preparing and buying pulses in Almere look like, seen from a practice theory perspective?*

### **1.3 Thesis outline**

The outline of the rest of this thesis is as follows: in Chapter 2, basic principles of social practice theories are presented as basis of the theoretical framework used for this thesis. Chapter 3 describes the methodology used. This regards how potential practice characteristics were identified and operationalized, and the methods used for data collection and analysis. Chapter 4 presents an overview of characteristics of pulse consumption identified by earlier literature sources, and introduces the themes of this thesis. In Chapter 5, the results of the data collection are presented in an analytic manner. The chapter is divided in three sections, representing the eating, preparing and buying of pulses. In Chapter 6, the results are discussed, and reflections are made on the theoretical framework, the methodology, the reliability and generalizability of the findings, and on the research process. Lastly, Chapter 7 presents the final conclusion, and ends with recommendations for future interventions and for further research.

## 2. Theoretical framework

### 2.1 Introducing social practice theories

A relatively young but quickly in popularity winning approach to studying pro-environmental (food) consumption is that of the social practice theories<sup>1</sup>. One speaks about plural theories, because the practice approach “does not stem from a single unified theory of practice but emerges instead from the coming together of several distinct scholarly traditions” (Nicolini, 2012, p. 9). The several approaches have many similarities and dissimilarities that make them belong to one family, yet not to one theory (Nicolini, 2012).

Most practice theories respond to a dualism of two distinct schools of thought within social sciences, as well as a dualism between social and natural sciences. Regarding the first dualism, practice theory approaches try to connect the in psychology popular rational choice theory and attitude-behavior models on the one hand, and sociological institutional approaches on the other hand. The former two theories, assume that human behavior is largely relying on rational decision making, or attitudes respectively (Brand, 2010; Shove, Pantzar, & Watson, 2012). The problem with these individual-agency approaches for studying behavior, is that there is strong evidence indicating that this assumed connection between what people believe to be desirable behavior and their actual behavior in practice, is generally weak (i.a. Sheeran, 2002; Sniehotta, Scholz, & Schwarzer, 2005). This is partly explained by habitual behavior taking over intentional behavior, as soon as a person is distracted by other internal and external impulses (Kahneman, 2003). Therefore, instead of individual rationality, sociologists focus(ed) on social and cultural institutions as main factors structurally influencing behavior (Brand, 2010). This approach is, however, criticized for granting institutions too much of a deterministic and constraining role. Therefore, most practice-theorists follow the line of thought of sociologist Giddens. Through his structuration theory, Giddens argues that behavior is brought about by a combination of individual agency and structural forces: though people can reflect on their behaviors, and often frame them as being conscious and intentional, most behaviors are in fact routinized, unconscious, and influenced by the rules and resources provided by social systems (Shove et al., 2012).

The second dualism practice theories respond to is between the just mentioned social sciences approaches, which mainly focus on the social dimensions of consumption, and natural science approaches, which mainly look at the technical and material side of consumption (e.g. the provisioning systems) (Brand, 2010). Between these lines of thought, there is hardly any overlap. This is, according the advocates of practice theories, problematic, because human consumption is in essence both a social and material conduct (Reckwitz, 2002; Schatzki, Knorr-Cetina, & Von Savigny, 2001).

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<sup>1</sup> Some authors, e.g. Shove (2012) and Spaargaren (2011) use the term ‘Social Practice Theory’ instead of ‘Practice Theory’. This seems to be a matter of preference. In the rest of this thesis, the simpler terminology is chosen for practical reasons.

Where the above-mentioned theories take individuals, institutions or materials as main units of analysis, practice-theorists take practices as units of analysis. As illustrated in Figure 1, practices can be seen as operating in the junction between individual actors and institutional structures, connecting both spheres. Hereby, focus is shifted away from studying individuals and their motives, “towards a more in-depth investigation of ‘context’, or the activities, the social practices, they engage in” (Spaargaren, Weenink, & Lamers, 2016, p. 4). This approach is believed to result in a more rich and holistic understanding of behaviors and changes in behavior, without falling into the flaws of perceiving only attitudes and rational, or only systemic restrictions, as main predictors of behavior.

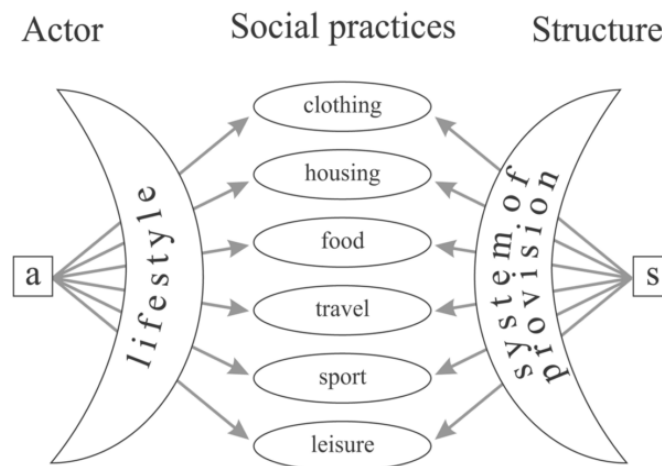


Figure 1: Spaargaren's Social Practice Model (2003)

A criticism against practice theories is that the complexity of the theories makes them difficult to apply for practical policy making. Proponents of practice theories return to this, saying that the fact that practices are complex should not mean that this complexity should be ignored and simplified. Attitude-behavior-based approaches may deliver more easy policy interventions but are not doing justice to the reality, and give a misplaced feeling of convenience and security (Wertheim-Heck, 2015). Exactly because the theoretical approach of practice theories embodies the complexity of reality, it is seen as a good addition for policy interventions aiming at long-term behavior change.

### **Defining Practices**

How to divine practices according the practice theories? Just like there is not one practice theory, there is not one interpretation of what a practice is. There is, however, some overlap and consensus among theorists about what is and what is not meant with a practice. Some of the most used and illustrating definitions will be discussed. To start, a popular definition comes from Andreas Reckwitz (2002), describing a practice as:

a routinized type of behavior which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, ‘things’ and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge (p. 249).

A lot is said in this definition, which might explain its popularity. A practice is *routinized*, meaning at least some behaviors are done automatically with little conscious attention. Practices are *complex*,

with several *material* and psychological elements hanging together. One needs to have a certain *know-how*, *skills* and *motivation*, for performing a practice. Notably, Reckwitz describes even humans as ‘things’: bodies performing an activity, and separates this from the mental activities.

In addition, philosopher and one of the contemporary leading theorists in the school of practice theories Theodore Schatzki (Schatzki et al., 2001), describes a practice as a nexus of doings and sayings organized by understandings, rules, and teleo-affective structures. Just like Reckwitz, Schatzki indicates that a practice is both about what people *think* and what they *do* in reality. Hereby, understandings imply that an actor recognizes the doings and sayings belonging to a certain practice, when an other actor is engaged in the practice. Thus, people share practices (Warde, 2016b). The teleo-affective structure, refers to practices having an aim or end goal, leading to a positive experience when reached (motivation); making the practice popular to repeat. In addition, Schatzki stresses the importance of societal structures teaching people to act and think in certain ways.

Specified to practices of consumption, Spaargaren (2003) describes a practice as a *daily routine* influenced by individual’s *lifestyles and identity* (agency dimension) on the one hand, and *systems of provisioning* (institution dimension) on the other hand (see also Figure 1). Lifestyle hereby refers to the complete set of social practices someone engages in, plus the storytelling belonging to it. People with more or less the same lifestyle, are identified as belonging to the same social(-cultural) group. Moreover, lifestyles give shape to, and are shaped by, individuals’ (cultural) identity. ‘Systems of provisioning’, refers to the complex organization of production and provisioning of material resources, that provides the necessary tools for carrying out any practice.

Lastly, Alan Warde (2016a) adds the aspect of ‘repetition’ to his practice theory, and provides a simple-to-understand way of stating some of the key aspects already mentioned. He argues, that a practice is a repetitive aspect of everyday life, with collective and unreflective elements. Thus, practices are, in his view, those behaviors that are performed over and over again by the same people, that are partially unconscious (routinely), and shared among people.

The sometimes fundamental differences between scholarly approaches within the practice theory family makes it impossible to be in coherence with the complete family. Hence, for using a practice theory approach to analyze a case study, one has to make a selection suitable for the specific research questions. Nicolini (2012) empathizes this necessity, reminding us that a theory serves to better understand the practical world, and should be used in such a way. In the rest of this chapter, the theoretical aspects deemed most relevant for this thesis, will be discussed.

### ***Practice-as-entity and practice-as-performance***

An important distinction to make, is between *practice-as-entity* and *practice-as-performance* (Schatzki, 1996; Shove & Pantzar, 2005; Warde, 2005). In the former, a practice is approached as an entity on its own: a unit decoupled from any specific individual or institution. Spaargaren et al. (2016) explain this well: “Together with their fellow actors, individuals create a social unit which cannot be reduced to the motives, intentions and meanings of single individuals” (p.4). Thus, though there are individual differences in how a practice is carried out, there is a common recognition of what the practice-entity more or less looks like (see Box 1 for an example). Yet, practices are more than mental constructs. Practices get only created, re-created and changed by

being *performed* over and over again by individuals. Thus, practices-as-performance are essential for the survival of the practice-as-entity. Moreover, it is by studying these physical observable performances, that practices are studied best (Nicolini, 2012; Welch & Warde, 2014). The individuals performing a practice are named *carriers* or *performers* of the practice, or otherwise simply *practitioners* –which is the term that will be used mostly throughout this thesis–. As (almost) every behavior is part of a practice, every individual is carrier of many practices. In social practice terms, the process of new people being attracted to becoming performers of the practice is called the recruitment of practitioners.

*Box 1: The practice-entity of tooth-brushing*

Suzan is brushing her teeth. She brushes with another brush, in different moments and with more commitment than Brian. Yet, they can have a conversation about tooth brushing without first explaining each other what toothbrushing is. This is the case because both have a similar mental construct of the practice of tooth brushing.

### ***Materials, Meaning and Competences***

For understanding how a practice can be deliberately changed to being more desirable, environmental sociologist Elisabeth Shove (Shove et al., 2012) argues it is important to understand the elements that the practice is comprised of, as well as how these elements hang together with each other. Several theorists (Reckwitz, 2002; Schatzki, Knorr-Cetina, & Von Savigny, 2001; Spaargaren, 2011, among others) have created models for studying practices in detail, of which Shove's three element model is the most simplified but therefore tangible model. This model was used as main theoretical framework in this thesis.

Based on the works of Giddens, Reckwitz, and Schatzki, Shove et al. (2012) divide the characteristics of a practice in three elements: materials, meanings and competences. Although one generally speaks of them as being singular, each of these elements should be seen as extensive category entailing several factors (Røpke, 2009). *Materials* encompass “objects, infrastructures, tools, hardware and the body itself” (Shove et al., 2012, p.23). *Meanings* refers to “the social and symbolic significance of participation” (p.23). More specific, this element includes emotions, beliefs, understandings, motivations and other sense-making mental activities. Lastly, *competences* are the skills, know-how, background knowledge and understanding of how the practice should look like, needed for performing the practice (Shove et al., 2012). According to Shove and her colleagues (2012), any practice comprises these three elements, and these elements are tightly linked together. Without these links, one cannot speak of a practice; when links fade away, the practice changes as links with other elements are made, or the practice fades too.

### ***Changes within practices***

The interlinkage of Shove's practice elements has two implications: 1) a change of one of the elements will also influence the other elements, but also 2) the other elements can stabilize the change in one element, in such a way that the practice still persists. See Box 2 for an example of how this could work. Thus, the relative strength of each element within a practice, and the strength of the connection between them, plays a large role in the rigidity of a practice. Following from this, practices are stable on a certain moment yet dynamic over time. They are relatively stable, because they have a certain resilience. They are dynamic, because the elements adapt to changes in the other elements and changes in their context (Shove et al., 2012). Moreover, practices exist only through their repetition: they are created and recreated by carriers performing the practices in certain ways over long periods of time. In this process, the characteristics of the practice change in response to changes in the material and social environment (e.g. technological innovation and rise in welfare). Therefore, it is said that practices have their own history. Some practices, as for instance those of personal hygiene, even go back centuries (Shove, 2003).

#### ***Box 2: The (in)stability of meat consumption***

As an intervention for reducing meat consumption, the Dutch government might decide to increase the price of meat. This is a change in the material element of meat consumption but will also influence the meaning of meat: meat changes from being an affordable product towards being a more expensive product. At the same time, the practice might be resilient to this change, because meat is in many families seen as an indispensable part of the meal (meaning) and not everyone knows how to cook without (competences). Therefore, the material intervention alone might not be enough to destabilize the practice of meat consumption.

### ***The recruitment of practitioners***

According Gherardi and Nicolini (2002), learning a practice requires active participation with other practitioners already competent in performing the practice. Practices are thus social, because they are shared with others. Skills, knowledge, and traditions, are handed over to next generations through different learning mechanisms like imitation and conversation. Moreover, the adoption of new practices often requires "learning new competences, embracing different meanings, [and] using other materials" (Koppen & Spaargaren, 2015, p. 48). Moreover, the practice needs to fit in existing bundles of practices and daily routines. As a result, practices are easier taken-over by members of the same network that share interests and practices (Shove et al., 2012).

### ***Studying practices zooming-in and zooming-out***

Based on his analyses of several works on practice theory, Nicolini (2012) makes the distinction between a 'weak' and 'strong' program of using practice theories in social sciences. The weak approach is to describe a practice, or how people perform a practice, in detail but plane. Although a thorough description is necessary for understanding a phenomenon, Nicolini argues it fails to answer the 'so what?' question. Therefore, the strong program requires to not only describe but to also to explain the studied phenomenon. This means asking the "critical questions of 'what does this mean?' and 'why does it matter?'" (Nicolini, 2012, p. 14) while analyzing the data. Following the strong program also means analyzing how the studied practice stands in relation to other practices



and its institutional context (see definition on page 19), and how the practice was and is (re)created on certain times in certain places.

The best way to follow this strong program, Nicolini (2012) argues, is by making use of ‘zooming-in’ and ‘zooming-out’. In the zooming-in mode, the researcher studies the particular elements constitution a practice, and how they are related to each other (Spaargaren et al., 2016). In the zooming-in mode, the practice is also studied in how it is performed in daily-life at a certain moment. Zooming-in, therefore, provides in-depth information about the practice as a ‘habitual activity’, and about the contextual conditions influencing it (Wertheim-Heck, 2015). With zooming-out, one analyses whether what is found by zooming-in also holds true for a larger context (Nicolini, 2012). Through taking a zoomed-out perspective, interlinked and interdependent practices are uncovered (Shove et al., 2012; Wertheim-Heck, 2015). In the case of food consumption for instance, the food consumption practices are embedded in a network with leisure, sleeping and working practices, as well as practices related to the provisional side of consumption.

In many ways, zooming-in is also similar to Shatzki’s practice-as-performance and zooming-out similar to practice-as-entity. This is in line with the notion that only through studying practices-as-performances, practices can be studied empirically (Welch & Warde, 2014; Wertheim-Heck, 2015). To start, detailed information about the practice is gathered by zooming-in on carriers performing the practice. Afterwards, zooming-out is necessary to get analyses how the practice-entity looks like.

### ***Individual performances versus the practice-as-entity***

Between performers of a practice, noticeable differences can be found in the way they perform the practice and in the meanings they attach to the practice. Especially between different social groups and cultures, these differences are to be expected. Following from this, the question arises whether we can speak about a practice-entity, when the performances and meanings are so different between individuals and groups. In response to this question, Wang and Shove (2014) discussed how a practice can be stable yet distinct between different countries across the globe, taking the sport baseball as an example. They concluded that the relative stability of certain elements of a practice (in this case the field, ball and rules) allows for the practice to move over time and space, being reproduced, acquiring different characteristics in different places (e.g. the game carries other meanings in Japan than in America) while, at the same time, staying recognizable in such a way that it can be recognized across people from different communities (e.g. making it possible for Japanese and Americans to play baseball together). In this case, it are the materials and rules of the game that keep the practice recognizable and able to ‘carry’ the differences in meaning (Wang & Shove, 2014). Thus, the practice-as-entity is kept together by the reoccurrence of certain elements, while others elements might differ. The totality arising from the mix of different performances and meanings together create the practice entity. The metaphor in Box 3 can help understanding this. Also Gherardi and Nicolini (2002) shed light on this issue. They argue, that when one compares the distinctive perspectives (within a practice) coming from different communities, this should not result in a sort of synthesis -a fusion of the different individual views into one blend- but rather in a compilation of all views “that may coexist within the same performance” (Gherardi & Nicolini, 2002, p. 420). Additionally, Wertheim-Heck (2015) treated differences in the way a practice is

performed as being the result of differences in lifestyles and identity of the carriers, hereby using Spaargaren's practice model (2003) (illustrated in Figure 1)

*Box 3: Example of individual differentiation within one practice*

In an essay about lessons Dutchmen can learn from history about their identity, Van den Brink and Sheikh (2018) write: "An important point is, that these features of national identity are recognizable on a collective level. We thus do not argue that all individual Dutchmen place values like freedom or honesty at their heart, because per person and per social group sometimes considerable differences appear. What we claim is that our individuality is determined by a specific mix of motives and that the totality arising from this is what distinguishes the Netherlands from other countries" (p.34-35).

***Promoting practitioner-recruitment/ practice theory for promoting behavior***

In the last chapter of her book 'The dynamics of social practices', Shove (Shove et al., 2012) argues that social theories do not directly lead to practical applicable prescriptions, but that they can nevertheless give useful directions for intervention-approaches. In a later collaboration with Spurling and Mcmeekin (2013), she came with three suggestions for "taking a practice perspective to sustainability policy" (p. 20): 1) changing the elements of resource intense practices; 2) replacing complete (less sustainable) practices with other more sustainable ones; 3) making use of how different practices interact with one another and provoke change 'rippling through' these interconnected practices. For the intervention suggestions done at the end of this thesis, these approaches served as inspiration source.

***Consumption as practice-bundle***

The concept 'consumption' is ambiguous. For economics and related professions, consumption is the act of demanding commodities that lead to production and the provisioning of certain products. For other social sciences, consumption is about the 'making use and using up' of a product. In the latter, the symbolic significance of using the product is part of consumption (Warde, 2016a). In terms of social practices, consumption should not be seen as a practice on its own. Instead, Warde (2016b) argues, consumption is a moment in almost any practice. He calls consuming a 'disperse practice': "one that occurs often and on many different sites" (p. 150) but is not recognized as an activity on its own. This is because a practice consists of more than the act of purchasing or using up; the appropriation given to these acts are for instance just as important in the practice.

As a result, consumption is often studied as a bundle of multiple practices that tightly hang together, arguably in the same way as Shove's practice-elements. The concept of practices-bundles originates from the work of Schatzki (Schatzki et al., 2001) but is nowadays used in several ways by different authors (i.a. Brons & Oosterveer, 2017; Shove et al., 2012; Wertheim-Heck, 2015). In the case of food consumption, logical practices to study are buying, preparing and eating.

## 2.2 Practice Theory applied to Pulse Consumption

Against this background, pulse consumption was approached as complex bundle of buying, preparing and eating pulses. These were studied as distinctive practices that are interconnected through shared elements, and that are interlocked through mutual dependency. An extended version of Shove's three element model was used, which is illustrated in Figure 2. For studying how the separate practices look like, Shove's 'meanings', 'materials' and 'competences' (2012) were used as core constituting elements. Although Shove et al. discuss the dynamics of practices extensively, a more practically applicable research design was preferred for this thesis. Hence, inspired on the work of Spaargaren (2003) and Wertheim-Heck (2015), this model was extended with 'lifestyle and identity' and 'institutional context', which are for practical reasons also called elements. *Lifestyle and identity* refers in this thesis to the complete set of practices someone engages in, influenced by the practitioner's social and cultural background and personal values. Taking this element into account, helps analyzing how pulse practices are bundled with related practice that are performed simultaneously, or with which they share certain elements. Moreover, lifestyles and identities were approached as moderating the adoption of the pulse consumption practices, as well as the individual performances of the practices. The *institutional context* refers to both the earlier mentioned system of provisioning –creating the material surrounding in which practices are performed–, as well as related social conventions –e.g. norms, beliefs, and expectations regarding pulse consumption– institutionalized in the Dutch society. Hence, taking into account the institutional context, means going beyond studying individual performances of the practices. As in this thesis the emphasis is on the consumer-side of consumption, the system of provisioning was studied to the extent that it is in direct contact with consumption practices: how and which materials are eventually provided in stores.

The concept practice-as-performance was used to study individuals and their version of the practice. The concept practice-as-entity was used to create a more general applicable picture of the pulse consumption practices. The elements lifestyle and identity, and institutional context, were used to analyze how the practice-entities relate to other (food consumption) practices in daily life.

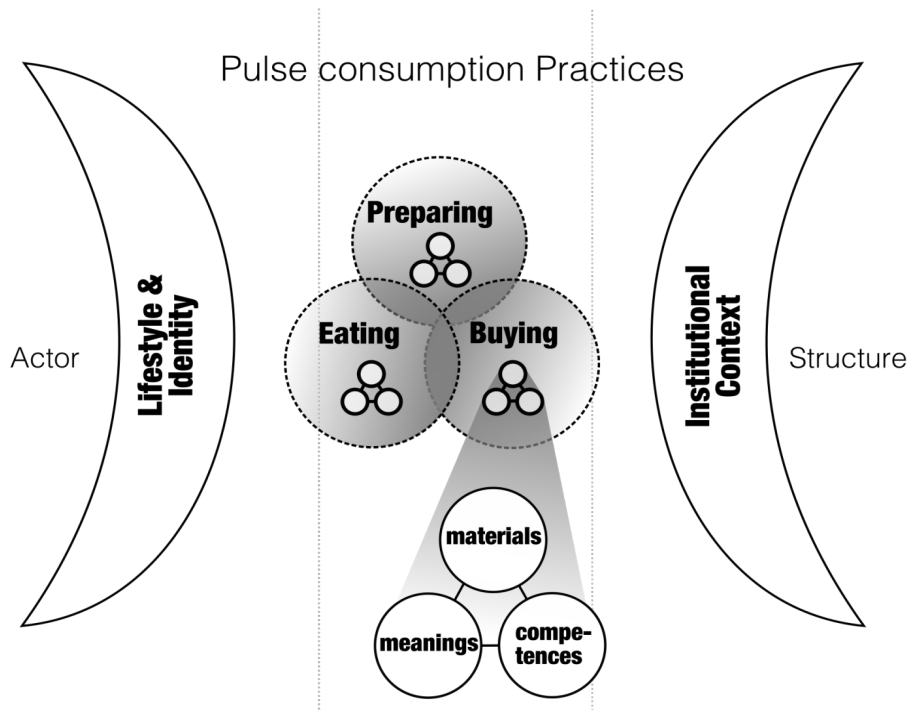


Figure 2: Five-elements model of pulse consumption practices

Before continuing with the next chapter, some of the used terminology needs to be clarified. Firstly, where does the term *practice-characteristics*, as used in the main research question and throughout the thesis, refers to? Practice-characteristics refers to the separate components of which a practice element is comprised. The element ‘materials’ comprises for instance of i.a. pulses, kitchen tools and cooking books, which are all characteristics of pulse consumption practices.

Moreover, also the term *theme* will be used throughout the thesis. In this thesis, the term is used to describe a group of (potential) practice characteristics that relate to the same topic. In Chapter 4 themes are used to bundle potential characteristics that fall within one element, e.g. the theme physical characteristics of pulses falls within the element materials. In the discussion chapter the term *theme* is taken broader, integrating identified key characteristics of different elements within one theme. This is in accordance with practice theories, as the materials, meanings and competences of a practice are believed to be tightly interconnected, and influenced by the institutional context and the lifestyle and identity of practitioners. More about the terminology used in this thesis can be found in the next chapter.

## 3. Methodology

In the previous chapter, the theoretical framework of this thesis has been described. In this chapter, the research design and instruments are defined. The research process started with the conduction of a literature research. Based on the outcomes of that research, the research instruments were drawn up. The chapter will continue to describe how the literature research was conducted, how themes and indicators were derived from that, and how and with what instruments the field research was conducted. Also some not-yet introduced terms used throughout the thesis will be clarified.

### 3.1 Literature research

The information presented in Chapter 4 is based on primary scholarly papers, gray literature like factsheets and reports, and book chapters on pulse consumption. Several databases were used, among which Scopus, Google Scholar, and WUR Library search. The literature selection criteria were made flexible, because the amount of scholarly papers on pulse consumption in Europe is very limited, and because certain practice characteristics are assumed to cross international boundaries. Hence, also studies of non-Western populations were included. Also, a selected amount of studies on the consumption of soy beans and processed pulse products (e.g. meat-replacing bean burgers) were included, because the characteristics shaping consumption of these products are assumed to be similar to those of pulse consumption practices to a large extent. These studies were only selected when they were particularly useful for identifying indicators. Data of these studies was weighted against their applicability for pulse consumption practices in the Dutch society.

### 3.2 Theme selection and clarification of terminology

The literature research provides an overview of what has already been identified by previous studies as important characteristic of, or reason for, consuming pulses. Based on this, themes were identified that were perceived relevant for this study. These themes were derived based on the conclusiveness of the collected literature, on what is in line with the social practice theory-approach, and on what was potentially applicable to the selected case study. The selection was kept broad, as the thesis has an explorative character. A small amount themes were added additionally to the literature-based themes, because they were perceived underexposed in the reviewed literature yet relevant for the Dutch situation. Based on the themes, *indicators* of potential characteristics of pulse consumption practices in the Netherlands were selected. Each theme was thus operationalized with an indicator or a set of indicators. A complete list of these indicators, their description, and with which instruments they were operationalized, is attached as Appendix I. Now, some main terms that are used repeatedly throughout the text are explained for clarity.

*Pulse types.* The pulse types included in this theses are all types pulses meant for human consumption, as defined by the (FAO, 1994). Hence, fresh legumes used as vegetables (e.g. green peas and green beans), as well as soybeans and peanuts (due to higher oil content) were excluded.

*Pulse form.* The main focus of this thesis is on dried and conserved (can, jar, pouched) pulse forms. Processed pulses (e.g. in a burger or soup) and ready-to-eat products with pulses (e.g. seasoned pre-cooked pulses) were not excluded, but did not received as much attention<sup>2</sup>.

*Cultural background.* The set-up of the research required a division of respondents according their ethnicity. However, for ethical reasons the term ‘cultural background’ was used, which was for the respondents described as: “your cultural background, in other words, with which group, land or region you feel connected most, when it comes down to your (eating)habits, customs, norms and believes”. This description did lead to some cumbersome responses, which were for the statistical analysis categorized in ethnicity by the researcher.

*Dutch and non-Dutch.* In those parts of the analysis where cultural background played a role, respondents were divided in the groups ‘Dutch’ and ‘non-Dutch’. ‘Dutch’ thereby refers to practitioners that are born in the Netherlands, have at least one Dutch parent, and mainly identify with the Dutch culture (incl. Dutch that did not identify with the stereotypical traditional Dutch culture, but that were nevertheless best categorized as Dutch based on the above given definition). Non-Dutch refers to practitioners that are first or second generation non-western immigrants, and still strongly identify with, and consume according the culture of their (parents’) country of birth.

*Meat.* The term meat was operationalized as both including meat and fish.

*Frequent meat eaters.* Respondents eating meat as part of the main meal at least five times per week.

*Meat reducers.* Respondents eating meat as part of the main meal less than five times per week. In the interview sample this were practitioners who actively try to reduce their meat consumption.

*No-meat eaters.* Respondents eating vegetarian or vegan.

### **3.3 Field research**

This thesis made use of a mixed methods research design. To gain in-dept understanding of how pulse consumption practices look like, qualitative research was conducted, by making use of interviews, logbooks, and store observations. Also a semi-quantitative survey was conducted, for the purpose of creating an impression of institutionalized norms and believes regarding pulse consumption within the Almere population, as well as to zooming-out of the interviews. See Figure 3 for an overview of the instruments and respondent samples of the field research.

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<sup>2</sup> Reason for not excluding these products completely, is that they are increasingly important in the nowadays convenience food culture. They were not part of the main scope however, because it is hard to draw the line between when the consumption of such products is mainly part of pulse consumption (and eaten as such) or mainly part of eating a ready-made meal (not eaten for the sake of eating pulses).

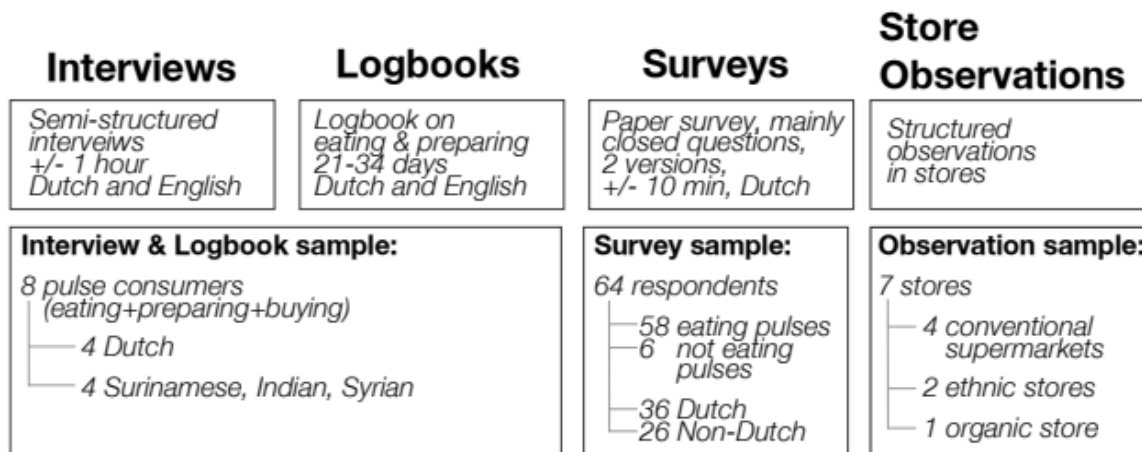


Figure 3: Overview of the research instruments and samples

### 3.3.1 Almere as case-study

The city Almere was chosen as case study location mainly due to a potential collaboration with a PHD project of the same chair group (ENP), though this collaboration was not pursued. Nevertheless, Almere is an interesting and relevant city for a case study like this. Almere is located in the province Flevoland, and is built on what was until 1968 the IJsselmeer (lake IJssel). Hence, it is a very young city. Yet, it currently is the seventh biggest city of the Netherlands (CBS, 2019) and is encouraged by the Dutch government to grow twice its population size by 2030, taking-up many people who work in Amsterdam but who cannot find housing there. In the meantime, a growing concern for the municipality of Almere is the health of its citizens. The average diabetes rate of this city is far above average, which is partly thought to be a result of unhealthy eating patterns. In response, the city has set itself the goal to become one of the healthiest cities of the Netherlands. This goal is additionally inspired by the city's task to host the ten-yearly Floriade in 2022. The Floriade is an international horticulture exposition, with as this year's theme 'Growing Green Cities'. This has placed both the production and consumption of healthy and sustainable food high on the municipality's agenda, aligning the municipality's aim with the underlying motive of this thesis (Flevo Campus, 2018). Almere also has a particular rich cultural diverse population, with a total of 187 ethnicities, and 160 nationalities in 2013 (Gemeente Almere, 2013). This multi-cultural population matches this thesis' focus on pulse consumers with diverse cultural backgrounds.

### 3.3.2 Recruitment of respondents

The respondents for all instruments were recruited over the course of seven days, between 16/07/18 and 27/07/18. Different locations were selected for recruitment (see Figure 4), based on their spread over the city, the estimated likeliness of a high response rate, and the estimated likeliness of meeting the hard-to-reach target groups (people with a non-western background). Most respondents were approached individually by the researcher. On top, snowballing via acquaintances was used.

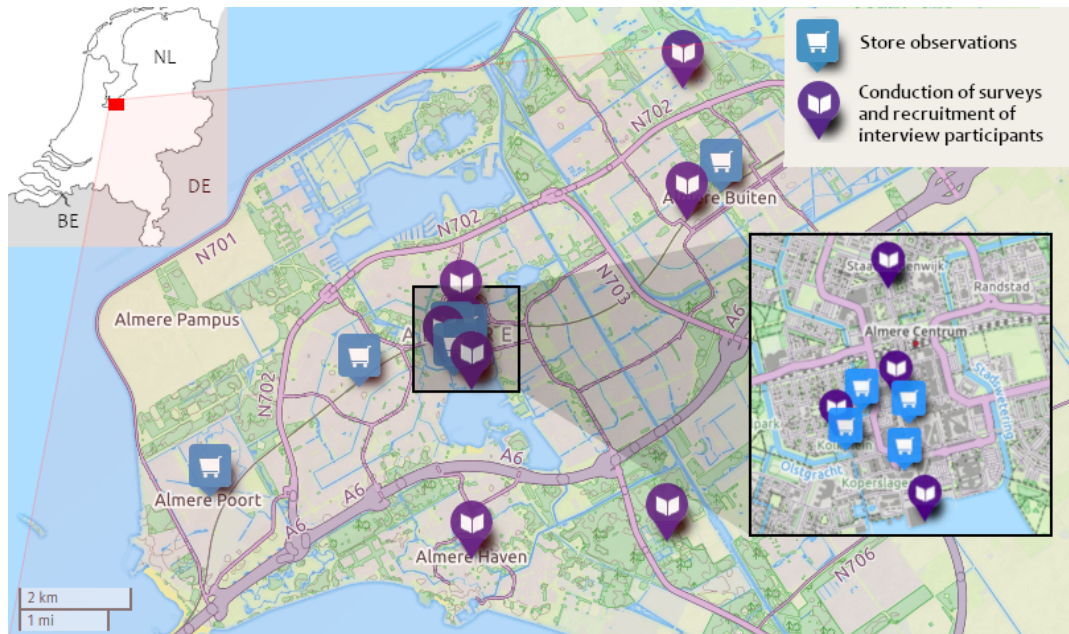


Figure 4: Locations overview store observations and respondent recruitment

The criteria for the survey participants were based on gender (mixed), age ( $\geq 18$  year), cultural background (mix of Dutch and non-Western backgrounds most common in the Almere population) and Dutch language proficiency (enough to fill in the survey). In total, 68 surveys were collected, of which 64 were counted as valid. There was a good balance between male ( $n=30$ ) and female ( $n=34$ ) participants. The distribution of age, and between respondents with a Dutch ( $n=36$ ) and non-Dutch ( $n=26$ ) cultural background was similar to the general Almere population (Gemeente Almere, 2018). See Appendix II for the exact cultural backgrounds of the non-Dutch participants. Most respondents in the survey received higher education (WO/HBO: 48,4%) followed by middle education (MBO/HAVO/VWO: 37,5%).

The sample of eight interview-logbook participants was recruited during the conduction of the survey. In Appendix III, a brief description of each participant can be found. Generally, respondents were first asked to participate in the survey, and when they were open to the researcher and had experience with eating, preparing, and buying pulses, they were asked to participate in the interview and to fill-out the logbook. Other criteria for selecting these participants were based on age ( $\geq 18$  year), gender (mixed), protein diet (a mix of meat eaters and no-meat eaters), and cultural background (4 Dutch and 4 non-Dutch). Regarding the non-Dutch respondents<sup>3</sup>, additional criteria were that pulses are traditionally part of the cultural diet of the practitioner, and that (s)he is part of one of the larger ethnic minority groups in the Netherlands. In principle, only inhabitants of Almere

<sup>3</sup> See definition of Dutch and non-Dutch



were selected (n=7). However, due to the availability of personal contact with a Syrian pulse consumer, one participant lived in Wageningen. Location-specific questions (e.g. satisfaction with availability of pulses) were still asked, but only used for briefly contrasting the availability in Almere with that in Wageningen. Participant drop out was accounted for by recruiting two extra participants (ten in total); two participants indeed dropped out during the logbook-period. No explicit reasons were given for their drop out.

### **3.3.3 Interviews**

In-depth interviews with pulse consumers were conducted as main research method. The interviews were paired with a logbook-observation, as discussed below. The interviews were in-depth and semi-structured. Therewith all intended indicators got covered, yet there was room for asking follow-up questions to collect more information where relevant. The interview-guide used can be found in Appendix V. The interviews took about one hour each, were performed in Dutch or English<sup>4</sup>. After approval of the participant, the interviews were recorded for a better transcription. They were conducted at an agreed time and place (either at the participant's home or another quiet place) after the participants had completed their logbook-period. Participants were rewarded with some home-made pulse-based treats. The interviews were transcribed and coded (based on the a priori identified indicators) by making use of Atlas.ti. An additional element of the interviews was the 'motive meter': respondents were asked to rank ten motives presented on separate pieces of paper, from most to least important to them (the ten motives are included in the interview guide in Appendix V). They were then asked to give an explanation for their choice. Through elaborative questions, the motive meter was also used to research associations with the concerning themes. For questions related to pulse types and pulse forms, practitioners were given information sheets as described in the survey section below.

### **3.3.4 Logbooks**

The logbook served as indirect observation method, and helped to do justice to the non-reflective nature of routinized practices, by demanding reporting on the day of consumption on a regular base. The logbook also helped avoiding participant bias (e.g. social desirability bias). It included several open and closed questions regarding when, where, how, and how long they prepared pulses, and social and motivational aspects of eating and preparing the pulses for that day. The logbooks were filled out prior to the interviews. The duration of the logbook period was three weeks, but extended to a maximum of five weeks when a participant was on holiday in-between (holidays were excluded from the logbook period). Within this period, participants were required to fill out their logbook every time that they ate a dish with pulses. Every week they received a reminder to fill out the logbook per sms or WhatsApp. In the logbook, practitioners reported on the occasions of eating and preparing pulses, and on other characteristics of pulse preparation that are generally performed with little conscious considerations, yet that can be reported. For the complete logbook lay-out, see VII. The logbook data was analyzed making use of spreadsheets. The answers on the open questions were used as support for drawing analytical conclusions. In the interview, a few questions were

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<sup>4</sup> Some questions were excluded from the English interview guide. The reason for this was that due to a slight language barrier, more time was needed for every question.

included to check for the reliability of the logbook period regarding the consumption frequency, and the type and form of pulses used.

### **3.3.5 Surveys**

A survey was conducted as secondary data collection method. The aim of the survey was not to unravel the deep-rooted complex elements of the practices. Neither was the aim to conduct a fully quantitative survey that is large enough to be representative for the entire population of Almere. Instead, the survey had two functions as secondary source. The first purpose was creating an impression of institutionalized norms and beliefs (social conventions) regarding pulse consumption within the Almere population. The second purpose was to zoom out from the interviews, acquiring some broader insights regarding pulse consumption performances in Almere.

The surveys were filled out on paper, in public places. Participants were rewarded with an interesting pulse recipe (the complete survey can be found in Appendix VIII). The survey was tested and adjusted before being used in the field. It was accompanied with an *information sheet on types of pulses* and an *information sheet on pulse packages* (they can be found in Appendix VI). These included pictures with names of pulse types and forms, and were used to refresh participant's memory about the products they use, and for making sure all participants understood and used the in the survey used terminology. The survey consisted of closed questions and a few open questions, formulated based on the previous compiled indicators. For the closed meaning questions, a five-point Likert scale was used. Also, two versions (A and B) with reverted Likert scale were used, for accounting for potential bias due to the order of the scale. The versions were handed-out alternately. The survey data was analyzed using SPSS making use of descriptive statistics. Answers on open questions were coded and analyzed as closed questions. Unreliable surveys were excluded and unclear answers on single questions were counted as missing.

### **3.3.6 Store observations**

The store observations provided data about the extent to which pulse consumption is facilitated by systems of provisioning. It were structured observation, focused on product placement and product availability. The store observation was where possible combined with a brief informal retailer interview. The selection of stores was based on creating a mix of food store types most visited. Seven grocery stores were observed: two supermarkets of the most popular chain, two supermarkets of a chain in the discount segment, two ethnic grocery stores (also called 'tokos'), and one organic grocery store. The observations took place in the same period as the participant recruitment. The locations of the stores were in and around the city center (see Figure 4).

## 4. Literature and selection of themes

This chapter forms the foundation of the thesis. Here, characteristics of pulse consumption as identified by earlier research and literature sources are presented, and the themes studied in this thesis are introduced. The set-up in which this is done is as follows: The chapter is divided in five sections, representing the five practice elements. In each section, results of the literature research are presented per theme. Each section then concludes with an overview of which of these themes were used for conducting this thesis' fieldwork.

### 4.1 Materials

#### *Pulse types and forms, and consumption frequency*

Worldwide, many varieties of pulses exist, among which many local varieties only grown on small scale (FAO, 2016a, 2016d). Several sources (Borchgrevink, 2012; FAO, 2016d) have made an overview of which pulses are available and most popular in a certain region. The pulses are produced in dried, conserved, sprouted, fermented, or (semi-)processed form. In 2002, canned pulses were the most popular form in the European Union (Schneider, 2002). In Canada, the most common form of pulses purchased were canned, dried and in pre-made soup form (Ipsos Reid, 2010). In the period 2012 to 2016, the Dutch population was found to consume legumes<sup>5</sup> once in the three weeks in average, which comes down to 5 gram per day (RIVM, 2016b) .

#### *Physical characteristics of pulses*

Pulses, especially beans, have certain physical characteristics that are thought to play a role in pulse consumption. These characteristics were expected to shape meanings related to pulse consumption (discussed below) in positive and negative manners. Here, a brief overview of the most prominent physical characteristics is given.

**Healthiness.** Pulses can be categorized as healthy food. They contain complex carbohydrates, and are rich sources of proteins, fibers, potassium, folate, iron, calcium, magnesium, zinc, and in some cases B-vitamins. Simultaneously, pulses are low in fat and sodium and have a low glycemic index (FAO, 2016b; Polak et al., 2015; Rizkalla et al., 2002). This composition makes that pulses have been correlated to specific health enhancing benefits: they can lower cholesterol and triglyceride levels, as well as systolic and diastolic blood pressure, especially relevant for preventing and treating diabetes (Bazzano, Thompson, Tees, Nguyen, & Winham, 2011; Hosseinpour-Niazi et al., 2015; Jenkins et al., 2012) and obesity (Marinangeli & Jones, 2012; Venn et al., 2010).

**Nutrient bioavailability.** Although pulses are rich proteins, the protein digestibility corrected amino acid score (PDCAAS) is low. A low PDCAAS means that the body can only use a part of the consumed proteins (Dahiya et al., 2014). In contrast, proteins in meat are most similar to those of the human body, which makes them easier to take up (Tijhuis, Ezendam, Westenbrink, Van Rossum, & Temme, 2011). Fortunately, plant based amino acids can be transformed into amino acids more similar to the body, by combining pulses with cereals in the same meal (Mitchell, Lawrence, Hartman, & Curran, 2009; Tijhuis et al., 2011). Moreover, this combination also enhances the

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5 No distinction between pulses and legumes was made in this study

uptake of iron and other minerals (FAO, 2016a), which is especially important for vegetarians. The FAO (FAO, 2016c) indicates that all over the world, traditional dishes exist in which pulses are combined with grains. The question whether the pulse-grain combination is popular because of the awareness that this enhances the uptake of minerals, or for other reasons like the taste, remained unanswered. The uptake of iron is also enhanced by combining pulses with lemon juice and other rich vitamin C sources (Dahiya et al., 2014; FAO, 2016d). Foods that decrease mineral uptake when combined with pulses are spinach (Dahiya et al., 2014), coffee and tea (FAO, 2016a).

**Indigestibility.** Most pulses contain carbohydrates that are indigestible for humans. These carbohydrates get digested by bacteria, which then produce gases, leading to flatulence (FAO, 2016b; Maphosa & Jideani, 2016; McGee, 2004; Mitchell et al., 2009). As discussed in the meanings-section below, several studies argued this to be barrier for pulse consumption. Again, fortunately, there are solutions to this issue. Firstly, the indigestible parts can be made more digestible by soaking the pulses before cooking. The soaking water needs to be thrown away and fresh water is then used for cooking. However, the soaking process leads to a loss of valuable nutrients. Therefore, according McGee (2004), longer cooking in the same water is preferred. A third option is fermenting or sprouting the beans, as the indigestible carbohydrates are then digested by the beans themselves (McGee, 2004). Lastly, there are also ‘commercial digestible aids’ available, that decrease the chance of gas forming (Maphosa & Jideani, 2016).

**Soaking and cooking time.** Pulses cannot be eaten directly. Because of their indigestible carbohydrates and because they are mostly stored dried, most of them require soaking and a long cooking time. Both the recommended soaking and cooking time can vary from one hour up to forty-eight hours, depending on the pulse type and age, information source and planned dish (Albala, 2017; McGee, 2004). Soaking can strongly decrease the time needed for cooking (FAO, 2016d; McGee, 2004). Other tricks for reducing the cooking time are: using warm water for soaking, adding salt or baking soda during cooking (though this affects the taste and texture) and using a pressure cooker. Moreover, pulses of which the hulls have been removed, like split peas and split lentils, inherently have a shorter cooking time. However, they easily lose their texture and turn into a mush. To prevent this, one can add acids, sugar or calcium. Hence, especially good ingredients to combine with cooking pulses are molasses and acidic tomatoes. Lastly, some batches of beans do not get soft, even after cooking for a long time. This aversive characteristic, also called the hard-to-cook phenomenon, can develop in response to certain production or storing conditions. Unfortunately, one cannot tell in forehand whether a batch has this issue, although once cooked, they can be smaller than usual and therefore be picked out (McGee, 2004).

**Storage.** Beans are perfect for storing, as they can be stored both dried and conserved for a long time. However, prolonged storage, especially in warehouses before reaching the supermarkets, can lead to lose of some flavors, enhancement of stale flavors, and increase the just mentioned risk of irreversible hardening (McGee, 2004).

### ***Information sources, recipes and pulse dishes***

Pulses are generally used as ingredient in a dish. Therefore, recipes, pulse dishes, and ingredients accompanying the pulses are likely to play an important role in pulse consumption practices. The recipes used for preparing pulses are abundant (FAO, 2016a). However, little information was found

on the use of recipes and other preparation information sources for the preparation of pulses. Ipsos Reid (2010) reported that among Canadians, family members and internet (specifically ‘google’) were used most to find new recipes. For technical information on preparing pulses, cookbooks were the most frequently used source, followed by family, friends or colleagues, and personal experience. The study also reported that some Canadians consume pulses because they are part of a recipe, or because they are good for soups, stews, or dips.

### ***Preferred buying location***

The only information found regarding locations pulses are bought came again, from Canada. Most purchases of pulses in this study were done in conventional grocery stores or supermarkets, and little in specialty or ethnic grocery stores (Ipsos Reid, 2010).

### **Included material themes**

Pulses are at the core of pulse consumption practices. Therefore, the first material theme selected was *pulse types and forms used*. Pulse type and form were expected to influence the performances of pulse eating and preparing practices, as the varieties differ in taste, texture, preparation needed, and in popularity. On top, the above mentioned nutrient richness, long shelf life, and avers characteristics, were expected to shape meanings of the practices in positive and negative manners. Hence, they were included as themes of the meaning element (see the below). The second material theme is *practice performance frequencies*, and was included to enhance the understanding of the role of pulse practices in daily life. Thirdly, the theme *information sources* on how to prepare pulses, was thought to play an important role in lowering the threshold to use pulses, by providing necessary preparation know-how and inspiration. Both off-line and on-line material sources were included, because in the Netherlands both sources are generally used for gathering information on how to prepare food. Also family and friends were expected to be important sources of knowledge, and to function as introducers to and teachers of the practices. A fourth theme related to *pulse dishes* was included. Pulses are generally not eaten as single ingredient, but combined in a dish. Therefore, pulse dishes were expected to be at the core of pulse consumption, giving context and purpose to the use of pulses. Moreover, the complexity of, and preparation time need for preparing a pulse dish was expected to moderate the performance of preparing pulses. Hence, these aspects were included in the theme. The fifth theme regards the *locations* where pulses are *bought*. It was expected that experienced pulse consumers have successfully included the buying of pulses in their general grocery-buying routines. Sixth, the selected literature hardly refers to the use of kitchen equipments. However, for understanding what is needed to stimulate the adoption of pulse preparation practices, especially practice-specific kitchen tools (e.g. for preparing specific dishes with dried pulses) were found relevant to take into account. Therefore the theme *kitchen equipment* used for preparing pulses was included. Lastly, to check for who mainly prepares pulses in the household of the practitioner, the theme *main preparer pulses* was included.

## 4.2 Meanings

### *Flavor appreciation*

To start with one of the most mentioned factors influencing pulse consumption, the taste of pulses has been identified as both a stimulant and inhibitor for consuming pulses by several studies. Liking the taste of pulses was found to be the main reason to consume pulses for Finns (Jallinoja et al., 2016) Canadians, and one of the main reasons for Asian-Canadians (Ipsos Reid, 2010). Simultaneously, 'not liking the taste or texture' of pulses, and having a family member who does not like them, were mentioned by non-pulse consumers as important reasons to not consume pulses (Ipsos Reid, 2010). Similar double-sided findings were found for the North Indian population (Dahiya et al., 2014) and several Latin-American populations (Leterme & Carmenza Muñoz, 2002).

In different countries and communities, different beans are argued to be the most tasty beans. In communities where beans are still a commodity, color and bean-size are found to be important aspects for preferring one bean over the other. Without a strong bean consumption tradition at present, the color appeared to be less important (Leterme & Carmenza Muñoz, 2002).

### *Availability & Accessibility satisfaction*

Availability refers to whether pulses are present, while accessibility refers to being able to get the preferred pulses. In Finland, respondents indicated to expect to eat more beans in the near future if the supply of beans would be better (Jallinoja et al., 2016). Lack of availability was thus found to form a barrier for pulse consumption.

### *Healthiness & Nutritional value*

Controversial results have been found about meanings regarding the healthiness of pulses. More specifically, in Canada, pulses were mainly appreciated for their healthiness, whereby pulses' high amounts of proteins and fibers were more appreciated than their low fat content (Ipsos Reid, 2010). Also in America, pulses were perceived healthy. Moreover, Dubé and colleagues (2016) argued that pulses were simultaneously associated with being healthy and tasty, which challenges the common idea that tasty food is associated more with unhealthy food by the Western population. Furthermore, unprocessed and minimally processed pulse products, were found to be perceived healthier and tastier than processed pulse products (Dubé et al., 2016). However, in North India, the beliefs around the health benefits of mung beans were controversial (Dahiya et al., 2014), and in Finland health-perceptions were not confirmed to increase pulse consumption (Jallinoja et al., 2016).

### *Convenience*

Convenience refers to the ease and fastness of preparation, which is inherently related to the form of pulses offered and used, the know-how people have regarding preparing the pulses and the time people are willing to spend on the preparation. The long time dried pulses need to be cooked forms an issue for consumers in different European countries (Schneider, 2002). Also Canadians (Ipsos Reid, 2010) and consumers from the US-state Pennsylvania (Wenrich & Cason, 2004) indicated to perceive cooking time and the general inconvenience of pulses as a barrier for consuming pulses and soy respectively. Therefore, Maphosa, Jideani (2016) and Schneider (2002) concluded that new pulse products focused on convenience could enhance pulse consumption.

On the other hand, convenience has been shown to positively influence the consumption of (processed) mung bean products. Increasing the offer of ready-to-eat bean products were suggested for promoting the consumption of mung beans in the mid-day (Dahiya et al., 2014). The same was suggested for Finns, as Finns reported to expect to eat more beans in the near future if more ready-made meals with beans would be available (Jallinoja et al., 2016). In order to make meat-substitutes (like pulses) ‘compatible with the convenience culture’, Schösler et al. (2012) proposed to combine them with existing fast-foods like pizza, because the less conventional food item, for instance lentils, disappears in the overall picture of the pizza. Especially for young consumers and those who reflect little on what they eat, the authors argued this to be a good option. Lastly, Schneider found that the ease of storing pulses over a long time period is seen as convenient in Spain, France and the UK (Schneider, 2002).

### ***Affordability***

Schneider (2002) argued that the low price of pulses is seen as a main benefit in Spain, France and the UK. Also in North India, unprocessed mung beans were associated with affordability (Dahiya et al., 2014). However, among the Canadian respondents this was shown to not be an important reason to consume pulses (Ipsos Reid, 2010).

### ***Environmental considerations***

The influence of environmental considerations on pulse consumption has been studied several times, with similar results. Ipsos Reid (2010) and Jallinoja et al. (2016) found that environmental concerns were not strongly driving pulse consumption. The same was found for the consumption of meat replacers in general (Hoek et al., 2011). Moreover, people eating no meat (Ipsos Reid, 2010; Jallinoja et al., 2016) and those generally taking environmental issues into account when purchasing food (Ipsos Reid, 2010) were found to be more often stimulated to eat pulses for environmental considerations.

### ***Perceived appropriateness***

The perceived appropriateness of a food in a certain dishes, is argued to influence the liking of the dish (Cardello, Schutz, Snow, & Leshner, 2000). More specifically, Spencer, Cienfuegos and Guinard (2018) found, that when a meat alternative like pulses was presented in a traditionally more plant based dish, the plant based characteristic of the dish was accepted more, than when used as substitute in a traditional meat dish.

Additionally, in France, pulses were associated with ‘authenticity’, and in Spain with the traditional diet (Schneider, 2002). Also for Finns, the cultural acceptability of pulses in the local diet was important for liking a pulse dish. Simultaneously however, the authors argued that the plant-protein consumption had positively been influenced by the attention to foreign cuisines and dishes by the public and media (Jallinoja et al., 2016). The promotion of ethnic food as appealing, has also been identified as stimulating pulse consumption by Scholliers (as cited in De Boer, Schösler, & Aiking, 2017). This suggests that the perceived appropriateness of the pulses in the specific dish is more relevant than the perceived cultural appropriateness of the dish in the local diet. However, Dubé et al. (2016) found that Americans associated pulse products marketed as traditional more with tastiness than when the products were branded as working on future innovations.

Seen from a Dutch point of view, these dishes are often more exotic, as they are regularly drawn from foreign cuisines and go off the track of the standard Dutch potatoes-vegetables-meat (Schosler et al., 2012). This means, that for increasing the amount of pulses included in Dutch food consumption practices, an openness for less conventional dishes would help, Schosler et al. (2012) argued.

### ***Flatulence issues and heavy feeling***

As mentioned in the material section, eating pulses can cause flatulence issues, which can lead to embarrassing and uncomfortable moments (McGee, 2004). This is mentioned as problematic by several secondary literature sources, of which most however did not backup their statement with traceable research findings (FAO, 2016d; Maphosa & Jideani, 2016; McGee, 2004; Schneider, 2002). Schneider (2002) even argued, that flatulence will block further consumption of pulses in Europe if no solutions are found. Additionally, based on previous studies, Leterme et al. (Manrique Bargas, 1994 as cited in Leterme & Carmenza Muñoz, 2002) argued that in Latin America, consumers do not like pulses because of flatulence and a too heavy feeling from eating beans (Rodriguez-Castillo & Dumani-Echandi, as cited in Leterme & Carmenza Muñoz, 2002). However, Ipsos Reid (2010) did not find ‘digestive considerations’ to be a main factor for deciding to not use pulses, and Jallinoja et al. (2016) did not find pulses to be associated with stomach pain.

### ***Consumption occasion***

In some Asian cuisines, certain pulses are commonly used for breakfast and as snack. In other cuisines, pulses are used for burgers, falafel, dips, and curries, while again in other regions stews, soups, salads, and pasta sauces are more popular (Albala, 2017; FAO, 2016d; McGee, 2004). The 2011 Dutch National Food Consumption Survey, reported that 92 percent of the legumes consumed by Dutch consumers were eaten as part of the dinner meal (Van Rossum, Franssen, Verkaik-Kloosterman, Buurma-Rethans, & Ocke, 2011).

### ***Included meanings themes***

A first meanings theme is *pulse type and form preferred*, and was used to explore whether and why certain types and forms are preferred over others. Not much information was found on meanings regarding accessibility of these pulse types and forms in the Netherlands, let alone Almere. Therefore, a second theme is *pulse availability satisfaction*. Thirdly, *motives consumption* was taken as separate theme, whereby top-of-mind motives was included because not much is known yet about which meanings characterize pulse consumption in the Dutch society. In the same way, barriers for pulse consumption as perceived by non-consumers was briefly touched upon. Fourthly, also *top-of-mind associations* were included. To continue, several separate themes were taken-up to study motives for participating in pulse consumption, and associations with participation, expected to be constitutional for pulse consumption based on above mentioned findings and common knowledge. Firstly, the theme *taste* was included. In the Dutch society, where the availability of food products is large, taste preference is thought to be an important deterrent for food choices. Therefore, appreciating the flavor and texture of pulses was expected to be an important prerequisite for pulse consumption to take place. This was also expected to be influenced by practitioners’ social-cultural environment and exposure to the pulses. Secondly, the theme



*healthiness* was studied, because in a society where food practices are increasingly revised in the light of whether they are healthy, meanings around the healthiness of pulses are key to research. Thirdly, the theme *plant protein source* was taken separate from ‘health’ because health entails the favorable nutritional composition in general, while the theme plant protein source is linked to the trend of eating less meat. Hence, the high protein content of pulses was expected to be an important reason especially for practitioners that do not eat meat. Fourthly, the theme *convenience* was used to cover meanings regarding the ease and quickness of preparing pulses, as well as the convenience of the long shelf-life of pulses and their fit in a busy lifestyle. The preparation time of pulses needs to fit the lifestyle of the practitioner. Therefore, it was investigated how practitioners think about the preparation-time of pulses. Fifth, the theme *affordability* was included to investigate whether the relative low price of pulses is a relevant characteristic in Dutch practices. The theme relates to the image of pulses being poor man’s meat (mentioned in the institutional context-section). Sixth, the theme *environmental considerations* is a relevant theme, because the environment benefits of pulse consumption is a main reason this study is conducted. However, based on previous findings, the expectation was that also in this study, environmental benefits would not be a main meaning in pulse consumption practices. To continue, pulses were expected to be more incorporated in a diet when people perceive them to fit in their diet and when they perceive the eating of pulses to be normal. Hence, the theme *perceived appropriateness* was included. Moreover, the theme *flatulence* was included, because whether this is perceived as an issue by the Dutch pulse consumers is an interesting question because it connects to the level of know-how people have about how to prevent the issue, and to whether pulse-products with low flatulence-effect are desirable. Furthermore, through *consumption occasion*, several aspects were included that all relate to when and how pulses are consumed. These aspects are important to research for understanding how the practice is manifested in daily life. Firstly, the long preparation-time needed for dried pulses was expected to have moved the preparation of dried pulses to the weekends and festive occasions. In contrary, canned pulses were expected to be used for quick dishes. A second aspect regards for which meal are pulses generally eaten, and when: are pulses everyday food, or prepared for special occasions? Thirdly, the theme also covers the location where pulses are eaten. *Cuisine preference* was added as additional theme, because certain cuisines were thought to be more known and popular for pulse consumption than others. Hence, eating according certain pulse-rich cuisines, was expected to be motivating for regular performance of pulse consumption. On the other hand, the meaning could lead to practitioners only using pulses for those moments they feel like preparing food according the cuisines they believe pulses belong to, which could limit the frequency of consumption. Also *social motive* was added as additional theme and regards the motive to consume pulses because others in practitioners’ direct surrounding like to eat pulses. Finally, the theme *motivation for increasing consumption* was added, to analyze current practice performances in the perspective of what is, by practitioners, perceived to be the ideal state of pulse consumption.

### 4.3 Competences

The following information on the competences element of the practices of buying and preparing pulses has been found in the selected literature. Firstly, regarding basic understandings of pulse consumption practices, in Canada, a large amount of both pulse consumers and non-consumers were not aware of what the term ‘pulses’ exactly entails, of the different varieties of pulses available, and

of the variety of dish that can be made with them (Ipsos Reid, 2010). Furthermore, in Finland, knowledge regarding the health beneficial of beans was not enough to cause frequent bean consumption (Jallinoja, 2016). Other authors argued that people are insufficiently aware of the desirable properties of pulses and that stimulating this knowledge would enhance consumption (Maphosa & Jideani, 2016; Palmer, Winham, & Hradek, 2018; Schneider, 2002).

Secondly, flatulence issues and the hard-to-cook phenomenon could, according Jallinoja et al. (2016), be reduced or even removed when consumers gain knowledge and skills on cooking methods that can detoxify and soften the legumes, reducing these effects. However, Fermenting and sprouting beans at home for example, does require extra know-how and motivation (McGee, 2004).

Thirdly, different pulses need different approaches for cooking, for instance in order to not make them loose texture (FAO, 2016a; McGee, 2004). Consequently, the preparation and planning competences needed to prepare a dish with pulses is also argued to be diverse, ranging from opening and draining a can of beans and tossing them in a salad, to soaking and simmering for days before making a complex dish out of them (Albala, 2017).

Fourthly, not knowing how to cook (Ipsos Reid, 2010) or prepare (Wenrich & Cason, 2004) pulses was found to be a main barrier to consuming them among Canadians and low-income adults in the Unites States respectively. In the Canadian study, low-pulse consumers with a motivation to consume more pulses, also indicated that more information on the preparation methods would help them reach this aim (Ipsos Reid, 2010). Also Finish expected to eat more beans if they knew more recipes (Jallinoja et al., 2016).

Fifthly, Canadians indicated that they simply forgot to include pulses in their meal planning although they did want to consume more pulse. They indicated to expect to consume more pulses if there would be more cues to remember to buy them (Ipsos Reid, 2010).

Lastly, enhancing the knowledge and skills on soaking pulses could also reduce time constrains (Jallinoja et al., 2016).

### **Included competences themes**

The first competences theme is *basic competences preparing pulses* and covers basic know-how and skills needed for performing practices of preparing conserved and dried pulses. The second theme, *recipe competences*, regards to the necessity to know recipes for preparing pulse dishes. A third theme is *advanced preparation competences*, and covers competences that were not expected to be as dominantly present as the basic competences: knowing how to reduce pulses' boiling-time, to reduce the occurrence of flatulence, and to sprout or ferment pulses. For understanding the current status of the practices in the Netherlands and for understanding what it takes to become a practitioner of pulse consumption, it makes sense to research to what extent practitioners are possessing advanced know-how and skills. Enhancing such advanced knowledge and skills among consumers is only relevant when it turns out to be an important aspect of the practice. Furthermore, the theme *advanced knowledge* refers to possessing correct knowledge regarding why pulses are healthy (various nutritional benefits) and environmental friendly. Moreover, another theme is *meal planning competences*. The in previous studies found issues experienced with remembering to buy and prepare pulses, are related to the habitual character of meal planning. Taking up pulses

consumption practices was thought to require deliberate breakthrough of the habitual buying and preparing routines and active memorization of buying and preparing the pulses. Lastly, *soaking performances* was included additionally, because the competences of soaking and the time spend on soaking were expected to play a strong part in preparing dried pulses.

## 4.4 Identity and lifestyle

### ***Socioeconomic characteristics and gender of pulse consumers***

Regarding socioeconomic characteristics of pulse-consumers, the reviewed studies are not on the same page. This is not surprising, given that food consumption practices are strongly diverging between regions and populations and the studies have been researching different societies.

In the Netherlands, no differences in legume consumption frequency were found between men and women, and between people with a high income and those with a low income. In urban areas consumption of pulses is shown to be a bit higher than in non-urban areas (RIVM, 2016). However, among Turkish-Dutch and Moroccan-Dutch (Palsma, Nicolaou, Van Dam, & Stronks, 2006) women consumed more pulses than men. Also, high educated and older Dutch did consume more meat-substitutes in general (Hoek et al., 2011).

In Canada, women, elderly, high educated people, people living in a two person household and people with a (family member with a) chronic disease were found to consume more pulses (Ipsos Reid, 2010). In Finland, young people, high educated people, and those living in Urban areas were found to consume more pulses, but no gender difference was found (Jallinoja et al., 2016).

Lastly, in North-America (Lucier et al., 2000) and Latin-America (Leterme & Carmenza Muñoz, 2002), pulses were consumed more by low-income households, which was in both studies explained by the affordability of pulses. Moreover, the researchers argued, that American citizens with a Hispanic background were largely accounting for the high bean consumption in the low income groups (Lucier et al., 2000).

### ***Cultural identity and lifestyle***

Another identified reason for differences between pulse consumers is the deeply rooted traditional character of food consumption habits and taste preferences (Goldman & Hino, 2005; Ipsos Reid, 2010; Wilk, 2010), that can remain unchanged for centuries (De Boer, Helms, & Aiking, 2006)(De Boer et al., 2006) even when other cultural characteristics like language are fading (McIntosh, as cited in Leterme & Carmenza Muñoz, 2002). Especially pulses are part of many traditional diets, in which they are or were high valued staple foods (Albala, 2017). Hence, pulse consumption is performed with different pulse types and forms, in different countries and communities (Albala, 2017; Tapia, as cited in Leterme & Carmenza Muñoz, 2002). Also, Schösler et al. (2012) argue, that within Europe, local food habits and traditions, as well as differences in which pulses are available, explain the diversity in pulse consumption between European countries.

Even after living in their new country for a long time, immigrants from countries with a pulse-rich cuisine were found to consume more pulses than the native population. This was at least found to be the case for: South-Asian immigrants living in Canada (Ipsos Reid, 2010), Dutch people with a Moroccan (Palsma et al., 2006) Turkish (Palsma et al., 2006; RIVM, 2015), or Hindustan-Suriname

background (RIVM, 2015) and people with a Hispanic background living in the United States (Lucier et al., 2000). Also, Tu et al. (2012) found, that Vietnamese living in France, significantly liked the taste of soy more and associated eating soy more with positive emotions and memories, compared to the French. The authors explained this by arguing that in the Vietnamese traditional cuisine soy is a common staple food, while for the French it is a novel food associated with Asian cuisine. However, Ipsos Reid (2010) found that the longer the Asian-Canadians had lived in Canada, the more non-traditional forms and dishes (e.g. canned beans and lentil soup) they bought and consumed. The arrival of Hispanic immigrants was also argued to lead to the host-society (the US) getting more exposed to pulse-rich cuisines, creating an upward push in the bean consumption (Lucier et al., 2000).

Lastly, pulse consumption does not only diver between but also within a population: Ipsos Reid (2010) for instance, identified five groups of consumers within the “native” Canadian population, ranging from highly informed (about the health benefits) pulse consumers, to disinterested consumers. Moderate to high pulses consuming groups perceived pulses to be part of their traditional diet four to seven times more often than non-pulse consumers respectively.

### ***Lifetime exposure***

The liking or disliking of pulses is by several scholars argued to be strongly influenced by their level of familiarity. Familiarity is influenced by local and social group-specific food traditions as well as the individual’s childhood experiences (De Boer & Aiking, 2018; Leterme & Carmenza Muñoz, 2002; McGee, 2004; Tu et al., 2012). To come back to the study comparing the liking of soy between Vietnamese-French and French, the taste-appreciation of French was found to improve after they moved to Vietnam, strengthening the idea that taste is partially a matter of familiarization (Tu et al., 2012). Lack of familiarity with soy was also found to inhibit the taste-appreciation among Americans (Schyver & Smith, 2005). Also, the same was found regarding meat-substitutes among Dutch and English consumers (Hoek et al., 2011). Lastly, both native Canadians and Asian-, Latin-American- and African-Canadians regularly consuming pulses recalled being brought up eating pulses. Therefore, the researchers concluded that childhood experiences is an important reason for people to consume pulses (Ipsos, 2010).

### ***Following a meatless diet***

Another lifestyle-characteristic found to influence pulse consumption is following a meatless diet. Due to the meat-replacing characteristics of pulses, people with a vegetarian or vegan diet are more prone to engage in the performance of pulse consumption practices (Ipsos Reid, 2010; Jallinoja et al., 2016). In Finland, vegetarian respondents were even ten times more likely to consume pulses one time per week, compared to the non-vegetarian respondents (Jallinoja et al., 2016). Dutch vegetarian adults perceive their diet to be part of their identity, while meat eaters did not make this connection between their diet and identity. A plausible explanation the authors gave for this differences is that consuming a mainly meat-based diet is the cultural norm in the Netherlands, while a vegetarian diet often goes paired with situations in which the person has to explain his or her explicit deviation from the norm (De Boer et al., 2017). Nevertheless, pulses still only take up a marginal part of the plant-based protein sources that Dutch eat. Even Dutch non-meat eaters get

most of their proteins through dairy and grain consumption (Keuchenijs & van der Lelij, 2015; Tjihuis et al., 2011).

### **Included lifestyle and identity themes**

Firstly, the theme *cultural identity and lifestyle* was used to study the influence of practitioners' cultural-ethnic background on performances of pulse consumption practices. The Dutch population includes a large variety of people with different cultural backgrounds, which leaves the society with a diverse mix of culturally-infused consumption patterns. Based on the discussed findings, it was expected that the cultural background of pulse consumers in the Netherlands, and the extent to which they live according to this background (cultural lifestyle), strongly influences pulse consumption on group level as well as on a society level. On group level, pulse consumption traditions were expected to still play a prominent role after settlement in the Netherlands. These traditions were thought to be passed on from one member of the social-cultural group to other members. On society level, the multi-cultural character of the Dutch society is likely to have led to increased exposure of Dutch to pulses and pulse dishes, and to an infusion of the traditional Dutch cuisine with pulse-rich cuisines (see also the theme *cuisine preferences of the meaning element*). Therefore, the origin of pulse consumption practitioners and how this influences their practice performances, received special attention in this study. Post-immigrants are thought to take part in the creation of today's pulse consumption practices. On top, we can learn 'best practices' from their performances of pulse consumption that could help the take-up of pulse consumption by the Dutch.

Secondly, the role of familiarity with pulses was addressed through two themes. *Past exposure* covers the role of in childhood created positive experiences with consuming pulses on later-life pulse consumption. *Present exposure* covers the influence of continued exposure to other practitioners, as well as the role of social sharing of pulse practice-performances among friends and family. Shove et al. (2012) argue, that social learning and exposure to any practice largely accounts for the uptake of a practice by new carriers. Cultural tradition are hereby again thought to be important for the rate of exposure. In the contemporary Dutch society, the exposure to pulses is compared to for instance Mediterranean societies in which pulses are more commonly used. This societal unfamiliarity might be part of the reason that pulses are not eaten much in the Netherlands. Thus, familiarity and cultural background are interconnected: a childhood experience of food consumption depended on the cultural background of the caretakers and the social surrounding the person grew up in or got exposed to in later stages of life.

Lastly, the theme *protein diet* covers the influence of other protein consumption practices on pulse consumption, with a main focus on the role of pulses in meat-rich and meatless diets. Based on the findings of previously mentioned studies, it is plausible that no-meat eaters in the Netherlands consume an above average amount of pulses. The reasons for consuming pulses were thought to be different for no-meat eaters compared to meat-eaters, and also compared to people who consume pulses as part of the cuisine of their culture.

## 4.5 Institutional context

### *Pulses are old-fashioned in an era of convenience and healthy diets*

Schneider (2002) and Jallinoja et al. (2016) argued that pulses have not kept up with the times, failing to respond to changing lifestyles. Especially in developed countries, population-wide lifestyle changes, like women working and decreased time spend on cooking, the demand for convenience food and quick recipes increased. Also, the availability of a large variety of processed foods and advertisement for such foods has been influential in the shift from traditional pulse-rich (in this case Mediterranean) diet, towards diets characterized by fast and processed food (RIVM, 2016a; Schneider, 2002). Resulting from this, pulses are seen as old-fashioned food (Schneider, 2002; Schösler et al., 2012). On top of the earlier mentioned innovations suggested to increase the convenience of pulse products, Schneider (2002) and Jallinoja et al. (2016) argued that more marketing stimulating a modernized image of pulses would increase their consumption. De Boer and Aiking (2017) agreed, and add that the image of pulses need to be transformed towards being a healthy food fitting in a varied diet, because healthiness is appealing to contemporary Dutch food trends. Also Borchgrevink (2012) argued that worldwide, consumers seek for healthy food, and that commercial bean processors could respond to this by creating refined bean dishes.

### *The influence of the prominent role of meat on the dinner table*

Pulse consumption is tightly linked to meat consumption. Repeatedly, pulses are said to have the image of ‘the poor man’s meat’: pulses carry an income-based association which is simultaneously linked to the high-status of meat (Albala, 2017; Borchgrevink, 2012; Leterme & Carmenza Muñoz, 2002; McGee, 2004). The underlying idea is that pulses are affordable for everyone, but that meat is preferred whenever one can afford it. This image is not just from the last decennial but has long been in place (McGee, 2004; Schneider, 2002). As a matter of fact, as already mentioned in the previous section, in some cases this image still correlates with reality.

Also in North and West Europe, meat is framed as a main component of the meal, that is recognizable, familiar and not easily replaced. Meat is also eaten for the reason of eating a healthy meal. Furthermore, meat has a symbolic value, which is at least as important as the nutritional value or the favorable taste (De Boer et al., 2017). Therefore, De Boer and Aiking (2017), argued that for a Dutch national diet-shift with more plant-based proteins, the socio-cultural aspects of meat consumption needs to be taken into account.

Another effect of the strong meat culture is that pulses and meat consumption are set in opposition of each other. Consequently, in meat-eating societies eating pulses is found to have an image of being for vegetarians (De Boer et al., 2017; Ipsos Reid, 2010; Lucier et al., 2000). De Boer and Aiking (2017) argued that this image has a negative influence on the popularity of plant-based protein consumption, because it restricts the openness to included pulses in a meat-dominant diet.

Positivity, in 2012 Schösler et al. already found, that the ‘young generation’ in the Netherlands did not associate meat with wealth in the way former generations used to do. In a follow-up study, Schösler et al. (2015) also found that the traditional framing of meat as indispensable part of the meal was not that strong among native Dutch youth, though still strong among Turkish-Dutch youth and (to lesser extent) Chinese-Dutch. The Turkish-Dutch youth also associated meat much stronger

with being a ‘real man’, than the Dutch and Chinese youth did. The Dutch youth use new meal patterns in which meat has a less prominent role, making substitution of meat, by for instance pulses, easier. The authors argued that the abundance of meat and cultural framing are particularly for Turkish-Dutch main reasons to not consider eating less meat and more meat substitutes (Schösler et al., 2015).

Lastly, in line with this, there is an emerging trend in the Netherlands to purposefully not eat meat every day for several reasons. Keuchenius and Van der Lelij (2015) estimated that about 55% of the Dutch population leaves out meat from their diet three times per week or more.

### ***Pulse suppliers and the buying environment***

Schneider (2002) argued that the production of pulses in Europe needs reorganization: a small amount of manufacturers take up the majority of the market share, yet the market is competitive. Simultaneously, the market finds itself in the “*vicious circle ‘no buoyant [inflexible] market –no marketing– no attractive food products*” (p.249). In other words, the market of pulses in Europe is thought to suffer of a low demand, but is also not doing the necessary innovation and marketing to change this position. However, in March 2017, the ‘Green protein alliance’ was placed in force in the Netherlands, connecting several stakeholders among which pulse manufactures, to increase the production and consumption of plant-protein products (GPA, 2018).

According De Bakker and Dagevos (2010), the physical arrangement of stores, their offer (physical environment), and the cultivated consumption mentality (sociocultural environment) need to give consumers the opportunity and stimulation to shift their diet through deliberate advertisement and rearrangement. Only then, consumers will be a useful player in shifting the consumption paradigm from the current overconsumption of meat towards more plant based diets (De Bakker & Dagevos, 2010). Lack of exposure in the material environment and lack of cues to remember to buy pulses were also identified as barriers for willing consumers to buy pulses regularly (Jallinoja et al., 2016).

### ***Influence of the policy climate***

De Bakker & Dagevos (2010) reported that in 2008, the Dutch cabinet decided that “the protein issue”, meaning the overconsumption of meat and the relative low consumption of plant proteins, should be a priority. Simultaneously, the ministry of agriculture, nature and food quality (LNV) realized that the demand side of protein consumption was receiving too little attention while only technological innovations and efficient production methods would not be able to keep up with the fast growing meat demand. Therefore, LNV commissioned a study on the demand side of protein rich foods, in particular meat and processed meat replacers like tofu and vegetarian sausages. The conclusion of this study was a policy advice: to focus innovative product designs on the cultural context of the Netherlands and social settings of food consumption (De Bakker & Dagevos, 2010).

### **Included institutional context themes**

Firstly, the theme *public images* was used to study society-wide shared meanings about pulse consumption, with a focus on the in literature identified images: pulses are old-fashioned, pulses are for those who cannot afford meat, and eating pulses is for vegetarians. How pulse consumers as well as the general Dutch population thinks about pulse consumption was expected to influence the

character of the pulse consumption practices, because the images can function as barrier or stimulant for openness to the practices. Secondly, the theme *meat in the Dutch food culture* regards the effect of the Dutch meat culture on pulse consumption practices. Meat and pulses seem to battle for the same place on the dinner table, and currently, meat is winning. This has a strong influence on the popularity of pulses. Thirdly, the theme *Dutch pulse culture* regarded shared meanings regarding the current role of pulses in the Dutch food culture. Lastly, through the theme *pulse supply*, the material surrounding in which pulses are bought got studied. The availability of pulses in stores was taken as indication of which pulses are highest in demand, as most products are only offered in mainstream supermarkets when they are sold marginally. Simultaneously, the availability of certain pulses and absence of others, was expected to influence which pulses are used in the practice of pulse consumption: when certain pulse types or forms are not available in conventional grocery stores, extra dedication and searching skills might be required.



## 5. Results and Analysis

### Introducing practices of eating, preparing and buying pulses-characteristics

In this chapter, the results of the data collection (interviews, surveys, logbooks, and store observations) are presented and analyzed. The aim of this chapter is to provide insight into what characteristics pulse consumption practices are comprised of, into how they hang together, and into what stimulates the uptake and continued performance of these practices. The chapter is divided in three subchapters, representing the practices of eating, preparing and buying pulses. These practices are observed to be performed in diverse manners by diverse groups of practitioners. Based on the quantity and importance of these distinctions, the different performances are either identified as belonging to separate practices, or as variations of the same practice. See Figure 5 for a complete overview of the practices and practice performances. Based on this analysis, the discussion chapter will afterwards continue to address which practice characteristics are most suitable for targeting interventions stimulating pulse consumption.

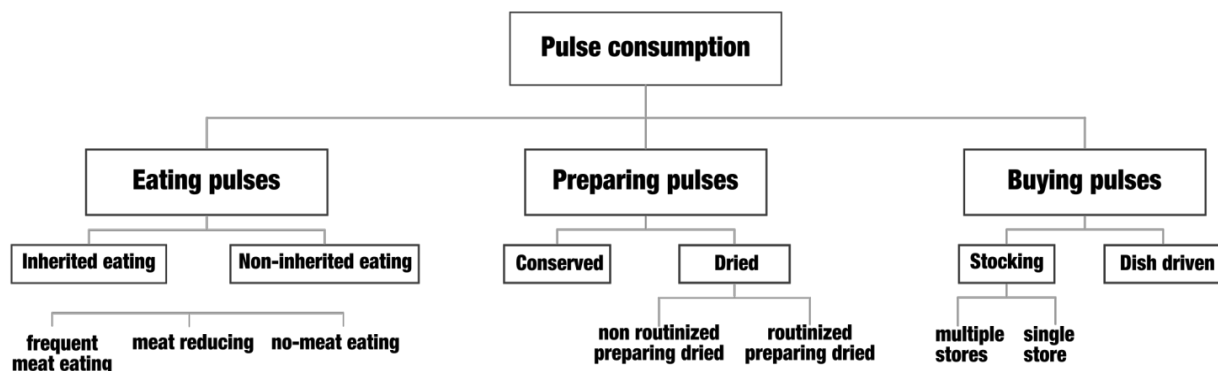


Figure 5: Pulse eating, buying and preparing practices

Note: The boxes represent practices, and the terms outside the boxes are represent distinct forms of practice performances

### 5.1 Practices of eating pulses

In the context of pulse *eating* practices, this thesis has mainly focused on what practice characteristics recruited practitioners, and what makes that they still perform the practice. Therefore, this subchapter mainly concerns the elements ‘meanings’, ‘identity and lifestyle’ and the ‘institutional context’. Moreover, practitioners’ cultural identity and the paths through which they got recruited were found to influence the practice-performances to such an extent, that one can speak of two separate pulse eating practices: the cultural inherited and a noninherited practice. Also practitioner’s lifestyle in the form of following a meat-based or plant-based diet was found very influential, and is therefore discussed as separate forms of performances.

The outline of this subchapter is as follows: first, some general characteristics of pulse eating practices will briefly be described. This is followed by an introduction of the two eating practices. Then, the text continues to discuss the image of pulse eating in the Dutch society, followed by remaining associations and motives that shape the practices. The subchapter ends with an analysis of the influence of practitioners’ protein-diet on the performance of pulse eating practices.

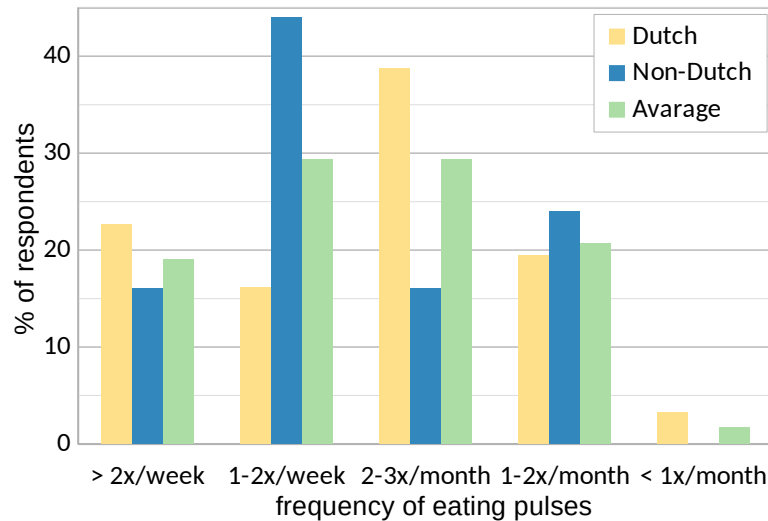


Figure 6: Self-indicated frequency of eating pulses in survey

The ratio of pulse eating practitioners in the survey was high: nine out of ten survey respondents indicated to sometimes eat pulses at home. The *frequency* in which *pulses eating* is performed was very diverse. In average, pulse consumers with a non-Dutch background (i.e. Moroccan, Surinamese, Turkish, Syrian), ate more frequent pulses compared to those with a Dutch background (see also Figure 6 for the survey results). In the logbooks, the reported frequencies were higher: most practitioners (n=5) consumed pulses one to three times per week in average, followed by one time per week (n=2). Even more, some practitioners indicated that throughout the year, they would eat pulses more often than they did during the logbook period. Thus, the interview-sample existed of fervent pulse eaters.

Eating pulses was found to be a practice that can take place at various moments in daily life. The *consumption days* were both on weekdays and weekends. Pulses were mainly used as everyday food eaten in the household-setting. Thus, the *consumption setting* was mainly at home, and occasionally at work, in a restaurant, or at the home of a relative. The *meal type* in which pulses are used were mainly dinner and lunch, though some practitioners also regularly ate pulses for breakfast. Lastly, *seasonality* influenced the consumption of certain dish-types: soups like the Dutch green pea soup, were associated with, and mainly eaten in, the winter. In the summer, hot temperatures stimulated the consumption of pulses in fresh salads.

The most eaten pulses were brown beans, chickpeas, kidney beans and lentils. Preferences for certain types depended mainly on (cultural) familiarity, but also on personal taste. The variety of types eaten per person ranged from three till nine in the interviews, whereby alternation between different types was strongly valued. They tended to use certain varieties repetitively, mostly because a dish was used for more than one meal.

### Introducing two pulse eating practices as entities

Based on several indicators, eating pulses was identified to be performed distinctively by, on the one hand, people raised with eating pulses as part of their cultural cuisine, and on the other hand people not raised with eating pulses and who do not identify pulses to be part of their cultural cuisine. Hence, eating pulses is introduced as two separate practices: the inherited and the noninherited pulse eating practice. This division was mainly based on the interviews. However, a

similar deviation in the data was identified between the Dutch and non-Dutch respondents. Hence, the survey data is also presented split between the inherited (non-Dutch) and noninherited (Dutch) pulse eating practices. The practices are dissimilar regarding the paths through which practitioners get required, regarding certain characteristics of the meaning-elements, and regarding other

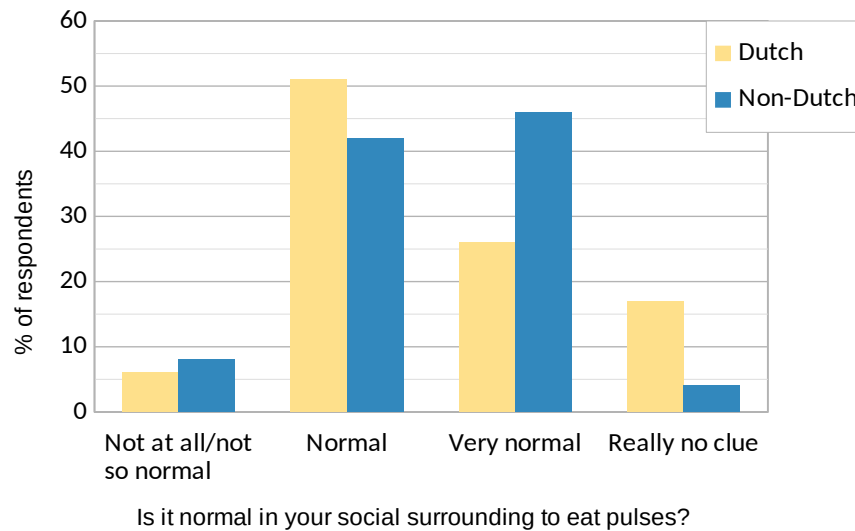


Figure 7: Survey respondents' perceived norm regarding pulse eating

practices with which pulse-eating is bundled (lifestyles in which they are performed). These practice characteristics will now be discussed in more detail and are summarized in Table 1.

Table 1: Key distinctive characteristics of the inherited and the not-inherited pulse eating practices

	Inherited	Noninherited	
<b>Key recruiting characteristics</b>	<ul style="list-style-type: none"> <li>* Childhood exposure</li> <li>* Cultural-social norm-setting</li> <li>* Positive childhood memories</li> <li>* Pulses-rich traditional cuisine</li> </ul>	<ul style="list-style-type: none"> <li>* Later-life exposure</li> <li>* Positive memories of later-life exposure</li> <li>* Performances of related practices, stimulated by life-events</li> </ul>	
<b>Cultural Appropriateness</b>	* Strong role of pulses in own cuisine	* Low role of pulses in own cuisine	
<b>Current exposure</b>	* Frequent exposure & sharing	* Knowing other practitioners	* Hardly knowing other practitioners
<b>Perceived social norm</b>	* Very normal	* Increasingly normal	* Uncommon
<b>Appropriateness festive occasions</b>	* Very appropriate	* Appropriate	* Not appropriate

### ***Inherited pulse eating practice***

Typical for this pulse eating practice is that it is being performed as part of the cultural lifestyle of its practitioners. The practice is thus performed as part of a large bundle cultural lifestyle practices, and as an expression of practitioners' cultural identity. Four interviewed practitioners were identified to perform this practice. They have a Creole-Suriname, North-Indian and Syrian background. This description of the practice starts with two practice characteristics that are key for the recruitment of practitioners. Then, characteristics accounting for the continued performance of the practice, and prominent meanings characterizing the inherited eating practice, are identified.

A first main motive for practitioners of this practice to eat pulses, is that they are regularly *exposed* to eating pulses *since their childhood*. From a young age, they are exposed to the *taste* of pulses and to the meaning that eating pulses is the norm. Some practitioners reflected on this, stating that how

they were raised probably has been of great influence on their appreciation of pulses: “... *because I use to eat it since I was a child, and therefore it is tasty for me; because it is part of my culture*” (Faten). They also recalled *positive childhood memories* related to pulses, which are summarized in Box 4. Because of the initiation on a young age, becoming a member to this practice is never a conscious decision. Besides being exposed to eating pulses in the family-setting, new carriers often also got exposed to the practice through the social-cultural environment in which they grew up: eating pulses at the homes of families, friends and acquaintances. Through this sharing of dishes, member also share the meaning that pulses, are a normal part of one’s diet.

Following on this, a second key motive related to the first, is that pulses are *part of the cuisine* practitioner cherish as belonging to the *culture they identify themselves with*. For the interviewees this was one of the most important reasons to consume pulses (see Figure 10). Herby, practitioners emphasized that the specific sub-culture one belongs to is more important than the country of origin. The Surinamese explained for instance, that the Creole-, Hindustan-, and Indian-Suriname cuisines all have different approaches to the same dishes, and also have their own traditional dishes. Also within the survey-sample, half of the non-Dutch indicated this to be a main motive, compared to only one-fifth of the Dutch. Moreover, practitioners *perceive pulses to be part of their traditional* as well as the *present cuisine*. Some practitioners referred to their grand parents and ancestors eating the same pulse dishes as they do now. However, the interviews revealed that the influence of practitioners’ cultural background is not always as explicit present in their mind. This could explain why not more non-Dutch survey respondents agreed with the above mentioned statement. Firstly, eating according the cuisine of their culture was found to be so interwoven in practitioners’ identity, and consuming pulses so interwoven in their consumption routines, that the initial cause for participating in the practice is not always a top-of-mind motive. Secondly, after initial take-up, other meanings playing a role in the continuation of the practice are more present in some practitioners’ minds (discussed further as part of the motives for participating in the practices).

An important factor identified to account for continued performance of consumption, is continued *present exposure* to other pulse eating practitioners, like friends and family, after initial childhood exposure. All interviewees and three-fourths of the non-Dutch survey respondents (see Figure 8) indicated to have people in their close surrounding that regularly eat pulses. This exposure is a two-way-process, as practitioners regularly *share pulse-dishes* with friends and family.

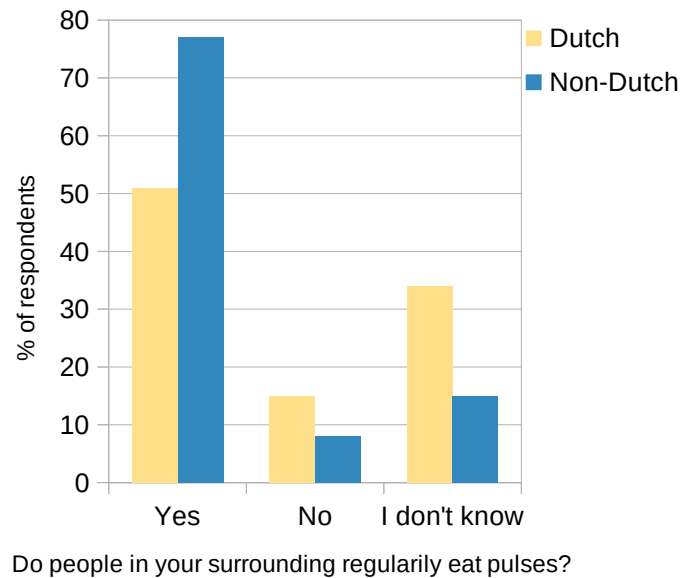


Figure 8: Survey respondents' perception of present social exposure

*Box 4: Childhood memories related to pulses*

Non-Dutch practitioners

“I loved to eat mung dahl. (...) That dahl was my favorite in childhood. When my mum cooked that, I was like ‘mum, you made the mung dahl, wow!’. I would eat two or three bowls at the time” (Shelly).

“Yeah, usually every Friday, (...) it is traditional to eat Foul, hummus etc. It is a big meal when you have visitors, my grandmother, my uncle, and it is Friday morning, then we had a breakfast” (Faten).

“So if my mother had made beans, and I came out of school as a boy, the closer I got to the house I was already trying to sniff what my mother cooked. And when I got that brown bean smell in my nose, I didn't know how fast I had to run home. Then I was so happy. And most of the time she had cooked brown beans, but sometimes the smell came from the neighbors...then it was a disappointment” (Errol).

“... in Suriname it was always the case that at large parties, such as birthdays, one prepared brown beans. It actually started as a luxury dish, a party dish. (...) Yes it was really a party dish, and everyone got it and then the kids were happy. And now it's a normal dish” (Ulrich).

Dutch practitioners

“Especially Grandma's pea soup. You really had to take a spoon, and if it stood upright in the pan, then it was good. And then it was ice-skating and pea soup” (Claudia).

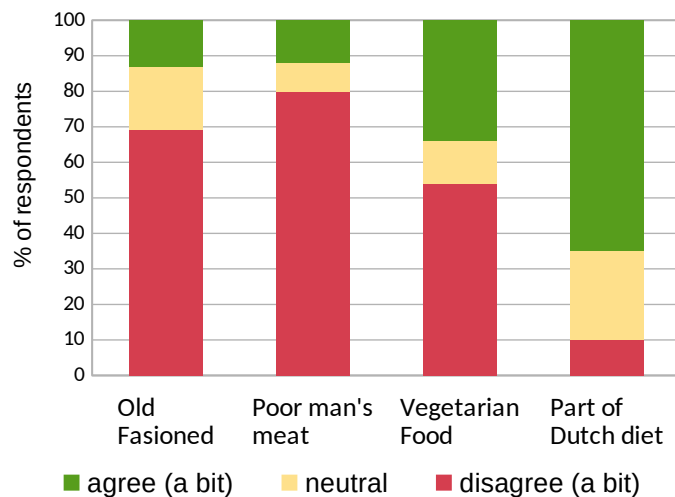
“Of course pea soup. Well Capuchin were not eaten at home. Because my mother (...) had an aversion to them, hence I never ate them. So that apparently had its effects” (Linda).

The above described process of sharing norms and believes about pulse consumption, and of sharing pulse dishes, is in the case of this practice tightly related to meanings of (cultural) identity. Consequently to this social-cultural norm-setting, eating pulses was by the studied practitioners *perceived to be* either *normal* or very normal in one's surrounding (survey results are displayed in Figure 7). Thereby, physical proximity to other practitioners was not a necessity: two of the four practitioners based their normative perception on norms expressed by their social circle in their home country. Thus, due to pulses being part of the cuisine of practitioners' culture, eating pulses is not just a norm taught by the parents, but by the larger social surrounding, which strengthens the internalization of this norm.

Linked to the social sharing and positive normative perception, is the perception that pulses are *appropriate for festive occasions* like birthday parties or receiving visitors. Most (64%) non-Dutch survey respondents and all non-Dutch interviewees agreed (a bit) that pulses are suitable for festive occasions. Moreover, a number of traditional dishes were associated with special occasions (see also the fourth quote in Box 4 on page 45).

Lastly, in accordance with the former, this practice is characterized by a *preference* for pulse dishes originating from the *cuisine of practitioner's culture*, though also other dishes can be made (as will be discussed further in the subchapter on pulse preparation).

### ***The noninherited pulse eating practice***



*Figure 9: Images of pulse eating*

*Note: category "no idea" omitted*

In contrast to the inherited practice, this noninherited practice does not rely on childhood exposure and cultural norm-setting for the recruitment of new practitioners. Practice characteristics that were instead identified to be key for the recruitment of practitioners, are sensitization through exposure in later life, through personal interests, and through life-events stimulating the performance of related practices. Key motives for the continued performance of the practice are also analyzed below. Four interviewees were identified to participate in this practice. In this case-study, the cultural-background of members of this practice was Dutch.

Lack of cultural- or childhood-based exposure to eating pulses is characterizing this practice. The four practitioners were raised by one or two Dutch parents, and indicated to hardly be exposed to pulses in their childhood: neither in their family, nor in their social-cultural environment, eating pulses was the norm. Instead, two of them got for instance raised mainly eating the traditional Dutch combination of 'potatoes, vegetables and meat'. Hence, in the noninherited practice, eating pulses is not strongly associated with the diet of one's culture. In line with this, an important meaning in this practice is that practitioners' cultural background is not a reason for them to consume pulses (see Figure 10 for interview and Figure 9 for survey results, on page 50). A standard exception is pea soup in winter. Just like in former practice, respondents recalled positive memories of eating this dish (these are displayed in Box 4 on page 45).

Three alternative factors were identified as sensitizing people to become pulse consumers. The first factor has an indirect sensitizing effect and regards performances of practices related to pulse

consumption. This are for instance healthy eating, eating according foreign cuisines, and exploring new cultures (e.g. traveling). Such related practices are not per definition performed regularly, and for instance referred to as 'I always have been interested in eating healthy'. However, such interest alone is not strong enough to recruit new pulse consumers. Instead, it creates a common ground with pulse eating, which makes that potential practitioners are more sensitive to other triggers.

The second sensitizing factor is exposure in later life to the main material aspects of eating pulse: pulses, pulse dishes and pulse eating practitioners. First encounters with pulse dishes (other than pea soup) were for instance made during holidays in countries with a pulse-rich cuisine, as Linda explained: "*I have traveled a lot, so actually my first encounter with many pulses was in Asia. And in South America it is also eaten a lot*". First encounters with practitioners were also made within the Netherlands: "*And in the (...) seventies, early eighties, I had a friend who ate macrobiotic. Well, that was really from another planet then. So then you only ate those adzuki beans. Yes, so I started eating that too because it was very healthy, of course!*" (Sabina). These encounters are important for the creation of positively loaded meanings belonging to the pulse eating practice. Meanings in the form of *positive memories* and enthusiasm for the taste of certain pulse dishes, were still part of the practice years after. An example is Gerda's top-of-mind associations with an old Indian friend: "*When I prepare that at home, well then I still think: oh, nice, Paul also always ate that*". A more elaborate example of the effect of prolonged exposure to other practitioners can be found in Box 5 in Appendix IV.

The third key sensitizing factor identified, is one or more *life-event(s)* leading to changes in a person's bundle of food consumption practices. In the case of the interviewees, such life-events were: becoming a parent; deciding to tackle a prologued health issue; getting a relationship with a fervent pulse consumer; and resident daughter becoming vegetarian. Even more, in at least two cases, these changes were part of a larger transformation in the lifestyle of the practitioner, or of a stronger enforcement of an existing lifestyle. The diet changes resulting from these life-events were shifting to a (stricter) healthier and low-meat diet, or eating according the Surinamese cuisine.

To summarize, the studied practitioners who did not inherit eating pulses from their childhood and culture, became practitioners through a combination of them already performing related practices, being familiar with pulses, and experiencing changes in existing consumption patterns, creating a process in which elements of pulse consumption practices got integrated with existing consumption practices.

Not all members of this practitioners were, or felt that they were, surrounded by other pulse eating practitioners (see Figure 8 for belonging survey results). Their perception of their *present exposure* was again found to influence certain norm-related meanings: the sharing of pulse dishes is inherently connected with the sharing of the meaning that eating pulses is normal, and that pulses are something to share among each other. As a result, the inherited pulse eating practitioners could be split up based on their present exposure.

On the one hand, certain practitioners are presently exposed to other pulse consumers. Gerda for instance, knows many Surinamese eating pulses (her entire family-in-law). Also, Claudia noticed that some friends increasingly eat pulses and argues pulses to be increasingly eaten by Dutch people: Claudia (C): "*Well, at least more normal than for instance five years ago*". Interviewer: *So it's a trend?* C: *Yes, I think so. It is becoming part of more and more families. Especially because of hummus and falafel-ish things*". In accordance to this, these practitioners also perceive the eating of pulses to be normal in their environment, and perceive pulses to be suitable food to share on festive occasions: "*But also hummus on a baguette at a party, or bean dips with raw vegetables. I certainly think that is suitable. Or a large pan with chill con carne on the table*" (Claudia).

On the other hand, Linda and Sabina, hardly know anyone else that eats pulses regularly. They also do not associate eating pulses with the Dutch society: “No, eating pulses is not embedded in our culture. I think that it is embedded in the Turkish culture, and the Moroccan culture, they eat that much more. We do not know that so much in the Netherlands (Sabina). Neither do they perceive pulses to be appropriate for a festive occasion. In this case, conventional Dutch practices around serving food on a party seem to play an inhibiting role for including pulse dishes: “No, I would not know how to make something festive with beans (...) when guests come, I make lots of small snacks and a nice sandwich with a some cheese. That is festive for me. But beans? No. A plate of chill con carne, very nice... but no” (Sabina). Thus, the extent to which noninherited pulse eaters are exposed to other practitioners, for instance through their social subgroup, influences the extent to which they believe sharing the practice with others is appropriate.

In the survey data, a similar split was found within the Dutch respondents: half of the group indicated that people in their surrounding regularly eat pulses, while half did not. Also, half perceived pulses to be suitable for festive occasions. However, the dichotomy was not found back for the perceived norm: most Dutch survey respondents perceived eating pulses to be (very) normal in their social surrounding (see Figure 7 for the survey results).

Lastly, in line with the low level of identification eating pulses with the Dutch cuisine, the pulse dishes eaten and the dishes associated with pulses, are in this practice mainly inspired on foreign cuisines rather than the traditional Dutch cuisine.

To conclude, the noninherited practice of eating pulses in Almere is somewhat disperse. Performers of this practice can be seen as pioneers of (re-)integrating pulse consumption in Dutch dietary patterns.

### ***Motivation for increasing the frequency of eating pulses***

Before continuing to discuss overarching practice characteristics, a brief look will be taken at how satisfied the practitioners were with how frequently they consume pulses. The interviewed members of the inherited practices were all very satisfied with the current frequency in which they eat pulses, while three of the four members of the noninherited practice indicated that they would like to eat more pulses than they do now. This indicates that the latter group experiences more struggles with integrating pulses in their diet, or that eating pulses is a more rational process for them. Expressed reasons for wanting to eat more pulses were trying to eat less meat, to eat healthier and liking the taste of pulses. In the survey however, no difference was found between the Dutch and non-Dutch pulse eaters: in both cases, half did and half did not feel the desire to eat more pulses.

## **Overarching characteristics of pulse eating practices**

### ***The role of pulses in the Dutch food culture***

A number of images of and associations with the practices were assessed. In this paragraph, associations with the Dutch food culture and foreign cuisines will be discussed first, followed by the related images ‘old fashioned’ and ‘poor men’s meat’. Survey results on the images addressed are displayed in Figure 9.

Generally, the *image of pulses being part of the current Dutch food-culture* was limited to a few dishes and belonging pulse types: “(...) But to say that it is a general part of the Dutch kitchen... I actually do not think that is the case yet. It is fairly unknown to many. Just as I did not know the majority of



*all these varieties. Or I heard of them, but never ate them” (Linda). The well-known national green pea soup (traditionally prepared in winter) was mentioned by everyone aware of the traditional Dutch diet. However, this dish got mainly referred to as exception to the otherwise pulse-poor Dutch diet. Also the non-Dutch interviewees argued that the Dutch diet consist of little pulses when compared to their own diet.*

On the other hand, also a more positive view was voiced. Two third of the survey respondents believed that pulses can fit in the Dutch food culture. Moreover, some practitioners argued that the increasing cultural diversity stimulates pulse consumption in the Netherlands. Practitioner Claudia for instance, emphasized that the pulse recipes used traditionally, are just different from the modern recipes, which are strongly infused by foreign cuisines. Indeed, some foreign dishes (e.g. chill con carne) are so integrated in the Dutch food culture, that practitioners talk about them as concepts everyone is familiar with. Despite this integration however, most dishes adopted from foreign cuisines have maintained their image of being foreign dishes and therefore not considered to be part of the Dutch diet: *“Many bean dishes that we eat in the Netherlands are also from these kitchens, such as falafel. But that is not our culture, falafel. If we eat that, then we actually eat something from outside the Dutch culture” (Sabina). Hence, eating pulses was strongly associated with foreign cuisines: Asian, Latin-America and African cuisines, and to a lesser extent also with some European cuisines.*

Furthermore, two other potential images of pulse eating identified in the literature review were not found to (strongly) apply to the Dutch situation. Firstly, eating pulses was not found to carry a strong *image of being old-fashioned*, though a slight cultural differentiation was found. For the practitioners with a Syrian, Suriname or Indian cultural identity, pulses are still an important part of the contemporary cultural diet, and therefore not seen as out-of-fashion. In Dutch eating culture however, eating pulses was mentioned to have a bit of a ‘dusty image’. However, this association is believed to be stronger among older generations, while pulses are getting in-to-fashion again for younger generations.

Secondly, eating pulses was not found to carry the *image of being poor man’s meat* (pulses being a protein-source for those who cannot afford meat). However, at least two practitioners argued that this image used to be strong in the past, and that this resulted in pulses becoming a bit old-fashioned. They reasoned that the poor man’s meat image is caused by trauma’s from people who experienced periods of scarcity. The parents of Claudia and Linda for instance, had to survive on canned beans when they were a child. After this period, it was a taboo to still eat those pulses, which quickly made them unpopular.

### ***Associations with and motives for participating in the practices***

Pulses’ material characteristics of having a certain flavor, texture and nutrient-content were found to lead to some of the most important meanings of pulse eating practices. Other meanings were shaped through social and societal structures. Partially, the characteristics strongest associated with eating pulses are also the main motives for performing the practice. This section starts with respondents’ top-of-mind motives for pulse consumption. Then, the studied associations with and motives for eating pulses will be discussed per theme. An overview of the survey responses regarding motives for eating pulses are displayed in *Figure 9*. Moreover, in *Figure 10* interviewees’ ranking of their main motives, split up between Dutch and non-Dutch, are displayed. Some meanings are not mentioned in the upcoming section: meanings related to a vegetarian diet are discussed separately at the end of this subchapter, the meanings related to convenience and affordability are discussed as part of preparation and buying practices respectively, and the meanings related to cultural background are already discussed above.

When looking at respondents' *top-of-mind motives* to eat pulses, liking the taste and because they are healthy were mentioned most. Also mentioned were 'because they are a meat-replacer or vegetarian', 'because they are (plant) proteins' and 'for variation in the diet'. Tradition or culture, and liking a certain dish, were mentioned surprisingly little. Besides that, these responses were quite in line with the other data presented below, indicating consistency.

As *top-of-mind associations*, many respondents mentioned specific dishes (like soup and chili con carne) or specific pulse types. Again, pulses were associated with healthiness (nutritious), vegetarianism or meat-replacers, and tastiness. Furthermore, pulses were associated with positive memories.

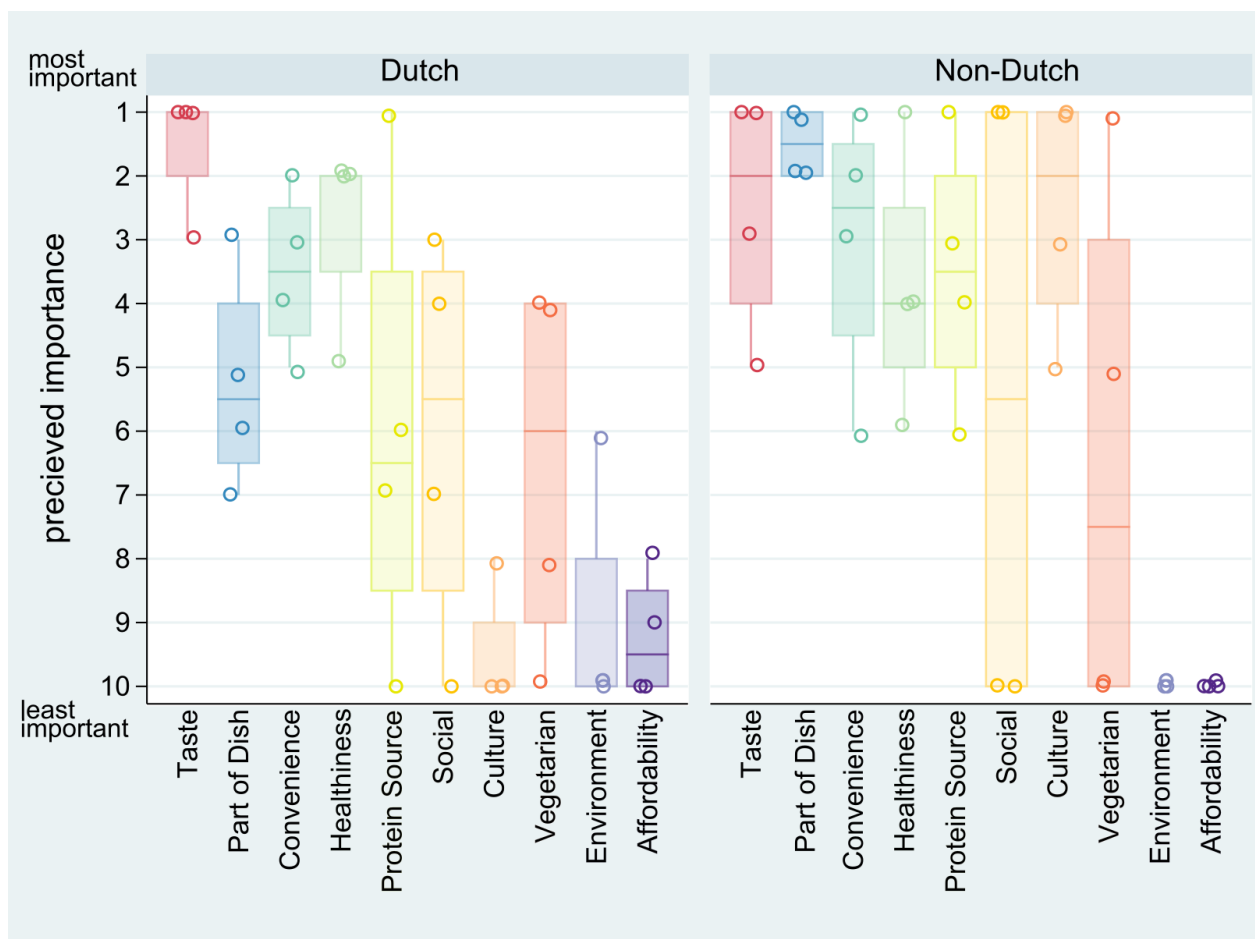


Figure 10. Motive meter ranking: interviewees' main motives for eating pulses.

Interviewees ranked these motives for eating pulses from most (1) to least (10) applicable to them. Horizontal lines within the box plots mark the median. The thin vertical colored lines mark the minimum and maximum score. Every circle stands for a single ranking of an interviewee. The colors help comparing the scores between the two groups. All respondents indicated a clear border in the ranked statements from where on the statements really did not apply to them any more. These statements have all been given the number 10. Two respondents ordered two or more statements as equally important. These statements were given the same place in the ranking.

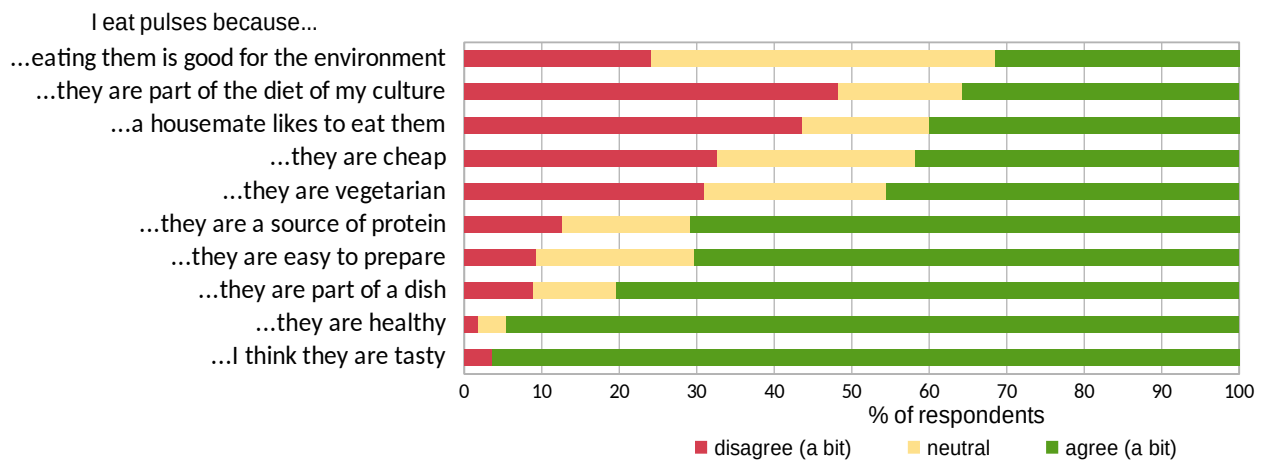


Figure 11: Survey results regarding motives for eating pulses

Firstly, pulses were strongly associated with being tasty, and liking the taste was one of the most important reason for eating pulses. For seven out of eight interviewees, tastiness was one of the three most important reasons to consume pulses, and the word ‘tasty’ (or ‘lekker’) was one of the most used (meaningful) words in the interviews<sup>6</sup>. It was however difficult for participants to specify particular taste-aspects that they valued. The ‘nice flavor’ was mentioned most. Two interviewees emphasized for instance, that when they eat their favorite pulse, they want to be able to taste the flavor of this pulse, thus not mask it with too many other flavors: *“If I eat a borlotti bean, I want to taste that bean. So I don't want it to be incorporated in anything and then not having a clue of what I am actually eating in terms of taste”* (Sabina). Besides the flavor, also the texture was appreciated. The favored texture depends on the type of pulse, the dish and individual preferences: where one tries to keep the firm texture of lentils, another especially appreciated their soft texture when they fall apart.

Also appreciated was the diversity in texture in a meal that can be created with the use of pulses. In contrast, the smell of pulses was less appreciated or even disliked by most. Certain pulse dishes however, carry positive associations regarding their smell, like pointed out by Ulrich: *“Well did you ever smell kidney beans while it was made? Well if you smell that once, you get it, you get it completely. (...) you can smell it at the street and then you think “oh, I want to eat that”. That is brown beans. But also snert [Dutch pea soup], right? If it is properly prepared, with the smoked sausage, you can already smell it”*. Moreover, the taste of pulses was often described in the context of a certain dish, rather than the pulses alone (see also the part of dish motive further below).

Healthiness was a second very important meaning given to eating pulses. Seven out of eight interviewees, and most survey respondents associated pulses with being healthy and indicated that this is a main reason for eating pulses. Nevertheless, ‘liking the taste’ was for most a slightly stronger motive: *“..for me taste is more important than health”* (Faten).

Knowledge about which nutrients make that pulses are healthy, was no prerequisite competence for these meanings to form: this competence differed strongly among the interviewees despite the weight they give to healthiness. Six practitioners spontaneously recalled pulses to be rich sources of proteins, three recalled pulses to be rich in ‘vitamins’, and two emphasized the low

<sup>6</sup> With the use of Atlas.ti, it was calculated that the Dutch word for tasty (lekker) was the most used meaningful word in the Dutch interviews after ‘bonen’ (beans), ‘peulvruchten’ (pulses) and ‘vlees’ (meat).

fat or cholesterol content. Other nutrients mentioned once were: iron, fibers, vitamin-B, carbohydrates, magnesium and ‘minerals’. None seemed to be aware of the nutrient-uptake enhancing effect of combining pulses with certain foods, e.g. grains with pulses.

Healthiness as motive for participation in the practice was found to carry two different interpretations, each resulting from a different lifestyle. In the first interpretation, health functions as stimulant to continue after initial uptake of the practice. In other words, for practitioners to which pulses are part their cultural diet, pulses being healthy (or even just ‘not being unhealthy’) is rather a reason to fully embrace and continue with the tradition of eating pulses, than a ground reason that fostered participation. In the second interpretation, the nutritional content of pulses play a main role in the practice. As a result of practitioners’ lifestyle-choices in the form of eating vegetarian (and/) or doing intense sport, eating pulses is in this interpretation an important means to stay healthy. This is exemplified by the following quote: *“We need nutrition’s. Because we are vegetarian, the only source of protein is pulses, or sometimes egg. But we are not very good egg eaters. (...) my husband is doing marathons, and in fact he is practicing for triathlon also. So he needs more protein. So that is why I am making more pulses”* (Shelly).

Thirdly, most practitioners indicated to eat pulses because they are *part of a dish*, and when asked for their first association with pulses, almost half of the respondents mentioned specific dishes. The most mentioned dish was soup, among which lentil and bean soup. Moreover, the interviewees often spoke about pulses in terms of their favorite pulses dishes. Hence, regarding the goals that practitioners aim to fulfill through eating pulses, a distinction can be made between goals related to pulses-characteristics –driven by the several meanings discussed in this paragraph, for instance for health reasons–, and the goal of eating a certain dish. In the latter case, the dish rather than the pulse is central in the practice, reducing eating pulses to a side-effect of eating a certain dish. Faten explains: *“I first choose the dish, and then the dish sometimes has pulses in it”*.

This dish-driven motive was strongly related to the motive of eating pulses as part of one’s cultural diet. Ulrich for instance, explained how he cannot see the motives ‘part of Suriname culture to eat pulses’ and ‘pulses are part of a dish I like to eat’ separate from each other. For him, certain pulse dishes, like brown beans with rice, are inseparably part of his culture, and therefore, corresponding pulses are part of his diet. However, also Dutch practitioners were found to regularly eat pulses for the sake eating a certain dish. Of all practitioners, it was for instance Dutch Claudia who most often mentioned certain pulse-dishes that stimulate her to eat pulses. Also, Linda for instance, mainly eats pulses when she feels like eating her favorite Thai dish. She ranked this the third most important reason to consume pulses. However, compared to non-Dutch, Dutch practitioners more often ate pulses as additional component (e.g. for extra proteins), rather than as part of a dish. This motive is strongly related to the preparing practices and will therefore be discussed further in corresponding chapter.

A fourth important association with and motivation for eating pulses was that pulses are *rich sources of protein*. Pulses being healthy and pulses being rich protein sources were interchangeable meanings for most practitioners. However, as just mentioned, for practitioners eating no or little meat, the high protein-content of pulses plays a more vital role for eating healthy, compared to frequent meat eaters. In other words, the pulse-characteristics ‘healthy’, ‘protein-rich’ and ‘vegetarian’ are tightly interwoven as meanings in the practice, but the presence of these meanings in the performance of individual practitioners depends on the lifestyle and identity of the practitioners. Also, for slightly more Dutch survey respondents, the protein-content was a reason to consume them than for non-Dutch respondents.

Fifthly, *having a partner or other housemate that likes pulses* was a motive for consumption for about half of the practitioners. In the survey, half of the non-Dutch respondents saw this as a motive compared to only one third of the Dutch. Pulse consuming children or partners were mostly not seen as main motive of starting to eat pulses, but rather a stimulant to continue eating pulses. However, a distinction could be made between living with other fervent pulse eaters, living alone and living with no or less fervent pulse eaters. In the former case, most perceived the preference of their family to be an important stimulant to embrace pulse consumption. Shelly for instance, likes to prepare dishes that her family loves: *“My family loves them and especially my son, he likes them. Mainly red kidney beans, chickpeas and mixed dahl. Many things he likes”*. Some practitioners argued however, that they would also eat pulses if their family would not like pulse, thus family preference being merely a nice extra. An illustrative example is Errol: *“Yes, I don't care if all those people eat it or not, as long as I can eat it (...) I'll make something else for them”*. A practitioner in the latter situation, was found to put an effort in making her family to like pulses more, by preparing them the pulse dishes they do like: *“... my husband comes from a family with a mother whom was educated at a household training school. (...) So from home he only eats potatoes, vegetables, meat. (...) So I had to raise him a bit. (...) And now, for example, he also loves white beans in tomato sauce”*(Sabina).

Sixth, *environmental considerations* did not play a large role in the studied pulse eating practices. By far most interview and survey respondents indicated that they do not eat pulses because this is good for the environment. The data suggested that this has mostly to do with a lack of knowledge regarding this theme: some interviewees were able to explain why consuming pulses is environmental friendly, but others had to guess or did not have a clue. Among the survey respondents, half recognized that eating pulses is not bad for the environment, while the other half had no clue or no opinion. Moreover, these environmental considerations did more often play a role in the consumption of pulses for no-meat eaters and those participating in other environmental friendly practices, like buying organic food and sustainable housing.

Moreover, though *‘variation’* was not made into an indicator based on the literature review, this turned out to be an important meaning too. Firstly, pulses were praised for the many possible applications they can have, being suitable for dishes ranging from soup to spread. Secondly, variation in the meal was a motive for participation in pulse consumption practices. Practitioners indicated to use pulses as alternative protein-source, as alternative to fresh vegetables, or as alternative to carbohydrate- products like pasta or potatoes. For Gerda for instance, variation was a top-of-mind motive: *“(...) But also just the variation, I don't want to eat leafy vegetables two or three times a week, I just want something else”*.

Lastly, eating pulses regularly also means perceiving pulses to fit in one's diet: 81% of the Dutch, and 96% of the Non-Dutch survey respondents eating pulses, perceived pulses to fit in their dietary pattern.

### ***Barriers for participation in the practice of eating pulses***

Barriers for the recruitment of new practitioners were briefly studied through the theme flatulence and through the meanings given by non-practitioners. Firstly, flatulence was indeed recognized as common effect of eating pulses by half of survey respondents and seven of the eight interviewed practitioners. However, none perceived this to be a barrier for consuming pulses. The common attitude regarding flatulence was well verbalized by Faten: *“Sometimes I have some gas. But I still eat it”*. More about this theme can be found in the next subchapter.

Secondly, of the six survey respondents indicating to never eat pulses at home (9%), three gave ‘not liking the taste of pulses’ as main motive of not eating pulses. Three also indicated that pulses do not fit in their diet (and two had no idea). Other reasons given once were: ‘I never think about buying /making them’, ‘I have nickel allergy and can therefore not eat them’, and ‘I am not known to using them’. No other prominent differences were found between pulse consumers and no-pulse consumers, regarding associations with eating pulses.

### ***The influence of the norm to consume meat***

Pulses’ role as protein providers, and as a result their relation to meat, is an important theme within the practices of eating pulses. Even more, practitioners’ preference to eat or not eat meat was found to influence certain aspects of their performance of eating pulses. First, the dietary preferences of the studied practitioners are summarized. Then, the relevant results regarding this theme are analyzed.

Most Dutch meat eating survey practitioners indicated to consume meat or fish three to five times per week (60%). Non-Dutch respondents replied more diverse, with equal quarters of respondents consuming one to three times per week meat or fish, three to five times per week meat or fish, and six to seven times per week meat or fish. Ten of the pulse-eating survey respondents (17%) did not eat meat. See Figure 12 for an overview of the percentages. The protein-diet of the interviewees is given below.

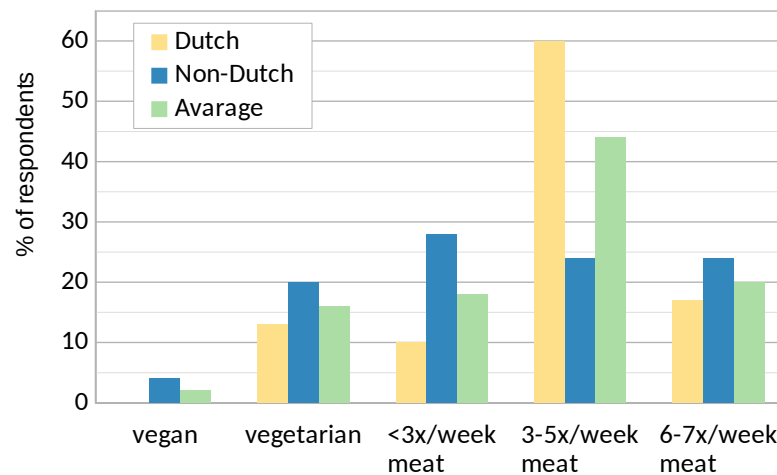


Figure 12: Diet of pulse eating: survey responses

Respondents were asked to reflect on the role of pulses in the Dutch meat-culture and the fit of pulses in a meat-based diet. All interviewees highlighted the *strong role meat* plays in society. However, most also argued that pulses and meat do not necessarily compete as protein source in a meal, because they can be combined in the same dish. Errol's argumentation exemplifies this case: "Look, as originally Surinamese Creole, I can say: we use both. We combine it with each other. So for us it is unthinkable not to add one to the other" Also most survey respondents *perceived pulses to fit in a meat-based diet*, though a quarter did not. Meat eaters and no-meat eaters were equal in their opinion regarding this meaning, and also cultural background did not have an influence.

How the pulse eating practices relate to meat eating practices was further studied based on three questions. These studied the influence of *meat preferences* on eating pulses, the *perceived replaceability of meat with pulses* in a diet, and the given *role of pulses* as protein source in a meal. Based on the outcomes, a distinction was made between pulse eating practitioners that are frequent meat eaters, that are meat reducers and no-meat eaters. Their differences in dietary preferences was found to have a strong influence on certain meanings and materials of their pulses eating performance.

*Frequent meat eaters* (n=4 interviewees) almost always combined the performance of eating pulses with eating meat. In this case, pulses only play a weak role as protein providers, as meat is the main protein source. The idea of eating pulses without meat, was little attractive for these practitioners. Yet, some argued that in the case of choosing between a pulse dish and a meat dish, the attractiveness of the dish is just as important as whether the pulses are combined with meat. However, these practitioners (in the interviews) were not open to the idea of structurally replacing their meat once per week with pulses: "No, I would nevertheless choose both, unless I become a beggar and am forced to choose. But as long as I still can choose for both. I love to eat pulses, but with a nice piece of chicken or meat to go with it" (Linda). The importance of combining pulse-eating with meat-eating,

was found to result from the high value these practitioners attach to meat, rather than the perception that pulses are no good meat replacers (this is exemplified in Box 5 in Appendix IV).

*Meat reducers* (n=3 interviewees) either performed eating pulses separately from their meat eating practices, or alternated between combining pulses with meat and eating pulses without meat. Given reasons for not (always) combining meat and pulses were: finding this not necessary, or not knowing any dishes where meat and pulses are combined: I: Do you eat pulses in combination with meat, like in chill con carne? P: “No, I do not like that”. I: So for you it is either meat, or beans? P: “Yes, that is because I do not know a dish, beside chill con carne, where it goes together” (Sabina). Accordingly, a pulse dish was by these practitioners not per definition seen as less attractive than a meat dish, though two indicated to likely still choose a meat dish when eating out. Moreover, these practitioners are very open to the idea of structurally replacing their meat once per week with pulses; they even aim for eating less meat and see pulses as good alternative.

*No-meat eaters* (n=1 interviewee), do of course not combine pulse consumption with meat consumption. They were asked other questions regarding the influence of their diet on performing pulse consumption practice. The results are presented in the next section in which pulses in a no-meat diet is discussed as separate theme.

The three groups were also distinctive in the nature of pulses dishes they mostly eat. A distinction can be made between pulse dishes originally meatless (like lentil curry), dishes originally with meat (like a meat-bean stew), and dishes adapted to be with or without meat (like the previous stew but without meat). The frequent meat eaters eat pulses as side dish alongside a meat dish, used recipes in which pulses and meat are traditionally combined, or included meat in originally meat-free pulse dishes. Also meat reducers eat diverse form of pulse dishes. Some eat only original meatless pulse dishes, while others also eat pulse-meat dishes or adapt these pulse-meat dishes to meatless dishes, like Linda often does with stews: “And of course you could add sausages or something like that. But the dish gives enough satisfaction to leave the meat out” (Claudia). Finally, the vegetarian Shelly indicated to only eat pulse dishes that originally are meatless. However, this was mainly due to the vegetarian Indian cuisine according which she eats.

### ***The influence of following a meatless or low-meat diet***

For the meat reducers and no-meat eating interviewees, *pulses being a vegetarian protein-source* was a top-of-mind motive to eat pulses. For them, pulses being vegetarian food could not be seen separately from pulses being rich in proteins and being healthy. Thereby, pulses are valued for their ‘pureness’ (little additives) in comparison to processed meat-replacers. Moreover, as mentioned earlier, for one interviewee, environmental considerations were also strongly linked to eating more pulses and less meat. Moreover, the survey results indicated that for more no-meat eaters this is an important motive (seven out of ten agreeing this being a motive).

The ten no-meat eating survey practitioners were compared with the meat eating practitioners. They indicated to eat pulses more frequently than average: six indicated to eat pulses more than twice a week. Their cultural background was mixed, whereby the non-Dutch all indicated that their cultural background is a reason for them to consume pulses. Lastly, compared to the meat-eating respondents, more no-meat eaters would like to eat more pulses than they do now, and more perceived pulses to be suitable for festive occasions.

Interestingly, pulses being a vegetarian was not only among vegetarians a motive for consuming pulses: 38% of the meat eating survey respondents agreed with this being reason for them to eat pulses. However, also 38% of them disagreed, as well as three of the four frequent meat eaters



interviewed. Furthermore, eating pulses was found to carry an image of being very suitable for those not eating meat, yet not only for them. In the interviews, all respondents argued pulses to be especially appropriate for vegetarians, as meat eating Linda reasoned: “*Well, maybe in a group of vegetarians, vegans, people who do paleo.... No doubt they eat a lot of pulses, because it is healthy*”. However, half of the survey respondents did not *associate pulse consumption with a vegetarian diet*, among which five of the ten no-meat eaters, stressing that pulses are not seen as *just* for vegetarians. Survey results regarding this image are displayed in Figure 9 on page 46.

### ***Summarizing pulse eating practices***

Pulse eating practices in Almere were studied through their paths of recruitment, their meanings, and the images they carry. The inherited and noninherited practices of eating pulses follow very different paths of practitioner recruitment, though exposure is a primary condition for both. The practice inherited is part of a larger bundle of culture-driven practices, and an expression of practitioners’ cultural identity. The inherited practice is based on long cultural traditions of eating and preparing certain dishes, whereby pulses are valued by practitioners through traditional dishes. Childhood exposure and social-cultural norm-setting (e.g. at festive occasions) are main recruiting characteristics, leading to positive memories, taste appreciation and a positive normative perception. The noninherited practice recruits people in a more disperse manner, but certain sensitizing factors were identified: performance of practices related to pulse consumption, later-life exposure, and lifestyle changing life-events. Furthermore, present exposure has a positive influence on practitioners’ normative perception and sharing performance. Besides these two recruitment-trajectories, also other meanings play an important recruiting and constituting role in both practices. This regard pulses being tasty –both flavor and texture being important–, being healthy, being rich in proteins, belong to certain dishes, and providing variety in the diet. Knowledge about the environmental benefits of eating pulses is low and does only drive consumption of highly-concerned people. Furthermore, pulse eating practices carry the image of being part of foreign cuisines rather than the Dutch, which does, however, not exclude them from Dutch eating patterns. In addition, due to pulses being rich protein sources, practices of pulse eating (and preparing) are closely related to practices of meat consumption and of consuming meatless. This results in distinctive forms of practice performances. For no-meat eaters, pulses’ role as plant-protein source can function as recruiting characteristic. Then, the practice is performed alongside other practices related to eating healthy and without meat. For frequent meat eaters, pulses are not vegetarian food, but a tasty additive to their meat-dish. Meat reducers however, do not necessarily combine eating pulses with eating meat. For them, pulses form a bridge between eat less meat, and (continuing) to eat healthy and tasty. As will become clear in the next subchapter, distinctive paths of recruitment do not only influence the eating of pulses, but also influence the performance of preparing pulses.

## 5.2 Practices of preparing pulses

In the preparation phase of pulse consumption, all practice elements play a prominent role. Material characteristics strongly shaping pulse preparation practices are the form and type of pulses used, and information sources on preparing pulses (provisioned by the institutional context). Also the meaning convenience, competences in the form of planning, preparing and searching information, and, linked to this, the lifestyle and identity of practitioners, strongly shape the practices.

The outline of this subchapter is as follows. First, the frequency in which pulse preparing practices are performed, and by whom, is briefly described. Following on this, two distinct pulse preparing practices are introduced and presented separately. Besides these two practices, also two other practices will be mentioned (using ready-to-eat meals with pulses, and sprouting pulses) but only briefly because of the limited scope of the research. The subchapter will then continue to analyze overarching characteristics of the preparing practices. This regards the acquisition of preparation competences, the use of information sources, the influence of cooking styles and lifestyles and identity, flatulence related competences, and, lastly, barriers for preparing pulses more frequently.

### Introducing practices of preparing conserved and dried pulses

All data sources revealed that practitioners do not perform the practice of preparing pulses every time they eat pulses. Especially when more elaborate dishes are cooked, or in a one-person household, practitioners tend to cook for more than one day and store the rest in the fridge or freezer. Also, half of the interviewees regularly skipped the practice of preparing pulses all together by eating in a restaurant, taking food from a takeaway or using ready-to-eat pulse products. Convenience is a main reason for reducing the frequency of preparing. All interviewees, and most pulse consuming survey respondents indicated that they are the main person preparing pulses in their household (73%), followed by their partner (36%).

How preparing pulses looks like as a practice strongly depends on the *form of pulses used*. Therefore, pulse preparation is split-up in preparing conserved pulses and preparing dried pulses. Preparing dried pulses was again split-up in two forms of performances, on the *occasion* in which practitioners can or want to perform the practice: routinized and non-routinized preparing of dried pulses (see Table 2 for an overview).

Table 2: Practices of preparing pulses

Performance variations	Preparing conserved pulses		Preparing dried pulses	
			Non-routinized	Routinized
Materials				
<b>Pulse-types</b>	Most types		Fast-cooking types, sometimes slow-cooking	All types
<b>Dish complexity</b>	Easy/moderate		Easy/moderate/complex	Easy/moderate/(complex)
Meanings				
<b>Convenience preparing pulse form</b>	Easy & quick		Easy but time-demanding; does not fit in lifestyle	Easy but time-demanding; fits in lifestyle
<b>Occasion performance</b>	Daily & special occasions		Weekends & special occasions	Daily & special occasions
Competences				
<b>Ease planning</b>	No planning required		Difficult	Not difficult

### ***The practice of preparing conserved pulses***

In the practice of preparing conserved pulses, the main material in the practice –conserved pulses– strongly determines other practice characteristics. The main meanings of the practice are that performing the practice is easy and quick, requiring little extra competences. In line with this, the complexity of the dishes prepared is mainly low to moderate. The practice is performed by practitioners with various cooking styles. Hence, they perform the practice diverse regarding whether they plan the preparation of their pulse dish long in forehand or not at all.

Seven of the eight interviewees were identified as performers of this practice. Also 70% of the survey respondents indicated to usually use conserved pulses, and three-quarter had experience (ranging from some to much experience) with preparing them (see also Figure 13). Those having much experience with preparing conserved pulses were more often non-Dutch than Dutch.

The practice of preparing conserved pulses mainly takes place around the concept *convenience*. The concept covers the two interconnected meanings *easy* and *quick*. These meanings are strongly related to the nature of the conserved pulses, as well as to the practitioner's lifestyle and the Dutch food preparation-culture. The first component, ease of using conserved pulses, regards the ease of preparation as well as the ease of planning the practice. Firstly, the survey and interviews revealed that for most practitioners, the *ease of preparation* is a main reason for consuming pulses. In the interviews it became clear that this motive mainly regards the conserved pulses, not the dried. The interviewees perceived the competences required for preparing conserved pulses to be general skills and common sense. An example is the sarcastic response of Sabina on the question from whom she learned to prepare conserved pulses: “*Well, one opens the jar... (laughs), [and] rinses them. Because that is how I prepare them*”. She meant to say that one does not need to be taught how to do this. The simplicity of preparing conserved pulses is enhanced through that the practice does not require any unconventional kitchen tools. Practitioners indicated that *general kitchen tools* like a sieve and a can-opener are sufficient.

Secondly, preparing conserved pulses is considered easy, due to the low requirements concerning *planning competences* and planning efforts. The long shelf-life of conserved pulses is one factor that makes them easy in the planning. When a stock of conserved pulses is kept, the planning of a dish with pulses can be saved till the last minute: “*I like to always have them at home. For when I don't know what to eat. Then I look at what we still have in the pantry. Yes so that is certainly a big advantage*”(Claudia). Despite the pulses themselves being easy to prepare, preparing them generally involves other preparation competences. Conserved pulses are mostly used as ingredient in a dish. For preparing a dish, knowledge of recipes, skills to find recipes, or skills to create a tasty made-up dish are used. The thereby involved competences and materials will be further discussed in a later section.

Moreover, pulses are *quick* because after draining, they can be used directly, e.g. in a salad, or quickly heated up as part of a warm meal. Practitioners were found to highly value this short preparation-time.

The valued convenience of using conserved pulses can be found back in the *dishes* prepared. The logbook data showed that the prepared *dishes* are mainly *low to moderately complex* (easy), and that mostly 0-15 or 15-30 minutes is spend on the preparation of a dish with conserved pulses (quick). The preparation time is especially short when the pulses are used as condiment or in a salad. Some practitioners do regularly exceed the 30 minutes, but mostly as strategy for making the practice

even more efficient: they prepare dinner in double quantity, so that a second dinner only requires the heating up of this dish (this was observed by four practitioners).

The extent to which planning is used in the practice, reached from ‘not at all’ to ‘a few days in forehand’, depending on the cooking-style of practitioners. In the first case, practitioners use pulses as back-up ingredient in a last-minute meal or as unplanned condiment: “... so I have a salad and then I think: well, something is missing, and then I toss in a jar of beans” (Sabina). In the second case, pulses are used as part of a planned dish (either planned on the day itself, or days in forehand). Even when using dried pulses would be possible time-wise, conserved pulses are often chosen for the sake of convenience, flavor or texture, or out of the habit to use conserved pulses.

Practitioners differ in the degree to which they value the components easy and quick, though always both components play a role. Firstly, for people with a *busy-lifestyle*, the quickness of using conserved pulses was especially valuable. Indeed, five of the seven interviewed practitioners live a busy lifestyle, in which preparing dinner is organized around the notion of time-management. For them, the preparation of pulses during the week is often only possible when using conserved pulses. Moreover, the value of the quickness of conserved pulses for a busy-lifestyle was even mentioned by practitioners without such a lifestyle. Secondly, the ease of preparation makes the practice accessible for people who are not taught how to prepare pulses, but who are nevertheless interested in preparing them. Lastly, conserved pulses were also valuable for people who do not experience constraints in time or competences (they did not inherit pulse practices), but who still value the convenience of conserved pulses. Such a practitioner is for instance Faten, for whom the form of pulses she uses is depending on the recipe of the dish. When all ingredients of the dish are fast-cooking, conserved pulses suit better to the cooking-procedure than dried pulses.

Convenience is nevertheless not the only meaning of value in the practice. Also the meanings *tasty* and *healthy* were found to drive the choice for a certain form of pulses. Firstly, some practitioners made clear that they prefer conserved pulses over dried for their soft texture: “And I also like the taste when it is a little bit soft and creamy, out of the pot” (Gerda). Secondly, two practitioners indicated explicitly to prefer jarred pulses over canned pulses, because they considered this form to be healthier due to chemicals from the coating that could be released in the product. Other *drawbacks* associated with using conserved pulses were that they contain additives like salt, saponins or (other) chemical substances. This was dealt with by washing the pulses well before using them.

### *Practice of using ready-to-eat pulse products*

Besides conserved pulses, also ready-to-eat meal with pulses were used as quick, easy and tasty solution for days that one does not feel like cooking. However, the use of these products was less popular among interviewees (compared to survey respondents) and spoken about as an occasional performance. Other processed pulse products like humus and falafel were used more frequently. Only Dutch interviewees indicated to make use of these ready-to-eat meals and processed products with pulses.

### ***Practices of preparing dried pulses***

All interviewees, except one, did have experience with cooking dried pulses: most had moderate to extensive experience, but one only used dried pulses once or twice. This came down to six of the eight interviewees being identified as performers of the practice of preparing dried pulses. Compared with canned pulses, also less survey respondents usually used dried pulses, though still surprisingly many (56%). However, almost one third had no experience with preparing dried pulses (see also Figure 13).

Classically, the practices of preparing dried pulses start with planning. This planning can simply involve the consumption of a specific pulse (e.g. ‘I want to eat chickpeas tomorrow’), or a dish-specific planning (e.g. I want to make falafel tomorrow). This planning is necessary for those pulses that need to be soaked in forehand, meaning all beans and whole peas, and some split peas and lentils. The hours of soaking necessary depends on the type of pulses, as well as their quality. In reality though, practitioners do not take the required soaking-time very strict: all spoke in terms of leaving the pulses over night, and taking them out of the water either the next morning or evening. This comes down to some soaking the pulses for five to nine hours, while others soak them for twelve up-to twenty-four hours. Thus, the practice of preparing dried pulses often starts a day before the practice of eating. The use of these planning-competences is not a general behavior of the practitioners. Five of the six interviewees indicated to generally not plan their dishes this much in forehand when they do not include dried pulses. Thus, this is a skill they had to acquire, and an effort they have to make, specifically for the preparation of dried pulses. All practitioners were aware of the main reason for soaking to be part of the practice, namely because this reduces the boiling-time afterwards.

After soaking, the pulses get boiled. When pulses are used that do not, or hardly, need to be soaked, like red lentils, this is the first step in the practice after the decision to cook a certain dish. The boiling-time depends again on the type and quality of the pulses (older pulses take longer), but also the kitchen equipment used and the aimed result matters. This leads to a boiling-time varying from 30 till more than 120 minutes without pressure-cooker. The use of a pressure-cooker reduces the boiling time of pulses, thus reducing time-constraints, but was only used by one practitioner. She explained: *“Because if I boil it without cooker, it takes I think half n’hour to forty-five minutes for boiling, and in the cooker only fifteen minutes”* (Shelly). She also argued that due to the pressure-cooker, she does not have to pay attention to the pulses all the time and when she forgot to soak pulses, she can instead cook the un-soaked pulses for one-and-a-half to two hours in the pressure cooker. Another practitioner mentioned the pressure-cooker as a time-reducing tool, but didn’t use it because she finds it a “scary” machine. This device was the only unconventional kitchen equipment found to be used in the practice.

In the interviews, special attention was paid to whether, and the degree to which, the practitioners possess advanced knowledge and skills that helped them to overcome time-related barriers of using dried pulses. Besides soaking the pulses and the use of a pressure-cooker, only two other practitioners recalled to use ‘tricks’ for reducing the boiling-time, namely checking them regularly when boiling (in order to not cook them longer than necessary) and adding sodium carbonate. Thus, beside the use of soaking, know-how for reducing time-constraints was generally either missing or not used.

The above mentioned time-management requirements have given the practice an image of being inconvenient in the eyes of non-practitioners as well as those practitioners that cannot meet these requirements. Despite this image however, the time-investment does not have a negative meaning for all practitioners. This difference influences the meanings and performance occasion of the practice in such a way that it leads to two separate versions of performances. They will now be discussed in more detail.

### *The non-routinized performance of preparing dried pulses*

Beside all the above discussed general characteristics, this practice is characterized by the meaning inconvenient for daily-life, and constrained implementation occasions. Furthermore, the practice features more often quick than slow pulse-types. These characteristics are strongly connected to the

lifestyle of the practitioners. Four of the interviewees participated in this practice: two Dutch (of which one adopted a Suriname cultural identity), and two Creole-Surinamese. These practitioners indicated that the actual preparation of most dried pulses is easy, yet the necessary planning is difficult and unhandy for their daily routine. This is exemplified by the following quote: *“It's not hard, it's a matter of patience. And unfortunately people don't have that much time to do all this, but if you like to cook, you do that”*(Errol).

Firstly, the *perceived easiness of the preparation* is related with the practitioners' *competences*, the *type of pulse* involved and the *desired taste and texture*. For example, Claudia indicated to generally be satisfied with her preparation competences, but to struggle with preparing red and yellow lentils: they get a mushy texture too quickly, while she desires the texture to stay firm. However, she still perceives preparing dried pulses to not be difficult, because she experienced more successful results with using other pulses. For another interviewee however, the struggle with getting a satisfying texture added up to the extra hassle of using dried pulses; dissatisfying enough to not continue with dried pulses. The lack of competences to get the desired texture, can thus be a serious obstacle for the recruitment of new practitioners.

But mostly, the perceived inconvenience of the practice for daily life, comes from the required planning competences and investment in time. Three of the four practitioners live a busy lifestyle (and the fourth used to do so), and the mentioned time requirement are especially unhandy for this lifestyle. In theory, placing dried pulses in water to soak does not take more than a few minutes, and the boiling could be done in-between daily activities. In practice, the practitioners indicated to not manage to include dried pulses in their weekday routine. Claudia formulated this situation clearly: *“...it has all to do with planning. If I think ‘well tomorrow I could eat [dried] beans’, I could already put them in the water in the evening and drain and boil them the next day. So it is possible. But it actually never happens. So it does indeed not really fit [in a busy lifestyle]”*. Thus, because the practice is not part of the habitual preparation behavior of the practitioners, the performance requires more conscious decision making. This is where the practice conflicts with the dinner-planning-routine of practitioners with a busy-lifestyle. As a result, the non-routinized form of preparing dried pulses is only performed in the *weekends and for special occasions*. During the week, the observed practitioners all perform the practice of conserved pulses regularly. This gives dried pulses a slight connotation of being special. Interestingly, although dried split peas and some lentils are significantly faster to prepare than beans, practitioners did not explicitly separate these types in their argumentation that pulses take too much time. Thus, the long soaking and boiling requirements of some dried pulses creates an image of time-demanding for all dried pulses.

### *The routinized performance of preparing dried pulses*

In contrast to the non-routinized performance, the routinized performance of preparing dried pulses carries the meaning being convenient, and the preparation occasion is not constrained by practitioners' daily routines. Two of the interviewees were identified as practitioners of this practice. These two practitioners are both occupied as housewife and spend relative to the other practitioners a lot of time and dedication to the preparation of their dishes.

Also in this routinized performance, *perceived easiness of the preparation* is related with the practitioners' *competences* and *experience*. These practitioners are very experienced in the preparation of dried pulses. Using dried pulses is easy for these practitioners, because it is how they are used to prepare their pulse dishes. One of them even found preparing dried pulses easier or as easy as preparing conserved pulses for this reason. In the case of the interviewed practitioners, they

prepare pulse dishes according how they were taught and according the cuisine of their culture (Syrian and Indian), hence they use dried pulses when needed for the recipe.

In contrast to practitioners of the former non-routinized form, practitioners of the routinized form of preparing dried pulses do not connect negative meanings to the planning and time-investment requirements of the practice. This has mainly to do with their lifestyles. The practitioners have the time and are willing to spend the time on the practice. Also, it is part of their routine to regularly soak pulses for the next day, and to invest time in boiling them. Both practitioners emphasized the importance of having time, as they agreed that with a busy-lifestyle, the practice how they perform it would be very hard.

In contrast to the former form of practice-performance, in this form the planning of soaking, boiling and preparing is also taking place during the week and in everyday occasions. The dishes prepared are more often complex and time-consuming. Also, whether fast- or slow-cooking dried pulses are used, is more depended on the dish prepared than on the time it takes to preparation them.

### *Reasons for the participation in the practices of preparing dried pulses*

A variety of reasons could be distilled why participants choose to perform the practice of preparing pulses with dried pulses. Firstly, the *pulse type* was found to influence the choice of certain forms. Certain pulse types, especially split peas and lentils that do not need to be soaked, were found to be commonly used in their dried form by all practitioners. When talking about preparing a soup or dahl with lentils or split peas for instance, practitioners were always referring to dried pulses as the obvious form. Secondly, *cultural tradition* to use a certain form influences both people from this culture as also people aware of cultural-traditions. The practitioners from a non-Dutch cultural background were found to feel at least to a certain extent the need to prepare dishes of their cuisine according tradition, or perceive the dishes to be tastier when prepared according this way. However, not all cultural recipes are traditionally made with dried pulses. The Suriname dish ‘brown beans with rice’ for instance, can traditionally be prepared with conserved and dried pulses. Lastly, also storing and health benefits were mentioned as reasons for preparing dried instead of conserved pulses: “*For me, the dried pulses are better, because you can keep them for a long time and then use them as you like. But when you use the can, you have to use it all, or put it in the fridge. Also it includes some chemical substances to keep it for a long time, and I do not prefer that*” (Faten).

### *Practices of sprouting and fermenting dried pulses*

Fermenting and sprouting were no common component of the practice of preparing dried pulses. They can be seen as two practices on their own, that are only carried out by a small group of people.

## **Overarching characteristics of pulse preparing practices**

As mentioned at the start of this subchapter, to a certain extent the practices of preparing pulses share a common foundation. This foundation mainly exists out of characteristics of the elements ‘materials’ and ‘lifestyle and identity’, which again form the base of practitioners’ competences and meanings. These characteristics will be discussed in more detail after a short overview of the distribution of practitioners over the conserved and dried practices.

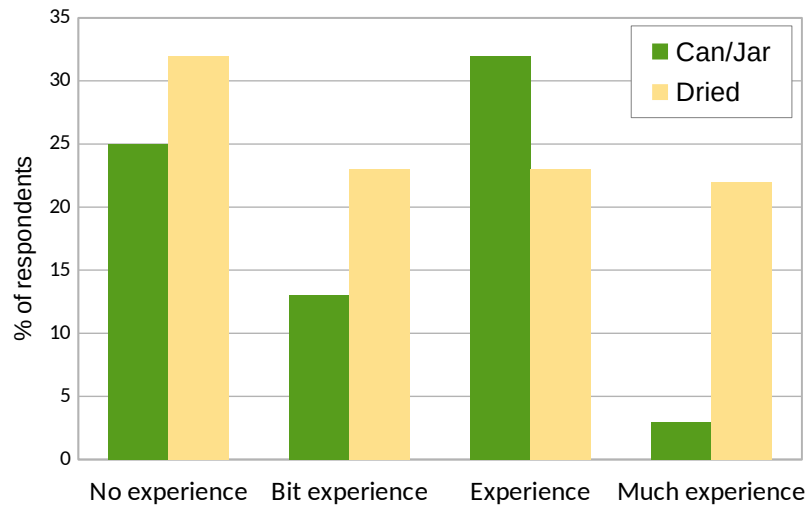


Figure 13: Survey respondents' level of experience with preparing conserved and dried pulses

In total, 78% of all survey respondents took part in a practice of preparing pulses in the last year. The division of respondents experienced with preparing conserved and dried pulses is displayed in Figure 13. Of course, there are also practitioners that use both conserved and dried pulses: one-third of all survey respondents had (much) experience with preparing both pulse-forms. The expectation that most respondents experienced with preparing dried pulses also had experience with conserved pulses, was met. Also, almost no-one without experience with conserved pulses, had experience with dried pulses. Surprisingly, most practitioners indicated to have an equal amount of experience with conserved as with dried pulses. From the interviewed practitioners, two only used conserved pulses, and one of the practitioners using dried pulses, did not use conserved pulses. This means, that the use of conserved pulses is not a prerequisite for using dried pulses, nor the other way around. How these distributions come about has much to do with the meanings and competences of the practices, the Dutch consumption culture, and the cultural background of the practitioners. As far as these concepts have not yet been discussed, they will be discussed below for all preparation practices.

### ***The acquisition of preparation competences***

As mentioned earlier, competences in the form of creating attractive dishes with pulses, are an important aspect of all discussed pulse preparation practices. This mainly comes down to knowing recipes and being generally skilled in preparing food. Additionally, the practices with dried pulses require competences for the technical preparation of the pulses. Therefore, in this thesis special attention was paid to how practitioners acquire those competences. In other words, how the people became skilled practitioners. The survey results show, that most practitioners were *taught to prepare pulses* by their mum, by themselves, or through a combination of both. In line with the findings presented in the eating practices subchapter, the cultural background of practitioners influences whether the competences of the preparing practices are passed on directly via other practitioners or indirectly via material information sources.

The interviewed practitioners with a Suriname, Syrian or Indian ethnicity were all taught by their mother how to prepare (traditional) pulse-dishes. Ulrich explained for instance, that it is part of the Suriname culture that a mum teaches her son how to take care of himself, in order to not be depended on a woman for getting a tasty meal. Thus, he got thoroughly taught by his mum how to make traditional dishes like brown beans with rice. The same holds true for Errol, who furthermore



also actively sought teachers, by spending time in the kitchen with other old Suriname people. For the Syrian and Indian women, also other women were important for their education in cooking practices: grandmothers, girlfriends the mother, and a mother-in-law all played a role. In this way, traditional pulse recipes and basic understanding of how to technically prepare dried pulses are passed on from generation to generation.

In line with the practitioner division made in the eating practices, all Dutch interviewees indicated to not been taught how to prepare pulses by their parents, as their parents did not prepare pulses themselves<sup>1</sup>. An exception to this tendency is the traditional Dutch dish pea soup, of which the recipe also tends to be passed on from generation to generation. When they spoke about teaching themselves how to prepare pulses, they referred to simply doing and ‘trying out’ as well as making indirect use of the knowledge of other practitioners by the use of material information sources. In the survey however, 75% of the Dutch indicated to be taught by their mum and 55% to have taught themselves. This indicates that childhood exposure to eating and preparing pulses does also occur in the native-Dutch population. Yet, among the non-Dutch respondents, self-teaching was less common than among the Dutch: 67% was taught by their mum, 33% taught themselves, and 20% by grandparents<sup>7</sup>.

### ***The use of information sources for preparing pulses***

*Information sources* were found important in all pulse preparation practices. Besides helping new practitioners to become skilled in the practice, material and social information sources are also important aspect for the continuation of the practices. All practitioners indicated to use information sources regularly as reference for deepening (improving competences in one practice through improving techniques and increasing recipe knowledge) or broadening (acquiring competences for one of the other pulse preparation practices) their practice-competences. Also, three-quarter of the survey respondents indicated to use information sources. Hereby, a differentiation of two *types of information* can be made. *Recipes* are very important providers of both inspiration and know-how: of the survey-respondents using information sources for preparing pulses, most used these for recipes. To a lesser extent, the sources are used for information on how to technically prepare pulses. Such technical preparation instruction are often already included in the recipes and therefore less often searched for separately.

The following *material information sources* were found most important in the respective practices. Cooking books and online sources like websites, blogs and YouTube videos were, according the survey, all used for acquiring recipes and preparation instructions. In the interviews however, practitioners clearly favored online sources. A strongly present attitude regarding using online sources was that it is super easy to type-in either a specific dish or a specific pulse type (and form), possibly in combination with other desired ingredients. Then, a whole array of recipes is given: “*I type ‘recipe chickpeas’, or ‘recipe brown beans’. Well then you get dozens of Surinamese recipes of course*” (Gerda). With the increasing accessibility of internet and proficiency of people of all ages and background to use it, cooking books become the less handy option: “*The more cooking books you have the more frustrating it is, because in every cooking book the recipe is completely different. (...) and on the internet you can off course find so many recipes, and also all those cooking shows. So actually you do not even need cooking book anymore. With one mouse click you get it all in front of you*” (Linda).

Mostly, recipes are sought via a search engine, leading to the use of several websites. Besides, some practitioners have a favorite YouTube channel, blog or website that they use regularly. Tv cooking-shows were less popular among the interviewees. Lastly, magazines from a supermarket as well as

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<sup>7</sup>Note: respondents were able to give more than one answer; this data thus contains overlap

cooking magazines, are used by some for inspiration, though practitioners indicated that this does often not lead to actually making the recipe.

Besides material sources, the practices also involves *social information sources*. At the first sight, the practice of preparing pulses is not a shared activity. While cooking, respondents rather work alone in the kitchen than with for instance their partner<sup>8</sup>. However, the sharing of recipe inspiration and cooking tricks among family and friends is more common. Again, Dutch respondents were found to make less often use of social information sources than Non-Dutch practitioners. Two of the Dutch interviewees made no use of friends or family at all, and two a bit. Claudia for instance, does sometimes ask her father for advice because he is a fanatic cook. But besides the family recipe for Dutch pea soup, no pulse dishes are prepared by him and thus they get not shared. Also within the survey-sample, those who had been preparing pulses at home in the last year, only 22% indicated to use family members and 22% to use friends as information source for cooking with pulses. Social information sources were more important for the Indian, Suriname and Syrian interviewees. The Syrian and Indian interviewees for instance, still make use of those women who taught them the practice: “...I use YouTube or my grandmother” (Faten). Thus, for them, teachers of the practice still play an important role after they became skilled practitioners themselves.

The above discussed makes clear that preparing pulses is not just a matter of knowing how to handle pulses and knowing attractive recipes, but also a matter of knowing how to find and follow preparation instructions and new recipes, as well as being motivated to do so. In fact, a main reason for practitioners perceiving the preparation of pulses to be easy was the perception that one can easily ‘up-skill’ oneself through the use of information sources: “... so [with] everything that I want to make that I have never made, I will take a look at how is that made, and then I buy the ingredients and I get to work. (...) I must be curious about it and then I will do it, but if I am not, then I will stick to my well-known pulses” (Errol). For most practitioners it is a routinely part of the practice to use social and material information sources, as first advisors when desiring inspiration for new dishes or a detailed description of the preparation of a certain dish. Those practitioners to whom the use of information sources was no habitual part of the practice, performed a narrower form of the practice (e.g. preparing less dishes or only preparing conserved pulses) or made use of improvisation.

### ***Preparing pulses in improvised and strict cooking styles***

How the preparation practices are performed, is also depended on the cooking-style(s) of practitioners. One practitioners can have different cooking styles, that are performed depending on the situation. Most interviewees indicated to not take the recipe very strict when they use one, adding and leaving ingredients: “I usually get inspired by a recipe, and then I actually always give it my own twist. And we almost never eat the same” (Claudia). Also, in many instances they do not use a recipe at all, which leads to the creation of self-invented dishes. In some cases, these dishes even became part of the standard repertoire. While performing such a cooking-style, the practitioners make use of basic knowledge of how pulses can be combined with certain other ingredients that they have at hand. The resulting dishes are influenced by practitioners’ meanings regarding how a dish should taste and look like. An other cooking style used for preparing pulses is one where the traditional way of preparing a dish is strictly followed. Depending on the recipe, this can be a quick dish with conserved pulses, but it can also mean that the preparation is rather time-intensive and complex.

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<sup>8</sup> Exception to this are parents with children. As mentioned before, half of the practitioner was taught by their parents how to prepare pulses, meaning the practice was shared between them and their parents. At least one of the (Dutch) interviewees also indicated to prepare pulse-dishes like humus with her daughters; she thus now acts as teacher for these young practitioners

### ***The role of practitioners' lifestyle and cultural identity***

The role of the lifestyle and identity of practitioners and specify their cultural background, on their performance of pulse preparing practices, has been discussed multiple times throughout the text above. Additionally, interviewed practitioners were asked to which extent they *perceived their culture to influence their preparation practices*. The Dutch practitioners felt that their cultural background did not influence their preparation habits, because they cook self-invented dishes or recipes from all cultures, instead of (just) the Dutch cuisine. The participants from Syria, India, and Suriname however, did perceive their cultural background to be of influence.

Based on the discussed findings, it can be concluded that also the preparing practices are influenced by the cultural identity of practitioners. Non-Dutch practitioners that were exposed to eating pulses by family-members and their cultural surrounding, are often also taught how to prepare pulses by this social network.

### ***Competences related to flatulence***

A last not yet mentioned competence identified to belong to all pulse preparation practices, is having knowledge about how to reduce the effect of *flatulence* as result of consuming pulses. This competence was identified as not being essential, as flatulence was by all practitioners perceived as a marginal issue. Nevertheless, half of the interviewed practitioners take some type of preventive measures to reduce the effect of flatulence. Noticeably, all stick to a different measure (see Table 3 for their recommendations).

Table 3: Practitioners' trick for reducing flatulence

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Ulrich	Add some sugar to the dish
Faten	Add dried cumin to the dish or drinking it with water or tea; remove the outer skin of the pulse
Sabina	Rinse them well and cook them longer.
Shelly	Add some 'Hing' (Asafoetida) to the dish

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### ***Barriers for preparing pulses more frequent***

Though the internet and cookbooks are very helpful, the survey data suggest that there is still a relatively large group of both Dutch and non-Dutch consumer (47% and 38% respectively) that believe more preparation know-how would make them participate more often in pulse-consumption practices. Also, half of the survey respondents expected to eat more pulses if they knew more recipes. Hereby, no differentiation was made between pulse types or forms. The interviewed practitioners felt less need for more preparation skills or recipe knowledge, arguing everything can be found on the internet. Mentioned exceptions to this rule of on-line-availability, were recipes that satisfy special dietary requirements.

As pulses are not a common part of the Dutch cuisine, the expectation was that Dutch respondents would struggle with incorporating the practice of preparing pulses in their overall food preparation routine. Indeed, compared to the non-Dutch respondents, more Dutch indicated to forget to cook with pulses (8% and 24% respectively). Nevertheless, by far most Dutch and non-Dutch disagreed that they forget to cook with pulses. This is however not surprising, given that most respondents were pulse preparing practitioners.

### **Summarizing pulse preparation practices**

In sum, for the performance of pulse preparation practices, the pulse form involved as well as practitioners' lifestyle are vital. Though the preference for certain pulse types and dishes, as well as the consumption frequency, is driven by meanings discussed as part of the practices of eating pulses, realizing these preferences is determined largely by the feasibility of performing required preparations. Preparation implications like time-investment and planning-requirements, need to match people's daily routines and cooking style. Because of their easy and quick preparation, conserved pulses are preferred for busy-lifestyles. Dried pulses are especially used for preparing certain traditional dishes. But mostly, they are left for the weekends and special occasions. Tools like the pressure-cooker can reduce time-constraints, but are hardly used. On top, the paths of recruitment as discussed in the previous subchapter, also have implications for the performances of preparation practices: those who inherited pulse practices from their parents and socio-cultural surrounding, were taught how to prepare pulses according certain recipes and with certain pulse forms. Those who not inherited the practices, mainly taught themselves to prepare pulses. Information sources, particular online, are important providers of recipe knowledge and preparation skills for practitioners of all backgrounds. However, pulse dishes are also often improvised.

## 5.3 Practices of buying pulses

Practices of buying pulses are particularly interesting because they are strongly influenced by three external factors: the physical surrounding in which the practices are performed (shopping environment), other grocery-buying practices, and the practices of preparing and eating pulses. In the following sections, observed shopping environment in which buying pulses takes place, and what this says about the practices themselves, will be discussed first. Then, the pulse stocking and dish-driven pulse buying practices are introduced, followed by an analysis of meanings related to the institutional context and relevant competences for buying pulses.

### The buying environment

Buying pulses mainly takes place in a physical grocery store. The different store-types observed (supermarket, ethnic store and organic store) overlap largely in the pulse types offered, but differ in the form, packaging size, and product placement. Pulses offered in all stores (except the pulse-unfriendly supermarket-chain mentioned below) were brown beans, chickpeas, green lentils and red/yellow lentils. Thus, except for kidney beans, the most offered pulse types were equal to the pulse types most used by this study's respondents. On the other hand, some pulses were only offered in the ethnic stores while other pulses were only offered in the supermarkets and organic store. On the whole, the offer of pulses in Almere was identified to be large.

Almost every neighborhood of Almere hosts a supermarket, and the stores are spread relatively equally over city. However, supermarket-chains differ strongly in the extent to which they are suitable for buying pulses. One of the two supermarket-chain observed, offered only a marginal amount of pulse products placed on illogical spots in the stores (e.g. besides the personal care products). In contrast, the other supermarket-chain observed, offered a large variety of pulse products (therefore called the pulse-friendly supermarket). In the pulse-friendly supermarkets, emphasis was on conserved pulses: many different pulse types were offered in small ( $\pm 200\text{g}$ ) and medium ( $\pm 400\text{g}$ ) sized cans and jars from several brands. However, compared to supermarkets in other Dutch cities, also the offer of dried pulses was large: up to 18 pulse types in small- (350g) and medium-sized (900g) packages. Remarkably, the conserved and dried pulses were placed in completely other parts of the stores, and some additional pulse-products were offered in cuisine-themed shelves separated from the other products. Moreover, these stores offered several ready-made and meat-replacing pulse products. Thereby, especially chickpeas and lentils were prominent pulses, processed in for instance several flavors of hummus and lentil soup. However, relative to the shelf-size of all processed meat-replacers, the amount of meat-replacers with pulses was marginal. In the larger store of this pulse friendly supermarket chain, also pulse-snacks, like chickpea-chips and wasabi-flavored beans, were offered.

Almere also hosts a large amount of ethnic stores. Most can be found in the centre, though they are also present in multicultural-neighborhoods. The two stores observed, clearly focused on different types of customers. This was reflected in the types and forms of pulses offered, as well as the size and amounts of packages. The owner of the smaller store explained how each pulse-type he offers is aimed to cater for a specific ethnic group. He also argued, that cans of pulses are for customers who do not have time and do not have to feed a whole family, while dried pulses are cheaper and therefor more often bought by people with large families. The second store focused mainly on mediterranean customers, offering large packages of dried lentils and peas in abundance, as well as

large cans with chickpeas. In both stores, conserved and dried pulses were placed in the same shelf or close to each other. Much more dried than conserved pulses were offered, mostly without choice in brand, and little to no other pulse-products.

Lastly, the organic store offered a large variety of dried and conserved pulses, though they take-up a remarkably small section of the store. Reasons for this are the relative small amount of items per product, small packages, and again no choice in brand. The owner explained that mainly the lentils and chickpeas are popular. Also many other pulse products was offered, whereby chickpeas and lentils were again prominent. This were for instance ready-to-eat products like hummus, processed meat-replacers, and (semi-)fresh soups, but also pulse-flours, -chips and -crackers.

To summarize, the shopping environment of pulse buying practices in Almere is characterized by a rich offer in *types* and *forms* of pulses given a moderately visible and accessible place in the food purchasing landscape. Thereby, certain store-types are specialized in certain pulse products: the pulse-friendly supermarket specializes in small and medium-sized packages and ready-to-eat products, ethnics stores in larger packages and dried pulses, and the organic store in a large variety of conventional and unconventional pulse-products. Except the owner of the organic store, all retailers adjust their offer to their customers' buying behavior to at least a certain extent. Therefore, their offer was helpful for creating an impression of how pulse buying practices are performed. The observations confirm the plurality of materials used and practitioners involved, as observed in the eating and preparing practices. Moreover, based on the moderately visible product placement of pulses in stores, pulse buying is likely to be moderately common in food consumption practices of Almere citizens.

### **Introducing two pulse buying practices**

The observed differences in offer between stores influences what practitioners do and have to do in order to perform their pulse preparing and eating practices. These differences in performance are identified as belonging to different routinized pulse buying practices and performances, and non-routinized practice performances. These routinized practices are divided in a pulse stocking practice and a dish-driven pulse buying practice (displayed in Table 4). The stocking practice responds to routines that have developed within the practices of preparing and eating pulses, regarding the regular use of certain pulse types, forms, and quantities. Within the practice of stocking pulses, performances were split up between going to one store, and going to multiple stores. The dish-driven practice differs from the stocking practice in that its performance is a direct response to a single decision made in the preparation or eating practice. Non-routinized pulse buying performances are essentially part of other buying practices, and are discussed separately after the routinized practices. The separate practices will be discussed in the next sections. Afterwards, meanings regarding the appropriateness of the buying environment in Almere for performing pulse buying practices will be discussed.

Table 4: Pulse buying practices in Almere

Buying practices	Pulse stocking practice		Dish-driven practice
Performance variations	Multiple stores	Single store	
Meanings			
<b>Goal performing practice</b>	Replenishing stock	Replenishing stock	Direct use
Materials			
<b>Frequency performance</b>	Weekly / monthly	Weekly / monthly	Daily / weekly
<b>Location performance</b>	Several store types	Supermarket	Neighborhood store(s)
Bundled practices			
<b>Related practices</b>	Buying practices in several stores	Buying practices in single store	Short-term buying practices

### ***The pulse stocking practice***

This pulse stocking buying practice is characterized by being performed regularly and that it is tightly interwoven with other grocery shopping practices. The main goal of the performance is stock-replenishment.

This practice of buying pulses starts with knowing or checking whether the usual *stock* of pulse-products needs replenishment. All practitioners spoke about replenishing their stock regularly: ‘... *so every time I go to the store, I take something, one of one, so we always have a stock*’ (Errol). Depending on the turn-overrate of pulses in the household of the practitioner, buying pulses is combined with other grocery-shopping practices once a month up to a few times per week. Thus, the extent to which restocking pulses is a habitual part of other grocery shopping practice is dependent on practitioner’s performances in the pulse preparing and eating practice.

Moreover, the regularity of restocking is also dependent on the quantities bought per time. Despite the stocking, most practitioners buy only one or a few *quantities* of one pulse-product at the time: “*I just get a few jars and they go into the cupboard, and if I have used a few jars then it will be replenished*” (Sabina). Thus, buying regularly instead of large amounts is the norm. An interesting exception is Gerda, who orders a part of her groceries monthly online, among which a large amount of jarred beans.

Frequently eaten pulse *types* are bought every time the pulses are finished and with little conscious decisions. Additionally however, other types are occasionally bought by some practitioners. Thus, the household-stock of pulses does not necessarily always contain exactly the same pulse types.

The *location* where the pulses are bought, was found to also depend on the just mentioned interlinked practices. Differences in performances of these practices lead to differences in stocking pulses, which are now discussed as pulse stocking in multiple stores and in a single store.

### ***The multiple stores pulse stocking performance***

A first factor influencing the location pulses are bought at, is that practitioners have a certain set of favorite stores for all food buying practices. In the case of the interviewees performing the multiple stores version of stocking pulses, this was a mixture of supermarkets and speciality stores. All non-Dutch interviewees visit ethnic grocery stores, as well as some Dutch. Organic stores and the organic farmers market were more popular among Dutch practitioners. However, not all stores are

visited every food shopping trip. Especially when the distance between the favorite stores and the practitioner's home is long, considerations are made.

A second factor influencing the shopping location is namely the other products, besides pulses, that need to be bought on that moment. When a practitioner only needs products from the supermarket, it is more likely that (s)he will buy the pulses (s)he needs also in this supermarket, instead of visiting a further-away store just for the pulses: *“At the Moroccan supermarket (...). Or just at the ‘Appie’. Or (...) preferably at the health food store, but then I really have to go to Almere city, and I am dependent on public transport or cycling, so yes I have to happen to be there [and then think] ‘I will go to the organic food store’. Then I’ll get it”* (Sabina).

Thirdly, also the other pulse consumption practices were found to influence the choice for several buying locations. This mainly regards individual preferences for certain pulse types and forms. For most practitioners of this practice, the offer of supermarkets alone is not sufficient. They argued that for certain pulse-types they have to go to a speciality store: *“Because the toko has a much larger assortment than the Jumbo. The Jumbo has a very limited [assortment], more focussed on the.. well on the Dutch market you know. What the Dutch person uses, and thus, if I want mung beans, I do not have to go to the Jumbo. Then, I have to go to the toko”* (Ulrich). However, going to specialty stores for getting the right pulses was not seen as a hassle by practitioners, because this is part of their food buying routines. Also, buying pulses in different stores is seen as convenient, because it adds flexibility regarding the location in which the practice is performed. Hence, performers of the multiple stores stocking practice are satisfied with the availability of pulses in Almere due to their visits to multiple stores.

The practitioners’ perception that supermarkets offer less choice in pulses, contrast the field-observations of the pulse-friendly supermarkets, which had all products that practitioners mentioned to not be offered in supermarkets. However, the practitioners mostly mentioned other supermarket-chains than those observed in the case-study, which could at least partially explain the discrepancy. Surprisingly, the *packaging size* of pulse products (observed to be generally larger in ethnic stores) was argued to influence their choice of store by only two interviewed practitioners. However, based on the observation of the large ethnic store, it can be said that large packages of conserved and dried pulses are preferred by most customers of these store-types. Price-differences between stores was not something consciously taken in consideration by most practitioners.

This form of the practice is thus characterized by a flexibility in the choice of shopping location on the one hand, and a restricting demand for a certain level of variation in the available pulse types and forms on the other hand.

### *The single store pulse stocking performance*

The single store performance of the stocking practice is equal to the former in that it also involves the replenishing of a stock of pulses on a regular base. Also the quantities bought are in this performance small to medium, and the pulse types can be diverse. However, it involves only one store, mostly a neighborhood supermarket, in which the practice is performed. This was found to be an important distinction because it is the result of different requirements in related pulse consumption and food buying practices.

One interviewee was characterizing this practice, though arguably she represents a much larger group of especially practitioners with a Dutch cultural background. Linda likes to do all her groceries in one supermarket on five minutes walking distance from her house. She was very satisfied with the available pulse-products in the supermarkets and argued the store offers much more pulse-products than she needs: *“I think there is even a lot offered that I don't know at all, because I just don't look at it either. So I know where those bags with roti are, that was another eye opener”* (Linda).



She mainly buys pulses in one-person-sized cans or bean-stews in jars, which were found to be offered only in supermarkets. Thus, the main reason for this practice being performed in one store, is that all food buying practices are performed in this store. Lastly, also this practice-performance is accompanied with a high pulses availability satisfaction. The requirements on which this meaning is based are, however, different from the multiple store stocking performance: small packages, mainly conserved pulses, and common pulse types.

### ***The dish-driven pulse buying practice***

In contrast to the former practice, the dish-driven buying practice is not driven by the habitual replenishment of a stock of pulses. One practitioner was identified to perform this practice as main routinized pulse buying practice. The practice is characterized by the buying of pulses to directly serve the near-future preparation of a pulse dish. In the case that this is the main practice, and thus no stocking practice is performed, this buying practice is performed relatively frequent. The studied practitioner for instance, indicated to perform the practice every second day. For the same reason, the quantity bought is small. The pulse types and forms bought can be diverse. The routinized character of this practice lays in the habit to ‘just go to the store quickly’ to get the missing pulses. In the case of the studied practitioner, also the other food buying practices were characterized by short-term planning and frequent visits of stores. Lastly, in contrast to the multiple store stocking practice, proximity is in this practice very important for the choice of the store. Living very close to several stores, was found to be a cause of, and requirement for, buying pulses frequently instead of stocking them.

The other practitioners were found to perform a non-routinized form of the practice, which can best be approached as a part of a general occasional food buying practice, rather than as a distinct pulse buying practice. In this case, the performance is part of a practice of ‘quickly buying missing ingredients’. This also means that the performance is less dependent on the frequency in which other pulse consumption and food buying practices are performed. Moreover, practitioners mainly make use of one store, generally a supermarket close to the practitioner's home or work. Therefore, for this practice a rich offer of pulse products in local supermarkets was highly appreciated, even by practitioners who mainly go to a specialty store for replenishing their stock.

### ***Non-routinized impulsive pulse buying***

The two pulse buying practices have in common that the products bought are already planned before the practitioner enters the store. Especially when the products are bought regularly, the buying is performed on automatic pilot. In addition to these practices, another buying practice worth mentioning was observed. This practice involves the impulsive buying of pulse-products that are presented seductively in a store or store-magazine: *“And occasionally I browse through the Allerhande [store magazine], and of course there are also new products in there. And then I think "oh yes, I have to keep that in mind, that seems to be worth trying" (Linda).* Buying these pulse-products is not routinized, hence, this cannot be categorized as routinized pulse buying practice. Instead, the pulse purchase is arguably a performance of a broader spontaneous buying practice. In this case, pulses are only one of the many products that could be bought spontaneously. Interviewees performing this practice like trying out new products. The pulse products triggering the performance of this practice are mostly new in the assortment of the store (or new to the practitioner), sparking practitioners’ curiosity to try out the new product: *“Because then you think: oh nice, that is also an interesting bean, I'm going to look for a fitting dish (Claudia).* Moreover, the performance of this impulsive buying practice has potential consequences for the routinized pulse consumption practices. It leads to exposure of the

practitioners to new flavors and pulse products, which can stimulate pulse consumption when the products suit the practitioners' taste preferences and consumption practices well.

## Overarching characteristics of pulse buying practices

### *Meanings of pulse buying practices in response to the institutional context*

Almere was perceived to have a buying environment that is facilitating well for performing pulse buying practices. This is based on practitioners' satisfaction with the variety, the accessibility, and the affordability of pulses in Almere.

Firstly, most survey respondents indicated to be *satisfied with the variety of pulses* offered in the stores they do their groceries (65% agreed (a bit)). Also, all interviewees\* were generally very satisfied with the variety available in Almere: "Yes, you have everything. I actually do not have to get out of Almere, to get the stuff I need to cook in a Suriname manner" (Errol). Moreover, most practitioners were also satisfied with the *accessibility* of the pulses (i.e. travel distance between home and store offering the preferred pulses). In response to questions regarding this theme, three practitioners reflected on how the accessibility and availability of pulses has improved in the past decades: "Back then, it was quite difficult to get certain things (...) Well, at a certain point it was of course very normal that you could just get Surinamese vegetables here, but in the past you used to have a Dutch merchant on the Albert Cuyp (...) and he also had dried beans in packs and so on..." (Gerda). Practitioners' satisfaction with the accessibility of pulses was found to not just depend on the physical proximity but also on the means of transport at the disposal of practitioners, as well as on where they do their other groceries (see also the quote of Sabina on page 72). Lastly, the general opinion among survey respondents was that pulses are an *affordable* source of protein. However, they were divided regarding whether affordability is a main reason for consuming pulses. In the interviewees it became clear that the association of pulses being cheap or expensive is depending on what the pulses are compared with and where they are bought. One practitioner argued that pulses are cheap, as they are cheaper than meat, while another argued they are expensive, because they are more expensive than vegetables. Moreover, pulses were perceived to be cheaper in ethnic stores compared to supermarkets. Nevertheless, all interviewees (except one) argued they do not consume pulses because they are cheap.

Moreover, the large variety of pulses accessible was also found to make it possible for practitioners with a non-Dutch cultural background to perform their pulse consumption practices 'as if they were in their home-country'. Their *perceived influence of living in Almere*, or the Netherlands, on their pulse consumption practices, was marginal: "I just kept the Surinamese tradition here. And I just went further in that area, as a Surinamese. Simply eating good Surinamese food" (Errol). Thus, the post-immigrants interviewed did hardly adjust their pulse consumption practices since arriving in the Netherlands.

The importance of approximation and availability was stressed even more by a counter case. Until recently, Faten, the only participant living in Wageningen instead of Almere, had to purchase some products she needs for performing her pulse consumption practices in Nijmegen, making use of public transport for over an hour. Back in Syria, everyone buys humus and falafel freshly made from a specialty store; when moving to Wageningen, she had to learn to make falafel herself. The shopping environment of Wageningen thus made buying pulses a less accessible practice for her.

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\*living in Almere

### ***Buying competences***

Most competences involved in the buying practices are similar to those of other buying practices. A competence characterizing the pulse buying practices is remembering to buy pulses. Indeed, by far most practitioners indicated not to forget to buy pulses. Also the interviewees indicated to have no issues with this competence: *“No, I usually do not forget to buy them. It is in my rhythm” (Claudia)*. A second characteristic competence is the ability to find less common pulses (when required) through knowing where which pulses can be bought, or being able to find this out.

### ***Summarizing pulse buying practices***

To summarize, in Almere, the availability and accessibility of pulses is sufficient for pulse consumption practices to be executed in several forms and with little buying constraints. However, this favorable environment is created through the mix of store-types present in Almere. Thereby, ethnic stores play an important role in facilitating types of pulses missing in supermarkets. Most of the time, where, how often, and which pulses are bought, is relying on the performances of other buying practices, as well as performances of pulse eating and preparing. Practices of buying pulses are tightly interlinked with these other practices. Accordingly, in most occasions, practitioners go to the store with already in mind which pulse-products to buy, either for regular re-stocking or for preparing one meal. Whether practitioners perform a stocking or dish-driven pulse buying practice is also depending on the style of planning the preparation of pulses. On top, occasionally new or attractively presented pulse products are bought impulsively, exposing practitioners with new forms and types of pulses.

Taking this a step further, the offer of certain pulse-types in certain forms and packaging sizes, and the way these products are presented in the distinctive stores, potentially influences the occurrence of certain pulse consumption practices. Store customers are exposed to the normative message conveyed through this physical environment: the display of many large bags of dried lentils and peas, filling a significant part of the larger ethnic store, communicates another message, than the display of one- and two-person sized conserved pulse products in the supermarket.

## 6. Discussion

In the previous chapter, I zoomed-in on the practices of eating, preparing, and buying pulses, by looking at their meanings, materials and competences. I also zoomed-out, by analyzing how pulse practices are interconnected with other practices, and how they are influenced by the identity and lifestyle of practitioners and the institutional context in which they are performed. This analysis of the three practices and their varieties, was used to expose both obvious and less obvious characteristics of pulse consumption. In this chapter, I will go one step further, by discussing the findings in the light of previously formulated expectations, findings of previous studies, and the question which practice characteristics are most relevant for stimulating pulse consumption. After this discussion of the results, I will continue to reflect on the use of practice theories as theoretical framework, the used methodology, the reliability of the findings, challenges faced during the research process, and the generalizability of the findings.

### 6.1 Discussion of the results

In order to discuss the results in a clear manner, the discussion of the results is divided into five sections. Each section discusses a theme that reoccured throughout this thesis, and which is deemed relevant based on the just mentioned points of consideration.

#### 6.1.1 *Familiarity and social-cultural norm-setting*

This first theme regards the importance of familiarity with the taste of pulses and their application in a meal and diet. In line with the treatise of Shove et al. (2012) on the dynamics of social practices, I argue that exposure and social learning are at the core of pulse eating and preparing practices, creating familiarity. In the previous chapter, childhood exposure and social-cultural norm-setting were analyzed as tightly interwoven characteristics, especially dominant in culture-based performances of pulse consumption. They are taken more separate here, for they are not always interwoven. I will now first elaborate on childhood exposure, and then continue with social-cultural norm-setting.

The identification of familiarization to the taste of pulses on a young age as a core reason for eating pulses in adulthood is in line with what earlier studies argued to be important in other societies (i.a. Ipsos Reid, 2010; Leterme & Carmenza Muñoz, 2002). More specifically, several aspects make exposure in childhood effective. Firstly, regular childhood exposure to the eating of pulse dishes is an effective way in which positive meanings, e.g. pulses are tasty and appropriate food, get inherited by new generations of practitioners. In line with this, and just like Tu et al. (2012), I argue that the eating of pulse dishes since a young age is likely to create positive (nostalgic) memories and emotions, which emotionally bind practitioners to these dishes. This binding to dishes increases the chance that performances of pulse consumption practices are continued in later life. Secondly, just like interviewee Claudia teaches her daughters how to make humus from scratch, family members (still often women) play a role as teachers of competences like preparation know-how and recipe knowledge. As Halkier (2007) argues, the passing on of competences can even happen indirectly through simply seeing someone else prepare pulses. Lastly, getting used to eating pulses on a young age, bundles or interlocks pulse eating with other food consumption practices effortlessly. In other words, the eating and potentially preparing of pulses gets incorporated in daily routines, and becomes a habit that is more easily kept than changed. This contrasts sharply with the effort it takes to incorporate pulses in later life in already well-established consumption routines.

No typology was made for Dutch practitioners exposed to eating pulses in childhood, or who identify pulses strongly with their Dutch identity. The reason for this is that the identification of the eating practices was mainly based on the interview sample, which did not include such practitioners. However, quite some Dutch survey respondents got taught how to prepare pulses by their mother. Also, during the writing of my thesis, I came across several Dutch (above the age of fifty) that got raised with pulses or who explained that eating ‘chili con carne’ was a trend in their student-time. This indicates that there is also a group of Dutch practitioners who got exposed to the practices in their childhood.

To continue with the influence of social-cultural norm-setting, as was expected based on earlier studies (o.a. De Boer et al., 2006; Goldman & Hino, 2005; Wilk, 2010) cultural dietary traditions of (former) immigrants (non-Dutch) influence contemporary performances of pulse eating and preparing practices in the Netherlands. Studied members of these cultural sub-groups were still directly recruited through their social-cultural environment, and also those living in the Netherlands for years were still active practitioners. Moreover, when Dutch consume pulses, many dishes prepared, and processed pulse products bought, are inspired on foreign cuisines rich in pulses.

There are also several things to learn from pulse consumption practices that are performed as part of non-Dutch cultural identities and lifestyles. Firstly, these practices have characteristics that stimulate repeated performance and expose new people to the practices, that are not yet very common in the Dutch society. This are meanings regarding eating pulses being normal and socially accepted, and that eating and preparing pulse dishes is part of one’s cultural-identity. These meanings are again enhancing, and enhanced by, the sharing of pulse dishes, recipes, and positive meanings among friends and family on daily and festive occasions.

Secondly, as just mentioned, foreign pulse rich cuisines provide inspiration for Dutch pulse consumers. Therefore, I agree with Schösler et al. (2012) that an openness for less conventional dishes creates a welcome environment for pulse consumption practice to be taken up in society. Positively, the Dutch cuisine has a history of including foreign dishes. Also, Jallinoja et al. (2016) argued that in Finland, plant-protein consumption has positively been influenced by the attention foreign cuisines received in the media. Though not studied explicitly in this thesis, in the Netherlands a similar trend seems to take place. This suggests that traditional and modern dishes of pulse rich cuisines could serve an important role in including pulses in the Dutch diet.

Moreover, Dutch municipalities, among which Almere, wonder how to make their ethnic minorities eat more healthy; and some wonder how to stimulate their citizens eat more sustainable (Flevo Campus, 2018; RIVM, 2015). This thesis provides support for the argumentation of Palsma et al. (2006) that for making a change in the practices of these groups, intervention-approached should be inclusive towards cultural differences and focus on the good practices that are already performed, whereby high pulse consumption could be a good starting point. It cannot be assumed however, that following generations will continue consuming according their traditional diets. More is said about this in the next section.

Surprisingly many survey-respondents indicated that eating pulses is normal in their social surrounding and a common part of the Dutch diet, given the contrasting image –of pulses not belonging to the Dutch diet– created by the interviewees. However, there are several reasons to still state that, generally, pulses do not yet carry a strong image of being a common part of the Dutch diet. Firstly, my survey sample mostly consisted of pulse-consumers, and is therefore not representative for the average Dutch regarding this theme. Yet, this does not explain the contrast with the interviewees. However, secondly, respondents answers seemed to depend strongly on whether they emphasized or trivialized the role of the few iconic pulse dishes in the Dutch cuisine,

rather than on the actual role pulses play in Dutch consumption practices. Lastly, the average pulses consumption of Dutch is simply still very low (Van Dooren & Aiking, 2015).

Besides recruitment via childhood exposure and social-cultural norm-setting, this thesis identified alternative routes through which pulse consumption practitioners are recruited in later life. Also on these routes, familiarization through exposure with the taste and application of pulses is an important sensitizing characteristic. On top, pulse consumption can link with related consumption practices and lifestyles. The following sections will discuss these alternative routes and their implications in more depth.

### **6.1.2 Preparation routines in busy-lifestyles**

Especially important when aiming for adding a new food practice in the daily consumption of a society, is that the preparation requirements fit existing routines. These routines are strongly influenced by people's lifestyle and societal conventions. In the Netherlands, an increasing convention is that both men and women have a full-time job, a vibrant social life, hobbies, do sports, etcetera. Accordingly, the so called busy-lifestyles are dominant. In such lifestyles, the time spent on preparing dinner is during the week not much more than half an hour. Dishes are kept simple, yet they should be satisfying in terms of taste, healthiness and bringing variety in the diet. The practice of preparing conserved pulses is particular well in line with these cooking conventions.

Moreover, also fast-cooking dried pulses are suitable for time-constrained preparation routines. They were underexposed in the previous chapter, because based on the available data, no clear separation could be made between preparing slow-cooking dried pulses, and fast-cooking dried pulses (fast dried pulses). Also in the reviewed literature, little specific notice was taken of the potentials of this pulse form. However, based on their preparation and planning requirements, I argue that preparing fast dried pulses can best be approached as separate practice positioned in-between the conserved and dried preparation practices. In this way, practice-stimulating measures can effectively focus on the specific characteristics of fast dried pulses: the pulse form is similar to conserved pulses in terms of being fast-cooking and not requiring any planning in forehand. Simultaneously, the pulse form requires more competences to acquire the preferred texture, and is in this respect similar to dried pulses.

That said, it is surprising that several authors (De Boer & Aiking, 2017; Jallinoja et al., 2016) follow the argument of Schneider (2002), that the preparation requirements of pulses do not match with society's demand for convenience food. Authors like Maphosa, Jideani (2016) and Schneider (2002) conclude, that suppliers need to respond to the necessity for convenience food by developing new ready-to-eat pulse products, and integrating pulses in known fast-food like pizza. It is promising that they look at the possibilities of making pulses fit with current and upcoming lifestyles, but their approach can be broadened. Their suggested measures can be valuable for increasing the familiarity with pulses of diverse consumers. But the question is, whether such products will lead to the desired large-scale integration of pulse consumption practices in daily food practices. In my research, ready-to-eat products were mainly used as back-up for exceptional moments, rather than for daily cooking. For daily-cooking, other types of convenient pulse products were used. Hence, I agree with Jackson and Viehoff (2016) that convenience food should not be approached as only implying food that can directly be used as meal, but also as semi-processed ingredients that require some additional labour and the addition of other ingredients, yet that fit well in daily time-constrained cooking practices. Thus, what is missing in the approach of Maphosa,

Jideani (2016) and Schneider (2002), is a focus on the role conserved and fast dried pulses can play in existing and future convenience oriented food consumption routines.

Moreover, the general focus on fast and easy to prepare meals, does not mean that dried pulses do not have a role to play. For certain dishes, preparing them with conserved pulses is very different from using dried pulses, which is especially significant when following a traditional recipe. Dried pulses are thus often used for preparing dishes from certain cuisines in a traditional manner. However, because preparing them is demanding, the practice is suitable for other occasions and cooking styles –like for leisure cooking and cooking according cultural traditions–. In response to this, I will now reflect on the potential role that the pressure cooker and likewise kitchen tools (e.g. slow cooker) could play in making preparing dried pulses more accessible, through two cases.

The pressure-cooker is not a common kitchen tool in Dutch households, which can explain the marginal use among the studied practitioners despite the evident advantages. The use of such kitchen tools could reduce common barriers of preparing dried pulses: long-soaking and cooking time, and getting the right texture (McGee, 2004). Thus, there seems to be a potential in introducing such technical devices in existing preparation practices to making dried pulses easier to be performed. Nevertheless, it seems unlikely that these tools will actually be included in contemporary routines. Adding this material component to existing practices, still requires practitioners to take explicit steps outside their daily routines (e.g. putting the pulses in the cooker in the morning), for which the threshold might be too high when only done for dried pulses. Moreover, these tools still require pulses to be soaked, unless the flatulence resulting from skipping soaking does not form an issue.

On the other hand, there is an other group for which introducing time-reducing kitchen tools could potentially be worth-it. Based on observations made, I argue that those who mainly cook according traditional preparation methods on daily base, can afford to do so because their lifestyle is partially arranged around preparing these meals. In this case, the question is, whether next generations will live equal lifestyles in which they have or want to make this time. If not, will they convert to using conserved pulses, or stop preparing (the traditional) pulse dishes all together? In this process of changing practices, time-reducing kitchen tools could imply a solution to the tradition-versus-modern lifestyle dilemma. In contrast to the former case, it is assumable that such tools are more easily taken-up in daily routines of these lifestyles, because planning the use of pulses in forehand is already an established routine. This hypothesis is loosely based on insights gained through this thesis, and can be used as lead for further research on the topic of stimulating ethnic-minorities to consume healthy.

### **6.1.3 *The role of pulses as plant-based protein sources***

As expected based on earlier studies (i.a. De Bakker & Dagevos, 2010; De Boer & Aiking, 2017; Jallinoja et al., 2016) the performance of pulse eating and preparing practices was in this thesis found to depend on the dietary preferences of their carriers. More specifically, pulse consumption partially involves different characteristics when performed as part of the diets of frequent meat eaters (rich meat diet), meat reducers, and no-meat eaters. The interaction of these diets with pulse consumption practices and how these findings relate to former studies, is now discussed.

To start with the rich meat diet, several studies have dealt with the question of how to clear the way for plant-based protein sources, in a society that still dominantly shares the meaning that a proper meal contains meat. Some argue, this takes a strong culinary (De Boer & Aiking, 2017) or cultural

(De Bakker & Dagevos, 2010) shift towards a society-wide acceptance of vegetarian dishes. This thesis brought nuances to their assertion, by providing examples of meat-based diets that are inclusive to pulses. So what can we learn from these pulse-meat consumption practices for reaching similar pulse inclusivity in the average meat-based diet?

A first characteristic to learn from is the image that pulses are suitable for carnivores, and not just for vegetarians. This image is paired with meanings that focus on that pulses provide a welcome variation in flavor and texture, and that they are tasty and healthy. Thus, in contrast to certain studies and literature sources, this thesis does not confirm that pulses carry an image of being poor man's meat (i.a. Albala, 2017; Borchgrevink, 2012; Leterme & Carmenza Muñoz, 2002), and also did not find strong support for an image of pulses being just for vegetarians (De Boer et al., 2017; Ipsos Reid, 2010; Lucier et al., 2000). The contrasting results could be a result of that such meanings are mainly carried by non-pulse consumers, while this thesis mainly studied pulse consumers. Another possible explanation for the disconfirmation of the former image, is that younger generations do not have such income-based association with meat in the way former generations used to (Schösler et al., 2012). Moreover, the below discussed trend to purposefully not always eat meat could be playing a role in making such images less commonly shared.

A second characteristic to learn from, regards the use of dishes in which pulses and meat are combined. Though pulses can be a main component, the experience of eating meat is still important. Without this experience, the dishes do not fit meanings characterizing the meat-rich consumption practices. Through these dishes, pulse consumption practices can be included in existing lifestyles, instead of that existing meat consumption practices needs to get partially or completely replaced with pulse consumption practices. Nevertheless, in aiming for more sustainable and healthy food practices, inclusion of pulse-meat dishes in existing meat-rich diets should lead to a reduction in the amount of meat eaten. This thesis did not research whether such dishes indeed contain a smaller than average meat-portion and lead to a reduction of overall meat consumption. However, Schösler et al. (2012) found that meat eaters that appreciated soy products, did not necessarily ate smaller amounts of meat. Thus, this is a topic that requires more research. In any case, meat-pulses dishes are also interesting for a second reason which is nicely worded by De Bakker and Dagevos (2010): *"(...) it not so much about the products, but about the meals. Therewith, one creates oneself more room for maneuver to avoid the association with meat-replacers or (strict) vegetarianism"* (p.150). Through meat-pulses dishes, pulses are likely to be more accessible for meat-eaters and less stigmatized as vegetarian food.

Nonetheless, it is becoming less and less common in the Netherlands to eat meat every day at the main meal (De Boer & Aiking 2017). Therefore, I agree with De Bakker and Dagevos (2010), in that pulse consumption practices can benefit from the emerging trends of purposefully not eating meat every day, or not at all, for health or environmental reasons. New followers of these trends are actively engaged in breaking with old practices and including new elements in their consumption routines. This creates opportunities to interlock elements of pulse consumption practices with elements of the meat reducing and exclusion practices. Also, in contrast to frequent meat eaters, meat reducers are more likely to include pulse dishes that contain little or no meat, making the earlier discussed matter of decreasing the meat-portion size in pulse-meat dishes less of an issue.

This thesis confirms earlier findings (Jallinoja et al., 2016; Ipsos Reid, 2010) regarding that pulse consumption practices are performed above average by no-meat eaters. Nevertheless, pulses are still only consumed marginally by the average Dutch that does not eat meat. Also, only about 15% of the Dutch meat reducers currently eat pulses as alternative protein-source. In other words, the interlocking of pulse consumption with a low- or no-meat diet is not yet well established. An



explanation for this, is given by Schösler et al. (2012): people who actively look out for meat substituting options, are sooner attracted to more familiar meat-replacers like fish, egg, cheese and processed meat replacers. In the terms used by Spurling et al. (2013), pulses compete with other (plant-based) protein sources for being performed in the same type of practice; in this case the consumption of a meat alternative. In contrast, pulses were for the studied practitioners already a relative familiar food when they started to reduce their meat consumption, and for them pulses did emerge as suitable meat substitutes. This again makes a strong case for the importance of increased familiarity. Moreover, pulse consumption practitioners also see advantages of pulses over other meat replacers: dried and jarred pulses were argued to contain less salt and other additives, and to be less processed. Non-practitioners might not carry the same meanings, because they are not aware of the advantages of pulses, or not interested in them. However, canned pulses were seen as containing too much undesirable substances, indicating there is still room for improvements concerning the image of pulses as healthy food, and potentially concerning the physical characteristics of conserved pulses.

Lastly, though ‘environmental considerations’ is overall not a strongly present practice-characteristic, it is still worth taking into account for specific target-groups. In line with earlier studies (Ipsos Reid, 2010; Jallinoja et al., 2016), this thesis’ findings suggest that meat reducers and no-meat eaters that explicitly take care of eating sustainable, can be driven by this motive. This are mainly people who are already involved in other environmental-concerned practices like buying organic food. As the performance of such practices is increasing in the Netherlands (RIVM, 2016a) the environmental benefit of consuming pulses is a characteristic that could become of value in future performances of pulse consumption.

#### **6.1.4 Recipes and free-style preparation competences**

At the start of this chapter, the powerful role of social sharing for familiarization has been discussed. However, social sources are not at the disposal of, nor used by, everyone. In contrast, all practitioners, independent of ethnic background or lifestyle, make use of -especially online-material recipe-sources. The role of recipes and other information sources was marginally studied by the reviewed studies on characteristics of pulse consumption, yet they are regularly mentioned in directions for interventions. The next section will take a closer look at what the role of recipe-sources and preparation knowledge is, and can be, in the light of common preparation routines.

On the one hand, especially online sources (including cooking shows and videos) play an essential role in pulse eating and preparing practices: by raising curiosity in (potential) practitioners, by ensuring continued involvement of old practitioners, by providing inspiration and knowledge regarding the possible applications of pulses, and by providing guidance on preparing their favorite pulse dish. Regarding this point, this thesis agrees with earlier studies (i.a. Ipsos Reid, 2010; Jallinoja et al., 2016) that recipe sources are important means through which to provide potential practitioners with essential meanings, materials and competences. Moreover, when a potential practitioner indeed follows-up such recipes, interlocked practices will also be performed: pulses will be bought, prepared and eaten.

On the other hand, there are some important remarks to make on the current faith in recipe provisioning. Firstly, it is worth taking a look at a seeming contradiction between two broadly shared meanings concerning the acquisition of recipes. In line with the findings of i.e. Jallinoja et al. (2016), practitioners aspiring to increase their pulse consumption frequency, shared the meaning

that increasing their recipe-knowledge would help them doing so. Interestingly, this contradicts the likewise shared meaning that the online-availability of pulse-recipes is plentiful and accessible. A plausible explanation is that where routinized practitioners actively make use of these sources –through searching for recipes with a specific pulse, e.g. ‘recipe with brown beans’, or for a specific dish, e.g. ‘falafel recipe’– less routinized practitioners do not. This is a clear example of the intention-behavior gap: though there is the intention and competency to look-up new recipes, doing so is not an integrated part of existing routines and, therefore, not frequently acted upon. Following this line of argumentation, people without any intention to eat more pulses are even less likely to look-up pulse recipes. Hence, for the recruitment of new practitioners via recipes, the pulse recipes need to attract attention on platforms that are used by non-pulse consumers. Even more, the pulse recipes need to be attractive enough to make potential practitioners choose to prepare this recipe instead of choosing a recipe in line with usual practices. When this effectively leads to the use of this recipe a ball can start to role.

A second issue to consider however, is that in everyday food preparation practices, dominant cooking-styles are to prepare food in a ‘free-style’ manner (e.g. improvising with what is found in the fridge and cupboards) or the preparing of dishes known by-hearth (Halkier, 2007). Picking out a recipe, buying the right ingredients, and following up the recipe, are performances that often do not match with the time-constraints of a busy-lifestyle. Therefore I argue, that just as important as knowing recipes, are competences that can be used for preparing pulses in a ‘free-style manner, like a general understanding of the plural applications of conserved and fast dried pulses.

Lastly, also for the preparation of dried pulses, a basic understanding of how dried pulses function, and of how to overcome common preparation issues, are important competences that are overlooked when the focus is mainly on providing recipes. Such competences can reduce struggles that discourage potential practitioners to continue using any type of dried pulses, like not getting the right taste or texture.

### **6.1.5 *The influence of the buying environment on (impulsive) pulse buying and social norms.***

Lastly, this thesis briefly took into account the physical environment in which performances of buying pulses take place. Among others, De Bakker and Dagevos (2010) argued that the use of advertisement and attractive offers will drive plant-protein consumption. Seen from a practice theory perspective, they assume too much that buying food is driven by “rational decisions based on price and information about a product’s qualities” (Spurling et al., 2013, p. 7). Indeed, the relatively low price of pulse was in this thesis, just as in Canada (Ipsos Reid, 2010), not found to drive pulse consumption. Moreover, as identified in the previous chapter, in a well-established bundle of pulse consumption practices the performance of buying pulses is primarily driven by elements of the pulse eating and preparing practices, rather than on in-store decisions. This raises the question to what extent in-store product-promotion can be fruitful. The answer is most likely complex and partially beyond the scope of this thesis. Nevertheless, this thesis did provide insight into two ways through which stores play a role in the creation of familiarity with pulses.

Firstly, in the analysis, a non-routinized impulsive form of pulse buying was identified. The products bought in this practice are often ready-to-eat products that are new or in offer, bought for an occasional use, and not or hardly requiring any preparation. This practice provides an opportunity to expose the performers to the taste and application of pulses. However, for reaching

the desired regular consumption of pulses, I argue that in the long-run, it is still the inclusion of conserved and dried pulses in daily preparation routines that should be aimed for.

Secondly, the physical context in which buying takes place, functions as indicator of social norms on what foods are desirable and acceptable. In contrast to marketing, this is not about whether the pulses get advertised or made attractive, but about the amount of pulse types, forms, and brands, the space they take-up in shelves, and whether they are placed centrally in the store. In the observed ethnic stores for example, the large piles of bags with dried pulses indirectly communicate the message that buying, preparing and eating these pulses are commonly performed practices. In contrast, the so called pulse-unfriendly supermarket gave an impression of non-existence of pulse consumption. The absence of exposure to pulses in the latter store-type hampers positive norm-setting in the case that grocery shoppers structurally only make use of this store (chain). On the other hand, even regular customers of supermarkets with a rich pulse offer, do not automatically notice the offer: more likely, they routinely make their way through the store, not paying attention to the pulse products when they do not need anything from that aisle. In conclusion, product exposure in the buying environment might increase the shared meaning that pulse consumption is conventional in the Dutch diet. Making stores function as indicators of social norms regarding pulses, means improvement in the visibility and (in certain stores (chains)) the offer of pulse products.

Of course, exposure to pulses and consumption norms does not only take place in grocery stores. However, a low availability of pulses also has other implications. The locations in which pulses are bought, are not (just) a result of rational considerations of which stores offer best pulse products. Instead, pulse buying practices are tightly interwoven with other food buying practices, and these are structured around other daily activities like going to work and childcare. Hence, potential practitioners are more likely to take-up pulse practices when the buying can be integrated in existing routines. In the case of most locations in Almere, buying pulses does not require deviating from existing shopping routes. However, the pulse-unfriendly supermarkets again make a case for the need to increase the offer of pulse products in all food grocery stores.

## **6.2 Reflection on the practice theory approach**

A social practice approach was taken for creating and answering the research questions, because this approach offers an alternative to other theories on behavior that for instance rely too much on the rationality of behavior. Through taking this approach, not only rational motives, attitudes and emotions were taken as indicators for studying why people do or do not eat pulses. Such an approach would merely have led to intervention suggestions directed to convincing people rationally. Instead, this thesis also focused on for instance the context of these meanings: on how these relate to the social-cultural and material environment in which they were and are shaped. Moreover, by taking the social practice approach, the findings could be analyzed in terms of routines, interdependent practices and “culturally specific trajectories of what people do” (Shove et al., 2012, p. 79)(Shove et al., 2012, p. 79). Consequently, advice can be given regarding how interventions promoting pulse consumption can be aligned with existing routines. In conclusion, by taking a social practice approach, more holistic questions were asked and more holistic conclusion drawn.

Regarding the choice to use an extended version of Shove’s three elements model inspired on work of Spaargaren (2003), I will make two comments. Firstly, the three elements division is meant for enhancing understandings of how practices looks like. This model suited the research set-up,

because knowledge-creation was necessary as very little was yet known about pulse consumption practices in the Netherlands. However, as Shove et al. (2012) also argue themselves, this tearing apart approach creates on its own little understanding of how several elements and practices are interlinked, nor how new practitioners get recruited through social sharing. Unfortunately, Shove's successive steps towards creating these understandings, are –at least for a researcher who is not an expert in practice theories– less clear cut and directly applicable to practical research compared to the first step. This was dealt with by picking out those aspects that seemed most relevant to the case study, and using these as mental reference while analyzing and discussing the findings. Additionally, the inclusion of the elements 'institutional context' and 'lifestyle and identity', provided guidance for analyzing the observed practices in their material context, and in the context of cultural- and lifestyle-specific networks of practices. This created important understandings regarding how pulse consumption practices got, are and can be embedded in existing routines. Therefore, I argue that the theory as presented by Shove, Pantzar and Watson (2012), could use more hands-on methodological indications on how to –on the practice-as-performance level– conduct research on interlinkages and practitioner recruitment. This could help the use of the model in more practical research.

Secondly, also for composing suggestions for innovations and interventions, the earlier work of Shove et al. (2012) was somewhat hard to apply in practice. The authors themselves also state that social theories never lead directly to prescriptions for action. However, the collaborative work of Shove and colleagues (Spurling et al., 2013) gave more guidance. Their examples of policy approaches were insightful. Notwithstanding, the line separating behavior-oriented interventions from practice-oriented interventions, continued to be ambiguous in certain instances regarding practical implications.

### **6.3 Reflection on the methodological approach**

Studies using social practice theories, often take an ethnographic approach (Gherardi & Nicolini, 2002; Hargreaves, 2011). According Shove, however, "Using practice theory is (...) not directly tied to certain methods, but the choice of methods is –as always– dependent upon your specific research question" (Shove, 2017)). This thesis' methodological set-up was loosely inspired on ethnography, and a mixed methods approach was taken. I will now reflect on this research set-up.

The survey was chosen as research method to get an impression of general social conventions considering pulse consumption, as well as for broadening insights gained through the interviews. The conduction of a survey is somewhat unusual in a practice theory research design, as a survey can only ask for associations, motives and behaviors of which the respondent is aware. Moreover, through a survey, it is difficult to expose the complexity of social practices. In making use of the survey, I was aware of these limitations. Therefore, I only used the survey results as secondary data, interpreted the data through a practice theory lens, and did not use it for analyzing the complexities of practices. In this respect, I was able to use the survey for its intended purpose.

For the complex analysis, the interviews proved to be of good value. Through leaving room for the interviewees to 'tell their stories', interconnection between practice characteristics, and between practices and lifestyles, got exposed. According social practice theorist Nicolini (2012) however, only using interviews (and surveys) is in contradiction with the nature of a practice: a practice does not only exist of post-hoc verbal explanations of people performing a practice, but also of unconscious and systemic elements people might not be aware of. In the initial set-up, this thesis included observations of pulse buying and preparing performances, on top of the store-inventory

and practitioner-logbook. Due to time- and resource-constraints, this was eventually reduced to only the latter two. The literature research helped to create an understanding of the unconscious processes, which was used to compile the research instruments and to ask follow-up questions during the interviews.

This brings me to my last point. Due to the limited scope of a thesis, there was no room for studying the trajectory of pulse consumption practices over the course of Dutch history. This is a very interesting theme however, because it could create understandings of how infrastructural and institutional factors accounted for transformations in the practices, and for increases or decreases in their performances. These insights could then be used for statements about how to enhance the current uptake.

## **6.4 Reliability, faced challenges and generalizability**

### **6.4.1 Reliability and faced challenges**

The following paragraphs reflect on some decisions that were made and issues that occurred during the research process. With the establishment of the interview sample, attention was paid to recruiting both Dutch and non-Dutch, both no-meat eaters and meat eaters. This was due to the explorative character of the research. Though it was a bit of an optimistic aim for a sample of eight, except for missing one Dutch strict vegetarian, the aim got reached.

Studying practitioners with a non-Dutch background as experts of pulse consumption practices led to insights that could not have been acquired otherwise. However, limitations in time and resources prohibited the selection of just two or three specific ethnic sub-groups to focus the data collection on. Also, for practical reasons, the respondents were divided in Dutch and non-Dutch. As a result, no justice could be done to the multiple variations of pulse consumption within the non-Dutch group. A more specific focus on a few ethnic groups, could potentially have led to even more insight into the influence of cultural backgrounds. Moreover, the latter division meant that also respondents without a pulse-rich culture were included in the non-Dutch group. However, this involved only a very marginal amount ( $n=3$ ) of respondents of which two also got excluded for not consuming pulses in most of the analysis.

Regarding the survey sample, the assumption was that it would exist of average Almere citizens in terms of including both pulse consumers and not-pulse-consumers. However, the sample turned out to exist for 91% of pulse consumers, of which most indicated to be the main preparer of pulses in their household. Probably, this group felt most confident or motivated to participate in a survey about pulse consumption. As a result, the results could not be used to analyze social conventions shared among not-pulse-consumers. This matter was dealt with by keeping the focus on performers of pulse consumption practices.

Another issue that occurred during the survey sampling was that despite the introductory text, respondents kept including fresh legumes like green beans in their mental construct of pulses. As soon as this was recognized, respondents were also informed verbally about the intended scope. Yet, there were indications to believe that some responses were still somewhat biased by participants not actively separating pulses from other legumes. This could for instance have influenced the result of the question whether pulses are part of the Dutch diet (as fresh legumes are more commonly eaten).

Lastly, the data collection took place during an extraordinary hot period in summer. Therefore, logbook participants were asked to reflect on the representability of the logbook period for their

average consumption. Some participants indeed indicated that the hot summer and holiday period biased their frequency and nature of pulse consumption. This was reported on in the analysis.

#### **6.4.2 Generalizability of the results**

To what extent can the findings of this thesis be generalized to the population of Almere and to the Dutch society? As this thesis took a qualitative approach, its conclusions should also be approached as such: as providing in-depth understandings of complex phenomena, rather than as data that can directly be translated to the wider society. Nevertheless, it is useful to take a closer look at the extent to which the understandings of pulse consumption provided by this thesis are representative for Almere and to the extent to which they are bound to Almere.

The demographics of the survey sample were representative for the Almere population regarding age and ethnic background (CBS, 2019). However, the interview and survey samples were biased regarding the level of education of respondents, which was higher than average. This can mean that this thesis missed out on specific characteristics of pulse consumption practices as performed by people with a low educational level. Also, as already mentioned at the start of this chapter, the case study missed out on Dutch practitioners that got recruited through childhood exposure. This should be realized in respect to the generalizability of the case-study: the thesis provided first insights but does not cover all potential forms of pulse consumption practices and paths of recruitment.

Regarding the generalizability of the results to the rest of the Netherlands, I argue, that the pulse consumption practices as observed in this thesis are to a large extent not specifically bound to the population of Almere. Especially when looking at at-home eating and preparing of pulses, the key characteristics involved did not seem to rely on the city in which the practices are performed, but rather on the lifestyle and identity of the performers. Buying of pulses and the recruitment of new practitioners on the other hand, are to some degree location depended. Obviously, through differences in the degree of accessibility and availability of pulse products, certain towns and cities are more facilitating than others. Moreover, in areas with a relatively large group of inhabitants with a pulse-rich cultural background or with a vegetarian diet, exposure to pulse products and pulse consumers is likely to be higher than other areas. In contrast, in Dutch cities and towns with a predominantly conservative Dutch community, exposure is likely much lower. This could mean that shared meanings among these communities are more negative towards pulse consumption. However, this mainly regards the general social conventions around pulse consumption, which might inhibit the recruitment of new practitioners. How pulse consumption practices are performed is still likely to be relatively similar to how they are performed in other parts of the Netherlands by the same type of practitioner. Moreover, through vlogs, blogs, tv-shows and off-line sources, also the sharing of meanings is not purely spatially bound. Thus, pulse eating and preparing might be performed slightly different in other places in the Netherlands in response to the local availability of pulses and to a lower degree to local food practices, yet it is likely that these performances share enough elements to be seen as part of the same practice. In other words, it is assumable that the observed pulse eating and preparing practices are to a large extent generalizable to other parts of the Netherlands

Despite the limitations mentioned, I am confident about the robustness of the main results. In the next and final chapter, I conclude on these results with respect to the main research question and aim of the thesis.

# 7. Conclusion and recommendations

## 7.1 Conclusion

The aim of this thesis is to contribute to the protein-transition in the Netherlands, by enhancing the understanding of pulse consumption practices, in a way that serves future interventions to increase performances of pulse consumption practices. The main research question used to reach this aim was: which pulse consumption practice-characteristics can be expected to be most important to focus interventions stimulating pulse consumption on?

A practice theory approach was taken, in order to come to an understanding of pulse consumption that does justice to the complexity of this matter. First, an overview of pulse consumption characteristics identified in earlier studies was created, and themes of this thesis were introduced. Subsequently, detailed information on performances of pulse consumption practices was collected through interviews, surveys, logbooks and store observations. By studying pulse eating, preparing, and buying through the lens of social practice theories, this thesis was able to identify a number of key pulse consumption characteristics that are useful to focus on when developing effective intervention-strategies for stimulating pulse consumption. These characteristics are summarized below per theme.

Firstly, familiarity with the taste and application of pulses in a dish and diet is crucial for the recruitment and continued performance of these practices. Regular and positive childhood exposure whereby parents function as teachers of the practices, is a particular effective means through which life-long practitioners are recruited. Also regular exposure through the process of sharing dishes among friends and family is effective for familiarization. The two forms can occur separate but are strongest when combined. They create the meanings that consuming pulses is normal and accepted, and might lead to linking the practices with one's identity. Moreover, pulse dishes of foreign cuisines can stimulate the inclusion of pulses in Dutch eating patterns. Thus, exposure is most effective when it involves both meanings (e.g. eating pulses is tasty), competences (e.g. recipe knowledge and application understandings) and materials (e.g. pulse dishes).

Secondly, pulses have some general characteristics that are worth highlighting because they match meanings of modern food eating and preparing practices: they are healthy and can be applied in multiple ways. A more specific characteristic regards the convenience of conserved pulses for time-constrained and uncomplicated food preparing practices: they are easy, quick, and can be stocked as back-up for a last-minute meal. Almost the same applies for preparing fast dried pulses, though this practice is characterized by more advanced preparation competences. Lastly, preparing dried pulses is characterized by being time-consuming and competence-demanding, but valued for the preparation of specific (traditional) dishes. Lastly, kitchen tools reducing boiling (and soaking) time can potentially stimulate future performances of inherited practices of preparing dried pulses.

Thirdly, inclusion of pulse consumption practices in existing food consumption patterns requires focusing on different practice-characteristics depending on the respective protein diet and related practices. For inclusion in diets with a strong focus on meat, characteristics to focus on are, firstly, meanings regarding pulses fitting in a meat-rich diet, and general meanings of pulses being tasty, healthy and good for creating variety, while the meaning of pulses being for vegetarians should be avoided. Secondly, pulse-meat dishes and recipes could form a bridge between pulse and meat consumption practices, whereby both the experience of eating meat and a lower than average meat-portion are important to take into account. For inclusion in the meat reducing and meatless diets on

the other hand, meanings related to pulses as meat-replacers are, together with the just mentioned general meanings, a good starting point to focus intervention on. For a proper integration, the inclusion of pulses in a reduced meat or no-meat diet should be a self-evident result of following these diets. Pulse characteristics that match meanings of no-meat consumption practices could help hereby: pulses being rich in nutrients, containing comparatively little additives, and being hardly processed. Moreover, meat reducers are likely to be both receptive for approaches targeting full-time meat eaters and those targeting no-meat eaters. Lastly, pulse consumption can be linked to other environmental friendly practices.

Fourthly, for increasing familiarity and as providers of knowledge and preparation skills, recipes for pulse dishes and their material sources are important material characteristics to focus intervention on. Again, for exposing non-practitioners, these characteristics should be in line with their current routines of searching and choosing recipes. Moreover, other characteristics important in practices of preparing pulses, are competences in the form of basic understanding how to apply conserved and fast dried pulses in an improvised dish, and basic and advanced understanding of how dried pulses function.

Lastly, regarding pulse buying practices, it should be taken into account that performances of pulse buying are mostly planned in forehand, and that pulse buying is strongly interconnected with performances of pulse eating and preparing practices, as well as with other buying practices. On the other hand however, impulsive buying practices provide opportunities for exposing people to pulse products. Regarding the buying environment, visibility, variety and plurality of pulse products, preferably in all conventional food stores, is desirable for the sake of material and normative exposure leading to broader familiarity with pulse consumption.

These conclusions are a contribution to the scientific and practical understanding of how pulse consumption looks like in the Netherlands, and of which aspects are important to focus on for the stimulation of pulse consumption. Consequently, the aim of this thesis to contribute to the protein-transition in the Netherlands is met on a theoretical scientific level.

The conclusions are also relevant for (non)governmental organizations that aim to stimulate healthier and more sustainable consumption patterns, or more specifically aim to accelerate the protein transition in the Netherlands, as well as for businesses that operate in the market of pulse products or plant-based protein-sources in general.

For practically reaching this aim, the findings of this thesis need to truly get implemented in intervention strategies and get carried out by concerned parties. The next section will therefore exemplify how this could be done. The chapter ends with recommendations for further research.

## 7.2 So what does this mean for intervention?

Many specific and broad strategies can be designed based on the characteristics summarized above. Here, I give advice on how some of the core aspects can be integrated into a strategy. I recommend intervention strategies to focus on the following three<sup>9</sup> general aspects:

1. Increasing **familiarity** through exposure to the taste of pulses and their applications in dishes. Aiming for young families is especially advisable, but also general society-wide familiarization and normalization.

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<sup>9</sup>. For keeping the intervention suggestions concise, I left out suggestions regarding the role pulses can play in reducing the amount of meat eaten in meat-rich diets. This is however another interesting track for intervention strategies.



2. Aiming for tightly linking pulse consumption to lifestyle **trends of convenience cooking and lowering meat in one's diet**. This includes making and presenting pulses as being compatible to other convenience food products and other meat-replacers.
3. Increasing people's **skills and knowhow** for preparing (improvised) dishes with conserved and fast-cooking dried pulses.

Addressing these aspects simultaneously would enhance the effectiveness of all aspects. There is not one stakeholders that can do this. This means that collaboration of several actors to agree on a common communication strategy, and on the timing of the communication and marketing of new products, is advisable. An alliance between several stakeholders, like the already established *Green Protein Alliance* and *Dutch Cuisine*, could drive such collaboration when tailored to increasing pulse consumption. The below presented list is not an exhaustive list of all possible interventions. Instead, the list illustrates how some of the identified aspects can be implemented by different stakeholders.

**Influencers & recipe providers** (e.g. bloggers, you-tubers, known chefs) have a large influence on their followers, which are often young families, and indirectly on other media. They can play an important role in fostering preparation competences and setting norms regarding pulses belonging to certain diets. More specifically they can do this by:

- Sharing knowledge about general applications of pulses, and about how to prepare fast-cooking dried pulses
- Presenting pulses as self-evident part of a busy lifestyle ('*Long day? Use pulses!*') and/ or of a reduced meat or meatless diet
- Communicating that pulses are tasty, healthy, and create texture-variety
- Share both recipes for pulse dishes with meat and without meat, e.g. using iconic-dishes from traditionally pulse-rich cuisines

For reaching people not yet eating pulses, it is important that information and recipes are presented in a way that they are found through searching terms that do not include pulses.

**NGO's and semi-governmental organizations** (e.g. Gezondheidsraad, Voedingscentrum, Natuur & Milieu) can play a role in familiarization through:

- Giving special attention to pulses in: dietary guidelines of government-, business-, and school canteens; dietary guidelines for parents; educational programs on healthy food
- Informing other stakeholders on the need for, and benefits of, increasing pulse consumption
- Supporting initiatives specialized on stimulating / increasing familiarity with pulse consumption

**Pulse manufacturers** can improve the fit of pulses in mentioned lifestyle developments. They can do this through developing a wider range of:

- Conserved pulses with various textures for different applications
- Products that meet the demand for healthy food, like products with little or no preservatives
- Fast-cooking dried pulses
- Ready-to-use products that can compete with other convenience products and meat-replacers. Pre-cooked pre-seasoned pulses could for instance compete with pre-seasoned meat or meat-replacers for being used in the same circumstances

Additionally, in responding to the trend of using convenience products, manufacturers could seek partnership with developers of seasoning mixes and sauces, to develop such products specified to different meat and no-meat pulse dishes. Also, clear instructions on the effects of different preparation methods, on the packages of fast-cooking dried pulses, could enhance the proficiency of (potential) practitioners. Lastly, marketing should be specified to creating meanings and understandings about application in one's diet.

### **7.3 Recommendations for further research**

Based on what was discussed in the previous chapter, several recommendations for further research can be done. Further research could usefully:

- continue to explore pulse consumption through narrowing down to one or two practitioner groups identified through my explorative research.
- examine paths of recruitment and reproduction of pulse consumption practices more closely. Studying Dutch that got raised eating pulses, would for instance be useful for increasing understandings of the effect of childhood exposure on adult pulse consumption among Dutch. This could for instance be done by means of a longitudinal research design.
- study trajectories of pulse consumption practices over the course of Dutch history.
- investigate the potential of pulse-meat dishes for increasing pulse consumption and reducing meat consumption.
- investigate the potential of pressure and slow cookers as bridge between busy-lifestyles and the preparation of dried pulses.
- make use of direct observations of performances, for investigating unconscious aspects of pulse consumption. Simultaneously, over-analyzing how the practices look-like should be avoided through zooming-out on their context.

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# Appendices

## Appendix I. Indicators of practice characteristics

Survey = S    Interview = I    Logbook = L    O= Store Observation

<b>Materials</b>			
<b>Theme</b>	<b>Indicator</b>	<b>Instrument</b>	<b>Operationalization</b>
Pulse type and form used	Type use	S, I & L	Type of pulses consume(d) most (in the last year) chapter for definition pulses. Open question was
	Form use	S & L	The form of pulses consumed mostly: dried; can/ meat-replacer; cooked from package; as part of r processed in spread. Form was described as “typ
Performance frequencies	Frequency eating	S & L	The frequency in which pulse eating practices are from (almost) never to few/more than three times
	Frequency preparing	L	The frequency in which pulse preparing practices
	Frequency buying	S & I	The frequency in which pulse buying practices are from (almost) never to few/more than three times
Information sources	Material sources preparing	S & I	Usage of material information sources for recipes methods for preparing pulses. Material sources are sources: online articles, online video’s, cooking b other material sources.
	Social sources preparing	S & I	Usage of material information sources for recipes methods for preparing pulses. Social sources are providing information: family, friends or acquaint source..
	Type information	S & I	The type of information acquired form an inform as recipes or as preparation techniques / cooking was kept in mind that these categories can overla dishes often include information on the preparati
Pulse dishes	Dish type	L & I	Type of dishes in which pulses are used, e.g. sala
	Dish complexity	Analysis	Degree of preparation complexity of a dish.
	Preparation-time	L	Time spend on preparing a pulse dish, excluding
Buying locations	Buying locations	I	Food stores where pulses are bought, categorized supermarket, ethnic store (also named ‘toko’), or
Kitchen equipment	Kitchen equipment	I	Kitchen equipment used for preparing pulses. Or equipment (predominantly used for preparing pu
Main preparer pulses	Main preparer pulses	S & L	Who mainly prepares the pulses in the household

<sup>10</sup>The term “indirect” refers to the notion that the material information sources are indirectly also social sources: it are practitioners that share pulse preparation instructions and recipes with other practitioners, via online or offline material sources.

<b>Meanings</b>			
<b>Theme</b>	<b>Indicator</b>	<b>Inst.</b>	<b>Operationalization</b>
Pulse type and form preferred	Type preference	S & I	The indicators 'type preference' were used. Types are preferred over others.
	Form preference	I	The indicators 'form preference' were used. Forms are preferred over others.
Taste	Taste Motive	S & I	Consumption pulses for liking their taste (taste motive)
	Taste association	S	Association of pulses with a good taste
Availability satisfaction	Satisfaction variety	S & I	Satisfaction of the respondents with the variety of pulses they visit.
	Ease access	I	Level of difficulty for practitioners to get pulses
	Satisfaction packaging	I	Satisfaction of practitioners with the size of the supermarkets
Motives consumption	Top-of-mind motives	S & I	Open question on the main reasons for preparing pulses to uncover possible typical-Dutch motives. The question was asked before the closed motives question. Respondents would answer conform these motives.
	Daily motives consumption	L	Motives for practitioners to prepare pulses
	Non-consumers motives	S	Conscious barriers for non-consumers to consume pulses
	Motive start practice	I	Conscious factors that stimulated the practice of preparing pulses
Top-of-mind associations	Top-of-mind associations	S & I	Open question on the first associations respondents have with pulses. The question was asked before the motives question. Respondents would answer conform these associations.
Healthiness	Health association	S & I	Association of pulses with healthiness. In the questionnaire, a reversed statement (pulses are unhealthy) was used.
	Healthiness motive	S & I	Consumption of pulses because of their healthiness
Plant protein source	Protein Motive	S & I	Consumption of pulses because of their protein content
Convenience	Convenience motive	S & I	Consumption of pulses because of their ease of use. Operationalised with the agreement to the statement 'I buy pulses because they are easy to use'.
	Convenience association dried	S & I	Convenience of dried pulses in preparation. Respondents would answer conform these associations.
	Busy life association	I	Perceiving dried pulses to be suitable for busy life was depending on respondents own judgement.
	Shelf-life motive	S & I	Buying pulses because they have a long shelf-life
Affordability	Affordability motive	S & I	Consuming pulses because they are cheap
	Affordability association	S & I	Associating pulses with being an affordable product
Environmental considerations	Environment motive	S & I	Consuming pulses because eating them is good for the environment
	Environment association	S & I	Believing that eating pulses is good for the environment. Operationalised with a reversed question 'I buy pulses because they are bad for the environment'.
Perceived appropriateness	Appropriateness personal diet	S	Whether respondents think pulses fit in their personal diet

	Perceived norm	S & I	Whether practitioners perceive it as some environment to eat pulses
Flatulence	Flatulence experience	S & I	Experiencing issues with flatulence when as “a bloating feeling or flatulence”.
	Flatulence barrier	S & I	Whether flatulence is preventing further
Consumption occasion	Consumption days	I & L	The part of the week (weekdays and week
	Meal type	L	Meal where pulses are used. Operational snack.
	Consumption setting	L	Location where pulses are eaten (home, family).
	Appropriateness festive occasion	S & I	Perceiving pulses to be suitable food for
	Seasonality	I	The influence of winter versus summer c
Cuisine preference	Cuisine preference	I, S & L	Particular cuisines according which puls
	Cuisine association	I	Cuisines with which pulses are associate
	Part of dish motive	S & I	Consuming pulses because they are part
Social motive	Social motive	S & I	Consuming pulses because a partner or c
Motivation increasing consumption	Motivation increasing consumption	S & I	Whether there is the wish to eat more pu

## Competences

Theme	Indicator	Inst.	Operationalization
Basic competences preparing pulses	Know-how canned	S	The presence of basic know-how and skill practice of preparing canned pulses.
	Know-how dried	S & I	The presence of basic know-how and skill practice of preparing dried pulses.
	Ease preparation	I	Whether the preparation of pulses is refe
Recipe competences	Preparation expectation	S & I	The expectation to eat more pulses if kno
	Recipe knowledge	S	Knowing recipes for pulse dishes.
	Recipe expectation	S & I	Expecting to eat more pulses if knowing
Advanced preparation competences	Know-how cooking-time	I	Using tricks to reduce the cooking-time
	Know-how flatulence	I	Using tricks to decrease the occurrence o
	Know-how sprouting & fermenting	I	Having experience with sprouting and/or
Advanced knowledge	Knowledge health-benefits	I	Possessing correct knowledge regarding nutritional benefits).
	Knowledge environmental benefits	I	Knowing why eating pulses is good for t
Meal planning competences	Preparing planning	S & I	Being able to remember to cook with pu

	competences		
	Preparing planning time-investment	I	How much in forehand the preparation of
	Buying planning competences	S & I	Being able to remember to buy pulses.
Soaking performances	Soaking usage	L & I	Whether dried pulses are soaked before
	Soaking timing	I	How long pulses are soaked and how str this soaking-time.

<b>Identity and lifestyle</b>			
<b>Theme</b>	<b>Indicator</b>	<b>Inst.</b>	<b>Operationalization</b>
Cultural identity and lifestyle	Cultural identity	S & I	With which group, land or region respondents comes down to their (eating)habits, customs
	Culture as motive	S & I	Consuming pulses because they are part
	Perceived appropriateness culture	I	Seeing pulses as part of the traditional and
	Perceived influence culture	I	Reflection on the influence of one's culture on consumption.
	Influence culture on preparation	I	Whether the cultural background influences
	Perceived influence Almere / NI	I	Reflection on the influence of living in Almere compared to country of origin (only asked for NI)
	Cultural cuisine preference	I	Extend to which practitioner sticks to the consuming pulses.
Past exposure	Learning source	S & I	From whom or how practitioners learned to cook: dad; grandparent(s); other family-members
	Childhood exposure	I	Regular eating of pulses in childhood.
	Childhood memories	I	Having positive memories linked to eating pulses
Present exposure	Present exposure	S & I	Whether there are other practitioners in the household
	Social sharing eating	L	With whom practitioners eat pulse-dishes
	Social sharing preparing	I	Whether preparing pulses is performed alone or together
Protein diet	Protein diet	S & I	Respondents were divided in "frequent meat eaters" (eating meat >6x/week), "meat reducers" (eating meat <6x/week), "vegetarian or vegan".
	Role in meal	I	The way pulses are eaten: as meat-replacement, as meat, or independent of meat in vegetarian/vegan diet
	Vegetarianism Motive	S & I	Consuming pulses because they are vegetarian/vegan friendly
	Influence meatless diet	I	Perceived relationship between eating no meat and consuming pulses to no-meat eating practitioners.
Meat preference	Replaceability meat	S & I	Finding pulses an acceptable meat-replacement for meat-eating practitioners

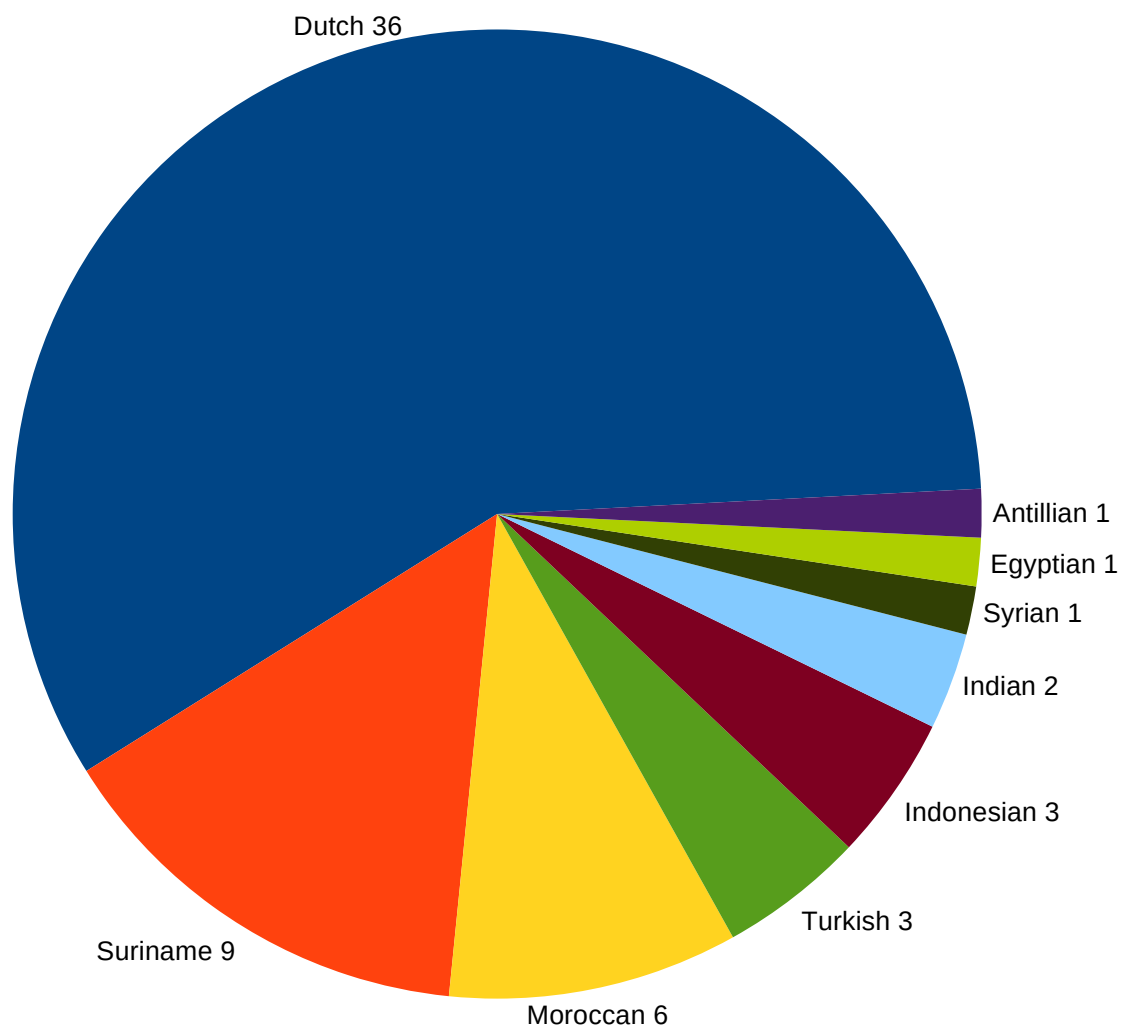
	Meat preference	S & I	Preferring meat over pulses. Only asked
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<b>Institutional context</b>			
<b>Theme</b>	<b>Indicator</b>	<b>Instrument</b>	<b>Operationalization</b>
Public images	Image Old-Fashioned	S & I	Image of eating pulses being old-fa
	Image Poor man's meat	S & I	Image of eating pulses being for the
	Image Vegetarian food	S & I	Image of eating pulses being (mostl
Meat in the Dutch food culture	Meat culture	I	Perception of the role of pulses in the role of meat
	Fit in meat-diet	S	Thinking that pulses fit in a meat-b
Dutch pulse culture	Image Dutch pulse culture	I	Image of eating pulses being part of
	Fit in Dutch diet	I & S	Meaning regarding whether pulses
Pulse supply	Types offer	O	Inventory of types of pulses available between stores
	Form offer	O	Inventory of form of pulses available between stores
	Variation offer	O	The level of variation in brands and p selected stores, and comparison betw
	Product placement	O	Reflection on the placement of dried a prominence in store and easy-to-find.





## Appendix II. Cultural backgrounds of survey respondents



*In numbers of survey respondents*

### **Appendix III. Background information interview participants**

Claudia is 38, and lives with her husband and two young daughters. She has a university degree and works part-time. She has a Dutch nationality, but she does not strongly identify as being Dutch. She enjoys cooking a lot and likes trying out new food and cooking dishes from several cuisines. She also likes to eat healthy and tries to reduce her meat consumption for health and environmental reasons. Also her family likes pulses, and sometimes Claudia involves her daughters in making for instance humus.

Errol is 57 and lives with a housemate for which he cooks. He has three adult children who do not live at home anymore. He has secondary vocational educational degree and works full-time. He was born in Suriname and moved to the Netherlands in his youth. He feels strongly connected to the Suriname culture and is involved in the Suriname community in Almere. Errol likes cooking a lot, especially when he can prepare food on request for a party. He likes to cook according the Surinamese-Creole or Kantonese cuisine.

Faten is 35 and lives with her husband in Wageningen since two years. Before, she lived in Syria, where she was born. She has a university degree and is now occupied with learning Dutch and English, and taking care of the household. She prefers cooking Syrian food, and likes cooking dishes that her husband fancies, even when they take a bit more time. Furthermore, for health reasons, she prefers to eat plant proteins instead of meat a few times a week.

Gerda is 66 and lives with her adult daughter, son-in-law and two grant-children. Gerda's parents are Dutch and Indonesian, but she identifies strongly with the Suriname culture. Her son-in-law is Surinamese and her daughter is half-Surinamese. She has a secondary vocational degree and used to work full-time, but is now retired. Gerda likes cooking Surinamese and mixed-cuisine-dishes for her family, and experiments with preparing nutritious vegetarian dishes for her daughter, while also preparing meat for the rest of the family.

Linda is 64. She is Dutch and grew-up eating the typical potatoes-vegetables-meat dishes. She has a higher professional degree but is now retired. She did and still does travel a lot to other countries for holidays, and has tried many cuisines. At home however, she likes keeping her dishes simple but healthy . Occasionally she cooks several meals to freeze the rest for a quick healthy dinner on a busy day. She cooks dishes from several cuisines but always with a Dutch twist and always with meat.

Sabina is 52 and lives with her son and husband. She has a higher professional degree and works part-time. Her parents are Dutch and Italian, but identifies herself rather as Dutch. The dishes she cooks are from several cuisines but with a personal twist. Sabina takes particular care of what she eats, because she does a lot of sports and is sensitive to certain food. Hence, she actively searches for protein-rich foods and does not want to eat meat often. With her self-invented pulse dishes, she now-and-then manages to also let her 'men' eat pulses instead of meat.

Shelly is 36, comes from North-India, and lives with her son and husband. They moved to Almere in 2018 and previously lived in England for four years. Shelly has higher professional degree and takes care of the household. She mainly cooking traditional dishes from the North- and South-Indian cuisine. She does not mind waking-up early sometimes, to put pulses in the pressure cooker for them to be finished for breakfast.

Ulrich is 51, has a pre-university degree and works full-time. He lives with his wife and two children, and has an other child that does no longer live at home. Ulrich was born in Suriname and moved to the Netherlands in adulthood. He likes to spend time in his community garden and also grows many fresh beans there. He cooks both according the Surinamese and multiple foreign cuisines, but when preparing pulses, he mainly sticks to typical Creole-Surinamese dishes.

## Appendix IV. Box 5

### *Box 5. In-depth: Gerda, pulse consumption in-between cultures and diets*

Gerda's case exemplifies how a mix between the inherited and noninherited eating practice can arise, when people adopt a new cultural identity in later life. Gerda's case also exemplifies how a family-member's dietary preferences can influence the pulse consumption practices of all family-members. Gerda lives with her daughter, son-in-law and two grand-children, and is mostly cooking for the family.

Gerda was raised in a Dutch-Indonesian family, and does not recall eating much pulses in her youth. However, as a result of her relationship with a Surinamese man, she adopted Suriname consumption practices, among which the practices of preparing and eating typical Surinamese dishes with brown and white beans. Her prolonged exposure to a performer of the inherited pulse eating practice, as well as his social network of pulse consumers, was thus a key stimulant for becoming a practitioner herself. Accordingly, she was the only Dutch practitioner indicating "because they are part of the cuisine of my culture" to be a main reason for her pulse consumption, thereby referring to the Suriname culture.

However, her associations and motives got broader after her adult daughter decided to become a vegetarian. In line with the Surinamese cuisine, Gerda's pulse-dishes had always included meat. Half a year ago however, her daughter decided to switch to a vegetarian diet. Now, Gerda uses pulses as protein alternative for her daughter and experiments with several types. The whole family eats pulses more frequently now. However, Gerda illustrates how important it is for fervent meat eaters to combine pulses with meat: though she cooks vegetarian for her daughter, she still adds meat to the pulse dishes for her and the rest of the family, arguing that this is the way she learned to cook pulses.

# Appendix V. Interview guide

## Introduction

To start with, I will explain you once again what the logbook and interview are all about. As you probably already know, these are part of my graduation research from my master's program at the University of Wageningen. I conduct research into how people consume pulses in the Netherlands, with the aim of being able to make statements about how we can stimulate the overall consumption of pulses in the Netherlands. Because I focus my research on the population of Almere, it can also be added to a growing collection of research on the theme of food consumption in Almere. In this interview, I want to discuss different aspects of your pulses eating, cooking and buying practices with you. If a question is not clear, please let me know immediately. Then I will try to explain the question. The interview will take about 1 hour. If you agree, I would like to record the conversation. In this way, I can focus on the conversation and questions instead of on writing down the answers. Are you okay with me recoding the interview Then finally, if you are interested in the results of the research, I will give you a summary of the research report when I am finished. Shall we start then?

### A. Reflection Logbook period

Let's start with a brief reflection on the logbook period.

If you look back on the past few weeks in which you kept the logbook, do you think these weeks are a good reflection of how and how often you normally eat pulses?

- *If not the same:* – In what way was this period different? -Why?
  - Do you think that the number of times you have cooked pulses corresponds to how often you normally would cook pulses in a month? How much more or less? – Amount? – Type?
- Do you think your pulse consumption is different in the summer (or holiday period) than in the winter?

### Main questions

#### B. General consumption\_\_ (Goal: *stimulating memory, first information pulse consumption*)

To make it easier to answer the next questions, I would like you to remember the last time that you cooked beans, peas or lentils at home.

1. Can you describe what you made? (When was this? How did you prepare it? What type of dish?)

2. Do you eat *...mentioned pulse-type...* more often?

- a. Do you eat also other types of beans, peas and lentils regularly?
  - *Show info sheet and let him/her indicate how often he/she eats compared to other types*
- b. And which type of pulses do you prefer to eat most?
  - *In case of difference:* Why do you also eat the other types? Is the following playing a role?
    - Budget – Family member's preference – For the diversity?

3. From what kind of packaging came the pulses? By that, I mean whether they came from tin or glass, or whether they were dried, or from a different kind of packaging.

- a. Are the pulses that you use, usually from canned / glass / pack / dried?

---

→ *If always same:* \* Why do you prefer this form?

---

→ *If divers:* \* Why do you use which type of package? (To what extent does it depend on the situation, for which type of packaging you choose?)

---

→ *If normally different:* \* Why was it different this time?  
\* What type do you usually prefer and why?

---

- b. → *Show info sheet forms pulses*. Do you ever use one of these types of packaging?
  - Do you ever use ready-made pulse products, like hummus, falafel, or a soup?
- c. To what extent does it depend on the situation, for which type of packaging you choose?
- 

### Preference cuisines

The following questions are about having a preference for a certain kitchen and the possible influence of your social and cultural environment.

4. Do you have a favorite kitchen or some favorite kitchen(s) according to which you like to cook when you cook with pulses? (Opt. explain: *With kitchen I mean, for example, French, Mexican or Armenian cuisine*).

→ <i>Yes, 1 favorite kitchen</i>	Do you also make dishes with pulses from another kitchen? → <i>If no</i> : Do you only use pulses that fit in this cuisine? (or do you use every type of pulses you want and adjust the recipe to this?) → <i>If yes</i> : To what extent does it depend on the type of pulses according which kitchen/cuisine you cook?
→ <i>Yes, more favorite kitchens</i>	To what extent does it depend on the type of pulses according which kitchen/cuisine you cook? → <i>If it depends</i> : Can you give me an example of which pulses you use for which cuisine?
→ No preference/ Very diverse pref.	To what extent does it depend on the type of pulses according which kitchen/cuisine you cook?

Exposure \_\_\_\_\_ and \_\_\_\_\_ perceived \_\_\_\_\_ norm

5. Do people in your surrounding regularly eat pulses, like friends or family?

– *If yes*: \* Whom? – Also other people?

6. Could you say it is seen in your social environment as normal to eat pulses regularly?

Influence \_\_\_\_\_ cultural \_\_\_\_\_ background \_\_\_\_\_ > \_\_\_\_\_ For \_\_\_\_\_ Dutch

7.1. To what extent do you think that the fact that you are Dutch affects your cooking and eating habits

- Much influence: In what way? / Little influence: Why not?
- Do you often make typical Dutch dishes?

7.2 Do you think that pulses are part of the current Dutch diet? Why yes / no?

• And do you see pulses as part of the eating pattern? (What is meant by "traditional" and "past" depends on the interpretation of the interviewee)

Influence cultural background > for non-Dutch

7. You are originally from Suriname/Indonesia/India. To what extent do you feel connected to this heritage?

- Were you born in the Netherlands? Are you parents both from Suriname/Indonesia/India?
- Do you think this affects/influences your pulse cooking and eating habits?  
– *If "Yes"*: In what way?  
– *If "No"*: Why not?

- a. Does it make a difference to which group in Suriname/Indonesia/India you belong?

- b. How often do you eat a pulse-dish from your region? → *Choose from the following answers:* "Almost always"; "mostly"; "Half half"; "Once in a while"; "Almost never"
- c. Do you prepare those according traditional preparation methods?

8. In what way do pulses belong to the traditional cuisine of ....?

- And in what way do they belong to the current cuisine?

9. To what extent do you think the fact that you live in Almere (/ Netherlands) influences your diet?

- Do you feel you had to adjust your way of eating beans, peas and lentils?

10. Do you have childhood memories of eating beans, lentils and / or peas

→ *If yes:*

- a. What kind of memory is this? Can you tell me more about this?
- b. Did you, as far as you can remember, regularly eat pulses?
  - Who prepared them for you?
  - Could you say that you have learned to cook pulses from this person(s)?
    - *Yes* → Are there other people whom might have stimulated you to eat pulses?
    - *No* → From whom, or how, did you then learn to cook pulses?
      - Are there certain people whom might have stimulated you to eat pulses?

→ *If no:*

- d. Does this mean that you think you ate little pulses in your youth?

### **Materials and the use of them**

#### Information source for the preparation of pulses

11. (*Only for interviewees who did not yet indicate who taught them to cook with pulses*):

- How did you learn how to prepare pulses?
- *Continue asking:* Are there certain people whom might have stimulated you to eat pulses?
  - *As taught self:* what stimulated you to learn it yourself? Did you learn everything yourself?
  - *If (s)he does not know* → When did you start eating pulses?

12. Do you ever use material sources of information to know how you can best prepare pulses? This are, for example, online articles or cookbooks?

- Do you ever use (*ask further in all cases*):

Online articles	Videos or cooking show	Packaging	Cooking books	Shop magazine or an other cooking magazine
-----------------	------------------------	-----------	---------------	--

- *If* yes → For what do you use this source?
  - For recipes, for cooking instructions, or for both?

13. Do you ever use the knowledge of friends or family for the preparation of pulses?

- *If* yes → From whom? In what way?
  - What kind of information do these people give you? → Recipes, Cook instructions, or Both

14. Do you ever cook pulses with someone? How often?

15. Do you expect that you would prepare more pulses if you knew more recipes?

- *Ask further* → Why? ; Would you like to eat more pulses then you do now? ; Do you know where to find new recipes?

16. Do you expect that you would prepare more pulses if you knew better how to prepare them?

#### Use of kitchen tools

17. If you think of the tools you use to prepare pulses, do you have kitchen tools/ utensils that you mainly use for cooking with pulses?

→ Ask for the kitchen utensils that are used especially for pulse dishes

**Use and practices**

**Diet**

18. What is most applicable to you? I eat ....

- 6-7 times per week meat or fish
- 3-5 times per week meat or fish
- less than 3 times per week meat or fish
- (Mainly) vegetarian
- (Mainly) vegan

19 → Vegetarians:	* A. Do you think that the fact that you eat vegetarian influences that you eat pulses? If so, in what way?
	* B. How long are you already vegetarian?
	* C. Did you eat as many pulses before you became a vegetarian?

The \_\_\_\_\_ role \_\_\_\_\_ of \_\_\_\_\_ pulses

20. The next question is about the role pulses usually have in your meal. Pulses can take various roles in the meal and I would like to know how much you use them in those roles.

1. The first role is in combination with meat (*With vegetarians: "This question can be skipped for you"*). Do you ever use pulses in combination with meat in the same dish? (Like the lebanees fasoulia, a stew with meat and beans combined)

2. Regarding the second role: do you ever use pulses as a substitute for meat in dishes that would normally be prepared with meat? (For example, a bolognese sauce made with lentils instead of meat?)

3. Finally, regarding the third role: do you use pulses as an ingredient in dishes that are naturally vegetarian, so which there should originally also not be any meat in it? (like for example falafel)

- Of the three mentioned roles that pulses can have in a dish, which ones do they usually have in your dishes? [Or do I overlook a role?]

21. Do you see a difference in the role pulses have in the Dutch society/ eating culture, compared to India / Syria/ Suiname?

**Associations** \_\_\_\_\_ **and** \_\_\_\_\_ **motives**

The next questions are both about the associations you do or do not have with pulses and about what motivates you to buy, cook and eat pulses.

Associations \_\_\_\_\_ pulses

22. Firstly, I would like to know what is the first thing that comes to mind when you think about eating pulses. This can for example be a memory, emotion, or a certain type of kitchen or dish. - Ask further

23. Are there certain kitchens with which you associate beans, peas and lentils?

Motives \_\_\_\_\_ pulse \_\_\_\_\_ consumption

Now we continue with your motives for eating pulses.

24. To begin with, what are your main reasons for eating pulses?

→ Ask further: – What makes that you find them so...? ;What do you mean with this exactly? ; – can you give me an example?

*Motive Meter*





35. "Because they are easy to prepare"
- Why is this reason here ? (and not higher or lower?)
  - Were you thinking about dried pulses, from can or jar, or an other version/packaging?
  - What do you find (not) easy about this form of pulses?
36. It is sometimes said that dried pulses cost too much time, or that they are too difficult to prepare.
- What do you think of that?; Do you find it difficult to prepare dried pulses? Why (not)?; Do you think they cost a lot of time?
  - Do you recognize the statement that using dried pulses does not fit in a busy life?
  - Are dried pulses something for the weekend or during the week?
37. pulses generally have a long shelf-life. Does this play a role for you to buy them?

Statements about associations and images

Now I will propose a number of statements to you, and I would like you to indicate whether you agree or not agree, and why.

38 "Pulses are old-fashioned"

→ Ask further: *If yes*, does this make them unattractive? ;

*If no*, do you understand where this saying comes from?

39 "Pulses are suitable for festive occasions, such as when friends or family visit, or something to celebrate".

→ Ask further: Why yes or no?

40. And finally, to what extent does the following statement apply to you? "It has been an active decision to regularly eat pulses. In other words, this is something I consciously chose for at a certain moment".

→ *If not, or if there is ambiguity: do one of the following statements fit better?*

2. The fact that I regularly eat pulses, has as far as I can remember always been that way.
3. The regular eating of pulses, has slowly become a habit (has slowly crept into me).

Role meat culture

41. It is sometimes said that pulses in the Netherlands compete with meat on the plate, because both are rich sources of protein and meat is deep in the culture.

- How do you think the relation between meat and pulses is in Syria / India ?

42. Do you think pulses with in the current Dutch food culture?

→ <i>Meat eaters:</i>	
	43. Would you mind if the meat you eat was to be replaced one extra day a week with beans, peas or lentils?
	44. To what extent can you find yourself in the following statement "Whenever possible, I choose meat over pulses" → Choose from: "Always", "Usually", "Sometimes", "Never"

45. My literature review also showed that pulses are sometimes seen as a substitute for meat for those who can not afford meat. What is your opinion about this?

*Opt explanation: In some countries it is a sign of wealth when eating meat, because meat is expensive, pulses are then poor man's food, Even when the economic status of the population has improved, such associations sometimes remain in the cultural views.*

->Ask further: To what extent do you think this is the case in the Netherlands?

Competences and planning

Now, a number of questions follow that have to do with the knowledge and skills of you, as person who

regularly consumes pulses, has. I want to assure you that it is okay if you have no knowledge about something, or if you do not understand the question. If so, just let me know.

46. If you think back to the past few weeks. How long in advance did you usually know that you were going to prepare pulses? (How long in advance do you usually plan to eat pulses?)

- If you compare the preparation of pulses, in terms of planning, with the preparation of other dishes, is there any difference?

---

*Q for users of dried pulses*

---

47. Using dried pulses is often accompanied by soaking the pulses; Do you soak your dried pulses?

---

→ *Zo ja:* \*a. When did you start with soaking, the last time you soaked pulses?

\*b. Are you paying attention to the exact hours that you soak them? Do you have an exact amount of hours that you soak pulses?

\*c. Do you soak all pulses always?

---

→ *Zo nee:* \* d. Why not?

– Do you not think this is needed?

– How do you than get your pulses soft?

---

48. Do you do something specific to lower the cooking time of the dried pulses? *Ask further*

49. Do you sometimes let your pulses ferment or germinate on purpose?

50. Would you like to eat more pulses than you do now? → *Let choose:* Very much; Yes; No; Certainly not

To what extent can you recognize yourself in these statements:

51. “Despite my intention to eat pulses, I sometimes forget to cook with them”

52. “Forgetting to buy them, is a reason that I do not eat more pulses than I do now”.

Shopping and offer

53. Who usually buys the pulses for your household?

54. Where are they bought/ do you buy your pulses mostly?

- Why here?
- Is this also where you like to buy them most?
- Is this the same place than where you do the rest of your other shopping? If yes, why is this different?

55. How often are the pulses purchased in your household?

56. Are you satisfied with the variety in the range of pulses in the stores where you come?

- Why yes / no?
- Do you find it difficult to get the pulses of your choice?

**C. Lastly: Demographic characteristics**

1. What is you age?

2. What is your highest education?

- Maximaal Basis onderwijs
- VMBO/MAVO/LBO
- MBO/ HAVO/ VWO (MTS, MEAO,HBS, MMS)

◦ HBO/ WO

3. What is your occupation (Ask further if answer is broad)

4. With whom are you sharing your household?
























5. If you are okay with it, I might also want to use quotes from our interview to make the report more lively. Your name and other details will still remain anonymous. Do you agree?

6. *Does person still need background information about the topics discussed?*

## Appendix VI. Information sheets accompanying survey and interview – Dutch

### Informatie blad Soorten Peulvruchten

Wereldwijd bestaan honderden varianten van peulvruchten, waaronder veel locale varianten. Deze varianten vallen onder te verdelen in pinda's, soyabonen en pulses. Ik richt mij in mijn studie op pulses. Pulses zijn onder te verdelen in niet verse bonen, erwten en linzen.

<b>Bonen</b>				
<p>Aduki boon (Adzuki)</p> 	<p>Boterboon (Limaboon)</p> 	<p>Borlotti boon (Cranberry bean/ Romano)</p> 	<p>Bruine boon</p> 	<p>Grote witte boon (Cannelli)</p> 
<p>Kievitsboon (Pinto bean)</p> 	<p>Mungboon</p> 	<p>Rode Kidneyboon (Nierboon)</p> 	<p>Gedroogde Tuinbonen (Broad-/ Favabeans)</p> 	<p>Witte boon (Navy / Haricot)</p> 
<p>Zwarte boon (Preto)</p> 	<p>Zwarte Oogboon (Black eyed bean)</p> 	<p>Lupine boon</p> 		
<b>Erwten</b>				
<p>Groene erwt</p> 	<p>Groene spliterwt</p> 	<p>Gele spliterwt (Toor dal)</p> 	<p>Kapucijner (Grauwe erwt)</p> 	<p>Kikkererwt</p> 
<b>Linzen</b>				
<p>Bruine linzen</p> 	<p>Rode / gele split linzen (Masoor dal)</p> 	<p>Dupuis linzen (Puy / Berg linzen)</p> 	<p>Groene linzen</p> 	<p>Zwarte Beluga linzen</p> 

## Informatie blad Peulvrucht verpakkingen

 <p style="text-align: center;"><b><u>Gedroogd uit pak</u></b></p>	<p><b><u>Uit blik of glas</u></b></p>  	
<p style="text-align: center;"><b><u>Verwerkt als spread</u></b></p> 	<p style="text-align: center;"><b><u>Gekookt uit pak</u></b></p> 	<p style="text-align: center;"><b><u>Verwerkt in burger</u></b></p> 
<p><b><u>Kant-en-klaar-maaltijd</u></b></p>   		

## Appendix VII. Logbook pulse eating and preparing

### Logboek peulvruchten consumptie

Naam logboek houder: .....

Begindatum logboek: .....

Einddatum logboek: .....

#### Introductie

Beste deelnemer, dit logboek is onderdeel van mijn afstudeeronderzoek van mijn master opleiding. Ik doe onderzoek naar hoe en waarom men in Nederlandse peulvruchten consumeert, met als doel de peulvruchten consumptie te stimuleren. De resultaten van mijn onderzoek komen mogelijk in een database, welke toegankelijk is voor studenten en medewerkers van de Wageningen Universiteit. Uw gegevens blijven uiteraard anoniem. Ik kan uw hulp goed gebruiken en waardeer uw medewerking ontzettend!

#### Wat van u verwacht wordt

Zou u zo vriendelijk willen zijn om elke keer dat u peulvruchten gegeten heeft, een nieuwe bladzijde van het logboek volledig in te vullen? Peulvruchten zijn in deze studie niet-verse bonen, linzen of (kikker)erwten. Sojabonen, pinda's en verse erwten en bonen vallen buiten mijn onderzoek en hoeft u niet te rapporteren. Voor het invullen kunt u gebruik maken van de informatiebladen 'Soorten peulvruchten' en 'Peulvrucht verpakkingen'.

Ik vraag u om het dagboek gedurende vier weken in te vullen. Elke week zal ik u een kort bericht sturen, om u te helpen herinneren aan het invullen en om te controleren of alles duidelijk is. Mocht u tussendoor nog vragen hebben, laat mij dit dan alstublieft direct weten via mail, telefoon of WhatsApp.

Zoals afgesproken zal ik na de vier weken van het logboek een interview bij u afnemen, waarin ik dieper in zal gaan op uw redenen voor en meningen over het kopen, koken en eten van peulvruchten. Houd alstublieft uw agenda vrij op het afgesproken moment van het interview.

Alvast ontzettend bedankt voor uw medewerking aan mijn onderzoek!

Keri van den Heuvel

Email-adres: [Peulvruchtenalmere@gmail.com](mailto:Peulvruchtenalmere@gmail.com)

Telefoonnummer: -----

*This text was header a the next page: Logboek invulformulier. Vul dit logboek alstublieft direct in na het klaarmaken of eten van een maaltijd met bonen, linzen of (kikker)erwten.*

<b>Datum:</b> .....		
<b>Welk type peulvrucht heeft u gegeten?</b>	Type: .....	
<b>Welke vorm van verpakking?</b>	<input type="radio"/> Gedroogd <input type="radio"/> Blik/glas <input type="radio"/> Anders, namelijk: .....	
Indien gedroogd: zijn ze geweekt voor het koken?		<input type="radio"/> Nee <input type="radio"/> Ja
<b>Waar heeft u de peulvruchten gegeten?</b>	<input type="radio"/> Thuis <input type="radio"/> Bij vrienden of familie <input type="radio"/> In restaurant <input type="radio"/> A	
<b>Met wie heeft u de peulvruchten gegeten?</b> (geef aub de relatie aan, bijv. "man" of "buurvrouw")		.....
<b>Voor welke maaltijd heeft u ze gegeten?</b>	<input type="radio"/> Ontbijt <input type="radio"/> Lunch <input type="radio"/> Avondeten <input type="radio"/> Tussendoor	
<b>Wie heeft de peulvruchten bereid?</b>	<input type="radio"/> Ik <input type="radio"/> Partner <input type="radio"/> Huisgenoot <input type="radio"/> Anders, nam	
<b>Hoe zijn ze bereid?</b>	<input type="radio"/> Gekookt <input type="radio"/> Gestoomd <input type="radio"/> Gebakken <input type="radio"/> Gefrituurd	
<b>Hoe lang duurde de bereiding van het gerecht (exl. tijd voor weken)</b>		<input type="radio"/> 0-15 min <input type="radio"/> 15-30 min <input type="radio"/> 30
<b>Tot welke keuken behoort het gerecht (regio, land of volk)?</b>		.....
<b>Indien u gekookt heeft, waarom besloot u voor vandaag peulvruchten te bereiden?</b> .....		
.....		
<b>Geef alstublieft een korte beschrijving van het peulvruchten-gerecht</b>	Naam gerecht .....	Type gerecht (.....
Ingrediënten .....		Beschrijving gerecht .....
.....		.....
.....		.....

## Appendix VIII. Paper survey pulse consumption – Dutch

*Note: At each page of the paper survey, the location of the survey conduction and a respondent number was noted. The actual font-size was 12 and the 'start vragenlijst' was presented on a new page.*

### Peulvruchten consumptie in Nederland

**Introductietekst.** Deze vragenlijst is onderdeel van mijn afstudeeronderzoek van mijn master opleiding aan de Wageningen Universiteit. Ik doe onderzoek naar hoe de Nederlandse consument peulvruchten consumeert en tegen peulvruchten consumptie aankijkt. De resultaten van mijn onderzoek komen mogelijk in een database, welke toegankelijk is voor studenten en medewerkers van de Wageningen Universiteit. Uw gegevens blijven echter ten alle tijden anoniem.

Zou u zo vriendelijk willen zijn op elke vraag antwoord te geven en de vragenlijst naar waarheid in te vullen?

Ontzettend bedankt voor uw medewerking aan mijn onderzoek

Keri van den Heuvel

### Demografische karakteristieken

1. Wat is uw geslacht? Man / vrouw / anders
2. Wat is uw leeftijd? .....
3. Wat is uw hoogst genoten opleiding?
  - Maximaal Basis onderwijs
  - VMBO/MAVO/LBO
  - MBO/ HAVO/ VWO ( (MTS, MEAO,HBS, MMS)
  - HBO/ WO
4. Met hoeveel personen boven 1 jaar oud deelt u uw huishouden? .....

### Start Vragenlijst

**Peulvruchten is in dit onderzoek een verzamelnaam voor niet-verse bonen, erwten en linzen. De volgende vragen hebben geen betrekking op sojabonen, pinda's, verse bonen of verse erwten.**

1. Wat is het eerste dat in u op komt wanneer u aan bonen, erwten en linzen denkt?  
*Noem maximaal 4 associaties*

.....  
.....

2. Eet u weleens peulvruchten thuis, dat wil zeggen: bonen, erwten of linzen? *Denk hierbij ook aan bijvoorbeeld erwtensoep of chili met bonen.*

- Ja → *Ga verder met vraag 3*
- Nee → *Wat zijn voor u hoofdredenen om géén peulvruchten te eten? Noem maximaal 4 redenen*

.....  
.....



*Ga nu verder naar vraag 17*



3. Hoe vaak heeft u het afgelopen jaar thuis peulvruchten gegeten? Denk aan uw ontbijt, middageten, avondeten en snacks.

- |                                |                       |                           |                          |                             |
|--------------------------------|-----------------------|---------------------------|--------------------------|-----------------------------|
| Minder dan 1 keer<br>per maand | 1 keer per<br>maand   | 3 tot 4 keer<br>per maand | 1 tot 2 keer<br>per week | Meer dan 3<br>keer per week |
| <input type="radio"/>          | <input type="radio"/> | <input type="radio"/>     | <input type="radio"/>    | <input type="radio"/>       |

4. Welke peulvruchten at u het meeste in het afgelopen jaar? Noteer alstublieft alleen de soorten die u regelmatig at. U kunt voor de namen van de peulvruchten gebruik maken van het aparte informatie blad "Soorten Peulvruchten"

.....  
 .....

Voorkeuren en motieven

5. Welke peulvruchten eet u het liefst? Noem maximaal 5 soorten

.....  
 .....

Motieven

6. Wat zijn voor u de hoofdredenen om peulvruchten te eten? Noem maximaal 4 redenen.

.....  
 .....

7. Uit welk soort verpakking komen de peulvruchten die u eet meestal? Voor de namen van de verpakkingen kunt gebruik maken van het aparte informatie blad "Peulvrucht verpakkingen".

- |   |  |
|---|--|
| <input type="radio"/> Gedroogd                          | <input type="radio"/> Als onderdeel van kant-en-klaar maaltijd |
| <input type="radio"/> Uit blik/glas                     | <input type="radio"/> Verwerkt in spread                       |
| <input type="radio"/> Verwerkt in burger/vleesvervanger | <input type="radio"/> Weet ik echt niet                        |
| <input type="radio"/> Gekookt uit pak                   | <input type="radio"/> Anders, namelijk .....                   |
|   | .....  |

8. Hier volgen een aantal uitspraken. De vraag is in hoeverre deze zaken redenen zijn dat u peulvruchten eet. Geef bij elke reden aan in hoeverre deze op u van toepassing is.

Ik eet peulvruchten omdat...	Oneens	Beetje oneens	Niet eens of oneens	Beetje eens	Eens
Omdat ik ze lekker vind	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Omdat ze gezond zijn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Omdat ze makkelijk klaar te maken zijn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Omdat ze goedkoop zijn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Omdat het eten ervan goed is voor het milieu	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Omdat ze onderdeel van een gerecht zijn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Omdat ze een bron van eiwit zijn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Omdat ze vegetarisch zijn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Omdat een medebewoner ze graag eet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Omdat ze onderdeel zijn van het eetpatroon van	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

mijn cultuur					
--------------	--	--	--	--	--

Kopen \_\_\_\_\_ van \_\_\_\_\_ peulvruchten

9. Hoe vaak werden er gemiddeld in het afgelopen jaar peulvruchten gekocht in uw huishouden?

- |                            |                           |   |                            |                          |                       |
|----------------------------|---------------------------|---|----------------------------|--------------------------|-----------------------|
| Meerdere keren<br>per week | Ongeveer eens<br>per week | Ongeveer twee<br>tot drie keer per<br>maand | Ongeveer eens<br>per maand | Enkele keren per<br>jaar | Zelden of nooit       |
| <input type="radio"/>      | <input type="radio"/>     | <input type="radio"/>                       | <input type="radio"/>      | <input type="radio"/>    | <input type="radio"/> |

De volgende vraag is alleen voor als u zelf peulvruchten koopt of beslist dat deze gekocht worden voor het huishouden. Als dit niet het geval is, ga dan verder met vraag 11.

10. In hoeverre bent u het eens met de volgende stelling?  
“De lange houdbaarheid van peulvruchten is een hoofdreden dat ik ze koop”

- |                       |                       |                       |                       |      |
|-----------------------|-----------------------|-----------------------|-----------------------|------|
| Oneens                | Beetje oneens         | Eens noch oneens      | Beetje eens           | Eens |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |      |

Bereiden \_\_\_\_\_ van \_\_\_\_\_ peulvruchten

11. Wie maakt of maken de peulvruchten meestal klaar in uw huishouden? *U kunt meerdere antwoorden geven.*

- |                       |                                   |
|-----------------------|-----------------------------------|
| <input type="radio"/> | Ik                                |
| <input type="radio"/> | Mijn partner                      |
| <input type="radio"/> | Mijn huisgenoot(en)               |
| <input type="radio"/> | Ander familie lid, namelijk ..... |
| <input type="radio"/> | Anders, namelijk .....            |

12. Heeft u het afgelopen jaar wel eens peulvruchten klaargemaakt ?  
 Nee → *ga naar vraag 17*

Ja → *ga verder met de volgende vraag*

Informatie \_\_\_\_\_ bronnen

13. Maakt u wel eens gebruik van een informatie bron voor het bereiden van peulvruchten? Een informatie bron kan voor recepten gebruikt worden, maar ook voor technieken voor het bereiden van peulvruchten. *Zo ja, geef dan alstublieft aan welke bron of bronnen u het meest gebruikt.*

- |   |   |
|---|---|
| <input type="radio"/> Online artikelen        | <input type="radio"/> Vriend(in) of kennis  |
| <input type="radio"/> Online instructie video | <input type="radio"/> Andere sociale bron, namelijk .....                             |
| <input type="radio"/> Kookboek                | <input type="radio"/> Andere materiële bron, namelijk .....                           |
| <input type="radio"/> Supermarkt-magazine     | <input type="radio"/> Nee, ik maak nooit gebruik van informatie bronnen bij het koken |
| <input type="radio"/> Familie lid             |   |

*Ga door met vraag 16*

14. Voor welke informatie gebruikt u deze bron(nen)?

- Bereidingstechnieken / kookinstructies

○ Recepten

15. Van wie heeft u geleerd om peulvruchten te koken?

- Zelf aangeleerd
- Van mijn grootouder(s)
- Van een ander familie lid
- Van mijn moeder
- Van mijn vader
- Van een vriend(in)
- Van iemand anders, namelijk .....

16. Heeft u een favoriete keuken volgens welke u kookt wanneer u met peulvruchten kookt, en zo ja, is dit nog afhankelijk van het type peulvrucht? *Vult u alstublieft ook de stippelijntjes in wanneer uw antwoord 'ja' is*

- Nee, geen voorkeur voor een bepaalde keuken
- Ja, onafhankelijk van het type peulvrucht, namelijk: .....
- Ja, afhankelijk van het type peulvrucht, bijvoorbeeld .....

Mening peulvruchten

17. Hieronder staan een aantal uitspraken. Het gaat hierbij niet om wat anderen er van vinden maar om uw eigen opvatting. Sommigen lijken dubbel ten opzichte van vraag 8, maar het verschil is dat het hier niet om uw redenen om peulvruchten te eten gaat. *Markeer per vraag het antwoord dat het het beste bij uw mening past.*

	Oneens	Beetje oneens	Eens noch oneens	Beetje eens	Eens	Echt geen idee
Gedroogde peulvruchten zijn handig	○	○	○	○	○	○
Peulvruchten smaken lekker	○	○	○	○	○	○
Peulvruchten zijn een betaalbare bron van eiwit	○	○	○	○	○	○
Het eten van peulvruchten is <u>ongezond</u>	○	○	○	○	○	○
Het eten van peulvruchten is ouderwets	○	○	○	○	○	○
Peulvruchten passen in de Nederlandse eetcultuur	○	○	○	○	○	○
Peulvruchten zijn geschikt voor een feestelijke gelegenheid	○	○	○	○	○	○
Peulvruchten passen in mijn eetpatroon	○	○	○	○	○	○
Het eten van peulvruchten is <u>niet</u> goed voor het milieu	○	○	○	○	○	○
Ik ben tevreden met de variatie in het aanbod van peulvruchten in de winkels waar ik mijn boodschappen doe	○	○	○	○	○	○

Peulvruchten, vlees en eetpatroon

18. Wat is het meest van toepassing op u? (Het gaat om uw hoofdmaaltijd)

- Ik eet hoofdzakelijk veganistisch
- Ik eet hoofdzakelijk vegetarisch
- Ik eet 3 tot 5 keer per week vlees of vis
- Ik eet 6 tot 7 keer per week vlees of vis

- Ik eet minder als 3 keer per week vlees of vis

19. De volgende stellingen gaan over de relatie tussen peulvruchten en vlees. Geef alstublieft opnieuw aan welk antwoord het meest op u van toepassing is

	Oneens	Beetje oneens	Eens noch oneens	Beetje eens	Eens	N.v.t.
Peulvruchten zijn voor wanneer je geen vlees kunt betalen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Wanneer ik aan peulvruchten denk, denk ik aan vegetarisch eten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Peulvruchten passen in een op vlees gebaseerd eetpatroon	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Ik zou het niet erg vinden als 1 keer per week het vlees in mijn hoofdmaaltijd vervangen wordt door peulvruchten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wanneer mogelijk, verkies ik vlees boven bonen, erwten of linzen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Winderigheid

20. Heeft u in het verleden last gehad van een opgeblazen gevoel of winderigheid als gevolg van het eten van peulvruchten, en zo ja, houd dit u tegen om (meer) peulvruchten te eten?

- Ik heb in het verleden geen opgeblazen gevoel of winderigheid ervaren
- Ik heb een opgeblazen gevoel of winderigheid ervaren, maar dit houdt mij niet tegen peulvruchten te eten
- Ik heb een opgeblazen gevoel of winderigheid ervaren, en dit houdt mij tegen peulvruchten te eten
- Ik weet niet of ik een opgeblazen gevoel of winderigheid heb ervaren
- Ik heb nog nooit peulvruchten gegeten

### Competenties en barrières

21. Kent u recepten met bonen, erwten of linzen erin?
- Ja
  - Nee
  - Weet ik niet

22. *Kruis bij de volgende twee vragen alstublieft het antwoord aan dat het meest van toepassing is.*

1 = Geen ervaring      3 = Ervaring  
2 = Een beetje ervaring      4 = Veel ervaring

	1	2	3	4
a. Heeft u ervaring met het bereiden van bonen, (kikker)erwten of linzen uit blik of glas?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Heeft u ervaring met het bereiden van gedroogde bonen (kikker)erwten of linzen?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. De volgende stellingen gaan over hindernissen om vaker peulvruchten te eten. Geef alstublieft steeds aan welk antwoord het meest op u van toepassing is.

	Oneens	Beetje oneens	Eens noch oneens	Beetje eens	Eens

Ik verwacht dat ik meer peulvruchten zou eten als ik beter zou weten hoe ze klaar te maken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik verwacht dat ik meer peulvruchten zou eten als ik meer recepten zou kennen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het vergeten om ze te kopen is een reden dat ik niet meer peulvruchten consumeer dan ik nu doe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vergeet om met peulvruchten te koken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik zou graag meer peulvruchten eten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Sociale omgeving

**24.** Eten mensen in uw directe omgeving regelmatig peulvruchten? Zo ja, wie?  
 Ja, namelijk .....

Nee

Weet ik niet

**25.** Is het in uw sociale omgeving normaal om peulvruchten te eten?

Heel Normaal	Normaal	Niet zo Normaal	Helemaal niet Normaal	Weet ik echt niet
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**26.** Hoe zou u uw culturele achtergrond omschrijven? In andere woorden, met welke groepering, land of regio voelt u zich het meest verbonden als het gaat om uw (eet)gewoonten, gebruiken, normen en waarden? .

.....

.....

Tot slot

**27.** Heeft u nog opmerkingen met betrekking tot de vragen of het onderwerp van de vragenlijst?

.....

.....