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1. Background

1.1. Purpose of the study

The purpose of the study was to investigate the consumer's perceptions of current and alternative protein sources. At these early stages of the ScenoProt project, Makery decided it was best to start the investigation by arranging focus groups, which give qualitative information about the current views of consumers.

In later stages the information gathered in this qualitative study will be used in planning the quantitative studies.

1.2. Recruitment and implementation

Three focus groups were held in March, four groups in June. Three groups of vegetarians, four groups of omnivorous people. Eight participants were recruited for each group. On average 7 participants showed up for each group.

The focus group discussions were arranged in Pasila, Helsinki. Each discussion lasted between 75 and 90 minutes.

- Group 1, March 8, omnivorous, 7 participants, 4 female, 3 male, ages 27-63
- Group 2, March 8, omnivorous, 7 participants, 4 female, 3 male, ages 23-60
- Group 3, March 15, vegetarians, 7 participants, 4 female, 3 male, ages 21-56
- Group 4, June 15, omnivorous, 8 participants, 4 female, 4 male, ages 28-57
- Group 5, June 15, vegetarians, 6 participants, 4 female, 2 male, ages 26-33
- Group 6, June 16, vegetarians, 8 participants, 5 female, 3 male, ages 23-42
- Group 7, June 16, omnivorous, 7 participants, 4 female, 3 male, ages 25-61

The goal of the recruitment was to get groups of even gender and age distribution. Participants were required to have some interest in nutrition and that they do at least part of the grocery shopping and cooking in their household.

Recruitment was done by a combination of recruiting from Makery's consumer panel and street recruitment. A few participants were also recruited through snowball sampling.

The greatest challenge in recruitment was finding older vegetarians and male vegetarians. As a result the age distribution of the vegetarians is smaller than the age distribution of the omnivorous respondents.

1.3. The flow of the discussion

The discussion in the groups started with introductory rounds where participants told about themselves and described their diet.

General discussion about protein followed with participants identifying protein sources in their diets and in general. They were asked about plant-based protein sources spontaneously and then guided. They discussed Finnish plant-based protein sources.

The discussion then moved to the barriers and drivers for buying and using plant-based proteins. Each focus group discussion then finished with short discussions about insects as nutrition and cultured meat.

2. Discussions

A part of the recruitment criteria was that the respondents should be to some extent interested in nutrition and that they shop for food and cook at least occasionally. As a result most participants were perhaps slightly better informed, and more open to experimenting with food than the average person. That said, the participants had very different backgrounds and cooking habits. There were those who rarely cook from scratch, merely heating ready-made foods, and there were those who say cooking is their hobby and that they cook nearly every day. Some say they follow the nutritional values of the meals closely, others couldn't care less.

In the vegetarian groups participants represented different levels of vegetarianism. There were participants who were vegans, but there were also participants who use dairy products and eggs. Some even eat fish. One said he never buys meat products but will eat meat that would otherwise be wasted, such as meat products from dumpsters. Ethical and environmental concerns are the main reason for being vegetarian.

2.1. Protein sources

When asked to give examples of protein sources most groups started with the obvious meat, fish, eggs, and dairy products. Beans, peas and lentils usually followed. Soy products were also mentioned without assisting in all groups. In vegetarian groups the plant-based sources of protein were usually mentioned first.

Protein sources that were mentioned spontaneously in some groups include spinach, broccoli, seitan, quorn, nuts, seeds, mushroom, chickpeas, hemp, and seaweed.

Many groups also mentioned Gold & Green pulled oats, even though only one participant has so far had the chance to taste it. Everyone had heard of it though, and almost everyone was interested in trying it.

The combined knowledge about protein sources in the groups is very good and in general participants seem to be quite familiar with all the protein sources available.

2.2. Plant-based protein sources

When asked about plant-based protein sources the first ones that came to mind were soy and other beans. They were mentioned in every group. Also peas were among the most familiar protein plants. Most groups also mentioned nuts and lentils.

Seaweed didn't generally come to mind for the respondents. For most participants seaweed was familiar only through sushi. When prompted, spirulina was a familiar name for most participants, but not one that people spontaneously associate with plant-based protein.

In the vegetarian groups chickpeas were often mentioned as a protein source, as were mushrooms, Quorn and seitan. Hemp seeds were also familiar to many vegetarians.

2.3. Domestic plant-based protein sources

Spontaneously naming domestic sources of plant-based protein was difficult for some groups, while others were able to name at least a few without trouble. Vegetarians were better at recognizing protein plants and which ones are grown in Finland.

The most often mentioned domestic plant-based protein sources were beans, peas, and broad beans. Other sources that were mentioned included wheat, sunflower seeds, pumpkin seeds, nettle, and mushrooms. Also pulled oats were mentioned again in this context.

Assisted recognition of domestic plant-based protein sources was much better than the spontaneous recognition.

- Broad beans.
 - The name is familiar to everyone.
 - Practically all the vegetarians have tried broad beans or use them regularly. Vegetarians use them crushed in cooking, ground in pastes or in vegetarian patties. Some have used broad beans instead of chickpeas for example in falafel.
 - The non-vegetarians are familiar with the name and many have tried it. Some even grow their own broad beans. Many have tried it in lunch restaurants, while some non-vegetarians have not tried broad beans at all.
- Quinoa
 - Quinoa as a name is slightly less known than broad beans, but it is nevertheless familiar for most participants. Also, some participants thought quinoa to be quite expensive.
 - Often quinoa was familiar to the participants, but they did not think that it could also be grown in Finland.

- Most vegetarians are quite regular users of quinoa. It is familiar as a rice substitute, in salads, or as part of vegetarian patties.
- Non-vegetarians have tried quinoa in lunch restaurants and some at home instead of rice but in general they are much less frequent users of quinoa than vegetarians.
- Blue lupin
 - Blue lupin is practically unknown among all the participants. Only a few vegetarians remembered seeing blue lupin as an ingredient in some vegetarian protein products. One participant remembered seeing lupin milk in Germany.
- Peas
 - Peas are of course familiar to everyone. They are used fresh, dried, and frozen. Especially pea soup is popular. Peas are by far the best known domestic plant-based protein source.
- Buckwheat
 - Everyone is familiar with the name, but not everyone has tried buckwheat in their own cooking.
 - Few non-vegetarians have tried buckwheat. It is known best as an important ingredient in blinis. Some eat buckwheat in porridge too.
 - Vegetarians eat buckwheat more than non-vegetarians. It is used in porridge, but also as a substitute for rice in some dishes. One participant even mentioned making sushi with buckwheat instead of rice.
 - Buckwheat is not so much associated with protein as it is with a gluten-free diet.
- Canola
 - Everyone is familiar with canola as oil, but no-one has heard that it could be a source of protein. Many were also confused about what part of the plant or in what form it should be consumed to get protein.
- Hemp
 - Everyone knows hemp by name. However, very few non-vegetarians have used it cooking or were even aware that it contains protein.
 - Vegetarians were a bit divided in their knowledge of hemp. There were vegetarians who knew no more about hemp than the meat-eaters, but there were some who consume quite a lot of hemp. It is often used crushed in cooking or for example as a part of smoothies. Vegetarian restaurants and fast-food places use a lot of hemp
- Flax
 - Everyone is familiar with flax seeds. Quite many use them regularly. Most participants, however, were not aware that flax is a source of protein. Flax is much more known for its fiber content and used mostly because of fiber. There's no difference between vegetarians and non-vegetarians in this sense.

2.4. Barriers

The participants were asked to think about the barriers that stop them from using more plant-based protein products.

- Especially non-vegetarians have the perception that vegetarian food is very difficult, laborious or time-consuming to prepare. They often think that beans and soy products need hours of soaking or that the products need germinating. Even some vegetarians were frustrated with the long time that some vegetarian foods take to prepare.
- Unfamiliarity of the products is a problem for vegetarians and non-vegetarians alike. There are people who actively seek new unfamiliar products to try, but most people are reluctant to try products that they know nothing or little about. People will try new food products only after they have tried them in a restaurant or elsewhere.
- Non-vegetarians think of vegetables as side dishes. They would have to change their thinking to consider plants the main component of a meal.
- Lack of knowledge on how to prepare some foods is stopping many people from trying them. It is much easier to prepare familiar foods than to try something new. Many claim that lack of recipes is stopping them from trying new products, but others say that recipes are readily available online for those who truly are interested.
- Some non-vegetarians would like to eat more vegetarian food, but their family members are opposed to the idea. Some say their own cultural background is stopping them from decreasing the amount of meat in their diet.
- Price is mentioned as a barrier especially by vegetarians. While vegetables are not considered expensive, processed plant-based protein products are often seen as very expensive, especially in comparison with similar non-vegetarian products.
- Availability is a problem. Geographically people think that plant-based protein products are only available in the largest city areas. Even in the cities the products are not always available in the basic grocery stores. Admittedly, there are specialty stores where everything is available but even for vegetarians the barrier of going to a specialty store for grocery shopping instead of their closest basic store is high.
- Another availability problem is that even when the products are available in the corner store, they might be “hidden” in the aisles so that they are difficult to find. At least they are placed so that one doesn’t pay attention to them.
- Package sizes often form a barrier. Most people would like to try new products in a small package when they are not sure about how much they like it. Singles and couples without children prefer small packages at all times. On the other hand people with children would buy larger packages if they were available.

2.5. Drivers

The participants were asked to think about the drivers that draw them to buy and use plant-based protein products, or drivers that could draw them to buy more.

- Taste must be good. This is the most important driver for any food product.
- Ecological concerns. Plant-based protein is thought to be better than meat.
- Tastings would be essential in making products known and lowering the threshold of buying new products. Everyone would welcome the chance to try the products before making the decision to buy it.
- Recipes and usage ideas are important to inspire experimentation. Cooking shows and food blogs are sources of cooking ideas for many participants.
- Lower prices would of course encourage more experimentation with new products.
- Advertising is needed to make the products known and to give consumers ideas.
- Better presentation in stores would increase sales.
 - Opinions are slightly divided on what is better presentation. Everyone agrees that products need to be easier to find, but what is the best way to accomplish that is not so clear.
 - Some like the idea of a separate “plant protein” department in a store, with everything in one place.
 - Others think it would be better to scatter the products into the same places as their meat-based counterparts, and then somehow mark the plant-based products clearly on the edge of the shelf or the on the product package itself.
- Packages should have basic usage instructions and recipes.
- Ecological packaging is important especially for vegetarians.
- Small packages are good for first time experimentation. Otherwise package size can depend on how long the product stays good. A long lasting product can be sold in a larger package.
- Ready-made meals based on plant proteins would certainly increase interest in plant-based protein products. Ready meals would lower the threshold of experimenting for non-vegetarians, but also most of the vegetarians say they sometimes wish there were more ready-made options for vegetarians.
- Semi-prepared products such as cut and seasoned tofu ready for wokking, would be very interesting for many participants.
- There is a relatively good selection of vegetarian frozen meals and components available, but more options would not hurt. The vegans said the options were mostly vegetarian but rarely vegan, meaning they often contain cheese or other milk products.
- Products that are ready to eat without preparation and that don’t require re Fridgeration would be interesting.

2.6. Communication

The participants discussed what they thought should be emphasized and what should avoided when plant-based protein products are advertised or otherwise publicly discussed.

- As with all food, taste is the most important thing that should be discussed. Quality is almost equally important. Non-vegetarians often have a perception that vegetarian food tastes bad or bland, so taste is definitely important to emphasize.
- Usage of the product, how it is used and what for. These are issues that are important especially when the product is not very familiar already. Ease of use is important to many participants, and when a product is easy to use, it should be made very clear.
- Substituting meat should not be emphasized in communication. Communication should focus on the product itself, not on what it substitutes. Saying that a product substitutes something makes it feel like the second best option. An exception is when a product is specifically designed to look and taste like meat and is used to replace the meat component in a meal, for example a vegetarian hamburger patty.
- Origin is important to mention. Origin becomes extra important when the product is domestic. Finns really have a tendency to favor Finnish products.
- Ecology and environmental friendliness. A large majority feels that these are important issues and should be communicated. However, there are some who fear that these issues have been overemphasized for too long, and “rubbing it in people’s faces” could be counter-productive.
- The carbon footprint of the product is very important to some participants and they feel strongly that it should be discussed on the package. Others are indifferent.
- Genetic modification worries some people and they would like products to be marked to show if they contain GMO components or not.
- Animal rights are important to vegetarians, but even they think it’s not necessary to speak about animal rights in relation to individual products. Non-vegetarians also feel that discussing animal rights could feel like assigning guilt on meat-eaters.
- Healthiness is good to mention in communication. Plant-based protein products are seen as healthy and this perception should be strengthened.
- Non-vegetarians often think that vegetarian food is not filling. Communication should emphasize the sturdiness and heartiness of vegetarian food and avoid the cliché of just picturing salad when talking about vegetarian food.
- Celebrity chefs and sports stars would be good spokespeople for plant-based protein products. Chefs could make and design vegetarian foods that are better than the stereotypical salads and cream soups and are more suitable for families with children. Athletes could show by example that meat is not necessary for strength and performance.
- Discussing that people should stop eating meat and become vegetarians is not good approach. It will make meat-eaters feel guilty and is likely to be counter-productive. One should promote plant-based protein as any other food emphasizing its strengths such as taste, protein content, and healthiness. When people try plant-based protein out of genuine interest with high expectations, the result will be much better than making people feel guilty about eating meat and pressuring them to move to plant-based proteins.
- If the price is reasonable it should be communicated clearly. The general perception is that as “speciality” products plant-based proteins are expensive.

2.7. Future of plant-based protein sources

Everyone agrees that the use of plant-based protein sources will increase in the future, and that the plant portion of all protein consumed will increase. Some even expect plant-based protein to form the majority of protein consumed sometime in the future.

The change is expected to start with younger generations and residents of larger cities. Ecology is strong trend and plant-based protein fits that trend very well. Vegetarian food is seen as the “next level”. The amount of vegetarians is not necessarily expected to grow, but non-vegetarians are expected to eat more vegetarian food and less meat in the future.

The selection of available plant-based proteins is expected to grow and diversify, “not just soy anymore”.

Pulled oats is mentioned again. Meat eaters might replace some meat with it, if it is as good as expected.

2.8. Insects

Insect protein divides opinions strongly. Only a few participants had tasted insects before. Many felt very strongly that they would never even consider eating insects. There was slightly less resistance when asked if they would eat insect protein if it was served in way that the source was not recognizable as insects. Many remained reluctant even in that case.

People also have very little knowledge of insects as nutrition and about how to use them for food. Much more information is needed to convince them about eating insects.

The ethics of insect eating was problematic for vegetarians. Some felt that not eating animals automatically covered insects too, and would not even consider eating them for that reason. Others saw no problem with insect eating. Almost all vegetarians agreed that ethically eating insects is a better option than eating farmed animals.

2.9. Cultured meat

To many even the idea of cultured meat was unfamiliar. Reactions to it were very skeptical. Cultured meat was thought of as sci-fi and being “too far from nature”. Developing it seemed unnecessary and expensive. Vegetarians saw no need for it as they don’t miss meat and claim that meat makes them feel unwell.

Ethically most participant saw no problem with cultured meat, though some were worried about energy consumption in the production. Most agreed though, that if the production someday were developed to a level where cultured meat was at the same price as real meat, they would consider using it instead of meat from animals.

3. Summary and conclusions

3.1. Familiarity of protein sources

Consumers seem to be fairly well aware where protein comes from in their diets and in general. Knowledge of plant-based protein sources is not great but very bad either. The most common sources of plant-based protein, such as soy, other beans, peas, nuts, and lentils, are well recognized. The unassisted recognition of domestic plant-based protein sources is not that great. More education on what plant-based protein sources can be grown in Finland is needed. Some sources such as canola, flax seeds, and buckwheat were very familiar to everyone, but not many know that they are sources of protein. Education is needed if these are to be used as protein components in a product.

However, awareness of the plant-based protein sources does not necessarily mean that people are very familiar with them in terms of cooking and using them. For example while everyone is aware that tofu is a source of protein, not everyone has cooked it at home. Awareness is also not a guarantee of liking a product. Especially many non-vegetarians might have had a single bad experience with one or more of the discussed protein sources and they have not tried it again after the one experience.

Generally though, people do have quite a positive perception of the domestic plant-based protein sources they do know.

3.2. Drivers and barriers

As with any food the most important barrier is unfamiliarity. When a product is unfamiliar in the sense that a person has not bought or cooked the product before, the threshold for buying it is quite high. First of all the product doesn't even come to mind when the consumer thinks of what to eat. If it comes to mind, or is encountered in the store, the consumer might not dare buy the product because he is uncertain if he will like it or about how to cook it. Furthermore, non-vegetarians have a strong perception that vegetarian foods are difficult and laborious to prepare. Packaging and other communication is important in convincing that the product is easy to use. Package sizes should also encourage trial, meaning that there should be a package size big enough to allow trying the product, but small enough to avoid waste if the person does not want to cook it again.

Another way to encourage consumers to try new products is to offer recipes and ideas for using. These ideas should be available on the package, but also in advertising and other communication.

Also related to the unfamiliarity of a product is the taste. Good taste is one of the strongest drivers for any food product. Non-vegetarians often hold the perception that vegetarian food tastes bad or at least bland. Tastings, offering a chance to get familiar with the product and its taste, are very important. Another way of letting people get familiar with a new product is have it offered in restaurants and working place lunch canteens.

Price can be a significant barrier or a driver for a product. People feel that current plant-based protein products are relative expensive which limits the usage.

Limited availability and lack of visibility in stores are significant barriers which, when fixed, could be turned into great drivers. Consumers feel that current products are sometimes difficult to find. Either they are sold only in specialty stores or, if they are present at normal stores, they are placed so they are difficult to find. Consumers will not go out of their way to find products, they have to be sold where they shop anyway and have to be clearly visible in the stores. Whether visibility is achieved by a plant-based protein shelf or by marking the products with, for example, stickers is not so important. What makes the difference is that the consumer can easily find the products and knows where to look for them.

Being ecological is a significant driver for a product. Ecology in the production of a product must be mirrored in the packaging. Excessive wrapping in plastic must be avoided.

More options in ready-made meals and semi-finished products would be a huge driver. Both vegetarians and non-vegetarians agree that they would eat more plant-based protein products if there were more easy-to-prepare options available. Also snack products that don't require cooking would increase plant-based protein consumption.

Taste is the major driver for all food products. The taste should be so good that people do not buy the product only because the ethical reasons, but because it is good.

3.3. Communicating

When speaking generally about plant-based protein products the most important things to talk about are taste and quality. Environmental friendliness, ecology, ethics, and healthiness are other issues that should be emphasized. The general perception of plant-based protein products is that they are expensive, so communication should also address price.

Climate change and animal rights are issues that people are concerned about, but many feel that these have already been discussed too much and it is not necessary to speak of them anymore. Substitution for meat should not be brought up, as being a substitute for something makes the product seem like the second-best option.

All communication related to a specific product should emphasize the drivers such as taste, quality and origin of the product. Ideas on how to use the product and recipes are extremely important in communication about a new product.