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FACTORS INFLUENCING CONSUMER PURCHASE DECISIONS FOR CULTIVATED MEAT: AN ANALYSIS TO INFORM EFFECTIVE MARKETING STRATEGIES FOR MOSA MEAT

DEEP DIVE ACCEPTANCE FACTORS AND CONJOINT ANALYSIS

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Abstract

This research investigates consumer factors influencing cultivated meat purchase decisions in Germany, aiming to develop marketing strategies for Mosa Meat. Utilizing qualitative and quantitative methods, five hypotheses are explored, revealing preferences for plant-based products, animal-friendly variants, and branded cultivated meat. Results show consumers resist paying a premium for cultivated meat, and Mosa Meat's brand was perceived as less tasty than established plant-based and conventional meat brands. Finally, cultivated meat products from a well-known brand were more attractive to consumers than stand-alone products. Bridging theory and application, the study offers tailored marketing recommendations and vital insights for policymakers and industry stakeholders.

Keywords:

Cultivated Meat, Purchase Decisions, Consumer Behaviour, Sustainability, Marketing Strategies, Conjoint Analysis, Perceptual Map

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Group Part

1 Introduction

In an era marked by environmental crisis, the words of Rachel Carson resonate profoundly: 'The human race is challenged more than ever before to demonstrate our mastery, not over nature but of ourselves' (R. Carson, personal communication, 1962).

Over the past five decades, global overpopulation has become a critical concern. The rapid surge in the world's population is contributing to an increased demand for food. In addition, the COVID-19 pandemic has exerted a distressing impact on global food security, leading to a rise in chronic hunger. According to the Food and Agriculture Organization of the United Nations (2023), this trend has led to an additional 150 million people affected by hunger. Humankind is currently utilizing most of the world's arable land, and food production barely meets the demands of the world's population (Ord, 2014). This challenge takes a critical form in our dietary choices, particularly in our reliance on traditional meat products (Stanbury, 2022).

The negative externalities on the environment resulting from traditional farming are increasingly perused in academic research as a substantial factor for global warming and pollution (Djekic, 2015). Conventional meat production, as detailed by Leip, et al. (2015) and Recanati, et al. (2015), stand as pivotal contributors to global greenhouse gas emissions, deforestation, water and air pollution. The resource-intensive nature of these practices further compounds their environmental toll. Simultaneously, ethical concerns regarding livestock farming, as articulated by Linzey (2013), convince more and more consumers and businesses to explore alternatives (Brigl, et al., 2021; Carter, et al., 2019). Lastly, mounting attention is targeted toward aspects of food security and risks of public health crises, notably antibiotic resistance, and zoonotic diseases, caused by mass meat production (Parlasca & Qaim, 2022).

Despite these challenges, global meat consumption continues to increase (Parlasca & Qaim, 2022). Nonetheless, it is widely acknowledged among scientists and the media that a reduction in consumption is inevitable (Leip, et al., 2015; Parlasca & Qaim, 2022). While meat production is still rising in Europe, too (Statista Consumer Insights, 2023a), Western countries, are exhibiting growing concerns about meat production concurrently with emerging trends in healthy lifestyles, vegetarianism, and veganism (Saari, Herstatt, Tiwari, Dedehayir, & Mäkinen, 2021; Smart Protein Project EU, 2022). Germany, for instance, is observing a decline in meat consumption (Bundesanstalt für Landwirtschaft und Ernährung, Statistisches Bundesamt, Thünen-Institut, Deutscher Jagdverband, Statista, 2023), rendering the necessity of diversification apparent to the meat industry (Allahverdiyev, 2023). The emergence of cultivated meat in science and commerce is intricately tied to these geoeconomic and climate change challenges (Lonkila & Kaljonen, 2021).

1.1 The Potential of Cultivated Meat

Cultivated meat products are meanwhile leveraging the opportunity and materialize as a potential solution for world hunger, climate change, food waste reduction, and animal welfare in literature (Bryant, Nek, & Rolland, 2020; Chriki & Hocquette, 2020; Stephens, et al., 2018). Also referred to as cell-based or lab-grown meat, this novel technology involves cellular agriculture and tissue engineering techniques to create muscle tissue from animal cells that is suitable for human consumption (Olenic & Thorrez, 2023; Santos, et al., 2023). This technology is a part of the broader field of cellular agriculture (Stephens, et al., 2018). As pointed out by Weinrich, Strack, & Neugebauer (2020), it appears unrealistic that German consumers would willingly reduce meat consumption by 83%. Thus, the adoption of cultivated meat could not only cater to the market demands but would have potential to alleviate the environmental burden associated with meat production.

1.2 Case Company Mosa Meat

Mosa Meat was selected as the case company for this research purpose as a Dutch start-up that developed the world’s first cultivated burger and is expected to cater to the German market

(Fountain, 2013). Founded in 2016, Mosa Meat develops clean meat production techniques based on the cultivation of animal cells and is seen as one of few European start-ups with immense potential (Lorenzo, 2023). Whilst making significant progress in the go-to-market process, having secured over 70 million euros in funding (de Volkskrant, 2021) and experiencing scientific breakthroughs (Mosa Meat, 2023a), a foreseeable challenge in the future will be achieving consumer acceptance.

1.3 Research Purpose, Question, and Scope

This research paper aims to delve into this dynamic environment by exploring the research question which factors are influencing consumer purchase decisions for cultivated meat to develop effective marketing strategies for Mosa Meat. Understanding these factors is essential, particularly for companies like Mosa Meat which are navigating the complex interplay of sustainability, ethical considerations, and evolving consumer preferences in the German market. The research investigates various dimensions influencing consumer behaviour, including sustainability, animal welfare, taste, price, and brand preferences. The scope is hereby focused on the retail environment of burger patties in the German market. This study addresses the challenges faced by the cultivated meat industry in gaining acceptance and market share. By doing so, it offers imperative information to policymakers, industry stakeholders, and marketers who are at the forefront of shaping the future of food production and consumption.

1.4 Structure, Theoretical Framework, and Insight into Findings

This study explores the background of cultivated meat addressing go-to-market challenges, global key drivers, and specifically the German market, and its competitive dynamics, potential customer base, and regulations. Further, existant literature on cultivated meat and consumer acceptance is reviewed whilst identifying research gaps. Expert and consumer interviews were conducted, and two consumer surveys, conjoint and perceptual map, are analyzed using statistical methods such as principal component and willingness-to-pay analysis. After detailing research methods and data collection, results are presented and analyzed of which an overview can be found in Table 1. Findings are translated into marketing strategy recommendations for Mosa Meat.

Nr	Hypotheses (H)	Result
H1	In a choice between cultivated, plant-based, and conventional burger patty products, consumers prefer to buy plant-based products	√
H2	Product variants that are more animal-friendly and sustainable are preferred over other products by consumers	√
H3	Consumers in the German market are willing to pay a premium for cultivated meat products compared to vegan and traditional burger products	×
H4	Mosa Meat’s brand is perceived to be less tasty than other established plant-based, and conventional meat brands	√
H5	Cultivated meat products from a well-known brand are more attractive to consumers than stand-alone products	√

Table 1: Overview of Results for Hypotheses

In conclusion, our study stands at the intersection of environmental science, ethics, marketing, and consumer behaviour. It not only seeks to understand the present landscape of cultivated meat acceptance in Germany but also to inform strategies that can effectively steer consumer preferences towards more sustainable, ethical, and environmentally friendly food choices. In doing so, it contributes to a broader effort to align dietary habits with the imperative of environmental stewardship, a challenge that will shape the future of our planet.

2 Market Background

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2.1 Overview of the Global Cultivated Meat Market

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2.1.1 Challenges

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2.1.2 Global Key Drivers

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2.2 Market Situation of Cultivated Meat in Germany

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2.2.1 Competitive Landscape

In the evolving landscape of cultivated meat, several companies are vying for a share of the market. These competitors can be categorized into two primary groups: Direct and indirect competition.

Direct Competitors

To ensure a comprehensive and focused comparison among direct competitors, specific objective dimensions were identified. While Mosa Meat is the focal company of this thesis, two additional cultivated meat companies were chosen, leveraging the GFI database. This resource aims to encompass a wide array of companies centered on cultivated meat and seafood, forming the foundational base for identifying direct competitors. Emphasis was placed on companies engaged in the production of final cultivated meat products rather than focusing on intermediate steps. Specifically targeting beef product manufacturers aligns with Mosa Meat's area of development. Furthermore, the selection criteria were refined to include only companies intending to penetrate the European market, given that this thesis centers in Germany. Notably, expert interviews highlighted significant market distinctions, particularly concerning genetically modified organism (GMO) or Non-GMO preferences. Thus, all chosen companies produce non-GMO products. This stringent selection process led to the identification of five potential companies, including Mosa Meat: Mosa Meat, Mirai Foods, Alife Foods, Uncommon, and BioTechFoods. Subsequently, based on insights garnered from expert interviews, Mosa Meat, Mirai Foods, and Alife Foods were chosen for in-depth comparison.

These three selected companies were meticulously evaluated across several dimensions, as outlined in Figure 1, to provide a comprehensive comparative analysis.

	Mosa Meat	Mirai Foods	Alife Foods
Country			
Year Founded	2015	2019	2019
Founders	Peter Verstrate, Mark Post	Christoph Mayr, Suman Kumar Das	Steffen Sonnenberg, Dat Tran, Joe Natoli, Bernd Boeck
Product Type	Beef Burger Patty	Beef Steaks	Beef Schnitzel
Product Developement	Commercial Product	Prototype	Prototype
Strategic Partnerships	✓	✓	✓
Financial Situation	$96M (Angel Round/Series B)	$6.9M (Seed Funding)	Amount Unknown (Seed Funding)
Investors	Leonardo DiCaprio, Beyond Impact, Blue Horizon Corporation, Jitse Groen, Nutreco, Target Global, Rubio Impact Ventures, ArcTern Ventures, Mitsubishi Corporation, Bell Food Group, Lowercase Capital, M Ventures	PINC, FRIBA Investment, Ulf Claesson, Team Global, Yakumi, Skyviews Life Science	2b AHEAD Ventures
Operating Regions	Europe	Europe	Europe
Production Facilities	✓	✗	✗

Figure 1: Mosa Meat Direct Competitor Overview for the German Market

Mosa Meat, previously introduced in chapter 1, emerges as the most mature and advanced startup among the three companies under comparison. Its maturity is not solely due to being the oldest company but is attributed to its significant financial backing, placing it ahead of its counterparts. Boasting an impressive funding of $96 million (Crunchbase, 2023c), Mosa Meat stands as the most well-financed among the trio. The company has secured support not only in substantial financial resources but also from a diverse pool of investors. Notably, renowned figures such as environmental activist and Academy Award-winning actor, Leonardo DiCaprio, have not only invested in the company but also lend their advisory expertise (Mosa Meat, 2023b). This association presents a compelling advantage for potential marketing strategies, leveraging not just DiCaprio's celebrity status but also his industry experience.

With a backing of 15 investors, Mosa Meat demonstrates a robust support network (Crunchbase, 2023c). Notably, the company has already developed a commercial product that has undergone rigorous testing, including blind taste tests. These tests, where individuals were unable to discern between the cultivated meat and traditional meat, underscore a significant achievement in the product's likeness and quality (Mosa Meat, 2023c).

Additionally, Mosa Meat has forged a strategic partnership with Esco Aster, a reputable Singaporean contract manufacturer. Esco Aster's unique distinction as the solitary facility to obtain regulatory clearance in Singapore for cultivated meat production presents a strategic advantage for Mosa Meat. This partnership not only facilitates the introduction of cultivated beef to the market but also positions Mosa Meat to learn from the launch in the Singaporean market and apply this experience to its entry into the German market, offering a competitive edge over rivals (Business Wire, 2022).

Moreover, Mosa Meat distinguishes itself as the only company among the three with an operational production facility. Its facility, spanning 77,000 square feet, stands as the world’s largest cultivated meat campus (Food Frontier, 2022). This extensive infrastructure not only positions them for substantial production capabilities but also allows them to operate in two countries, a strategic move that bolsters sustainability efforts by minimizing shipping needs. This multifaceted advantage augments Mosa Meat's position as a leader in the cultivated meat industry.

Mirai Foods emerges as a dynamic and innovative contender in the cultivated meat industry, representing a relatively new yet promising force compared to Mosa Meat. Founded in 2019 (Mirai Foods, 2023), this Swiss-based company has swiftly made strides within the cultivated meat sector, boasting an impressive breakthrough in meat replication technology. While most competitors can only produce minced meat or thinly sliced alternatives, Mirai Foods has successfully demonstrated the creation of genuine steaks with a thickness of one and a half centimetres or more, pushing the boundaries of what's achievable in this field (Swiss Food & Nutrition Valley, 2023).

Currently in its pilot phase, Mirai Foods has garnered attention through a well-received tasting event, marking a significant milestone in its journey (OTS, 2021). The company is dedicated to transitioning its prototypes into commercial products, focusing on accelerating product development to bring its slaughter-free meat to market.

The company has strategically partnered with Shiok Meats subsidiary Gaia Foods, a collaboration aimed at developing cultivated beef products in Singapore. This alliance facilitates the exchange of expertise and resources, leveraging Shiok's regulatory knowledge and experience gained from operating in the first country to approve the sale of cultivated meat in Asia (Gulfood Manufacturing, 2022). Notably, Mirai Foods has secured a significant alliance with Rügenwalder Mühle, a respected German food manufacturer, producing meat products, and well-known for its leadership in vegetarian and vegan meat alternatives. Seeking to further solidify this position, the company is poised to integrate cultivated meat into its product portfolio. This strategic move will see Rügenwalder Mühle joining forces with Mirai Foods, leveraging the Swiss startup's expertise to craft a new, innovative hybrid product. This upcoming creation will uniquely blend plant-based proteins with cultivated fat, showcasing a pioneering approach to meat alternatives (Swiss Food & Nutrition Valley, 2022). This partnership grants Mirai Foods access to the market intelligence and established consumer base of Rügenwalder Mühle, marking a strategic move to expedite the production, marketing, and distribution of cultivated meat within Germany and potentially beyond.

Mirai Foods has received an initial seed funding of $6.9 million (Crunchbase, 2023b), signaling confidence in its vision and potential. While currently operating in Europe with a pilot production plant (Ellis, 2021), the company's strategic partnerships, innovative approach, and progressive developments position it as a rising star in the cultivated meat sector, showcasing promise for expansion and future success.

Alife Foods stands out as an innovative startup focused on the development of cell-cultivated schnitzel, utilizing cutting-edge stem cell technology. Established in 2019 (Crunchbase, 2023a), this company has quickly gained traction with its unique approach to creating cultivated meat products.

Alife Foods achieved a significant milestone with the introduction of its pioneering cultivated meat prototype, a schnitzel—a breaded cutlet—crafted in collaboration with LabFarmFoods (vegconomist, 2022), an esteemed US-based cellular agriculture company known for its dedication to sustainable and authentic meat production. LabFarmFoods specializes in cultivating the skeletal muscle component of meat and supplying high-quality muscle fibers as a raw material ingredient (f6s, 2023). This strategic partnership not only provides Alife Foods access to premium raw materials essential for its cell-cultivated schnitzel but also establishes a pathway for market entry into the United States, leveraging LabFarmFoods' expertise and resources in the American market.

Additionally, Alife Foods strategically aligned with the Fuchs Group, the largest European spice manufacturer renowned for its global spice expertise (Fuchs Group, 2023). This partnership enhances the flavor profile of Alife Foods' cultivated schnitzel, integrating premium spice blends and seasoning expertise, crucial elements in crafting an authentic and appealing product.

Currently, the product is in the midst of taste trials and sensory evaluations, marking an essential phase in its developmental journey. Alife Foods aims to present a fully realized prototype to potential investors soon, setting the stage to become recognized as the 'cultivated schnitzel company' upon releasing its products to the market (vegconomist, 2022).

The company has received seed funding from 2b AHEAD Ventures, an Accelerator/Incubator (Pitchbook, 2023). Though the specific amount of investment remains undisclosed, this backing demonstrates confidence and support for Alife Foods' vision. With a strategic focus on the German and European markets, the company aims to capture the attention of consumers seeking alternative meat options. However, at present, Alife Foods does not possess a production facility, indicating a phase of development focused on product refinement and future scalability.

Indirect Competitors (Substitutes)

In examining the **plant-based market**, plant-based poultry and beef alternatives are among the most frequently consumed items in Germany, with a consumption rate of at least 20% once a week. The market size of meat substitutes in Germany is reported to be €273 million, as highlighted by the Heinrich Böll Stiftung and BUND (Heinrich-Böll-Stiftung; Bund für Umwelt und Naturschutz Deutschland; Le Monde Diplomatique, 2021). This substantial figure underscores the growing significance and market traction of meat alternatives within the country's food industry. When compared to other countries under analysis, German consumers display a higher inclination to pay more for plant-based meat compared to animal-based meat. Approximately 26% of German consumers are willing to pay a premium for plant-based products that replicate the taste and texture of animal-based meat, while in Poland and Spain, the corresponding figures are 23% (ProVeg International, 2022b; ProVeg International, 2022c). In the United Kingdom, 18% of consumers express a similar willingness to pay a premium for such products (ProVeg International, 2022d).

An intriguing statistic reveals that nearly 42% of German consumers plan to reduce their meat consumption within the next six months. Sales of vegan and vegetarian meat alternatives in Germany reached an impressive €357 million in the last period, with more than half of the sales attributed to vegan products (€181 million/51%), as depicted in the accompanying figure (ProVeg International, 2022a).

Within this segment, plant-based refrigerated meat products such as burger patties, nuggets, and mince represent the most successful category in Germany, generating €123 million. Notably, the plant-based frozen meat segment, encompassing items like burger patties, nuggets, and minced alternatives, exhibited the lowest sales value at €12 million. However, it experienced the most significant growth rate, surging by 403% in the latest period (ProVeg International, 2022a).

Discount stores play a pivotal role in the German plant-based meat sector, accounting for 30% of sales value and 35% of sales volume. Sales in discount stores primarily focus on plant-based refrigerated meat (€38 million), although other segments have also seen an increase, now collectively contributing to almost two-thirds of all plant-based-meat sales in German discount stores (€16 million) (ProVeg International, 2022a).

Consumers predominantly cite "Good source of protein" and "Healthier than meat" as their primary reasons for choosing plant-based options (GFI, 2022b). Notable brands in the market include Rügenwalder Mühle, boasting a brand awareness of 75%, along with the Vegetarian Butcher and Beyond Meat, each with 35% brand awareness. These companies will be included in the Conjoint analysis and Perceptual map in the subsequent sections of this thesis (Statista Consumer Insights, 2023b).

The **traditional meat market** in Germany significantly overshadows the market for meat alternatives. In 2019, the meat market's size was approximately 147 times larger than that of substitutes, constituting a combined market worth about 40.4 billion euros (Heinrich-Böll-Stiftung; Bund für Umwelt und Naturschutz Deutschland; Le Monde Diplomatique, 2021). Germany is positioned to emerge as the largest meat market in Europe. Sales of meat products in the country are projected to reach €56.9 billion by 2026, marking an annual increase of 1.1% from €53 billion in 2021 (ReportLinker, 2023).

From 2013, the German market has experienced a consistent year-on-year growth of 3.1%. Following in the rankings, France, Spain, and Italy represent subsequent markets for meat products, respectively. Forecasts predict that German meat consumption is anticipated to reach 6,370 thousand metric tons by 2026, indicating a year-on-year decline averaging 0.4%. Since 2017, there has been a 0.2% annual decrease in demand within the country (ReportLinker, 2023). The total consumption of meat in Germany is estimated to be approximately 6.5 million tons in dressed weight. Per capita consumption of meat in Germany stands at 52 kilograms. This figure underscores the significant role meat plays in the German diet and dietary habits (Statista, 2023).

Moreover, in the slaughter and meat processing industry in Germany, foreign sales contribute to approximately 15.4% of the market share. This denotes the substantial involvement of foreign markets and export activities within the country's meat industry, underlining its global interconnectedness and trade relations.

In 2020, the most popular brand of ready-made sausages and meat products in Germany was Rügenwalder, with 31.4% of respondents to the survey confirming they had consumed products from this brand in the preceding four weeks (Statista, VuMA, 2023). This observation is particularly noteworthy considering Rügenwalder Mühle is also the brand with the highest brand awareness in the meat substitute market. Following Rügenwalder, Herta secured 20.3%, and Gutfried held 18.9% as leading brands of ready-made sausages and meat products consumed in the last four weeks in 2020. This data highlights the strong market presence and consumer preference for these traditional meat brands in Germany (Statista, VuMA, 2023).

2.2.2 Potential Customer Base

The potential customer base for cultivated meat in Germany is diverse and multifaceted. It encompasses individuals driven by ethical considerations, environmental concerns, health-conscious preferences, and those seeking innovative and sustainable food choices. Moreover, the flexitarian and vegetarian segments of the population present potential target markets, as cultivated meat serves as a bridge between traditional meat consumption and plant-based diets.

According to a study conducted in Germany, women, middle-aged individuals, and well-educated consumers show a greater tendency to purchase environmentally and socially sustainable products, which suggests that they may be more receptive to cultivated meat (Mohr & Schlich, 2015). On the other hand, younger males appear to be more accepting towards cultivated meat if they are meat-eaters, from progressive countries, reside in urban areas, with a left-wing/liberal political orientation and higher education, and are from an affluent background (Bryant & Barnett, 2020). However, in the expert interview, Ivo Rzegotta highlighted that consumer research indicates fluctuating acceptance rates, influenced significantly by survey methodology. Empirical data underscores that factors such as taste, price, and convenience wield more influence over consumer choices compared to ethical or sustainability arguments (Appendix E.4 – Ivo Rzegotta). In this regard, the FMI's Power of Meat 2022 report revealed that appealing to meat-eating consumers (excluding vegans, vegetarians, and pescatarians) is critical, as they constitute the largest demographic and ultimate target for cultivated meat products (FMI, 2022). Generational differences are also notable. Younger generations tend to express a higher likelihood of trying and purchasing cultivated meat compared to older generations according to Ivo Rzegotta (Appendix E.4 – Ivo Rzegotta).

Consumer awareness and familiarity with cultivated meat play a pivotal role in shaping their preferences. A recent study in by the GFI and Embold Research revealed that just 32 percent of respondents had heard of cultivated meat before, underscoring the significant gap in consumer education and exposure. Baum, Bröring, & Lagerkvist (2021) generated findings of a sample of 617 German consumers and their purchase evaluations, and Bryant, Nek, & Rolland (2020) compare consumption and purchase intents between German and French consumers. Preliminary findings are mixed with regard to the openness to cultivated meat, underscoring the significance of the factors ethics, especially animal welfare and sustainability for consumers (Heidmeier & Teuber, 2022; Weinrich, Strack, & Neugebauer, 2020) , as well as the usage of antibiotics and food safety (Bryant, Nek, & Rolland, 2020; Weinrich, Strack, & Neugebauer, 2020). Cognitive drivers such as information on environmental impact, animal welfare, and health and nutrition of cultivated meat suggest the potential to positively influence purchase intentions (Baum, Bröring, & Lagerkvist, 2021).

However, it's essential to acknowledge that further research is needed to gain a comprehensive understanding of the demographics of potential customers and their purchase intentions for cultivated meat in Germany.

2.2.3 Regulatory Environment

The regulatory landscape plays a pivotal role in shaping the cultivated meat market in Germany. Under the general framework of food regulations in Germany, most food products can be placed on the market without prior authorization. However, an exception to this rule is observed in the case of novel foods (Bundesamt für Verbraucherschutz und Lebensmittelsicherheit, 2023). Novel foods are subject to consistent EU-wide regulations, designed to achieve a dual purpose: upholding a high standard in safeguarding human health and ensuring the seamless operation of the internal market. Consequently, any novel food must undergo a health assessment by the European Food Safety Authority (EFSA) before being authorized for sale (Bundesamt für Verbraucherschutz und Lebensmittelsicherheit, 2023). If the evaluation outcomes are favorable, the European Commission, working in conjunction with representatives from EU member states, holds the authority to grant final approval. These approvals extend across all EU member states. The entire process is estimated to span between 18 months to three years for completion (GFI, 2022a). The Cultivated B, a subsidiary of the German food manufacturer Infamily Foods, became the first company globally to register a cell-cultivated meat product with the EFSA. The preliminary process for approval is currently underway. Ivo Rzegotta anticipates that regulatory approval in the EU will likely be secured by 2026, but there is a high potential of delays and uncertainties in the process (Appendix E.4 – Ivo Rzegotta).

The subject currently undergoing the ongoing approval process involves the production of hybrid hotdogs, skillfully crafted from a combination of vegan ingredients and pork derived from cell-cultivated sources cultivated in specially designed bioreactors. According to Ramona Weinrich, this is because hybrid products are more easily producible at this stage of research. Meanwhile, the Netherlands has authorized, at least on a governmental level, public tastings of "laboratory-produced meat and seafood" through an alternate pathway. Under strict regulations and limited participation, this direct customer engagement offers companies in Europe an early interaction with consumers, potentially invigorating the entire sector. Worldwide, the public sale of cultivated meat has so far only been permitted in Singapore and the USA (Hufelschulte, 2023).

3 Literature Review

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3.1 Overview on Cultivated Meat Literature

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3.2 Consumer Acceptance and Purchase Decisions of Cultivated Meat

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3.2.1 Review of Research Methodologies

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3.2.2 Comparison to Conventional and Plant-based Meat

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3.2.3 Acceptance Drivers

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3.3 Zooming in on Acceptance Drivers

Acceptance drivers form the cornerstone of comprehending consumer preferences in the context of cultivated meat products. This section delves into the details of factors influencing consumer acceptance, focusing specifically on sustainability, animal welfare, taste, price, and brand. By zooming in on these key acceptance drivers, we aim to unravel the nuanced dynamics at play and bridge the existing gap between theory and practice. These factors have been chosen not only for their prevalence in academic discourse but also for their real-world implications in shaping consumers' perceptions and purchase decisions.

3.3.1 Sustainability and Animal Welfare

The following chapter addresses both sustainability and animal welfare as key acceptance drivers, noting that the existing literature often addresses both aspects simultaneously, as authors frequently consider animal welfare in the context of sustainability discussions.

Previous research has shown that the sustainability appeal is an important benefit of cultivated meat and thus should be urged for consumer acceptance (Verbeke W. M., 2015). This was also shown by Da Silva in 2021, that the sustainability appeal of cultivated meat raises the consumer’s intention to buy it. Participants were presented with information on sustainability benefits, such as, e.g., that cultivated meat reduces the emission of greenhouse gases, the occupation of land, and the consumption of water and energy. Da Silva suggested that marketing strategies must include sustainability information related to the consumption of cultivated meat in order to increase acceptance in the market.

The German study by Weinrich, Strack, & Neugebauer (2020) showed that perceiving cultivated meat as an ethical product, for instance with regard to animal welfare and ecological footprint, was the strongest driver of purchase intent in a representative German sample of 713 consumers. Participants compared their expectation of cultivated meat with farmed meat on ratings of health, ecology, ethics, taste, and price and thereafter were asked to rate their agreement on a 5-point scale with statements concerning cultivated meat. Weinrich concluded that the biggest challenge for researchers and marketers remains to find the best communication method to encourage consumers to purchase cultivated meat.

Bekker (2017) investigated the influence of information provision on the explicit and implicit attitude toward cultivated meat. Their research uncovered that providing positive or negative information about solar panels (a related product in the “sustainability” category) also affected attitude measures towards cultivated meat. Thus, the authors speculated that the explicit attitude toward cultivated meat can be influenced by content-based information about cultivated meat, but also by content-based information about an indirectly related product.

Another study conducted by Van Loo, Caputo, & Lusk (2020) in the U.S. tested the effect of communication messages on consumer preferences for meat alternatives. They illustrated that providing information on environmental and animal welfare benefits of the meat alternatives had the largest effect on the share of consumers with positive preferences for lab-grown, plant-based using pea protein and using animal-like proteins produced by yeast, respectively. In this experimental study, participants were asked to choose between different meat alternatives. Participants were then given environmental and animal welfare information such as associated reduction in water use, land use, energy use and greenhouse gas (GHG) emissions. These findings suggested that providing information about environmental and animal welfare benefits might pull more consumers into the market for plant-based and lab-grown meat.

A recent study conducted by Fu, Zhang, Whaley, & Kim (2023) showed that the acceptance of cultivated meat as a sustainable substitute significantly enhanced consumers’ purchase intention. The results showed that physical health, animal welfare, and food quality significantly encouraged consumer acceptance of cultivated meat as a sustainable substitute for conventional meat. The findings suggested that when promoting cultivated meat, marketers should emphasize the benefits of cultivated meat with animal welfare, environment, food quality, and health. Regarding animal welfare, informative labels highlighting animal welfare are likely to have a strong appeal to consumers. Meat producers can provide key details on product labels or “slaughter-free” signs that stimulate consumers who are concerned about animal welfare.

As a consequence of the hypothesized importance of animal welfare and sustainability as a driver of purchase decision, this thesis investigates the following hypothesis H2: *Product variants that are more animal-friendly and sustainable are preferred over other products by consumers.*

3.3.2 Price

The significance of cultivated meat prices for consumer acceptance has been highlighted in several studies and a too high price considered a perceived barrier to buying cultivated meat. According to Bryant & Barnett (2020), price will be one of the key determinants of the market success of cultivated meat. In general, the evidence supporting consumers' willingness to pay (WTP) for cultivated meat is mixed.

Mancini & Antonioli (2020) for example found that roughly equal proportions of their sample were willing to pay a premium, maybe pay a premium, and not willing to pay for a premium for cultivated meat. The study reveals that willingness to pay a premium price for this new food product was increased with positive additional information (Mancini & Antonioli, 2020). This was also shown by Gómez-Luciano, de Aguiar, Vriesekoop, & Urbano (2019) who found key factors predicting the WTP for cultivated meat across all the countries in their study. Among these factors were perceived healthiness and nutrition. The more frequent and intense the exposure to new food products through information about these factors, the lesser the rejection by consumers.

Van Loo, Caputo, & Lusk (2020) compared in their study farm-raised meat, lab-frown meat, and plant-based meat alternatives. The farm-raised beef burger had the largest mean WTP (relative to “none”) ranging from \$10.18 to \$11.35/lb, while lab-grown meat had the lowest mean WTP. The study further found that providing sustainability information leads to a higher mean WTP for the plant-based alternatives. The study concludes that it is beneficial for providers of the new meat alternatives to provide consumers with the information on the environmental benefits of plant-based meat alternatives as it increases the WTP. Post (2014) and Verbeke et al. (2015) also found that when comparing cultivated meat to traditional meat, the majority of participants were unwilling to pay more than for the traditional produced meat.

Other studies conclude that consumers are indeed willing to pay a premium. Rolland, Markus, & Post (2020) found that, with participants who had tasted and broadly liked “cultivated meat”, 58% were willing to pay a premium, averaging 37% above the price of conventional meat. This reflects a higher WTP than other studies, most likely due to the circumstance of having a sensory experience with what participants believed to be cultivated meat. However, the researchers also observed that price was by far the most common form of negative comment, accounting for 36% of negative remarks. This suggests that some consumers are likely to be willing to pay a premium, but others certainly are not and will be price sensitive.

Hypothesis H3 that will be tested is thus: *Consumers in the German market are willing to pay a premium for cultivated meat products compared to vegan and traditional burger products.*

3.3.3 Taste

According to Bryant & Barnett (2020, S. 21), “[u]ltimately, the taste and price will be huge determinants of the market success of cultivated meat”. The authors elaborate on how consumers often harbor low expectations with regard to the taste and texture of cultivated meat which consequently negatively influences their willingness to pay. Bekker (2017) also described that respondents were concerned about taste and texture and Tucker (2014) adds to this by identifying the third common negative feeling – that cultivated meat may have a bad taste, texture, or appearance compared to conventional meat. Thus, the lack of sensory attractiveness emerges as the primary reason for rejecting cultivated meat. Similarly, Verbeke et al. (2015) stated that many respondents anticipated terrible taste with some expressing they might eat cultivated meat regularly, however, only on the condition that the taste of cultivated beef matches that of conventional meat.

Hocquette et al. (2015) observed that only 23.6% of respondents thought that cultivated meat would be delicious, 39% thought it would not, and 37.5% did not know. Slade (2018) revealed that nearly 90% of 533 respondents thought that cultivated meat tasted worse than conventional meat, although most still believed that cultivated meat tasted better than plant-based meat substitutes.

Previous studies on other alternative food technologies (e.g., GMO foods) have demonstrated a connection between product traits such as perceived naturalness, familiarity, and tastefulness and consumers' willingness to eat novel foods. These product traits have also been found to be linked with consumer appraisal of cultivated meat (Hocquette J. F., 2016; Pakseresht, Kaliji, & Canavari, 2022; Possidónio, 2021; Tenbült, 2008; Verbeke W. M., 2015).

Hartmann (2017) revealed a direct correlation between a favorable perception of cultivated meat taste and willingness to buy. This study indicates that consumers need to be reassured regarding the product's quality and taste. The findings imply that stakeholders such as market actors, regulatory agencies, and civil society organizations should carefully consider how to frame and communicate cultivated meat with prospective consumers.

Based on this literature, H4 will analyse whether *Mosa Meat's brand is perceived to be less tasty than other established plant-based, and conventional meat brands.*

3.3.4 Brand

According to Safdar (2022), consumers will more readily accept a product of a better-known brand because they believe that reputation, quality, and sales are correlated. Previous research on branding being a crucial factor of consumer's acceptance of cultivated meat is rather sparse. This can be explained by the fact that cultivated meat products are not yet introduced to the mass-market. Therefore, this section also considers previous research on meat, and vegetarian and plant-based substitutes.

Van Loo et al. (2020) detected that providing the brand name elevated the share of consumers with positive preferences for lab-grown meat from 47% to 53%. The authors tested 4 different treatments, whereas the second treatment was designed to gauge consumers' responses to branding. Consumers were exposed to four different, but well-known brands, mimicking the retail environment. Providing the brand names yielded different effects. On the one hand, branding seemed to increase the share of consumers choosing conventional beef which the authors hypothesized to be due to the brand being more familiar to consumers. On the other hand, it increased the share of consumers with positive preferences for lab-grown meat.

Other previous literature on meat or plant meat products found that brand name, along with price, gender, food neophobia, education and awareness, nutrition, labeling, environmental concerns, and technological information influences the selection of meat or plant-based meat (Safdar, 2022).

On the basis of the existent research on brand relevance, we will investigate H5: *Cultivated meat products from a well-known brand are more attractive to consumers than stand-alone products*.

3.4 Gap in Existing Research and Target of this Research

With cultivated meat as an emerging topic and the product itself not yet introduced to the European market, prior research on actual purchase intent is strongly limited. Nevertheless, existing studies have delved into consumer acceptance, examining a range of factors influencing consumer acceptance of cultivated meat, both positively and negatively. Whilst previous studies have discussed practical implications for relevant stakeholders such as marketers, these implications tend to be broad and lack specificity. As demonstrated earlier, most of the academic papers have chosen a literary review approach with not as many papers utilizing quantitative design in the studies. Moreover, there is limited research focusing specifically on the German market, even though Germany was identified as a focal point of transformative change within the global food industry.

The overarching goal of this research is to not only close the knowledge gap about cultivated meat purchase intentions in the German market, but to bridge the discrepancy between theory and practice by providing informing effective marketing strategies for the start-up Mosa Meat. As research pointed out, the challenge is “to find the best communication methods, the best product design and placement to make consumers purchase and enjoy [cultivated meat] on a regular basis” (Weinrich, Strack, & Neugebauer, 2020, p. 5).

This will be accomplished by focusing on what appear to be the most decisive factors according to literature that influence purchase decisions – namely, sustainability, animal welfare, taste, price, and brand. Since acceptance research is thought to be the next practical obstacle following technological challenges, it is the main subject of this entire study. Gaining an understanding of consumer acceptance will help us to ultimately translate findings and formulate tailored strategies to promote acceptance among consumers. A mix of qualitative and quantitative research design will serve in this matter. The methods of which will be discussed in more depth in the next chapter

4 Research Methodology and Data Collection

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4.1 Research Design

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4.1.1 Expert Interviews

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4.1.2 Consumer Interviews

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4.1.3 Conjoint Survey

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4.1.4 Perceptual Map Survey

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4.2 Data Collection

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4.2.1 Expert Interviews

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4.2.2 Consumer Interviews

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4.2.3 Conjoint Survey

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4.2.4 Perceptual Map Survey

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5 Results and Analysis

5.1 Expert Interviews

After conducting the interviews, all recordings were carefully transcribed via the intelligent verbatim transcription approach. An intelligent verbatim transcription, also known as clear transcripts, is especially convenient when the content itself should be in the focus rather than how it was said. Thereby fillers and repetitions that are distracting were extracted to emphasize the actual content (Gläser-Zikuda, 2015). After having transcribed the interviews and translated them to English (Appendix E – Expert Interview Transcriptions), the insights were categorized into thematic groups.

The interviews unveiled recurring themes providing valuable insights into Germany's as well as the European evolving cultivated meat landscape. Key areas addressed include market readiness, consumer acceptance factors, production challenges, collaboration dynamics among industry players, and the pivotal role of brand strength and communication strategies.

Market Readiness in Germany: Monica Röntgen, Florentine Zieglowski, and Ramona Weinrich highlighted Germany's pivotal role in the emerging cultivated meat market. The divergence in perspectives became apparent when considering the timeline for market entry. Monica Röntgen and Florentine Zieglowski anticipated potential market entry in Germany in the next few years. Ivo Rzegotta even posited the possibility of regulatory approval by 2026. However, Ramona, adopting a more circumspect stance, suggested that Germany remained distanced from immediate market entry, emphasizing the varied opinions and uncertainties surrounding the timeline for the integration of cultivated meat into the German market.

Consumer Acceptance Factors: Insights garnered from interviews with Monica Röntgen, Kerstin Gerke, and Ivo Rzegotta shed light on the intricate factors influencing consumer acceptance within the cultivated meat landscape. Ethical considerations, pricing, and sustainability emerged as pivotal determinants, with Monica Röntgen highlighting the ethical dimension, Kerstin Gerke placing emphasis on openness to new experiences, and Ivo introducing the influential factors of taste and convenience. Furthermore, Kerstin Gerke and Ivo Rzegotta presented divergent perspectives on the factors that shaped consumer acceptance. Kerstin Gerke directed attention towards the significance of openness to new experiences and the effective framing of sustainability information. In contrast, Ivo underscored the dominance of taste, price, and convenience in shaping consumer preferences, downplaying the role of ethical and sustainability arguments to a secondary level. Adding to this, Ramona Weinrich underscored that sustainability was perceived by many as a luxury consideration, underscoring that a majority of German consumers tended to prioritize price in their purchasing decisions. This variation in perspectives among interviewees highlighted the nuanced nature of consumer preferences within the cultivated meat market.

Challenges in Cultivated Meat Production: Monica Röntgen, Florentine Zieglowski, and Detlef Exner provided a comprehensive exploration of the challenges inherent in the cultivated meat production landscape. Monica Röntgen drew attention to concerns related to antibiotic use, contamination, and the competitiveness of production costs. Florentine Zieglowski shed light on technological challenges, particularly those associated with transitioning to large-scale processes, highlighting the need for careful consideration in this transition. On the other hand, Detlef emphasized the critical need for innovative technologies in sensor equipment to enhance the efficiency of cultivated meat production. This dual perspective from industry experts underscored the multifaceted nature of technological challenges within the domain.

Global Landscape and Market Dynamics: Florentine Zieglowski and Ivo Rzegotta both underscored the pivotal role of collaboration within the cultivated meat industry, each offering unique perspectives. Florentine Zieglowski emphasized the necessity of collaboration specifically in the realm of raw material production, recognizing the interconnectedness of various stages in the production process. On the other hand, Ivo Rzegotta highlighted the need for synergistic partnerships between companies operating within the industry, emphasizing the importance of collective efforts in driving advancements. Turning to the realm of market dynamics and pricing, Ivo Rzegotta and Ramona Weinrich presented divergent viewpoints. Ivo anticipated an initial premium pricing strategy, driven by the limited number of players and high demand in the market. In contrast, Ramona emphasized the strategic importance of competitive pricing as a means to secure a significant market share, reflecting the nuanced considerations in navigating the pricing landscape. In discussions about political decisions, Florentine Zieglowski and Ivo Rzegotta provided distinct insights. Florentine delved into the influence of political decisions on aspects like research funding and overall industry development, recognizing the interconnected relationship between governmental policies and the trajectory of cultivated meat initiatives. Ivo Rzegotta, in contrast, shed light on the cautious approach to public funding in Germany relative to other countries, emphasizing the need for strategic financial considerations in the industry. Ivo Rzegotta's focus was on the competitive dynamics and potential import scenarios in a global context, providing a broader understanding of the industry's interconnectedness. Simultaneously, Ramona Weinrich highlighted Germany's attractiveness to companies, emphasizing the market size as a key factor contributing to the nation's appeal. These cross-cutting themes wove together diverse viewpoints, offering a comprehensive view of the industry's global and regional dynamics.

Brand Strength and Communication: Monica Röntgen, Kerstin Gerke, and Florentine Zieglowski consistently highlighted the pivotal role of brand strength and effective communication in securing consumer acceptance within the cultivated meat market. Monica Röntgen emphasized the critical need for introducing a reputable product, underlining the foundational impact of the first product's image on consumer perceptions. Kerstin Gerke advocated for a differentiated approach grounded in an understanding of diverse motivations for consumption, acknowledging the multifaceted nature of consumer preferences and focusing on the communicative aspect, placing importance on delivering positive information that fosters a favorable consumer mindset. Florentine Zieglowski delved into the strategic realm of media campaigns and information dissemination, recognizing these efforts as instrumental in shaping public perception and understanding. On the contrary, Ivo Rzegotta built upon this perspective and underscored the paramount importance of portraying cultivated meat as a natural and sustainable process. He accentuated the need for a narrative that resonates with environmental consciousness and ethical considerations. In emphasizing this viewpoint, Ivo Rzegotta highlighted the critical role of aligning the communication strategy with broader societal values, positioning cultivated meat as an environmentally responsible and ethically sound choice. This perspective aligned with the growing awareness and concern for sustainability, positioning cultivated meat not just as a technological innovation but as a conscientious and ethical alternative within the broader food landscape.

Understanding Consumer Segments: Monica Röntgen and Ivo Rzegotta delved into the intricacies of understanding diverse consumer segments. Monica Röntgen directed her focus towards most of the population that did not adhere to a vegetarian or vegan diet, recognizing the importance of catering to this significant demographic. In contrast, Ivo Rzegotta shed light on the variations in consumer acceptance that manifested across different demographics and generations, underscoring the nuanced nature of preferences within the broader consumer landscape. Concurrently, Ramona Weinrich explored cultural factors influencing market acceptance and drew attention to disparities in food culture and the varying degrees of openness to new foods, highlighting the need for a nuanced understanding of local preferences.

5.2 Consumer Interviews

After conducting the interviews, all recordings were carefully transcribed using the intelligent verbatim transcription approach (Gläser-Zikuda, 2015), similar to the method employed for expert interviews. Following the transcription and translation of the interviews, the core analysis of the expert interviews was carried out. In this process, the coding approach for qualitative research, as introduced by Mayring (1994) served as guidance, given that his approach has proven to be an effective method for analyzing qualitative data thus far (Appendix F – Consumer Interview Transcriptions).

As a second step, deductive categories were formed corresponding to the general structure of the interview guideline. Based on the key questions, we identified two main categories, namely purchase decision factors and familiarity with existing brands. Those categories served mainly as a reference and the purpose of reflecting a first structure of the data. All interview transcriptions were carefully examined in the next step, and fractions of the text, namely codes, were assigned to the deductive categories.

Participants were subsequently asked about the most relevant purchase factors. Appendix B.1 Frequency Distribution of Purchase Decision Factors depicts by how many interviewees the respective code was mentioned. The following analysis will focus on the five most frequently mentioned factors in this context.

The first factor brought up by 88% (7 out of 8) interview partners was brand. Interviewee #2 explained that if she were buying for the first time, she would go for a brand she is already familiar with. Interviewee #5 added that brand does play a role for him but mainly if he had positive experiences with this brand in the past. The second factor which was mentioned by 75% (6 out of 8 interviewees) was sustainability. Interviewee #4 stated: “Unfortunately, most vegan alternatives aren't much better and only slightly more sustainable, but still not 100% sustainable. It's also important that the patty isn't excessively packaged in plastic, and that the production doesn't waste water or release harmful chemicals into the environment”.

Another factor mentioned by 75% (6 out of 8) interviewees was animal welfare. Interviewee #4 elaborated that she does not support or purchase products from factory farming or meat imported from abroad. In fact, she tries to avoid factors farming and only chooses regional products so that when animals are slaughtered, they are not transported long distances. She further explained that animal welfare should include humane treatment of the animals, no overuse of antibiotics, and avoiding pure stall housing. Interviewee #8 also understood animal welfare as how the animals lived. He explained: “So there are in Germany here the different types of animal husbandry and that's already important to me. the animals were not kept in factory farming “.

The next factor, taste, was brought up by 63% (5 out of 8) interviewees. Interviewee #3 pointed out that, because she does not know how cultivated meat tastes, it is difficult for her to select that option. Thus, she suggested having in-store tastings in supermarkets for consumers to try out the product. This would help her to overcome her barriers and if it tastes good, she would also be willing to buy that product. This was confirmed by Interviewee #2, who added: “so to me the taste would be very important. It must not necessarily taste completely like meat, but it must taste good and not be such a vague mass …., therefore, I would [buy cultivated meat]… if I had tasted it before”.

The last factor addressed by 63% (5 out of 8) interviewees was price. Interviewee #2 considered price the most relevant factor and believed it would become one of the most significant factors for a lot of people. She imagined that it would be quite difficult to convince people to buy cultivated meat if it were more expensive than regular meat. Interviewee #5 had a different perspective on price, since he considers price to be relevant, but only after other factors. He added: “The price is also not crucial unless the product is extremely expensive; then, I wouldn't buy it at all”. Lastly, participants were asked about their familiarity with existing vegan or vegetarian, or meat burger patty brands. Appendix B.2 Frequency Distribution for Burger Brand

Familiarity below gives an overview by how many interviewees the respective brands were mentioned. The by far most well-known brand was Rügenwalder Mühle with 6 out of 8 (75%) participants mentioning this brand, followed closely by Beyond Meat and Garden Gourmet. We consequently concluded that the aforementioned brands must be included in the conjoint and the perceptual map survey.

5.3 Perceptual Map Survey - Consumer Perceptions

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5.3.1 Demographics and Associations

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5.3.2 Principal Component Analysis

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5.3.3 Ranking and Matrix of Competitive Advantage

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5.4 Conjoint Survey - Consumer Preferences

5.4.1 Demographics

Appendix D.3 Table Sample Characteristics – Age provides information about the frequency and percentage of individuals in different age groups. The biggest age group among the 148 participants was between 17 to 26 years (36.5%), followed by 27 to 36 years old (27.7%). The remaining age groups were 37 to 46 years old (10.8%), 47 to 56 years old (14.2%), 57 to 66 years old (9.5%), 67 or older (1.4%) and those below 16 years old (0.7%). Secondly, as pictured in Appendix D.4 – Table Sample Characteristics - Responses, 100% of participants were represented by being permanent residents in Germany or planning to. The next question approached the dynamics of grocery shopping in households. 73.6% of the respondents assumed total responsibility of grocery shopping, as can be shown in Appendix D.5 – Table Sample Characteristics – Grocery shopping, while 26.4% stated that they share the responsibility with someone else. Next, the provided data, on Appendix D.6 Table Sample Characteristics - Gender, outlines the gender distribution, indicating that 50% of the sample

were women and 50% were men. This result almost perfectly aligns with the current global population gender ratio, by approximately 4 billion males and 3.95 billion females (World Bank, 2023). The following data represents the distribution of education levels among the sample. According to D.7 Table Sample Characteristics - Education, 39.9% of participants held a bachelor's degree while 25.7% held a master's degree. Only 1.4% had primary school education and 6.8% completed secondary school. Additionally, 10.8% completed high school and 10.8% completed an apprenticeship. 4.7% of respondents had a PhD and none of them reported not attending school. In summary, most participants had completed a bachelor's degree or higher. In Appendix D.8 Table Sample Characteristics - Income, 46.6% of participants had a monthly income of less than €3,000. 23% had an income between €3,000-€5,000, and 8.1% had an income between €10,000-€50,000. As previously stated, the average monthly salary in

Germany was 4,496 euros, which aligns with the findings of this survey to some extent (OECD, 2023). Appendix D.9 Table Sample Characteristics – Dietary Preference shows that 72% of participants indicated no specific dietary preference, while 16% identified as vegetarian and 6% as vegan. Only a small percentage preferred low-carb or lactose-free options, and none preferred halal or kosher food. Interestingly, while the meat types participants purchased the most were minced meat, followed by chicken breast, cold cuts and burger patties only in fourth place (see Appendix D.10 Type of Meat Purchases), the most chosen plant-based alternatives were burger patties, followed by minced meat and Schnitzel (Appendix D.11 Type of Meat Substitute Purchases) which is congruent with the selections for cultivated meat (see Appendix D.12 Type of Cultivated Meat Preferences).

5.4.2 Brand Importance

This section will analyze H5 that *Cultivated meat products from a well-known brand are more attractive to consumers than stand-alone products*.

The violin chart (Appendix D.13 Brand preferences) gives an estimate on how strongly customers prefer different brands of burger patties, considering the different combinations of price and other features presented to them in the survey. “Each violin-shaped plot shows the scores of different combinations of features within each brand” (Conjointly, 2023b) including the median values in the middle. Based on the average responses and their corresponding median values, it uncovers that *Beyond Meat*, followed by the *Vegetarian Butcher*, *Rügenwalder Mühle*, and *Mosa Meat* are the most preferred brands and thus have the most appealing variants of levels compared to *Blockhouse* and *Gut&Günstig*. The traditional meat companies Blockhouse and Gut&Günstig even have negative median preference values. Hence, the median values of Rügenwalder Mühle (21.2) and Mosa Meat (13.2) were not able to refute H5. It can hereby be assumed that cultivated burger patties from established brands such as Rügenwalder Mühle are more likely to be purchased than unknown brands or stand-alone products such as Mosa Meat. However, it is also noteworthy that Rügenwalder Mühle with a cultivated meat product would still be the second-most preferred brand before a vegetarian burger patty by Vegetarian Butcher. This may imply that consumers could even prefer cultivated meat products to meat substitute products if a trusted and known brand is the one to offer the products. Even more surprising is that Mosa Meat, as an unknown brand, was more preferred than the conventional meat brands Blockhouse and Gut&Günstig indicating a considerable potential for the brand.

Additionally, Mosa Meat showcases an equally wide violin meaning that it has equally as many concepts that are ranked higher and lower on customer preference, whereas Rügenwalder Mühle as well as the Vegetarian Butcher for instance have a higher number of combinations of concepts that are preferred to the number of concepts that are less preferred.

In conclusion, amongst all, Beyond Meat is the most preferred brand followed by Rügenwalder Mühle. The reason for this may be attributed to factors such as brand reputation and alignment with consumer preferences for plant-based products. This is also reflected in the ranked list of concepts.

5.4.3 Ideal Product Composition

This section will investigate H1 *In a choice between cultivated, plant-based, and conventional burger patty products, consumers prefer to buy plant-based products* and H2: *Product variants that are more animal-friendly and sustainable are preferred over other products by consumers*.

The "ranked list of product concepts as preferred by customers" depicts a list of "potential combinations of features and prices that represent product concepts" (Conjointly, 2023b). The customer value is hereby computed as "the average partworths across individual respondent's total partworth utility scores for the combination [and] is scaled with 0 as the average value" (Conjointly, 2023b). The partworth utilities show a clear dominance of the attribute price for each brand. The ranked list of this study consists of 56 different product compositions in total. Out of these 56 combinations, 28 (50%) product combinations provide value for the customer. Appendix D.14 Table Ranked List of Product Concepts shows an excerpt with the most favourable and the least favourable attribute level combinations for each brand with regard to the value for the customer. The ideal product composition according to customer value (64.61) is the plant-based *Beyond Meat* burger patty to the price of *2.99 €*, with water consumption of *1.050l per kg meat substitute* (93% less than for conventional meat production), *2,8kg CO2 emissions per kg meat substitute* (92% less than for conventional meat production), it is *slaughter-free* and has a *meat-like, plant-based* taste and consistency. Moreover, the first 14 combinations ranked highest are all vegan, vegetarian, or cultivated meat products. Hence, H1, that plant-based are preferred over cultivated and conventional burger patties, similarly to H2, that sustainable and animal-friendly products are preferred by consumers, can be confirmed in this research. Products offering the highest value for customers have the lowest water and emissions consumption, as well as the best animal welfare practices. This suggests that consumers tend to prefer environmentally friendly products compared to conventional products but to a lower price point. The product composition with the lowest customer value (-7.23) on the other hand is the *Blockhouse* burger patty to the price of *9.99 €*, with a water consumption of *15.000l per kg Meat* (~100%), emissions of *30,5kg CO2 per kg Meat* (~100%), *factory farming* (according to legal standard), and *meat taste and consistency*. This, again, emphasizes the respondents' preference for animal-friendly, sustainable, but at the same time cost-effective products. Further, a significance of the factor taste compared to other burger patty characteristics cannot be derived. Nonetheless, the ranking in the perceptual map survey did find substantial significance of taste for consumers since they listed taste in first place.

Customers are overall rather price sensitive, preferring prices between *1.99€* and *3.99€*. Prices higher than *6.99€* result in negative customer value (see subsequent section). Comparing price points for the same product, namely the cultivated meat burger patty, of more established brands such as Rügenwalder Mühle to Mosa Meat indicates that consumers are willing to pay more for the established brand. This implies that consumers prefer well-established brands over newer entrants, such as Mosa Meat, resulting in a higher willingness to pay for the same product, indicating the importance of brand recognition and trust.

For other established brands that offer meat alternatives, such as Beyond Meat, consumers generally prefer a higher price point to a lower price point. This could be explained by consumers associating a higher price with better taste or higher quality. At the same time, within this price range, consumers are expecting the lowest water and emissions consumption, as well as the best animal welfare practices. This implies that consumers are both price sensitive while also preferring products that align with their ethical and sustainable principles. Consequently, H2 must be rejected due to price being the most decisive burger patty attribute before sustainability and animal welfare, which is confirmed by the perceptual map ranking results. There, although consumers did not rank value for money but taste first, animal-welfare and sustainability did also only come in 4^{th} and 5^{th} place.

5.4.4 Willingness to Pay

In this section, the average preferences concerning price levels will be analysed, thereby providing insight into H3: "*Consumers in the German market are willing to pay a premium for cultivated meat products compared to vegan and traditional burger products*".

Average preference levels refer to the average preferences of consumers for different price levels associated with various brands (see Figure 2). A high percentage means that this level is the most preferred price level by a large percentage of consumers (Conjointly, 2023b). Overall, consumers prefer prices between 1.99€ and 3.99€. Price point 5 and higher result in negative preference for all brands.

Evaluating the preferred price points for **Mosa Meat**, consumers on average have the highest preference for price point 1, followed by price point 2 and 3. Average preferences for price levels are negative for price point 4 and higher. In addition to the level preferences, Conjointly yields the price elasticity of demand for Mosa Meat as calculated with the midpoint method. The price elasticity of demand is -1.5, implying that an increase in price by 1% leads to a more than 1% drop in volume. This conveys that Mosa Meat's potential customers are overall price sensitive, not willing to pay a premium compared to similar products in the market. This could result from Mosa Meat not yet having introduced the product to the German market and, consequently, not having established a strong brand identity or reputation. It was also shown in the perceptual map survey that consumers are unfamiliar with Mosa Meat. Because of this, consumers may not be able to accurately assess the value of the products, and as a result, may not be willing to pay a premium.

We further analysed the average of price coefficient for each price point and found that all coefficients are negative with some coefficients being significantly larger in absolute values than others (see Appendix D.15 Average Price Coefficients for Mosa Meat). For instance, the coefficient for price point 2 is -0.39, suggesting that an increase in price by 1% leads to less than 1% drop in volume (Conjointly, 2023c). This implies that there is room to further increase the price. Average price coefficients for price point 3 and higher are larger than -1.5, implying that an increase in price by 1% leads to more than 1% drop in volume (Conjointly, 2023c). This suggests that in these cases Mosa Meat should not raise prices. Hence, the conjoint analysis alludes that the ideal price point lies between 1.99€ and 2.99€.

Comparing preferred price points for Mosa Meat and Rügenwalder Mühle, it becomes evident that customers are willing to pay more for the established brand Rügenwalder Mühle. The findings insinuate that consumers prefer well-established brands over newer entrants, such as

Mosa Meat, resulting in a higher willingness to pay for the same product. Consequently, the importance of brand recognition and trust in purchase decisions was illustrated.

Examining the brand **Beyond Meat**, consumers on average have the highest preference for price point 2, followed closely by price point 1 and price point 3. Average preferences for price levels are negative for price point 5 and higher. The high preference for price point 2 could be explained by Beyond Meat's strong brand reputation. The perceptual map analysis has shown that consumers associate Beyond Meat with a higher trustworthiness and quality than Mosa Meat, potentially resulting in an overall higher willingness to pay.

Analysing the brand **Blockhouse**, consumers on average have the highest preference for price point 3, thus, willingness to pay is significantly higher compared to Mosa Meat. This hints that Blockhouse might have a competitive advantage over other brands which allows the brand to charge a premium. According to the Perceptual Map results, this competitive advantage can be attributed to high quality and product value.

Average price level preferences are very similar for The **Vegetarian Butcher and Gut&Günstig.** Consumers have the highest preference for price point 1, followed by 2 and 3, and a negative preference for price point 4 and higher. This is a noteworthy insight as preferred price points are very similar to Mosa Meat, but perceptual map results show that associations with these brands are very different.

In conclusion, thereby referring to the H3, consumers in the German market are not willing to pay a premium for cultivated meat products compared to vegan and traditional burger products.

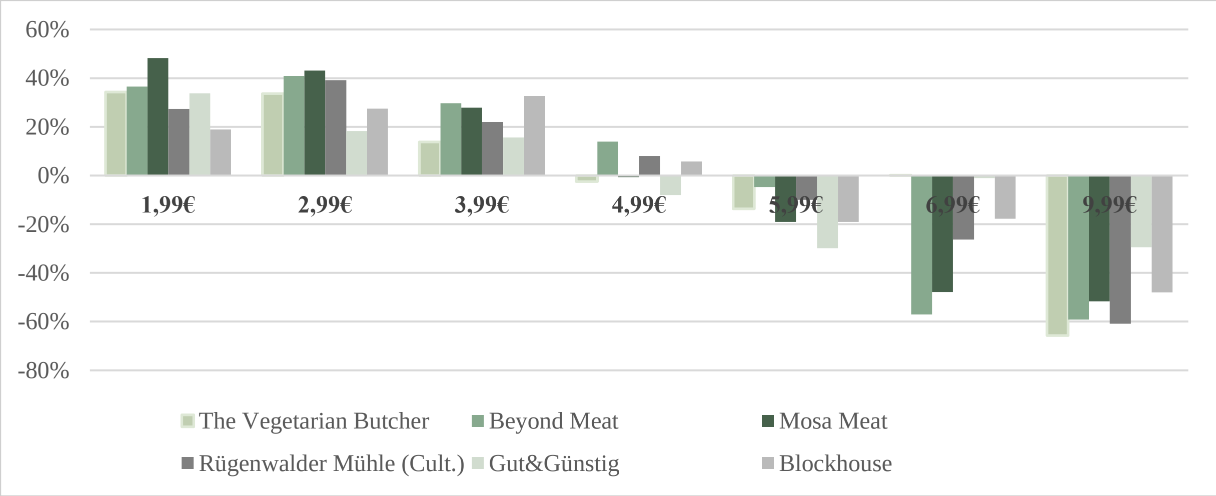

Figure 2: Average Preferences for Level of Price per Brand

5.4.5 Preference Share Simulations

In this section, the Conjointly preference simulation was employed to model and analyze consumer preferences for various market offerings. According to Conjointly, preference shares are only an approximation of market share due to factors such as availability of products (for instance, not available in all geographies), shelf space (in case of fast-moving consumer goods). Before the simulation estimated the percentages of preferences for these offerings, the previously most preferred levels per brand were preselected. An overview over the inputted levels can be found in Appendix D.16 Selected Attributes for Simulation. The simulation further allows to simulate new product launches (NPD), in this case the cultivated meat patty by Mosa Meat, to see the redistribution of preference and revenue in the simulated market after the launch. Figure 3: Preference Share Simulation shows the preference shares and revenue projections per brand both for the baseline scenario and after the launch of the NPD.

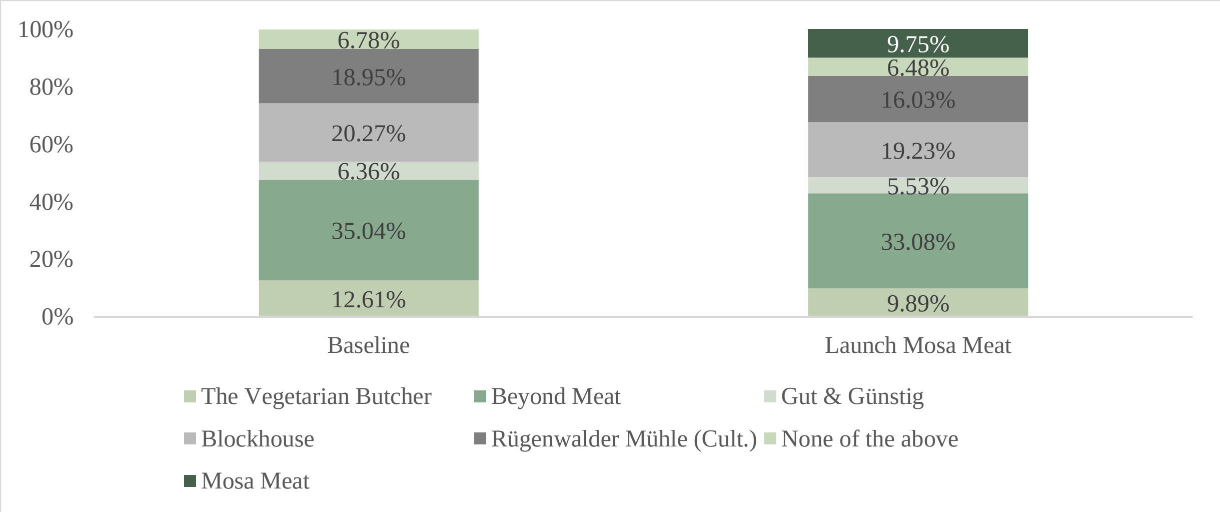

Figure 3: Preference Share Simulation

In the baseline scenario, Beyond Meat (35%) has the highest preference shares, followed by Rügenwalder Mühle (18.9%) and Blockhouse (20.3%). Gut&Günstig tends to have the lowest share (6.4%). After its launch, Mosa Meat managed to acquire a 9,7% share in the market. This is a quite optimistic view given that its competitors are well-established players in the market and the product itself completely new to the customer. As a result, all companies lose between 4% and 22% of their previous share (see Appendix D.17 – Market Share Loss in Preference Share Simulation). The Vegetarian Butcher experiences the most significant decline of 22% in market share, followed by Rügenwalder Mühle (15%) and Gut&Günstig (13%). In our simulation, Rügenwalder Mühle is a direct competitor, offering a similar product. In reality, however, Rügenwalder Mühle is a traditional meat producer and has a much broader product portfolio. The drastic loss in share can therefore be considered as rather unrealistic. Ultimately, Mosa Meat as a start-up should aim for around 1% to 5% of market share as a realistic goal for the first few years. Unless Mosa Meat is first to market with its cultivated burger patty and there are only few or no existing competitors.

5.4.6 Cluster Analysis and Segmentation

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6 Summary of the Findings and Comparison to Literature

Nr	Hypotheses	Result
H1	In a choice between cultivated, plant-based, and conventional burger patty products, consumers prefer to buy plant-based products	√
H2	Product variants that are more animal-friendly and sustainable are preferred over other products by consumers	√
H3	Consumers in the German market are willing to pay a premium for cultivated meat products compared to vegan and traditional burger products	×
H4	Mosa Meat’s brand is perceived to be less tasty than other established plant-based, and conventional meat brands	√
H5	Cultivated meat products from a well-known brand are more attractive to consumers than stand-alone products	√

Table 2: Overview of Results for Hypotheses

In accordance with previous literature, the primary research of this study on the research question “Factors Influencing Consumer Purchase Decisions for Cultivated Meat: An Analysis to Inform Effective Marketing Strategies for Mosa Meat” dives into the multifaceted field of consumer acceptance of cultivated meat.

Echoing the sentiments of Fu, Zhang, Whaley, & Kim (2023) and Stephens, et al. (2018), our expert opinions of the primary research pointed out challenges arising from the intricate technological and social science aspects of cultivated meat production (Appendix E – Expert Interview Transcriptions). Further aligning with the findings of Kouarfaté & Durif (2023), the expert interviews emphasized the complexity of commercialization and of the factors shaping consumer attitudes on cultivated meat (Appendix E – Expert Interview Transcriptions). In line with Bryant & Barnett (2020), the cluster analysis indicated that younger males who eat meat, enjoyed higher education, and have higher salaries are willing to try cultivated meat.

H1: *In a choice between cultivated, plant-based, and conventional burger patty products, consumers prefer to buy plant-based products*. The conjoint results depicted a dominance of vegan, vegetarian, or cultivated meat products as the first 14 combinations ranked highest in consumer value. Besides, the ideal product composition according to consumer value was a plant-based *Beyond Meat* burger patty to the price of *2.99 €*, with water consumption of *1.050l per kg meat substitute* (93% less than for conventional meat production), *2,8kg CO2 emissions per kg meat substitute* (92% less than for conventional meat production), it is *slaughter-free* and has a *meat-like*, *plant-based* taste and consistency. Hence, H1 could not be rejected.

H2: *Product variants that are more animal-friendly and sustainable are preferred over other products by consumers*. The ranking of factors generated from the consumer perceptions survey aligns with literature's emphasis on taste, quality, price, and animal welfare as critical factors (Van Loo, Caputo, & Lusk, 2020; Bryant & Barnett, 2020). Further, in the conjoint, consumers mostly decided according to price. However, price and taste being the decisive factors as perceived by consumers in the ranking contradicts with some of the literature stating that animal welfare and sustainability are the strongest drivers of purchase decisions (Bryant & Barnett, 2018; Weinrich, Strack, & Neugebauer, 2020; Van Loo, Caputo, & Lusk, 2020). Although this research did not entirely validate these findings, there is, however, an indication that sustainability and animal welfare do play a role in decision making. The conjoint results showed that product compositions with highest sustainability and animal welfare levels provided the highest value for customers and thus were preferred to conventional meat products and hence confirmed H2. Further, the perceptual map results also indicated that sustainability and animal welfare are relevant, while not the primary factors, ranking at position 4 and 5 out of 8, respectively. A quantitative analysis of the consumer interviews shows that when asked about the most important purchasing factors, consumers consistently highlighted sustainability second only to brand. Animal welfare was found to be the most relevant competitive advantage for the brand Mosa Meat in the MOCA analysis, whereas Mosa Meat’s sustainability benefits were perceived to be less relevant.

H3: *Consumers in the German market are willing to pay a premium for cultivated meat products compared to vegan and traditional burger products*. In agreement with Bryant & Barnett (2020), our primary research underscores the pivotal role of price in determining market success due to the highly price sensitive purchase decisions in the conjoint. Consistent with Van Loo, Caputo, & Lusk (2020) findings, the conjoint analysis suggests that consumers are not willing to pay a premium when presented with different options. H3 was thus rejected. The preferred price point emerging from the study was 1.99€, corresponding to the lowest price point presented to participants. The perceptual map results further reveal that the perceived value for money for Mosa Meat is a competitive disadvantage, similar to that of its competitors Beyond Meat and the Rügenwalder Mühle. However, Mosa Meat in particular performs worse in this regard than Blockhouse and Rügenwalder Mühle. Finally, the quantitative analysis of the consumer interviews substantiates the significance of price, ranking it as the third most frequently mentioned factor in purchase decision making.

H4: *Mosa Meat's brand is perceived to be less tasty than other established plant-based, and conventional meat brands*. Another significant acceptance factor addressed by literature was taste (Bryant & Barnett, 2018). Several studies have proposed that taste holds a considerable importance in predicting purchase intent. Findings of this research are ambiguous. The significance of the factor taste compared to other burger patty characteristics cannot be derived from the conjoint analysis which may be attributed to the facts that attribute levels were not tiered, the study was not experimental in design, and taste is rather subjective to consumers. A quantitative analysis of the consumer interviews, however, shows that taste was the third most frequently verbally mentioned buying factor out of 13. Likewise, consumers overarchingly ranked taste as the most important burger patty brand characteristic in the perceptual map survey. However, taste, similarly to quality, emerged as one of the competitive disadvantages for Mosa Meat compared to Rügenwalder Mühle and Beyond Meat according to consumer perceptions on the MOCA. Combined with the perceptual map results, H4 was thus rejected.

H5: *Cultivated meat products from a well-known brand are more attractive to consumers than stand-alone products*. This conjoint analysis mirrors the literature's stance on brand importance (Li, 2020) and confirmed H5 with the insight that cultivated burger patties from established brands such as Rügenwalder Mühle would be more likely purchased than a novel brand such as Mosa Meat. The study, however, unveils a more nuanced perspective, insinuating that Mosa Meat, as an unknown brand, holds considerable potential since it was preferred by consumers over Blockhouse and Gut&Günstig. Additionally, the perceptual map revealed that consumers seem to recognize Mosa Meat's brand as conscious, meaning animal friendly, sustainable, and healthy. However, Mosa Meat, comparable with the Gut&Günstig, is also perceived as much less reliable, the dimension encompassing taste, trustworthiness, quality, and visual appeal, by consumers than the competing brands Blockhouse, Rügenwalder Mühle, Beyond Meat, the Vegetarian Butcher, and Garden Gourmet.

This research validates and contributes to existent literature by bridging the gap between acceptance theory and practice through developing practical marketing strategy recommendations tailored to a pioneering start-up in the cultivated meat space, Mosa Meat. With previous literature having explored mostly cultivated meat in general, this study specifies actual German brands as well as the respective burger patty products, with real-world product attributes rendering the study subject at hand tangible to consumers. Hence, this conjoint analysis investigates factors relevant to purchase decisions mimicking the German retail environment to deliver in-depth insights that are crucial for a launch of cultivated burger patty products in the German market. In essence, this study creates a more nuanced understanding of consumer purchase decisions of cultivated meat burger patties drawing conclusions for the factors sustainability, animal welfare, price, taste, and brand in the German market.

7 Strategic Recommendations and Managerial Implications for Mosa Meat

In this section of the thesis, the findings from diverse analyses were incorporated into a comprehensive marketing strategy for Mosa Meat. To vividly illustrate the potential implementation, a brand book was crafted. This document not only portrays the strategic implications but also functions as a practical implementation guide (Appendix G – Bonus Part: Brand Book).

7.1 Consumer Segments and Personas

Building upon the four identified clusters and the target segment from the averaged analysis in Chapter 5.4.6, Figure 4: Persona Overview for Mosa Meat presents the delineation of four distinct personas.

Cluster	Traditionalist Meat Enthusiasts	Cultivated Meat Skeptics	Alternative Diet Explorers	Young Innovators
Name	Thomas	Michael	Emma	Nick
Description	Thomas enjoys the hearty offerings of Blockhouse. As a non-vegetarian, Thomas appreciates the rich taste of traditional meat products and is hesitant to embrace cultured meat, finding comfort in the familiar and time-tested culinary experiences.	Michael favors Rügenwalder Mühle, showcasing a unique blend of skepticism and preference. Sustainability considerations or a deep trust in the brand could be influencing his decision, making his culinary choices a nuanced exploration.	Preferring Beyond Meat for its meat substitute offerings, Emma is not bound by a vegan or vegetarian diet. She enjoys exploring alternative diet options and has a palate inclined towards the diverse and innovative flavors of meat substitutes.	Nick, part of the younger demographic, is drawn to the innovative approach of Mosa Meat. Open to experimenting with alternative meat substitutes, Nick expresses a keen interest in the future of food and is enthusiastic about embracing cultured meat as part of his progressive and open-minded culinary journey.
Gender	Male	Male	Female	Male
Age	50 years old	41 years	32 years	27 years
Brand Preference	Blockhouse (traditional meat)	Rügenwalder Mühle (cultivated meat)	Beyond Meat (plant-based meat)	Mosa Meat (cultivated meat)
Education	Master's Degree	Apprenticeship	Bachelor's Degree	Master's Degree
Income Range	€3,000 - €5,000	€3,000 - €5,000	€3,000 - €5,000	€3,000 - €5,000
Diet	Omnivore	Omnivore	Omnivore	Omnivore
Perspective on Cultivated Meat	Unlikely to buy	Unlikely to buy	Unlikely to buy	Likely to buy
Meat Substitute Consumer (last 12 months)	✗	✓	✓	✓

Figure 4: Persona Overview for Mosa Meat

In this strategic approach to targeting specific segments for the introduction of cultivated meat, Thomas and Nick were identified as our primary target segments. The selection of these segments is grounded in the following considerations.

Thomas serves as a crucial target due to the immense potential within the traditional meat market in Germany. This market, which dwarfs meat substitutes by a factor of approximately 147, constitutes a combined market worth about 40.4 billion € which provides a vast consumer base with deeply ingrained preferences for classic meat products (Heinrich-Böll-Stiftung; Bund für Umwelt und Naturschutz Deutschland; Le Monde Diplomatique, 2021). It thus represents an immense opportunity for Mosa Meat. Thomas, at 52 years old with a monthly income between €3,000 and €5,000, embodies the characteristics of a consumer who finds comfort in the familiar and time-tested culinary experiences of traditional meat. However, it is important to note that convincing Thomas to embrace cultivated meat poses a significant challenge. His resistance to change and hesitancy towards the unfamiliar make it critical to develop a compelling strategy to not only persuade him of the benefits of cultivated meat but also to encourage him to take the initial step of trying it. By directing our efforts towards Thomas, we aim to address the significant market share occupied by conventional meat products, strategically positioning cultivated meat as an alternative within this well-established market.

On the other hand, we have identified Nick as a key target for specific reasons. Nick, a forward-thinking 27-year-old with a monthly income of €3,000 to €5,000, represents the future-oriented demographic that actively seeks and embraces innovation in food choices. His interest in the innovative approach of Mosa Meat aligns with the growing trend toward sustainable and ethical food consumption. Importantly, our cluster analysis based on Conjoint indicates that Nick is the only segment willing to try cultivated meat. By focusing on Nick, we position ourselves at the forefront of the evolving food industry, appealing to a segment that prioritizes environmental concerns and actively explores alternative, sustainable protein sources.

In summary, Thomas allows us to tap into the vast potential of the traditional meat market, introducing cultivated meat to a consumer base deeply rooted in traditional preferences. Simultaneously, Nick represents the future of food consumption with a focus on innovation and sustainability, making him a key target for the introduction of cultivated meat products.

7.2 Product

Product Differentiation: Mosa Meat's cultivated burger patty stands at the intersection of innovation and sustainability, offering a unique actual alternative with many benefits for consumers compared to existent plant-based patties and particularly conventional meat.

Thomas, the target persona representing the traditional meat enthusiast segment, indicates to be unlikely to purchase cultivated meat and has not purchased meat alternatives in the last 12 months. Hence, he can be assumed to place high importance on meat taste and quality in product development, as these were the two most decisive burger patty brand attributes for consumers in the perceptual map survey. For Thomas' cluster, Mosa Meat should thus aim to offer a high-quality burger patty that not only mirrors the familiar meat taste he cherishes but exceeds traditional options by prioritizing animal welfare. Additionally, the ranking and the conjoint results showed a general significance of animal welfare for consumers and the MOCA revealed animal welfare as Mosa Meat's only clear competitive advantage. So, this must be leveraged to carve a distinct niche that convinces Thomas to change his stance on cultivated meat. This strategy positions Mosa Meat as a compelling alternative to brands like Rügenwalder Mühle as well as Blockhouse, Thomas' preferred brand, differentiating from traditional meat products as advantageous to organic meat with improved farming. Further, according to the MOCA, quality is currently a competitive disadvantage in consumer perceptions compared to Rügenwalder Mühle and Beyond Meat and should consequently be part of branding efforts.

For Nick, the innovation enthusiast, it is decisive to emphasize the cutting-edge, sustainable nature of the Mosa Meat burger patties to appeal to his environmental concerns and his openness to novel food. Contrary to Thomas, Nick's cluster will not need as much convincing since his segment showcases a preference for the brand Mosa Meat anyways. This cluster will be the early adopters of the Mosa Meat cultivated burger patty. Yet, in Nick's age segment, Mosa Meat's taste enhancement, attributed to its authenticity as "real meat" when compared to plant-based alternatives such as Beyond Meat, remains crucial for differentiation. This is particularly pivotal given the MOCA findings that currently highlight taste as a perceived disadvantage compared to Rügenwalder Mühle and Beyond Meat. Combined with the conjoint research of Beyond Meat as the generally most preferred brand by consumers, Mosa Meat must reinforce their taste superiority to turn the competitive disadvantage into an advantage.

For now, Mosa Meat is not advised to develop different product lines for the two target personas to render a successful launch as a first mover feasible. However, considering the supplementary findings on product type, a future strategy could include introducing “cultivated mince” to cater to both target segments, as can be seen in (Appendix G – Bonus Part: Brand Book). Considering the ideal product composition as the conjoint outcome, Mosa Meat should rather focus on technologically improving their water consumption and CO2 emissions as well as developing a fully slaughter-free laboratory process. This way, Mosa Meat could better compete with the sustainability and animal welfare levels of plant-based products, as these were shown to be the preferred attribute levels for burger patties. This could be accomplished with a product development strategy of introducing hybrid products at first, similar to the plans of the direct competitor Mirai Foods. To enhance Mosa Meat's market position, a strategic collaboration with Gutfried, a key player in the German poultry market, holds substantial potential. By jointly developing a hybrid product that merges Gutfried's traditional poultry expertise with Mosa Meat's cutting-edge technology, the companies can pioneer a unique offering in the industry.

Gutfried's 64% brand awareness in the German meat category (Splendid Research, 2023) provides a solid foundation for building consumer trust in cultivated meat. By following the model of Mirai Foods and Rügenwalder Mühle as described in Chapter 2.2.1, this alliance is strategically designed to bridge the gap between conventional meat preferences and the emerging market for cultivated alternatives, to also attract customer segments like Thomas. This strategy has the potential to accelerate the achievement of the market share goal of 5%.

Branding: Taking into consideration the analysis results of the conjoint and literature findings of the significance of established brands for purchase decisions, branding will become an essential tool to Mosa Meat to establish consumer acceptance, and finally gain sales. For Thomas, the familiarity and time-tested culinary experiences associated with traditional meat must be revoked when it comes to the branding of Mosa Meat’s burger patties, positioning cultivated meat rather as a natural evolution than a drastic change. For Nick, a forward-thinking and exciting communication style, perhaps even utilizing humour, aligns with Nick's interest in innovation and novelty. Accentuating the good value for money ratio can also be assumed to appeal to both target personas due to the product being biologically “real” meat but with the supplementary benefit of animal welfare and sustainability. Further, branding efforts are crucial to overtake Beyond Meat’s current competitive edge over Mosa Meat on the aspect of animal welfare. Also, the perceived reliability of Mosa Meat, as it is a novel brand, must be improved with branding to compete especially with Rügenwalder Mühle as shown in the perceptual map. However, since a brand image of reliability will be a long-term effort, Mosa Meat should focus on consumer perceptions on the conscious dimension. This could also be improved to become a competitive advantage with branding efforts, to amplify consumer associations of Mosa Meat with animal friendliness, sustainability, and healthiness. Lastly, the word cloud associations highlighted the strong associations of consumers of cultivated meat with particularly future, lab, and unnaturalness making it apparent that branding should concentrate on fighting the more negative perceptions related to cultivated meat, namely the laboratory-based manufacturing process evoking the feeling of unnaturalness.

7.3 Pricing

By considering key insights from previous analyses, this section will provide clear pricing recommendations for Mosa Meat covering both launch and future strategy. This section will further delve into the pricing strategies implemented by the most relevant competitor, namely Beyond Meat. This company was chosen as it was perceived as the most popular brand in the survey. Additionally, Beyond Meat is a relatable case as the company faced the challenge of consumers skepticism regarding plant-based meat alternatives (Szenderák J, 2022). Drawing parallels with Beyond Meat, Mosa Meat will also most likely anticipate initial consumer skepticism, making the insights gained from Beyond Meats case highly valuable in creating a strategic pricing approach that addresses and overcomes barriers to consumer acceptance.

Beyond Meats' initial pricing strategy involved positioning its products at a premium level (Reinicke, 2019). The company was justifying its higher prices by impressing consumers with the quality of the products, its taste, and impact on the environment (Powell, 2020). However, Beyond Meat recently decided to adjust its pricing model, thereby slowly lower prices until its products are cheaper than animal protein products since cost conscious consumers were not buying its products (Coyne, 2022). The fact that new companies were entering the market also played a significant role in its shift in pricing strategy (Powell, 2020).

Following this dynamic pricing strategy, Mosa Meat is also advised to implement value–based pricing at launch, while long-term focusing on lowering its product prices, as can be seen in (Appendix G – Bonus Part: Brand Book). Implementing this price skimming strategy will help Mosa Meat to reflect not only its innovative nature of its products but also to signal safety and high quality to consumers. This positioning in the market can help build trust and confidence in a new product, especially in the early stages of market adoption. Implementing a premium pricing strategy will further leave room for decreasing prices and offering discounts.

At the same time, Mosa meat is recommended to invest heavily in technological advancements and operational efficiencies that will allow it to reduce its prices in the long run. The rationale behind adopting a long-term strategy of lowering prices stems from the anticipation that many companies, both established and start-ups, will enter the market with a similar product. The expectation is that, consequently, the room for price increases will diminish, leaving the company with no choice than to lower its prices in order to stay competitive.

According to the survey results, the ideal price point would be 1.99€ as average preferences for this price point were highest. However, we recommend a price point of 3.99€ at launch. The rationale behind this is that consumers tend to underestimate their willingness to pay in surveys which could lead to inaccurate estimations of WTP. According to Canavari (2019), consumers often either lack awareness of how much they pay, or they deliberately underestimate it. Moreover, this price point represents a crucial threshold for most brands, as it is the last point before average preferences turn negative. Additionally, as mentioned earlier, implementing a higher initial price leaves enough room for introducing discounts and price reductions in response to market dynamics.

7.4 Place

For Thomas, the traditional meat enthusiasts, it is crucial to address his hesitation in embracing cultivated meat and his comfort in familiar, traditional meat experiences. Hence, one approach would be to establish a presence in traditional grocery stores, thereby leveraging the existing distribution channels that this segment is regularly using to shop for their favourite meat products. In accordance with the premium pricing strategy, Mosa Meat should focus on selling its products mainly through the biggest German food retailers, namely Edeka and Rewe, and neglect discounters such as Aldi and Lidl in the short-term. Partnering with these retailers will help Mosa Meat to not only enhance its brand image and positioning since these retailers are often associated with high quality, but also to target more affluent customers that are willing to pay a higher price. Creative in-store promotions and tasting stands will ensure visibility and provides an opportunity to gain the segments’ attention during their regular shopping routine.

Another option to reach out to this target segment would be to collaborate with speciality meat shops and butchers that offer a high variety of traditional meat products. Similarly, to grocery stores, Mosa Meat could provide in-store promotions or tastings to encourage this segment to try cultivated meat without completely disrupting their shopping habits (see promotion part).

For Nick, the young innovation enthusiast, it is crucial to choose a channel which is also appealing to his age group. Therefore, Mosa Meat could leverage online grocery shopping channels to also engage younger age groups in addition to the traditional channels already mentioned such as traditional grocery stores. A new study from Mintel found that almost half (45%) of Germans aged 16 to 24 have shopped online for groceries from a retailer with physical stores in the last six months prior to the survey, compared to only 31% of Germans overall (Maiseviciute, 2016). Mosa Meat should therefore strategically position its products on grocery online shops and popular delivery apps such as Glovo, Flink, or Gorillas. A collaboration with major online grocery platforms and delivery apps would ensure a seamless experience and would provide convenience to this segment, aligning this segment’s preference for a stress-free and time saving shopping experience (see Appendix G – Bonus Part: Brand Book).

Since Nick is also characterized by its openness to new food experiences, another opportunity to reach out to this segment could be to partner with a range of restaurants attracting individuals more open and receptive to alternative dining experiences. An environment where innovation is already embraced will help Mosa Meat to introduce and communicate the unique benefits of its products to its target group and ultimately facilitate product adoption.

7.5 Promotion

Mosa Meat's positioning is meticulously crafted to align with the distinct preferences of both Thomas and Nick, as revealed through the comprehensive conjoint analyses, perceptual mapping, and the MOCA.

Positioning Statement: Mosa Meat, a pioneering Dutch startup in clean meat production, positions itself as the natural evolution of traditional meat, cultivating a new era of sustainable, high-quality burger patties. Pioneering a cleaner, kinder way of making beef, Mosa Meat is a food technology company dedicated to helping everyone take a bite out of a better future - starting with the world's kindest beef burger. With a commitment to animal welfare and a focus on taste that surpasses conventional options, Mosa Meat appeals to both traditional meat enthusiasts like Thomas, seeking familiar taste and superior quality, and innovation enthusiasts like Nick, drawn to cutting-edge, environmentally conscious food choices. All this is offered at a reasonable price, ensuring accessibility for consumers who value both taste and affordability.

Tagline: Crafting Tomorrow's Meat Today - Taste the Evolution at a Fair Bite!

Mosa Meat caters to traditional meat enthusiasts like Thomas by ensuring that the familiar taste they value is not compromised but elevated. By emphasizing animal welfare, Mosa Meat gains a competitive edge, setting itself apart from traditional and organic meat options. For innovation enthusiast Nick, Mosa Meat highlights its cutting-edge, sustainable nature with the tagline "Crafting Tomorrow's Meat Today." This addresses Nick's environmental concerns and positions Mosa Meat as a superior choice compared to plant-based alternatives. The closing tagline, "Taste the Evolution at a Fair Bite," appeals to both Thomas and Nick, bridging the gap between traditional and innovative consumer segments identified in supplementary questions on product type.

To effectively convey our defined positioning statement, a good communication strategy is essential, targeting two distinct personas—Thomas and Nick. To build brand awareness in the German market and expanding market share and customer loyalty in the long-run, Mosa Meat should employ a dual communication strategy, differentiating between short- and long-term measures.

In the pivotal stage of market entry, where the category of cultivated meat is still unfamiliar and Mosa Meat faces the challenge of being a relatively unknown brand, selecting the appropriate communication channels becomes paramount. For Thomas, who values familiar communication channels, TV and radio advertisements would be effective, as 35% of the target audience expresses a preference for these traditional mediums (Burstein, 2015). This channel allows Mosa Meat to connect with numerous potential customers and build trust through traditional communication methods. Despite being relatively costly, particularly for a startup like Mosa Meat, the effectiveness of this channel makes it an essential investment.

Nick, a forward-thinking 27-year-old, is highly influenced by social media. Instagram and YouTube emerge as pivotal channels, with 34% of Gen Z favoring brand communication on Instagram and 33% on YouTube (Model B & Opinium, 2021). Mosa Meat should prioritize creating visually compelling and informative content on these platforms, highlighting the innovative and sustainable aspects of its products. Leveraging these digital channels right from the start is imperative. Establishing partnerships with influencers in sustainability and food innovation adds authenticity to the brand message, particularly given the 46% of individuals aged 25–34 who appreciate influencer marketing (Model B & Opinium, 2021). A selection of potential influencers and sample social media post formats can be explored in (Appendix G – Bonus Part: Brand Book).

Moreover, in-store promotions and tastings offer tangible experiences to overcome Thomas' hesitancy, positioning cultivated meat as a viable alternative within the established traditional meat market. Real-world tastings, inspired by successful practices in the wine industry, provide a dynamic way to engage and persuade consumers like Thomas. Free samples trigger the reciprocity principle, instilling a sense of obligation and potentially prompting further exploration (efmp, 2023). Educational aspects, similar to wine tastings (Olenski, 2017), become crucial in this context, enhancing the overall tasting experience and showcasing the broader culinary possibilities cultivated meat offers.

Especially in the short term, applying price discounts is relevant for both Thomas and Nick. For Thomas, discounts help overcome resistance to change and act as a powerful sales promotion tool, making cultivated meat more affordable. Reduced prices contribute to customer acquisition and loyalty. Similarly, for Nick, strategic price promotions drive engagement and adoption of cultivated meat, making the progressive culinary journey more appealing. Discounts, especially through loyalty programs, enhance brand loyalty for Nick.

As 76% of consumers aged 45 to 54 prefer email as their primary marketing channel (Burstein, 2015), Mosa Meat should employ personalized email campaigns to resonate with Thomas as part of its short- and long-term communication strategy. Potential email templates have been created to exemplify the envisioned communication, as outlined in (Appendix G – Bonus Part: Brand Book).

The overarching strategy involves maintaining a consistent brand message across all channels. A/B testing will be implemented to refine content based on audience response, ensuring ongoing optimization of the communication strategy. Mosa Meat aims to effectively communicate with both Thomas and Nick, utilizing data-driven insights to foster awareness, acceptance, and preference for its innovative and sustainable burger patties in the German and European markets.

8 Limitations and Further Research

The exploration of cultivated meat within literature has uncovered a noteworthy limitation: A lack of research addressing purchase intention and buying behavior from a psychological and biological perspective. While considerable attention has been devoted to consumer acceptance, the intricacies of purchase intention remain insufficiently examined. This deficiency adds a layer of intrigue to this thesis, as it sheds light on purchasing intentions through the application of conjoint analysis amongst further statistical analyses.

The interview segment of the research encountered challenges despite earnest efforts. Securing an adequate number of interviews proved elusive, exacerbated by the unavailability of interviews with Mosa Meat, the designated company for this study. The inherent niche nature and the relative novelty of the cultivated meat topic, coupled with limited public investment in research rendering the field highly competitive and confidential, contributed to the scarcity of responses, particularly from Mosa Meat. However, an insightful company perspective was gained through interviews with InFamily Foods and GFI Europe. Furthermore, expert interviews, while valuable, were subject to a lack of complete objectivity as professionals shared their subjective views on the cultivated meat industry. Additionally, the virtual format of these interviews, necessitated by practical constraints, hindered the establishment of personal relationships, potentially impacting the depth and quality of insights obtained.

The final consumer interviews faced a limitation in the form of a sample, drawn from the researchers' network. This introduced a potential bias, challenging the representativeness of the sample and potentially impacting the generalizability of the findings.

Shifting focus to the conjoint analysis, a notable limitation emerged due to the novelty of the product. Given that cultivated meat has not yet made its debut in the market, potential consumers lack real-life experiences with the product, leading to difficulties in grasping its distinctive characteristics. Further, the introduction of the brand in the survey shortly before questions on the brand could possibly have biased respondents', as suggested by the literature on priming and cognitive science entries (Schmidt, Haberkamp, & Schmidt, 2011). Furthermore, the complexity of these features, particularly when contrasted with more tangible attributes such as taste, introduced additional challenges in terms of consumer comprehension. Furthermore, hybrid products were not explicitly tested, despite the acknowledgment in Chapter 2 that they could represent a viable market entry strategy due to their cost advantages. This avenue warrants further investigation. Moreover, adherence to EU regulations prevented participants from physically experiencing the product, making it challenging to assess its taste, compounded by the absence of an opportunity for individuals to try it beforehand. A further limitation in the conjoint analysis stemmed from the unavailability of specific information about burger patties and their precise environmental impact. In the absence of such data, information related to cultivated meat production in general was employed, introducing an element of approximation.

Within the context of the generated perceptual map, a critical limitation surfaced due to limited information available about Mosa Meat. Ideally, consumers should possess prior knowledge of the company for meaningful interpretation, but the scarcity of information, particularly in Germany where the company is less known, hindered this ideal scenario. Similar to the conjoint, the introduction of the brand in the survey as a means of allowing questions on the brand could possibly have biased responses (Schmidt, Haberkamp, & Schmidt, 2011). In terms of the research design, another limitation arose with a non-representative sample for surveys, being skewed towards certain age groups, excluding certain age groups, and introducing potential biases, thereby limiting the study's applicability. Furthermore, the perceptual map, a pivotal analytical tool, suffered from an unequal representation of answers for each brand, affecting the overall balance and accuracy of the analysis.

In the context of the cluster analysis, the statistical nature of cluster analysis assumes no inherent knowledge of the market or consumer behavior, emphasizing the importance of interpreting and effectively using the output for successful marketing strategies targeting specific segments. This rationale led to the utilization of clusters as the foundation for the segments developed in Chapter 7.1, extending their application to other contexts. However, the intricacies of cluster analysis introduce additional layers of complexity. It is crucial to acknowledge that cluster analysis is descriptive, atheoretical, and non-inferential. Lacking a statistical foundation for drawing inferences from a sample to a population, it is widely considered an exploratory technique (Hair, Babin, Anderson, & Black, 2018). The absence of guaranteed unique solutions arises from the dependence of cluster membership on various elements of the procedure. Different solutions can be obtained by varying one or more elements. Furthermore, the creation of clusters assumes some underlying structure among the objects, but the mere identification of clusters does not inherently validate their existence. Meaningfulness and relevance are contingent on robust conceptual support and subsequent validation (Hair, Babin, Anderson, & Black, 2018, p. 193).

9 Conclusion and Outlook

In this research, the overarching goal was to investigate which factors are influencing consumer purchase decisions for cultivated meat in Germany and consequently to develop effective marketing strategies for the company Mosa Meat. To answer this research question, a mix of qualitative and quantitative research design was chosen. The qualitative approach involved conducting interviews with both professionals and potential consumers. The quantitative approach involved two surveys collecting data on consumer purchase decisions for burger patties applying a conjoint survey approach, and consumer perceptions of brands.

To answer the research question, five hypotheses have been derived from secondary research and were explored in the analysis. In line with H1, insights from our research imply that in a choice between cultivated, plant-based and conventional burger patty products, consumers prefer to buy plant-based products. Moreover, some evidence suggests that, in accordance with H2, product variants that are more animal-friendly and sustainable are preferred over other products by consumers. The research further shows, against H3, that consumers in the German market are not willing to pay a premium for cultivated meat products compared to vegan and traditional burger products. In agreement with H4, the results indicate that Mosa Meat’s brand is perceived to be less tasty than other established plant-based, and conventional meat brands. Lastly, in accordance with our assumptions, H5 was accepted, insinuating that cultivated meat products from a well-known brand are more attractive to consumers than stand-alone products.

Overall, this research has both theoretical and practical implications. With previous literature having explored mostly cultivated meat in general, this study specifies actual German brands as well as respective burger patty products, providing tangible insights into consumer decisions regarding sustainability, animal welfare, price, taste, and brand preferences. Further, this research bridges the gap between acceptance theory and practical application, offering tailored marketing recommendations for Mosa Meat. By doing so, it offers imperative information to policy makers, industry stakeholders and marketers who are at the forefront of shaping the future of food production and consumption.

In conclusion, the research shows that consumer choices play a pivotal role in shaping the future of our food industry and highlights the importance of understanding and influencing these choices to pave a sustainable and ethically conscious path forward. The outcomes of this study serve as a foundational step towards unraveling the complexities of consumers acceptance, but also as a guide, pointing towards a future where informed consumer decisions lead the charge in mitigating the environmental impact of our dietary choices.

According to Santos (2023, p. 1), “[c]ultivated meat (CM) technology has the potential to disrupt the food industry—indeed, it is already an inevitable reality”. Recognizing that cultivated meat has the potential to disrupt the food industry, it becomes apparent that embracing this innovation is not merely an option but an inevitable reality. By doing so, we can collectively shape a future where our food choices contribute to the well-being of both our planet and ourselves.

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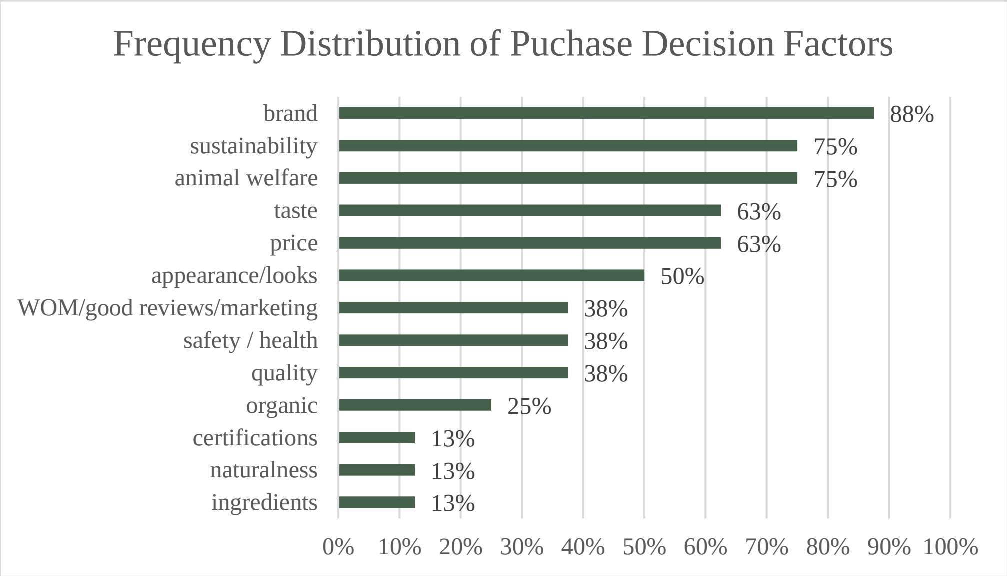
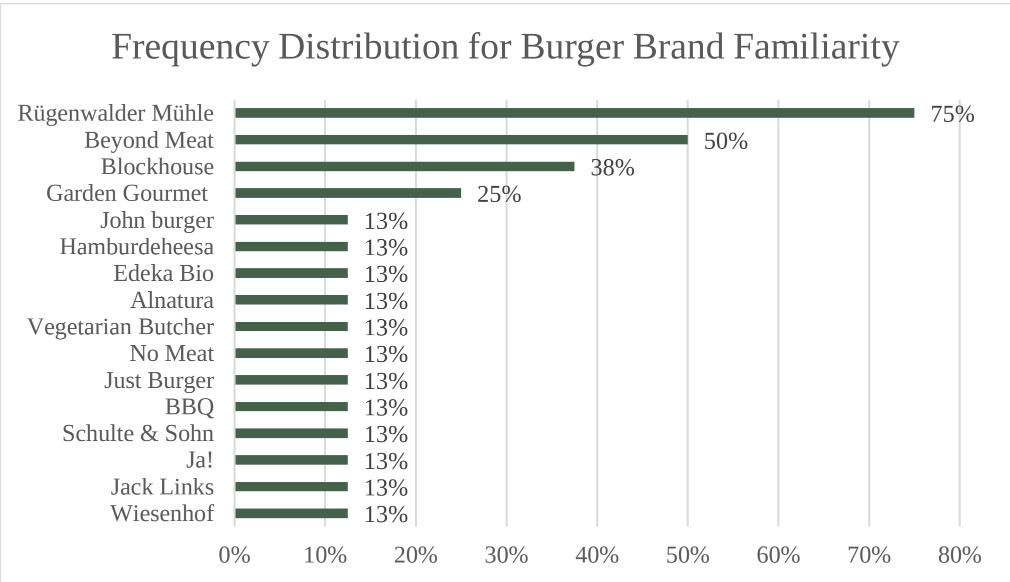
Appendix B – Consumer Interview Results and Analysis

B.1 Frequency Distribution of Purchase Decision Factors



B.2 Frequency Distribution for Burger Brand Familiarity



Appendix D - Conjoint Survey

D.3 Table Sample Characteristics – Age

Age			
Age	Frequency	Percent	Cumulative Percent
1 - 16	1	0.7%	0%
17 - 26	54	36.5%	36.5%
27 - 36	41	27.7%	64.2%
37 - 46	16	10.8%	75.0%
47 - 56	21	14.2%	89.2%
57 - 66	14	9.5%	98.6%
67 or older	2	1.4%	100%
Total	148	100%	

Respondents' age group percentage.

D.4 Table Sample Characteristics – Responses

Responses			
Participants living in Germany	Frequency	Percent	Cumulative Percent
YES	148	100%	100%
NO	0	0.0%	100%
Total	148	100%	

The number of participants, divided by people living/planning to live long-term in Germany and those who do not.

D.5 Table Sample Characteristics – Grocery shopping responsibility

Primary Grocery Shopper in Household			
Age	Frequency	Percent	Cumulative Percent
I am responsible myself	109	73.6%	73.6%
I share the responsibility with someone else.	39	26.4%	100%
Somoeone else is responsible.	0	0.0%	100%
Total	148	100%	

Grocery shopping responsibility.

D.6 Table Sample Characteristics – Gender

Gender			
Gender	Frequency	Percent	Cumulative Percent
Women	74	50%	50%
Men	74	50.0%	100%
Total	148	100%	

Participants' gender percentage distribution.

D.7 Table Sample Characteristics – Education

Education	Frequency	Percent	Cumulative Percent
Primary school	2	1.4%	1.4%
Secondary school	10	6.8%	8.2%
High school	16	10.8%	19.0%
Apprenticeship	16	10.8%	29.8%
Bachelor's degree	59	39.9%	69.7%
Master's degree	38	25.7%	95.4%
PhD	7	4.7%	100%
Did not attend school	0	0%	100%
Total	148	100%	

Participants' education percentage distribution.

D.8 Table Sample Characteristics – Income

Income (€)	Frequency	Percent	Cumulative Percent
Less than 3.000	69	46.6%	46.6%
3.000-5.000	34	23.0%	69.6%
5.000-10.000	21	14.2%	83.8%
10.000-50.000	12	8.1%	91.9%
I prefer not to say	12	8.1%	100%
Total	148	100%	

Participants' monthly income percentage distribution.

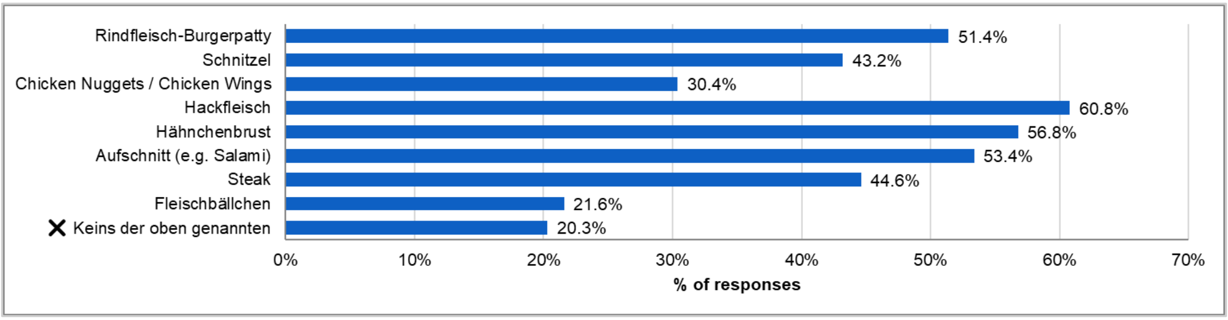
D.9 Table Sample Characteristics – Dietary Preferences

Dietary Preferances	Frequency	Percent	Cumulative Percent
Lactose-free	7	5%	5%
Vegetarian	23	16%	21.0%
Vegan	9	6%	27.0%
Halal	0	0%	27.0%
Kosher	0	0%	27.0%
Low Carb	2	1%	28.0%
I don't follow any diet	107	72%	100%
Total	148	100%	

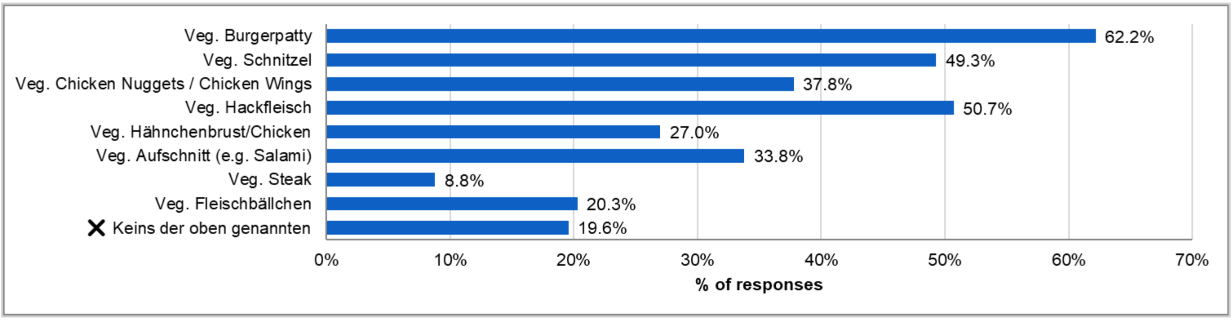
Distribution of the number of dietary preferences options chosen by respondents.

(Disclaimer: This is only an excerpt)

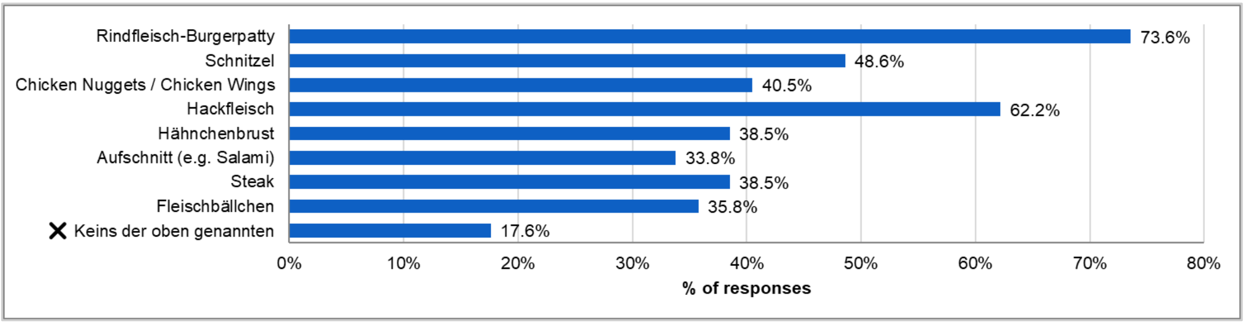
D.10 Figure Type of Meat Purchases



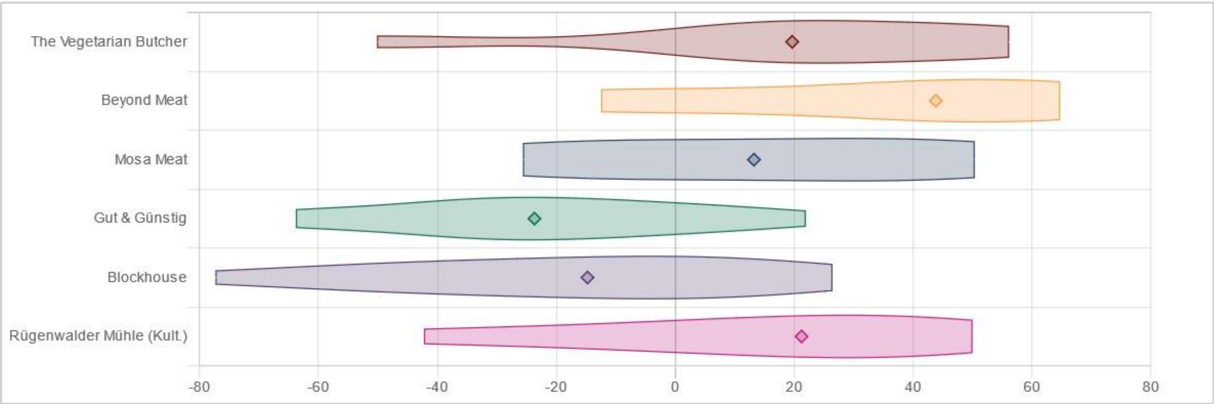
D.11 Figure Type of Meat Substitute Purchases



D.12 Figure Type of Cultivated Meat Preferences



D.13 Brand Preferences



D.14 Table Ranked List of Product Concepts

Brand	Price per 200g	Sustainability | Water cons	Sustainability | CO2 emissi	Animal Welfare | Farming and Slau	Taste	Value for customers	Rank
Beyond Meat	2,99 €	1.050l per kg Meat substitute (	2,8kg CO2 per kg Meat substit	Slaughter-free/ no farming	Meat-like plant-based (taste and consistency)	64.6	1
The Vegetarian Butche	1,99 €	1.050l per kg Meat substitute (	2,8kg CO2 per kg Meat substit	Slaughter-free/ no farming	Meat-like plant-based (taste and consistency)	56.0	3
Mosa Meat	1,99 €	1.500l per kg Meat (90% less	4,0kg CO2 per kg Meat (87%	Farming and slaughter in individual case	Minimal difference to traditional meat (taste and consistency)	50.3	6
Rügenwalder Mühle (K	2,99 €	1.500l per kg Meat (90% less	4,0kg CO2 per kg Meat (87%	Farming and slaughter in individual case	Minimal difference to traditional meat (taste and consistency)	49.9	7
Blockhouse	3,99 €	15.000l per kg Meat (~100%)	30,5kg CO2 per kg Meat (~10	Premium farming / free-range farming (o	Meat taste and consistency	26.3	15
Gut & Günstig	1,99 €	15.000l per kg Meat (~100%)	30,5kg CO2 per kg Meat (~10	Premium farming / free-range farming (o	Meat taste and consistency	21.9	16
Beyond Meat	9,99 €	1.050l per kg Meat substitute (	2,8kg CO2 per kg Meat substit	Slaughter-free/ no farming	Meat-like plant-based (taste and consistency)	-12.4	36
Mosa Meat	9,99 €	1.500l per kg Meat (90% less	4,0kg CO2 per kg Meat (87%	Farming and slaughter in individual case	Minimal difference to traditional meat (taste and consistency)	-25.5	42
Rügenwalder Mühle (K	9,99 €	1.500l per kg Meat (90% less	4,0kg CO2 per kg Meat (87%	Farming and slaughter in individual case	Minimal difference to traditional meat (taste and consistency)	-42.2	48
The Vegetarian Butche	9,99 €	1.050l per kg Meat substitute (	2,8kg CO2 per kg Meat substit	Slaughter-free/ no farming	Meat-like plant-based (taste and consistency)	-50.1	52
Gut & Günstig	5,99 €	15.000l per kg Meat (~100%)	30,5kg CO2 per kg Meat (~10	Factory farming (according to legal stand	Meat taste and consistency	-63.7	55
Blockhouse	9,99 €	15.000l per kg Meat (~100%)	30,5kg CO2 per kg Meat (~10	Factory farming (according to legal stand	Meat taste and consistency	-77.2	56

D.15 Average Price Coefficients for Mosa Meat

D.16 Selected Attributes for Simulation

Brand	Price	Sustainability – Water consumption	Sustainability – CO2 Consumption	Animal Welfare	Taste
The Vegetarian Butcher	1.99€	1,050 liters per kilogram of meat substitute (93% less than in conventional meat production)	2.8 kilograms of CO2 per kilogram of meat substitute (92% less than in conventional meat production)	Slaughter-free/no animal farming	Meat-like plant-based (taste and texture)
Beyond Meat	2.99€	1,050 liters per kilogram of meat substitute (93% less than in conventional meat production)	2.8 kilograms of CO2 per kilogram of meat substitute (92% less than in conventional meat production)	Slaughter-free/no animal farming	Meat-like plant-based (taste and texture)
Gut&Günstig	1.99€	15,000 liters per kilogram of meat (approximately 100%)	30.5 kilograms of CO2 per kilogram of meat (approximately 100%)	Premium rearing / free-range (organic meat)	Meat taste and texture
Blockhouse	3.99€	15,000 liters per kilogram of meat (approximately 100%)	30.5 kilograms of CO2 per kilogram of meat (approximately 100%)	Premium rearing / free-range (organic meat)	Meat taste and texture
Rügenwalder Mühle	2.99€	1,500 liters per kilogram of meat (90% less than in conventional meat production)	4.0 kilograms of CO2 per kilogram of meat (87% less than in conventional meat production) 30.5 kilograms of CO2 per kilogram of meat (approximately 100%)	Premium rearing / free-range (organic meat)	Minimal difference from traditional meat (taste and texture)

Mosa Meat	1.99€	1,500 liters per kilogram of meat (90% less than in conventional meat production)	4.0 kilograms of CO_2 per kilogram of meat (87% less than in conventional meat production) 30.5 kilograms of CO_2 per kilogram of meat (approximately 100%)	Animal farming and slaughter in rare cases	Minimal difference from traditional meat (taste and texture)

D.17 Market Share Loss in Preference Share Simulation

	Preference share		
	Baseline	**Launch Mosa Meat**	**Market Share Loss in %**
The Vegetarian Butcher	12.61%	9.89%	-22%
Beyond Meat	35.04%	33.08%	-6%
Gut & Günstig	6.36%	5.53%	-13%
Blockhouse	20.27%	19.23%	-5%
Rügenwalder Mühle (Kult.)	18.95%	16.03%	-15%
None of the above	6.78%	6.48%	-4%
Mosa Meat 1		9.75%	

Appendix E – Expert Interview Transcriptions

E.1 – Monica Röntgen

Interviewee: Monica Röntgen

Company / Position: Head Growth & Development Unit (Muscle Biology) at Research Institute for Farm Animal Biology

Interview Duration: 44:53 minutes

Monica Röntgen [00:00] I don't have quite that much time. So let's get right into it. Maybe just briefly state your request, what you've done or already want to do, so I can better understand what it's about. And then just ask what you want.

Interviewer [00:20] Yes, but with pleasure. We'd be happy to pick you up again very briefly. Anja, Anna and I, we are writing a paper together on cultivated meat. First of all, very roughly, we're looking at it from an economic perspective and we want to find out, what are acceptance factors? How important are they for the purchase decision? And then we'll also take a closer look at a company - it's not quite clear yet - a company in the German market and try to find out: What can the company optimize to get consumers to switch to cultivated meat? And a starting point for us, who are now working more in the economic field, is to know where research stands right now. What is the current status, so to speak, as a basis for us and then to transfer the whole thing to the economy. To put it very roughly, what do we want to do? And now we are, as I said, rather at the beginning and are just trying to show in the first part what is actually cultivated meat? What are the important factors? What is the state of research, what are the scientific hurdles that still exist? So where do we stand? And that's where we would like to bring them on board now and benefit from their expertise, so to speak. So much for that. If you don't have any questions about that, then I just want to jump right in with the questions now.

Monica Röntgen [01:51] I would be interested in the economic background, but you are doing now, what is your current status. You have just started your master thesis. Did I understand it?

Interviewer [02:02] Exactly. Exactly. Sorry. We're all studying at the Nova School of Business and Economics in Lisbon and we're now at the end of our Masters. So this is kind of the last step now before we graduate. And it's in the context of that that we're doing this interview now.

Monica Röntgen [02:21] Okay, all right, then I know. I know enough too. Then let's go through your questions best for a minute. You said you were concerned with what is cultivated meat. But maybe ask more specific questions, because I can always talk a lot on the subject. But I don't want to make it so elaborate. So stop me even if you have enough information. Or just ask in between. Yes, if you say, that goes us too far, because you have certainly already dealt with the topic something, so that yes not start from scratch, but it is already, I notice again and again. It is more complex than you think. But I don't want to complicate it. You don't need, I think, everyone and all background so that you can work on your topic.

Interviewer [03:08] Yes, yes, that's right.

Monica Röntgen [03:10] So one more question. Have you found the company you want to interview?

Interviewer [03:15] We have already asked some companies, but so far no positive feedback. That is, that is also still a bit of what makes sense that we also choose the company where we also get insights from the company.

Monica Röntgen [03:32] That makes it really difficult. I mean just when it comes to the ecological numbers her, I'm assuming, because most of you don't know yourself yet exactly how economical the numbers are or are more suitable or not. Accordingly, you will there, who have you, if I may ask, enrolled? Just so I know who so –

Interviewer [03:49] What was specifically in the room at the beginning or what was our favorite was Alife foods, which makes schnitzel products.

Monica Röntgen [03:57] Who are from Leipzig? Are they from Leipzig?

Interviewer [04:00] Yes.

Monica Röntgen [04:02] Do they already have anything at all, just to ask. I have, however, already looked at it. It must have been a year or possibly a year and a half ago, there was nothing there to be honest. Nothing that I could see either.

Interviewer [04:18] Yes, I also still believe that they don't, they don't have a product in that sense concretely yet. Exactly Mosa Meat we still have inquired, Mirai Foods we have inquired. I don't know, the others? Have I forgotten anything else?

Monica Röntgen [04:38] So I mean it like this, so I think these would already be well suited. Mosa Meat, of course, is actually a Dutch company, if you will.

Interviewer [04:51] That's exactly what it is in Europe.

Monica Röntgen [04:53] That's best in Europe, of course. I think that, I don't know to what extent they're giving out their stuff right now. So, they're actually not very open always and that's also very difficult. They are also in a really intensive phase right now, where they probably don't take the time, necessarily. You would have to find out. I think Mirai Foods is quite good, to be honest. I think they're really on a good path. But they also really want more meat from mammals or is fish also ok?

Interviewer [05:33] Nah, fish we actually thought about that too, but we ended up focusing on the fact that we would rather take meat from mammals.

Monica Röntgen [05:43] So bigger in Germany is really difficult. Because there is simply hardly anyone in Germany who doesn't actually then work internationally. Or the others are all not so far. That you could do something there. Who would also be quite suitable because of their orientation is this project Respect Farms. However, they themselves are currently making a business case for the decentralized production of meat by farmers. They could certainly help you, especially if they are so interested in the economic side. Whether this will be done is also a question. I mean, you are students. I do not know now however straight, who what with those really to do has. Normally they don't give out their data, because they are working on it. That is the content of their current project, which is running right now. That means it will be really difficult, I think. Of course, it would be good if I could think of something else. Then I can say we have a meeting the week after next, it will still take a while, the week after next, there are a lot of people from the scene, you can only ask if they can send me something more specific maybe after our conversation, what they are looking for or what they, what the requirements are, so that they are suitable for their work. One could ask yes perhaps again personally people, but it would be of course not merely sometimes, if one personally meets the people there on the spot, that one can ask then and can say, it is about a master thesis.

Interviewer [07:23] Yes, of course that would be super helpful. That definitely sends then also times what in the follow-up. Okay, maybe as a starting point for us, also as a basis to then also build on that. Can you tell us again what your role is now in the research institute and what exactly you are dealing with right now.

Monica Röntgen [07:44] So I am head of department growth and development at the institute. So we are have here still, it will change beginning of next year, but still there are six institutes, seven institutes and we are institute of muscle biology and there I head the department growth and development. Well, and also I'm head of the project that is funded by the Federal Ministry of Education and Research. And this is the consortium of four different universities, or research institutions, or a company that deals with media production.

Interviewer [08:32] Okay, very good.

Monica Röntgen [08:34] What we do is, of course, that we develop our own process in the project itself, which is oriented or I am also an idea generator of the project. So my idea came - you will certainly be familiar with the start up Meatable, also a Dutch company. I had already been interested in this topic, but then I met one of the founders at a conference and they asked me if I could help them get material from pigs, because they work with a very specific technique, with umbilical cord blood, and somehow they couldn't get their hands on this pig material, so to speak. Then we tried that. I then found out that for pig what they wanted to do might work if you use a genetic engineering based technique like they have. Then I thought, well, actually, maybe it's not in the inventor's mind now, and I set out. At the beginning really more playful I don't want to call it, but more to just find something better. Maybe something optimal, at least if you don't want to work with primary cells. So primary cells are cells that you gain from the animal. And yes, that didn't let me go. And step by step this idea came up. And that's how it came about that we started to deal with it seriously. We are practically doing the development of an entire process from cell extraction to the finished product. The goal of the project is, so to speak, to make this entire process feasible, to build it up as a prototype and, so to speak, to establish what we call an implication laboratory with us, because we build up all the steps, so to speak, that belong to this process there, also in order to be able to show something to people later. Because it is precisely those who do not deal with the biological process, but rather with technical implementation, who often have problems. This also applies to many start ups or founders of start ups. There is usually a part that really does more of the biological area and other parts that really deal more with the economy. But of course it's always the case that if you come from business or from the technology sector, then you are used to looking for certain facts and are simply not used to the fact that some things don't work out or take longer. And so on. So this biological factor plays a big role and it is certainly more difficult than it is always the case in these illustrations about processes for the production of meat. Because now it's about and that's just one thing that we consider right away when we set up our process. First of all, we have to meet the requirements for clean meat. So many people call it clean meat. That is, if you produce cultivated meat, then it should certainly be better than or at least in all aspects that may not be negative about conventional meat, of course, should not be.

That is once the ethics behind it, that one does not have to slaughter animals and also does not inflict pain and suffering on animals in connection with the meat. That is certainly an important factor for many consumers, I think, especially among the younger ones. Then was with us and that also has the reason because of course we are in Europe or we are in Germany and our project is also funded by the German government. And we all know that in Germany products with genetic engineering, but also in Europe make difficulties with the approval. Many plants are also genetically manipulated, but I think it's been so long since that was done somehow that nobody thinks about it anymore. And that's why I set out to simply find a process that actually uses the natural conditions and the capabilities of the cells that you have as a starting material, so to speak, in order to remain practically free of genetic engineering. And then, of course, cell culture is a problem with antibiotics that have to be used, especially when you're working with primary sources, then it's essential. Especially when, for example, we actually obtain our tissue in the pigsty, which of course means that this is not an operation or something similar where things are sterile, but there is fecal matter, there are other things. That of course leads to strong contamination also of material and and therefore you have to consider and that, I think, is a very important issue. Also for health reasons, because we still know that, although antibiotics are banned as growth promoters in animal husbandry. Of course, since the treatment has increased and therefore the use of antibiotics overall could not really be reduced yet, as much as it is actually necessary. The whole thing is then again related to the issue of health and I think that is also one thing that plays a big role in cell-based meat. You have the chance to produce it very specifically, to influence it more. With animals, you can also change the quality of the meat or the ingredients by designing the feed accordingly, of course. There are also possibilities and attempts to improve this. But in the case of cells, in the case of cultivated meat, this can of course be done very directly, for example by changing the fatty acid pattern, by keeping an eye on the amino acid pattern, fat-protein ratio, etc., but also by directly using health-promoting substances, such as fatty acids, omega-3 fatty acids, for example, which are then absorbed by the cells, so that the content of certain things or vitamins, for example, can be increased again. And of course, if you look at it as a product, because it comes from cell culture, it is of course also a product that is not contaminated per se. You could say sterile. But the question is, of course, does a food product that is produced in this way have to be sterile at the end of the day? The consumer doesn't have a laboratory at home, and he can't maintain reality anyway. So at the moment when it is the food, one must of course also say, there is the normal contamination that food just has, that is then certainly there again. But pathogenic germs or toxic ingredients, you can pay a lot of attention to that. And that is actually also what plays a very big role in our project, that we say we really want clean meat. And then there are discussions about whether you can say that and this and that. But from my point of view, there is simply no better term for it at the moment.

Interviewer [15:50] Okay, okay, got it. That's already exciting. We've also narrowed down our research question a little bit in the sense that we're focusing on different acceptance factors that are particularly relevant to the customer, including as one that you've already mentioned ethics and a second one that we want to look at in more detail is sustainability. So how important is it to the customer or the shopper in the sense of how sustainable the product is that they tend to switch from conventional meat to new?

Monica Röntgen [16:25]If you really believe that, I've already mentioned the factors. So just the topic. So interesting is, there are surveys already where you can see that a few factors determine that very strongly. That is the ethics, but you always have to say with the ethical aspects and animal welfare always plays, if you ask people, then always plays a big role. But it's like everywhere the price is one of the main factors. This is very important for older people, who, let's say, take protein alternatives at all, the health factor usually plays a big role, because it's clear that the older you get, the more you start, especially with male test subjects. There this topic was then probably, because nevertheless frequently men straight older men have, without wanting to discriminate, still more strongly to have an increased meat consumption. It is also, I would say, presented as a lifestyle. That is also such a topic, large grills and the like. So I think that's really a lifestyle, where you grill and have great equipment and great meat. And from therefore we think but at the same time also about okay, I actually want to do something for my health. I don't want to go vegan or vegetarian, but I want to reduce my consumption and improve my health at the same time. And that's where this cultivated meat comes into play, especially if you can implement that you really have health aspects. Whereby I must say, there are also studies that show that meat in particular is affected in general, but also good meat really plays a role in the amount that you consume. Especially for the health aspect, so many studies. There are many studies that have really tested this exactly. There are, I think, one or two studies that really make the connection to cardiovascular disease and also to cancer. But if you take a closer look, you can't say that meat as such is critical from a health point of view based on one study worldwide. Of course, that is not the case, but it is about the quantity, if someone takes extremely much. But I think that would also be the case with other things There are also with plants and with plant components many things that are relevant to health, such as allergies and the like, which can also determine. So I say it's like with all things, it's the quantity that counts. So that's why I think those who want to eat a lot of meat, of course, they already see it as an alternative. The plant products, I think, have already gotten better, in terms of taste and things. And that's the next component. So that was also shown in a study that was very interesting. The environmental aspect plays a very minor role with consumers, if you really ask when do they just buy. You have to be honest about that. A lot of people ask about it. I also think that it really probably concerns more your generation, which then seriously pursues this and really says for me the animal welfare aspect and the environmental aspect is important, while the other groups may also still mention it and maybe ask about it. But if one then really asks the question or the question is asked, would they then buy it? So then some still say yes, but buy it? Then, of course, it's about the price. And interestingly, another thing, there is also a nice thing, that is also a master's thesis or a doctoral thesis. I don't know exactly. Those could show that it will play a role, really the strength of the brand so to speak. That's probably why it's so important who is now the first to have a product with a good name, so to speak, that spreads very quickly in the market. And I think that's also the thing that that's why some companies or also some start ups that have been doing this for a long time, so they're dealing with it and they've been on the market for a long time that doesn't exist yet, but they want to become market participants, that they're definitely also thinking about the hybrid products, so they already have plant-based components in this product. It is mainly about these scaffolding substances that are used in the processes. There are cells in the process that need something to grow on. And in this case, it should also be something edible, if possible, so that many process steps are saved that make the entire product more expensive. And therefore, these are then partly made of vegetable components, so that the product itself, soy is used, for example, but also a proprietary product. And so on. So a wide variety of things, but of course still animal components in part, which then later should and must be removed again. And these products will probably be the first to appear in some form. Because what everyone is actually doing now is that they are trying to implement their existing processes, which were mostly developed on a small scale, on a large scale. And that's where the limits have simply been reached so far. And what I think from an economic point of view, if you really look at it from an economic point of view, we have to build up a completely new technology here. It's not what many have imagined. There are bioreactors in the pharmaceutical field and in other fields. But these are often devices that are not meant for these sensitive cells that are being worked with, so not for stem cells. There are now new bioreactors that have already been developed. But those are still very much oriented to the needs that they have in profiling cells that become from this microclimate, so small individuals in the field can attach themselves there, grow. And I think there will really now and there you can see now already efforts that in this direction a new technology develops, which then also devices technically so to speak and plants technically is implemented. And that then of course then mainly engineers. And so on. And that are thus quite investments, which must be transacted there, which means then again that naturally that does not contribute straight, because that calculates now into the price none, because it does not go at all, because the technology is not yet there. No one is practically pricing in these developments that are necessary. And the second factor, I think, which has never been mentioned in the price so far, is of course that you need completely different personnel, different people to work there. So that will of course. For example, we have a concept that we want to involve farmers, but the farmers would not have to be responsible for things that involve cell culture, in that sense. But there are also concepts that are based on this. And then it's either a kind of plug-in concepts, where you say you don't have to do anything more than, so to speak, serve what he has there. But even that takes a lot. And I think if something like that is, of course, it has to be, it will be then maybe as these farms change, yes, that can be part of that concept, but right now the people are not there yet who can operate cellular agriculture, so to speak. And it will definitely be people who are not auxiliary workers and who, so some of them I say of course, you can imagine, but it will first of all need highly qualified people to implement something like that. And these are also different people than, for example, normally work in a slaughterhouse or even in a factory. In other words, there will have to be personnel with even higher qualifications. I see that as a considerable cost factor, which will then fall back on the price. At some point, and this brings us back to this topic, it will be nice to have processes in place where some people say that we are really good at this. We have the cell aces we need, we can produce them relatively well. The next topic is the medium. So the medium again brings in A, an ethical problem for a vital quasi. That is unacceptable. That's really unacceptable for a meat, which you also want for ethical reasons. That's one thing. And the other is of course that the media are basically very expensive at present and one needs only now still time. This is also the beginning of the development of this nutrient medium, because this is exactly what feed is for the animal, which is the nutrient medium for the cells. Here, step by step, everything, everything must actually be removed that is of animal origin or that comes from slaughter. That is quite a lot. So, of course, there is another important factor. And that is really one of the things that is actually the worst. Of course, antibiotics are basically used in cell culture, and you have to take it step by step. I know some people who have first developed their processes using fetal cell-based methods, but I don't want to name any names. But as I said, of course it's one thing. And then say we take it out afterwards. It's just the problem that when you look at production and say I want to scale, they want extremely high efficiency and efficiency of cell propagation. And these cells all have to go into differentiation afterwards relatively evenly, preferably almost 100% as well, so the actual muscle fibers or fat cells or whatever you need, so in order to achieve that, then of course you come to limits depending on the cell types that you've chosen, then muscle stem cells, for example, are what very many processes are currently based on. You don't necessarily achieve the efficiency that you need without genetic engineering or other tools. And with other cells, there are other issues such as lack of genetic stability or insufficient differentiation capacity is the case with all very young stem cells. This means that there is a problem, and we always don't like to talk about it. As a scientist and as a biologist, it is of course rather far from my mind to first look at animals or cells from an efficiency perspective. But that is simply the case here. And it is the case that you want the cells to proliferate as long as possible without constantly needing new ones. That means you need a very high cell mass per milliliter, and every shortening of the process on the other hand or increase in the efficiency of the process means that the price goes down. And it won't be possible to do otherwise, because otherwise it will remain as it is now, what is on the market now are just smaller quantities that are suitable for restaurants. And so on. At the moment it is planned, there may be a breakthrough with one of the big companies. I do not want to say that. But the fact is at the moment the production is such that it is intended for smaller areas. And then you must not forget that this is not just about the meat that we have in the supermarket. It's also about ultimately providing a raw material for the meat industry again, from which all the meat products are made, so to speak. That's why it's also the case that many larger companies in the meat industry are naturally looking for start-ups, which are also active there as investors. Also large food companies, which of course try to get into the market through this startup, but of course first without also investing too much. And the few who really invest seriously in the area, they think of course not only that you can sell it in the supermarket to the end consumer, but they think first of all that also first of all yes a manufacturing process, which I then give to the trade. And I think what many people forget in this context is that the price of meat, which has been extremely cheap for so long, is determined by the trade, not by the manufacturer. And that is our biggest problem. That is therefore also obviously so important that you have a good brand, a very stable brand that also then and that you very. So you should really think about that in your process, so not all scientists working here are doing that now, I would say. But I'm already thinking about it. What are the things that really? How do I need to communicate what I'm doing? And I don't believe that all processes currently already meet all the requirements that one would like, but the question is simply, do I want to have certain things out of this foodstuff meat relatively quickly and promptly, preferably as quickly as possible. And which transitional solutions are acceptable and more acceptable, for example as antibiotics and fetal cell-based, for example, or whether that one thinks more about Where do the cells actually come from? So there are utopian ideas that you then constantly poke animals somewhere and somehow make them white. The consumer will not accept this if he realizes that this is not like a blood sample, but a somewhat stronger intervention, so that he may no longer accept it, if he is lied to, then you may have to say okay, there are alternatives that may come into play later. But what is communicated must be somehow transparent and reasonable. And we have also started, for example, to take the products of slaughter animals, simply because they say an animal is slaughtered. The goal is there, it has been slaughtered. It will continue to be the case that animals are slaughtered, guaranteed for the next ten years, at least. I think rather longer. With better husbandry, certainly not. But that will still be there. And I have said that it is our duty, from my point of view anyway, to use as much as possible of what this animal yields. It's a problem that animals are slaughtered. And then I don't know, a large part of the animal is thrown away. Is waste. But there is a lot in it. First of all, there is the ethical aspect. And there is also the aspect of waste. Because such an animal is actually not waste, we are aware of that by now. And so you have to say, of course I can always stand up and say that everything is crap before everything is great. But I think you also have to be able to say people, everything is like every new thing, not immediately as you imagine it. But it is nevertheless better to start, to go concrete steps and to make the, also this product must be explained very exactly, because I still hear things like artificial meat or similar things, where I think then, it is completely, it does not do justice to this product also. But that is of course an issue when someone hears something like that who is not at all familiar with food, with meat. He will of course immediately think art or artificial. Then come such sentences. Yes, the cells are produced and the cells are not produced, of course, because we take the cells as the starting material, so to speak. So nothing is artificially produced, but we work with the same material that is used to produce normal meat, only that it is produced outside the body. So, and that's just important, you might already know that, but the normal consumer doesn't know something like that, because he doesn't sit down and deal with it now, how is it really produced correctly and how much complexity does it actually have now? He doesn't do that either.

Interviewer [33:54] But that's exciting, because part of our work will also be to give a recommendation, so to speak, to the company that we choose, how the communication has to look like. So what do you need to communicate to the consumer and what does the consumer need to know in order to then also choose the product? So very, very important points that you mentioned. Thank you, that really helps a lot. Maybe also with regard to time. Maybe just in conclusion. In Germany, you are hard to say because there are still many uncertainties. And so but could you give a rough estimation how from your point of view the German market will develop in the next years, As far as cultivated meat is concerned, just so we get a feeling for it.

Monica Röntgen [34:36] Yes, that's really a funny question. So first of all, of course, I think we play a role there. I think that's important already. And then I think so far there are some concepts, you have to be honest. There are also some start ups from abroad, from the Netherlands and from Israel, that want to operate here. And there are in Germany from my point of view really, actually almost actually only Mirai Foods and then the people, from the sea food, what are they called? BLUU, who I really trust to be there quickly. Mirai Foods, just have a product that's already good. I mean, it would be of course then also such companies like Mosa Meat will come to the market and I know that next year they will definitely make an application to the EU. I don't know if you have noticed that. There has been one such meat company applying for approval. Now that was the first one actually that was submitted. I know the company quite well. I don't know if they have. I have only seen it in some journals that I have there. I know them pretty well, but they see where it comes from. It actually comes from the meat industry. The actually. And that is, I assume that you will actually have a certainly a product. It's probably going to be more in the sausage or ground beef or meatball direction. And I think that market, that's going to be played as well and relatively quickly. I really believe that. So in two or three years at the latest, German products will also be on the market here. But it will be a small quantity. It will not be this ganierte. And the tons that are now expected from the meat industry, simply because the from my point of view. What are now planned by the companies that are now in Singapore and in the US. So now for example the plan for this year still, actually for this year. But I don't know if it will be finished now. 6000 liters bioreactor, that would be relatively large. The 60,000. Sorry. And the limit now was always something like 20,000, but you have to get over that. At 20 liters, sorry for the stem cells. That means you can already see how big the difference is. Yes, that's also true. They want to build up 6000 liters now and then in the next step, they are actually already planning 250,000 liters. So of course that's already an order of magnitude that you could really call scaled. Certainly. But you say that you yourself also have great support, precisely because you have been so successful and the products have been approved. Can you count on the fact that, of course, corresponding industry partners will emerge who will then now really help to develop the process now and also develop the devices accordingly. And that is, I think, what also comes very much from the meat companies, for example, or from the food manufacturing companies. The question for me is just a little bit, whether they will be able to really make a new technology on their own and without help, or whether they will rather try to use, so to speak, a little bit what they already know and what came from the pharmaceutical industry. First of all, to produce their cell masses. That will already be possible now, so that they first have a product and the raw material, i.e. the pure protein mass, and then go for sausage. That's how I see it, which you don't see at the end anyway, what exactly is in there. And it's actually about, you always have to know that. Actually, you shouldn't talk about meat at all. It's really about the raw material protein, i.e. animal protein that is produced. There will also no one who is from the profession and who deals with food or with meat, no one will ever say yes, it should be made meat, but there it is really about this factor protein and specifically animal protein, which yes sometimes. We, which we perhaps also do not discuss often enough, which should also have a certain quality, partly by the current industry also no longer. At the price we have, no longer really be guaranteed. That has become a bad product in part, that one buys cheaply and rather in quantities. And that's where cultivated meat is supposed to lead us again, so that we have a high-quality product made from animal protein that is really healthy and then also has a corresponding price. That's why, of course, we shouldn't start saying yes, we have to adjust the price to something, certainly not to a kilo, to a euro for a kilo of pork. That can't be, that can't be. And I wouldn't advocate that that should play a role at all. That's why it has to somehow return to normal, that you also pay accordingly for a good food product. Even if cultivated meat manages to scale, then it doesn't mean it's going to happen. It will also happen, I think, in the next five years. And also in Germany there will be to buy, because also from the EU will be at least a Mosa Meat and with the support of Israel will also create other companies and majority also very well financed. They will also have products. And once I have that, then will certainly develop. That's procative and at the moment. The only thing I can see is that we've already missed the boat a little bit, because people like Meatable, for example, and some other companies, they've just left, they're going to Singapore, they're going to the U.S., because they hope to get approved there and because they say yes, we can't survive here permanently as startups or as others who want to do business. So we prefer to go where we are well financed and where we also have our, that is, where we also think. Start-ups are not yet companies, so of course they need investment, which is more difficult to obtain here. And on the other hand, they also really need support, for example Singapore provides unlimited laboratories. So if you want to become a permanent company, then you have to become independent. But first of all, they get support. That means many things that a startup can't afford and that's why they won't survive. That's how I see it. There will be a few that survive and the rest will just disappear or come to the top in the larger conglomerates. So I'm pretty sure of that, because that's going to be at a certain point we're going to, I think I read, right now 2.8 billion, maybe 3 billion, total, spent on cell-based meat worldwide. That is, if you compare now with the investments that have been made for the plant-based market, that is quite little. That is, have gotten few big ones that have also been there for a long time now, so at least since 2016 or 18. And that is natural. Can you imagine that the people who now do not manage to get the funding, which is also becoming less, now again, that is now concentrated but those where there is a great interest in it and the others have there I think there a bit of the runner-up. And I think what has to develop in parallel is simply these companies that produce technology for it. There are already some of them. And also the media companies. The media companies are very important, there is also in England, for example, there is already a company that deals with the fact that it is now no longer EU or so, but I would say, in the European area, you should actually already as its own market. I don't think you can consider Germany as an extra market from the EU. So it will certainly start as a German company certainly, but that doesn't have to be now either. The Netherlands, for example, is currently also a very good place for companies. So if there are products somewhere first, it will certainly be in the Netherlands rather than here in Germany. Because we are not the pioneer.

Interviewer [43:27] Yes, super exciting. Thank you so, so much for taking the time. That was really super much input that we can use. And just like I said, in the follow-up, I want to send you some additional input as well. And if you can think of anyone else or they have any contact that might be relevant, we would be super grateful if you could forward that to us.

Monica Röntgen [43:51] When do you want to finish? When do you want to be finished?

Interviewer [43:55] Mid-December.

Monica Röntgen [43:57] Oh, that must be quick.

Interviewer [43:58] Yes, yes.

Monica Röntgen [44:01] How much time do you have in total, so really just this, this short time? Yes, that is yes, that is already sporty of course.

Interviewer [44:09] Unfortunately, yes.

Monica Röntgen [44:11] Well, I'll definitely keep my fingers crossed that it all works out. If there's anything else, feel free to get in touch. And vice versa, I have to say we are currently allowed to deal with the.... So of course I can deal with the economic stuff for myself, but in the project I'm not allowed to do anything. So if you have interesting findings, maybe you could think of me. Yes, maybe send a short summary. I would be interested.

Interviewer [44:37] Absolutely. We will definitely send you the work as well in the follow-up.

Monica Röntgen [44:40] That would be nice. And then good luck. I'll keep my fingers crossed that I can find you people to support it as well.

Interviewer [44:45] Thank you very much. Have a great day.

E.2 – Ramona Weinrich

Interviewee: Ramona Weinrich

Company / Position: Tenure Track Professur for Consumer Behaviour

Interview Duration: 24:52 minutes

Interviewer [00:07] Hello. Thank you very much for making this expert interview happen today.

Ramona Weinrich [00:15] You're welcome.

Interviewer [00:15] My name is Allegra Baumanns, and together with Anja Held and two other fellow students, I am writing my master's thesis on the topic: " Factors Influencing Consumer Purchase Decisions for Cultivated Meat: An Analysis to Inform Effective Marketing Strategies for Mosa Meat". Anja and I will be conducting the interview today. We had already sent you the interview guide beforehand.

Ramona Weinrich [01:18] Could you briefly mention the university where you are studying?

Interviewer [01:25] Yes, we are at the Nova School of Business Economics in Lisbon. Both of us are pursuing a master's in Management, which is why our research question has a business focus.

Ramona Weinrich [01:45] Because I'm not familiar with it. Yes.

Interviewer [01:49] Okay. If it's convenient for you, let's start directly with the first question. Could you provide us with an insight into the current state of research regarding cultivated meat and consumer acceptance in Germany?

Ramona Weinrich [02:11] Summarizing the research state is challenging, as there are entire websites dedicated to it. If you want an overview, it would be best to look into the current literature. There are derivative versions available, keeping you up to date.

Interviewer [02:28] Okay. Literature review is already part of our thesis, but could you give us an insight into your specific research and how you have already dealt with the topic?

Ramona Weinrich [02:42] We are working on a hypothetical basis because the products are not freely accessible on the market yet. My team and I are researching consumer acceptance for the German market. In the future, we plan to examine it more specifically based on target groups. That's the next step. But as you may know, in the Netherlands, tastings are already allowed to some extent. They have different opportunities to work on the sensory aspect, not just hypothetically, as we can do in Germany.

Interviewer [03:27] Okay, understood. When you say the next step is target group-specific, how can we imagine that? What would these target groups look like?

Ramona Weinrich [03:37] Well, we will probably start with preliminary qualitative research, which is a bit broader. I believe there are many aspects, especially concerning customers, that allow for flexibility. Questions that can be asked include: What exactly concerns consumers regarding unnaturalness? This is reminiscent of the genetic engineering debate in Germany. Communication should not go the same way this time. But what exactly? This is something diffuse. We cannot precisely assess what actually scares consumers. We want to operationalize this question differently.

Interviewer [04:32] Okay, very good. To go back to acceptance factors, as this will be a significant part of what we want to examine and inquire about. Could you give us an insight into how you have tested this exactly?

Ramona Weinrich [05:11] Generally, one does not design the experimental setup oneself because one does not know if it is reliable and valid. What we found is what you generally refer to as sustainability, a global optimism. This is something that people cannot grasp. Somehow, there's this idea that in Asia and Africa, the demand for meat is increasing. Everyone has an average consumer in mind. It could be challenging if suddenly they want to raise the meat consumption to the level we have in Western Europe or in the western industrialized nations in general. And this could be a solution. So, it's a kind of global optimism. This could solve our sustainability problem because consumers cannot accurately assess it. I like to compare it in marketing to the usual cigarette consumption. If I smoke a lot today, I won't have lung cancer tomorrow. Similarly, if I eat too much meat, there won't be an environmental catastrophe tomorrow. We see it increasingly in the media, but as long as one is not directly affected, one can easily ignore it. These are psychological factors at play, and we see the same with diseases. Animal welfare is a different debate, not equally pronounced globally. It's a luxury problem; I must be able to afford it. We have a very high standard of living, a high meat consumption, and that's why these animal welfare debates arise, especially in the context of food consumption, where with increasing income, initially, as we observe in Asia, meat consumption increases. And eventually, one starts to think, is this healthy? Is it sustainable? We currently have the debate that cultivated meat cannot be produced without calf serum. As long as this problem is not solved, I think there's no need to discuss animal welfare. It's not really ethical. We cannot look into a crystal ball to see how meat production will look in 50 years. Will we have a large bioreactor? Will global food conglomerates dominate the market? Or will it be the case that farmers also adapt flexibly? Maybe set up a bioreactor in agriculture because the know-how is there. And 20 years ago, everyone said they couldn't generate energy; the farmer had nothing more to do. Nevertheless, today, biogas plants are standing there, producing energy, and the discussion has essentially been resolved. And that will be crucial in how we want to restructure agriculture in Germany.

Interviewer [09:00] Okay, very good. We briefly mentioned acceptance barriers, such as it being perceived as unnatural or sensory aspects. These acceptance factors and barriers need to be balanced somehow. From a business perspective, how can these barriers be minimized? For example, the issue of unnaturalness, is that something that needs to be addressed through clever corporate communication?

Ramona Weinrich [09:54] It needs to be considered more differentiated. There will always be a portion of consumers who say they don't want to eat it for various reasons. These can be different motives for not consuming it. They will always exist. And there will also always be consumers who say animal welfare is not crucial for me. I decide based on price because, from a differentiated perspective in Germany, we can say that this is a luxury problem. If I don't know how to pay for my groceries in the last week of the month, I don't care about the well-being of animals at that moment. I need to figure out how to consume calories, ensure my family gets fed, and no amount of communication strategies can change that. So, you will never reach all consumers, and that shouldn't even be the goal; it's unrealistic. But in terms of strategy, you need to look at how you communicate. It's interesting to examine what went wrong with genetic engineering back then. Why did we have such extreme aversion in Germany compared to other countries? Something went wrong in the knowledge communication. This has a lot to do with how the media portray production technology. Let me give you another example from our research: We also work a lot on waste management. It's a huge problem in my view that the media frame it as if plastic is bad, and paper is good because that's simply not true. I can use a plastic bag 30 times. They have all been banned from the market. There are only paper bags now; I use them two, maybe three times, then they break. So, in terms of ecological sustainability, the paper bag performs much worse than the plastic bag. Nevertheless, the media portray plastic as bad. That's a significant problem. It's crucial that all voices are heard, and popular media accurately represent such matters, and retailers relay that information correctly.

Interviewer [12:43] Okay, if we now look at the German market and how the situation currently stands with acceptance among Germans. How ready is Germany or German consumers from your perspective for cultivated meat? How would you estimate their reaction or acceptance upon entry?

Ramona Weinrich [13:10] Well, I think we are still far from the launch. The more interesting question, in my opinion, is how much trust is there in the approval process of the EFSA. That's much more interesting because the EFSA approves the product. Then it is safe and marketable like all other foods we have in Europe. I find that the more intriguing question. Why is there a lack of trust in the authorities when they evaluate it? And then, of course, we also have the conventional meat industry, which also has a strong lobby in Europe. And that will also be the question of how to deal with that. They are, of course, as you have seen in your research, involved in many startups and contribute with capital accordingly. But this will also tax the market.

Interviewer [14:02] How would you assess it? What do you think it will be like? Will there be a few big players in the market or more local farmers?

Ramona Weinrich [14:20] That cannot be said. Anyone making a prediction at this point is not credible. It's too far away, and the technology is simply not mature yet. There are many questions that still need to be answered. In my opinion, a reliable forecast cannot be made at the moment.

Interviewer [14:37] Okay, and do you think it can already be said where the price of cultivated meat will approximately be when it eventually enters the market? Or is that also something that is still pending?

Ramona Weinrich [14:53] Yes, everyone is free to offer the product at whatever price they want. But if you want to gain market share, I strongly believe that we can only reach, at most, the price of conventional meat or even have to be below it. This is already being played with, sometimes with what I consider to be significantly unrealistic numbers, such as needing 99% fewer resources for production. I simply don't believe that. I still have energy input; I can't reduce that to 1%. So, according to consumers' logic, the price should actually be even lower if

I see it as an inferior product, perhaps not in quality, but in consumers' logic. If less money is spent on production, I should pay less afterwards. And depending on how the economics of scale progress, the price will also decrease.

Interviewer [16:05] Okay, let's imagine we are on the verge of market entry. What do you currently see as the biggest challenges?

Ramona Weinrich [16:22] As I said, there are still many technological challenges. I don't think we can currently consider it only from a social science perspective; a lot needs to happen in production first. You have surely read that the products are already approved in the US and Singapore, but not as pure products but as hybrid products. So, it is currently not technologically possible to achieve the size and stability of conventional products and make it scalable. Other scientists are currently more in demand to advance this. As I said, we can only work hypothetically and cannot conduct tastings. And, as I mentioned, the Dutch might be a bit more pragmatic than us.

Interviewer [17:25] To get back to the whole topic of acceptance. We are focusing on the German market now, but in other interviews, we have also heard that, for example, the Netherlands is very interesting because the startup culture there is said to be a bit different. How do you assess the acceptance compared to other European countries, and does it make sense, from your point of view, to focus on Germany, or would you do it on an EU level?

Ramona Weinrich [17:50] As a company?

Interviewer [17:51] Yes.

Ramona Weinrich [00:17:55] Just from its size, the German market is, of course, super interesting because there are simply many people. So, the market is much larger. I have to look more at the economies of scale in my sales markets. Generally, there are also indices where you can see how open cultures are to new foods. The Germans are certainly not at the forefront. Look at the food shelf in the Netherlands! They are always a step ahead of us. We also saw it with the topic of insects; they simply took advantage of a regulatory gap. The Netherlands is certainly a bit more pragmatic in many areas, but so is the production level. Farmers say that regulations are getting stricter in Germany. Sometimes it is just flippantly said that not much is complained about; instead, I will look for alternative solutions and produce something else, like insects. And even in Germany, we have providers offering it on a modular level. But it has to do with culture. Ultimately, if I'm an entrepreneur, I also have to look at how I can make money.

Interviewer [19:31] Okay, very good. From your perspective, are there still gaps that can be filled with future research? Or are there particularly interesting topics to look into?

Ramona Weinrich [19:51] A lot is already being done on the European level. It will undoubtedly be a big question: which term will prevail? I was at a big conference in America three weeks ago. The term "Lab meat" will not catch on there. It's already becoming apparent. Will a German or English term prevail in the German language context? These are still issues that are not clarified. I can still work a lot hypothetically, but until the products are on the market, it's difficult to test willingness to pay.

Interviewer [24:35] Yes, very interesting. Well, thank you very much for your time.

Ramona Weinrich [24:52] You're welcome. Good luck with your work.

E.3 – Kerstin Gerke

Interviewee: Kerstin Gerke

Company / Position: Phd Candidate, Psychologist, Focus acceptance of alternative protein sources.

Interview Duration: 34:07 minutes

Interviewer [00:00] Thank you so much for your time. I know it's super early in the morning. I suggest to maybe introducing ourselves first and then maybe you could also introduce yourself.

Kerstin Gerke [00:17] Okay.

Interviewer [00:18] Allegra and I are working in a group of four on our master thesis currently, and we're in our third semester. As you may have already seen from our interview guidelines, we're asking ourselves or asking a research question, “Which factors are influencing consumer purchase decisions for cultivated meat?”. We're also looking specifically at the German market, and we also want to look at one specific company, but that's still a little bit open. That's maybe a brief introduction. Let's maybe start by I would ask you to introduce yourself, and then you could also talk a little bit about your research. Okay.

Kerstin Gerke [01:09] I'm Kerstin. I'm 28 years old. I studied psychology in Osnabruck, and I started my PhD. Actually, I started researching it a lot earlier but officially started last in October. I've been working for Niklin He, you probably know him, right? For almost two or two and a half years by now. Then he offered me to work at his university later when I finish my Master's, obviously. I found the research talking very interesting, so I was always involved in it. But I was also partly involved in a different project that was talking about sustainability in the fashion industry. However, I did some research before. I did my biggest research so far, the study that I collected myself and I also had my lead-in was the study about, would you like to eat the meat of tomorrow? Would you like to eat the meat of tomorrow? Scientific findings or empirical findings of behavioral choice experiments. And that one I also presented at the scientific conference of cultivated meat in Maastricht last year. This year, I'm not going to present, but last year I did. I guess that one might be the most interesting to you by now.

We are currently working on other projects, but I'm not so sure if I can tell you everything about it right now because we're still in the process of doing it. I'm full-time employed at the university as well. That's what we were also wondering because we didn't know exactly when you started.

Interviewer [02:53] We would like to know because we're still at the beginning of our research. I don't know if you can talk about that, but how do you generally measure consumer acceptance?

Kerstin Gerke [03:36] I did a lot of research about it. You've been asking how do we measure? However, I guess in psychology or in most social sciences, usually what you do is you try to find a very evaluated research measurement that other studies have been using so far. I did quite a lot of research on how other studies do it. Actually, to be honest, I was not really happy with the way it has been done because usually you try to use very evaluated research that has been used and you use analysis, diagnostics, you try to find variants with other research instruments and stuff, but the research in cultivated meat is not so clear. In most parts, they are trying to research the acceptance to buy, the acceptance to try, or the acceptance to consume. That's usually how their research are found. Because you've been asking in, I think I saw your guidelines, you've been asking whether what's the difference between acceptance and purchase intention of cultivated meat? Actually, the difference is not so big. In most kinds of marketing research, you would also say if you focus on willingness to buy, then you also measure the acceptance in the same breath, you would say.

Interviewer [05:18] Okay, that helps a lot because we also looked into literature and thought that those terms are interchangeable. Sometimes. But mostly acceptance is used. But then what we will use is probably a conjoint analysis, which will ask for the actual intentions. That's very good to know. And super helpful. Coming to the acceptance factor, could you already tell us a little bit about maybe what the main factors are, and what is already found? Yes, or what your basis also was for your research?

Kerstin Gerke [05:59] For us, we do a bit of cause-and-effect relationships usually. We don't only measure acceptance as a whole, we measure what leads to acceptance at the last part. Usually, we cannot say, Okay, so many percent would accept it because it's usually connected to the cost that we measure in the first place. However, a lot of other research they did before. Sorry, can you ask the question again?

Interviewer [06:35] Yes, I was asking about the most important acceptance factors.

Kerstin Gerke [06:39] I think a few weeks ago, I read the meta-analysis or multiple meta-analyses, and I think the biggest aspects are usually the information that you hand in. I guess that's quite a no-brainer. But yes, usually it's the more information that people get and the more positive the information gets, obviously, then they also tend to like cultivated meat. A few other aspects are openness to new experiences and food neophobia, and those are more the aspects that have been found in meta analysis so far. Usually, this one's more in America or the Netherlands. However, I would say the Netherlands and Germany usually have quite similar results.

Interviewer [07:33] Among the factors you just mentioned were not sustainability and ethics, particularly. Is that because you haven't come across them or because they're not as important as the other factors?

Kerstin Gerke [07:46] I would say I cannot 100% tell because I'm not sure if I'm speaking for all the research that I have so far. But usually, I would say it's because it has already been included in the information that has been given to the people. You give them the information and say it was better for the environment. And then people ask them whether they would be interested in trying it or not. If we talk about just measuring the effect of the environment in comparison to other information, for example, you have to create an experiment on which one side you give them only information about cultivated meat, and on the other side you give them information about cultivated meat, and it being more environmentally friendly than generally very environmentally friendly. Then you must measure whether those people in the second group with their environmentally friendly information would be more likely to accept cultivated meat. In most research, I think this hasn't been done, but they usually got an information text. That's what they get and then they have been asked. It says it has this effect on the environment and has been shown to be better in animal welfare, those kinds of stuff is usually what they get. And then they are asked whether they would accept it or not. In our research, for example, we try to find out whether the country-of-origin effects, for example, was a big deal. But yes, we usually handed in the information on sustainability at the same time. But that's because we assume that sustainability would have a big effect in Germany specifically.

Interviewer [09:38] Yes, okay. I understand. It's not really broken down into subcategories, but more summarized under one bigger point, for example, information.

Kerstin Gerke [10:00] If you want to really know whether the effect lies in that one aspect like sustainability, then you have to make an experiment. In most cases, I would say that it wasn't the case yet. But I guess.

Interviewer [10:09] Okay, thank you. Coming to maybe also the target market or the consumers itself, are there any specific consumer groups that you've already maybe come across that are more open or less open to graduated needs?

Kerstin Gerke [10:25] I guess that's a bit of an interesting question because in the research, for example, that we did, usually it's been people that were younger. The research that I did specifically, we have been working with... I did a questionnaire in front of a butcher shop where we asked people that were usually buying usual meat and asked them whether they would want to try cultivated meat. And for those younger people were more open to eat it. And we also found that women were more likely to eat it. But I wonder if that's because we framed it a bit like we said, Okay, the environmental effect might be better. Back then, we based it on the findings until, I think, 2020. Now there's new findings. I don't know if you saw, but we framed it in an environmentally and sustainable way, and then women tend to like it more. You know what I mean? In other research, I think I read that men are more likely to eat it because they're more open to new experiences. That's what they claim. That's how they interpret it. So for the gender, I think the effect is not so clear. For the age, I would say it's more the younger people that were more open to try new things.

Interviewer [12:01] Yes, I think that makes perfect sense. We've already come across that, especially the younger people's part.

Kerstin Gerke [12:09] I guess that's a bit of what we see in plant-based products as well. What I found a bit interesting was, for example, I've been talking to someone that does acceptance research in Japan, for example. Yes, we usually tend to... I would say in Europe, we usually tend to frame sustainability as a big aspect for acceptance in a way, the big reason also why we might want to eat cultivated meat instead. In Japan, for example, they are more likely to frame it as a new food product that is a new food experience that you might want to try, just because people there like to eat new food and try new food. That's not something maybe that we assume to happen in Germany so much if you know.

Interviewer [13:02] Yes, I know what you mean. That makes perfect sense. Like you said, I think it would be pretty similar to the plant-based product. But then again, we also talked to someone who told us that maybe the main target group would not be people who are vegetarian, but that's another topic.

Kerstin Gerke [13:23] I'm just guessing we would want also to... We don't necessarily want vegetarians to eat it. We want meat eaters to eat it. That's the main goal, I guess. Also, because the taste should be similar.

Interviewer [13:42] Thank you so much on that part. Since we're focusing on the German market, we would also like to understand your perspective on that. Do you think that Germany is ready for the culture to meet market?

Kerstin Gerke [13:58] Does the question refer to acceptance or whether the infrastructure is?

Interviewer [14:08] Yes, I meant more from the consumer expectations and not the regulatory side.

Kerstin Gerke [14:18] What's interesting is there is the researcher. Maybe you've been talking to her already, Jana Moritz for example. She did research on two different political policy compared to groups of politicians, like the German ones against Norwegian ones, I think, or finnish. And she said there's a huge difference that you can see by politicians. People in Germany, the politicians in Germany really dislike it in comparison to Finnish or Norwegian ones, and most of them really don't. I would say in Germany, it is very much a question of how it will be framed later. Actually, I would say there are a lot of aspects. First of all, the likelihood of a lot of people relies on agriculture. Those people might not like it so much. Even though we have also been doing a research study in Hanover last year on the agricultural, also die Messe in Hanover. It's the biggest of its kind. A lot of young people also were a lot more open towards it, I assume. But that's a subjective experience by asking them because the results are not there yet. And yes, usually young people like it more. But yes, agriculture is a big field and people really rely on their own products. That one could be negative also. I think politicians are not so much open towards it, as according to the research by Jana Moritz, as I heard from the presentation. That one, I would say, is a big aspect because if we look at plant-based products and the fact that plant-based milk is not allowed to be called milk, but I would say when cultivated meat comes to the market is a big difference whether you have two products, both are next to each other and one says, Okay, it's just small. This is made, this in vitro meat, and the other one says this is chicken. Or whether you say, Oh, yes, a big factor, of course, on the acceptance is how you call it. I guess you already got the information, right? That's why. And if the politics decide we have to call it, for example, I don't know, *"Künstliches Fleisch",* what a lot of or what a lot of people say, then in that case, I would say the acceptance will be a lot lower. And then it also depends on the production method. I would say, like a big deal that I cannot find from research because I did not specifically ask for it, but it's definitely whether Decarboxyl Serum is still included while producing it. For me also, I would say it's a huge impact. And then we also have the agricultural lobby, maybe. That might play a big difference. I would say not so much. However, in my research, when we ask them whether they're in front of a butcher shop, we have to say, we ask multiple people whether they want to get a sausage at the end of a voucher, and then they could exchange it for cultivated meat sausage in three years. 40 % still decided to take a voucher, which was surprising. And if we look at the research that was posted in Amsterdam, for example, where they had two different... That was the only behavior experiment where they had meat and then they could choose. They told them one was cultivated meat and one was normal meat, and then they could choose how much they wanted to pay. They were actually more open to pay, on average, more for the cultivated meat. I would assume how the politics will be made and how it will be labeled and how it will be... How people will talk about it in advertisements and stuff will play a major role in the acceptance. On average, people are quite open. Younger people are more open.

Interviewer [19:12] Yes. You also mentioned the Finnish market and also, I think, the

Netherlands, right? Do you think Germany will be on the forefront when it comes to the introduction of cultivated meat? What do you see other markets are moving faster?

Kerstin Gerke [19:28] I would definitely say within Europe, right? Yes, within Europe. I would definitely say if something happens within Europe, then probably the first one would be the Netherlands, mostly because first of all, the basic idea came from the Netherlands and a lot of researchers are based there. And there's also a lot of... I have been to Kuala Lumpur this year where there was information on cultivated meat. And I met die ambassador of the Netherlands In Kuala Lumpur, she also said they are trying to find new regulations to maybe let people try it soon, but they are really working hard towards it. I would say one of the big problems is also in Europe generally, that if you're a big company or if you're a company, I guess you want to be allowed to sell it. You must go through a long process with an authority, which can take 1.5 to 3.5 years before you are allowed to sell. And I guess the first one that for us for this was Aleph Farms in Switzerland, right? They started in July this year. Switzerland is another one that would probably be first, and then I would say the northern countries as well, maybe Germany after that, I would say. But that's just the subjective, personal.

Interviewer [21:37] Yes, of course. We had very similar opinions on that. Especially on the Netherlands, that they are on the forefront. They're very eager to introduce us new innovations and very open to that. I think that's a big topic. Since our research will also focus a little bit on the willingness to pay, the actual price that consumers are willing to pay, do you have any information on how much it costs right now and how it will develop over time in Europe?

Kerstin Gerke [22:14] Yes, a bit. For me, I have been doing my exchange semester in Malaysia before and actually have been there for another nine months last year. Malaysia is quite close to Singapore. Every once in a while, I was also in Singapore. I try to also overlook what's happening in Southeast Asia right now, which there's a big movement as well. And I also went to.. I didn't get to try it, but I was there while there was tasting in Singapore, for example. And I was able to talk to someone from Just Meat. And he told me, Okay, so right now, they're actually producing... Okay, this is the end of March 2023, but they are still producing in a small, I think, school or something. They don't have a manufacturer and big company yet. They usually sell under the production costs. They don't sell for the full price that the production would usually cost. But right now, they still sell one portion of the chicken bowl that they serve. I don't know if you know. They either sell salad or the sewers, which is called sate. And then this one they sell for 19 Singaporean dollars, which would be around €13. Just Meet is the company that is actually the basic company, and then Good Meet is a company based in Singapore, and that's also the one that has been allowed to produce in America right now. I would assume the conditions are still quite the same or similar in America as well. The reason why they can sell it a bit lower than the actual production cost is actually because they get a lot of research funding and they want to see how people react towards eating it. Talking about the price, it's still quite expensive, but of course, you can see that it got a lot cheaper in comparison to 2013. People have been debating on that congress as well is whether people might be focusing on more expensive meat. For me, it's quite surprising that they still focus on chicken. When it comes to production, the idea is, for example, to produce very expensive meat or fish that usually has a high cost in the first place so that it's easier to be able to reach that price as well. But price is a big factor right now. I think I've heard that cultivated meat might be able to compete with the price of normal meat by 2030. I think this researcher said in an interview, I don't know if that's true. I don't think we'll be able to reach it by 2030, but who knows?

Interviewer [25:36] Very interesting. I think it's still going to be pretty expensive in the beginning probably, but we also talked to one researcher who said that that's not even the goal to come down to a similar price level. It's traditional new product. Interesting.

Kerstin Gerke [25:56] Maybe it makes sense because I mean, then it would be a luxury product that you like to buy because you really enjoy it maybe.

Interviewer [26:07] Also, interesting approach. I guess we're coming to an end of the interview. Are there any other maybe also learnings or insights? We already talked about different markets, but any other insights from other countries or markets that you find may be interesting?

Kerstin Gerke [26:26] What I personally found super interesting and what I would like to do a study about, but I didn't yet, I think it's not on the as well, is that usually the countries that are on the forefront of doing cultivated meat now don't do it. It might be interesting for you too. They don't really do it for sustainability reasons. I like Singapore and the Israel I would say those two countries are really pushing it right now. It's more because that's what I heard from them when I've been talking to some people. It's more because they're scared of food scarcity. I've been asking a woman working in Singapore, she said one reason that really pushed the production of cultivated meat also and that pushed the acceptance when she was talking to people, not in scientific studies or no significant effects and stuff, was that within two, for example, in Singapore, you're highly dependent on Malaysia because they don't really have any natural resources in the country itself. During the COVID period and the start of the Ukrainian war, there was a shortage in grains and stuff. So Malaysia was not able to produce as much chicken as they used to. They started to reduce the export of chicken to Singapore. And then a lot of normal companies and selling, salesman and stuff that she asked, Why would you like to sell this if you, in fact, actually really love your chicken? Then they said, Yes, it's true. I really love it. But if it's the only chance that we have in order to be able to keep on producing, then we would take cultivated meat. I would say a very similar thing is happening in Israel as well. They don't have that many resources and therefore producing it would give them a high amount of independence from the countries surrounding them, I would say. And in Singapore, I don't see... They are very highly educated. And maybe there's a lot of people that also really focus on sustainability. But I would say in Southeast Asia, and I would also say from subjective experiences that I heard that Israel also not so worried about sustainability questions and the environment for example, Germany is, I would say Germany, it's in the media all the time. People really talk about it. It's not the same in Southeast Asia, for example. That one I find very interesting.

Interviewer [29:12] That's a very interesting topic and also very interesting to see how there are so many different approaches. But. You assume from what you said last that in Germany, it would be different, right? That we'll focus more on aspects such as sustainability, ethics to also consumer acceptance because there's more awareness around it, if I understood it correctly.

Kerstin Gerke [29:34] I would say other than maybe sustainability, there's not so much of a need for Cultivated meat. Long term, we don't know because of environmental change and climate crisis, but right now, we would be able to consume our own food we actually even, in fact, exported. Long term, it might going to be a different reason. There are also another aspect might be if you look at the global market and we have to be able to compete with other markets that might be producing cultivated meat, and then there's an advantage on the economic side that you have to produce cultivated meat might be another factor, but that one's not so much talked about. Therefore, I would say, yes. But as we see sustainability actually highly influences the political decision or the way people vote, there are still, of course, a few people that don't really care about it. But I would say also younger people care more about it, and then we also see younger people accepting it more. I would say in Germany and Europe might be a bigger aspect. And also if we look at the Netherlands, for example, they have a huge nitrate. I think the nitrate in the floor or in the ground is very high because of the high production of beef and things and stuff and all the manure getting into the ground and stuff. If you look at those aspects, maybe that one will be effective. But you also have to go with something that people are highly aware of, I would say, in general terms.

Interviewer [31:38] Super interesting insights. I guess that will also influence the communication strategy that firms will also use to get to customers. That's highly relevant to our research. Okay, do you have any other questions? With that being said if you have anything else or any other insights you would like to share. After, you're welcome to reach out to us.

Kerstin Gerke [32:10] Do you have any plans on when you're going to finish your master thesis?

Interviewer [32:24] Actually, we are quite close. The date is quite close. It's the 13th of December.

Kerstin Gerke [32:31] Nice. Will you be allowed to hand out any information on the results of your interviews?

Interviewer [32:46] Yes, definitely. Right now, we're talking to experts in the field, people that know more about it to also gain a little bit more background information on it, and also to have a base to work with. But the main research will be around a conjoint analysis, where we will ask different attributes, and different levels, and then ask consumers which one they would prefer. That's our main research. I'm very confident that we can also share the information. If you're interested in that, we can also, of course, send it to you.

Kerstin Gerke [33:21] That would be very nice if you don't mind.

Kerstin Gerke [33:28] Yes. It's very interesting. I would also love to hear about it, and I would also love to do some research about it.

Interviewer [33:36] Yes, that's great. Okay, then thank you so much for your time. We appreciate it. It was very helpful.

Kerstin Gerke [33:43] Thank you very much.

Interviewer [33:40] And we will let you know once we submit it.

Kerstin Gerke [33:48] Thanks. I wish you all the best for your final few months.

Interviewer [33:53] Thank you so much. Have a nice day.

E.4 – Ivo Rzegotta

Interviewee: Ivo Rzegotta

Company / Position: Public Affairs Manager at the Good Food Institute Europe

Interview Duration: 43:44 minutes

Interviewer [00:01] Good morning.

Ivo Rzegotta [00:05] Good morning.

Interviewer [00:12] How are you?

Ivo Rzegotta [00:14] Good. Good. Nice weather. The good appointments yesterday on a completely different topic than the meat on the topic. Whether we find 7% or 9% VAT on dairy products of plant nature in Germany. That is also such a perennial issue. We are now a bit hopeful that we will get something there. Maybe at the beginning of next year we will get something that will end this discrimination against plant products. But that is still undetermined.

Interviewer [00:52] Really exciting. In any case, first of all, thank you very much for your time. We really appreciate it and maybe we can start right in if you don't have any questions. I did send you the interview guide ahead of time. But we're just writing our brand thesis together and the other two are taking notes. And it's about cultivated meat and especially about purchase decisions and how to increase consumer acceptance in the future then. And we want to find out which factors are influencing consumer purchase decisions for cultivated meat. In general, I would say let's talk at the beginning maybe first about your position and then about cultivated meat products in general then purchasing decisions, regulatory aspects and positioning. Can you tell us a little bit about your position at GFI? And about yourself?

Ivo Rzegotta [02:08] I'll be happy to. You wrote 30 minutes. So, if it's going to be longer than 30 minutes with me, it's not bad. I don't have a follow-up appointment now. The institute is called GFI. It's a non-governmental organization. We are still a relatively young organization. And it's been around for seven years. It originated in the USA. The mission of the whole thing is that we say we want to create a sustainable, equitable and safe food system or nutrition system worldwide. And we don't think we can do that by re-educating people, but simply by making technology driven products better so that they also have more choices for sustainable products. And we see there the role of so-called alternative proteins, so cultivated in meat, but also precision, fermentation, plant-based products, all the solutions to these problems. The organization now has 180 employees worldwide. Here in Europe, we are 25 at the moment, working in the fields of policy, science and collaboration with industry. I myself have been with the Food Institute for a little over a year and a half and am responsible for our work here. In Germany, we now have a core team of two people, and I lead that. Here in Germany, I have a completely different background, actually from aviation, a topic that I am very interested in, and I am therefore very pleased that I have been able to promote it here in Germany for a year and a half, especially in the area of politics.

Interviewer [04:08] Yes, it's exciting that this interaction between business, science and politics is mega exciting for us right now, because it covers all aspects of our work. So it's definitely great that we can talk to them. And then the next question would be about cultivated meat products in. What is your assessment of the current status of development, especially of research? And when do you think the market launch will take place?

Ivo Rzegotta [04:38] Yes. Does that refer to Germany or worldwide?

Interviewer [04:42] We are primarily interested in the German market, but also in Europe in general. But of course it's also super exciting if you can classify that in comparison to other countries, the US or Israel for example.

Ivo Rzegotta [04:56] Basically, cultivated meat is something that has been around for 100 years or so in terms of the idea, so the idea is to sort of turn cells into a process outside of the animal to sort of grow tissue out of it. And that's being seriously pursued, so to speak, to produce really cultivated meat. This has been going on for about ten years. There was this moment in 2013, where the first burger was tasted in August, a little more than ten years ago, which at that time still cost 250,000 €, the equivalent of a citizen in the production. Since then, a lot has happened. So now we have about 150 160 start ups working on the issue, worldwide. We have x large meat corporations that have said, we want to look at that, that should not pass us by. The trend and invest or specifically went in this area and worldwide. And we are slowly reaching the point. A lot of innovation has been achieved in recent years. Unfortunately, a lot of basic research, which should really take place in the state sector or in the public sector at universities, has migrated to start-ups and taken place there. But that's why it took ten years. But now we are slowly getting to the point where the leading edge companies, the ones that are really at the forefront of development, are now leaving the R&D phase and entering the validation phase, i.e. the proof of concept, is there, and it works. You can already taste it in some places, buy it in some places. Now the question is, how can I scale it so that I can actually bring it to market? Because it's still incredibly expensive. We're a long way from having a product like a burger that somehow still costs €250,000 now, but we're nowhere near having that kind of quasi cost, compatibility and cost equality. In Singapore, where it is already approved for sale, you can get a chicken skewer for 14 US dollars. But that is not the production price. That is still highly subsidized. Now to the market launch. So the big question is when, when and how do I get the price down so that I can put it on the supermarket shelf? Yes, we think it's the end of 2023, that it's going to take a while. Because it's really about building factories around the world now. Production capacity, because that's the only way and the only way I'm going to get the cost down is by scaling. There are other levers as well. I'll say that if I get even further in a medium, in research so to speak, to make it cheaper for the medium, that also reduces prices. But that's going to take quite a while, so we're assuming that an actual launch in the broad market probably won't be visible until the end of the decade, so it will then get unprecedented margins and market share. I know that sometimes you get a different impression when you see one or two press releases from a start up is of course a different logic because they have to convince investors that they will be in the market in two years. If we are at the moment opposite a market, then that is first of all at the market be in the sense of one begins to introduce it over high-priced restaurants then to get also consumer feedbacks that not the day X sales it admitted. Now it's all coming into Rewe. That's going to take quite a while. There we are in the point what see is first approvals worldwide and we have since December 2012 the approvals in Singapore. We have 2023 now approvals for the first two products in the U.S. and also a more recent development that the last month and a half. We now have first approval applications in Switzerland and in the UK, here in Europe, not yet in the EU.

Interviewer [09:21] Yes, yes, we've heard that before, that the EU is also a bit slower there and also a bit more cautious, but generally super exciting. And yes, there are definitely still a lot of technological challenges. But basically it makes sense to start with research on consumer acceptance now, because we have already talked about the example of genetic engineering, where such a huge mistake was made in terms of acceptance in Europe in particular. What would you say is the target group for cultivated meat? And what customer segments are there that are more or less open to the products?

Ivo Rzegotta [10:05] And cultivated meat is, after all, recognizable as meat in terms of character. What we grew up with, one more, the other less. And that is a product, what I from the whole strategic goal not to vegans or vegetarians and the vegetarians. This group comprises 12% in Germany currently, which eat vegan or vegetarian. And occasionally it is communicated that this group grows. This is statistically not at all empirically provable. Actually we already determine that in the last ten years not really what happened. There I believe, a point of vegetarian to vegan shifted. That is it thus I say times, in the newspaper reads one, gets one another impression. But actually that is not so and if one wants to change now what at the nourishing system, then one must find a way around the 88% to reach, which do not nourish themselves vegetarian and vegan and it to a large portion that it has itself actually what done. There's a large percentage of people who claim to have flexitarian diets, whatever that means. I think there's a wide divergence of definitions there. So even those are, I say, I don't get them affected, I don't get them with tempeh and I don't get them with such a I don't know, such a vegetable burger as there was maybe 15 years ago. I can only get them with products that come very close to the animal original. That's where we've seen technical leaps. We are also interested when I look at the Beyondburger or the Impossible Bürger, which is not yet approved in the EU. These are products that come very close, but not yet close enough for us to have a really significant market share. In the meat sector, we have a market share of 1.5 to 2% in Germany. You get the wrong picture when you see these big shelves in REWE, it's actually a damn small market share. And the consideration is that with cultivated meat, with more sense you get these people much more likely. And that can be proven statistically as well. There is, I'll say, not much, but there is a little bit of consumer research on the topic and there you see, for example, that the topic is much more receptively received by people who eat meat. And then there are correlations there as well. Men have a greater acceptance for cultivated meat than women, whereas with these plant products it's the other way around. So there are already initial indications that this product is reaching people who are not being reached so well with the plant-based alternatives that are on the market today and that may come onto the market in the near future, so to speak, that we are more likely to do so with cultivated meat.

Interviewer [13:06] Yes, that's interesting. We have already read that in the literature. Just because it Good Food Institute yes already has a lot of insights in research, we would also be interested, is there any consumer insights, acceptance or purchase decisions? What would you say? How do you get these meat-eaters to buy cultivated meat products? So there are different factors. And which are the decisive ones?

Ivo Rzegotta [13:37] All right, now that was several questions in one. First of all, there is research on the topic, because research now not so much, but I say, I say also you may not like this now, but it is so. We are at the moment still in the phase where, I say, consumer research is not the most important research in the field. We are still in the area where bringing forward the technical, so how do we get the costs down and the like. The priority is the results that we have in empirics. There are different results. I'm only talking about Germany now. If you look at it, we ourselves did a survey last year on this topic - I don't know if you have it, but I'd be happy to send it to you afterwards. We did a survey that came to the conclusion that 57% here in Germany would say they would buy cultivated meat if it were the market today. It's interesting when you break it down a bit like that. It also shows what I just said, that it is more pronounced among men than among women. Above all, however, there are stark differences between the generations. 57% of the general public, that is actually only said by people under 25. The figure there is 82%, which is incredibly high. Other studies show similar results. The University of Osnabrück came to the same conclusion. Forsa has come to the conclusion, the University of Bath in England, which has also conducted research in Germany, has come to the conclusion. They are all in the tunnel between 50 and 60%, which would say buy, If you look now times the first half of the year 2023, you will find in the press also other things. There were also some who said no, we have measured acceptance here in Germany at 30%, some even at 12%. But there is a decisive difference, and we are working very hard on the issue of acceptance, research, communication, etc., namely in the methodological design. The studies I have listed for you. Our study by the University of Bad Osnabrück, Forsa, they all did one thing. They asked people in a representative sample: What is actually happening in the process? And then they said: Would you eat that? And then we come out with 50 to 60 %, while those who arrived at significantly lower results here simply asked in Germany: Would you eat lab meat? Yes, and that makes the difference. People want food, not lab products. And if I say to them, okay, we have real meat, which is presented differently, where the same process that otherwise takes place inside an animal is done outside an animal, so to speak. The whole thing takes place in containers that are more reminiscent of a brewery than a laboratory. Then they say: Yes, I would taste, I would buy. But when I say yes, meat from the lab. And then there are the associated images of petri dishes and blue gloves. People are somehow reluctant, especially when it comes to this topic. In this respect, there are these. There are these surveys and they make us feel very positive that in other countries it is similar, in Spain it is similar. Similar in the UK. In Italy it's a little bit less and in France it's only 33% instead of 57. But you have to say. The question "How do I actually get people there now? I don't think communication is the relevant question. When I have a new technology, I always have early adopters here. I'm not even taking the price, the value of Germany, this 50%, the 33 in France. That's still a very good value until we will be able and have built the infrastructure to produce cultivated meat for 33% of the population here. We are so far into the 2030s there. So it's really a matter of building up a complex supply chain here, so that we can, as it were, increase production worldwide, i.e. the acceptance that is there at the moment is completely sufficient for a market launch, completely out of our so that the demand is very, very much higher than the offers that can be made at the beginning. And the question is how acceptance will then develop. Are there people who will still say in 2040, "I don't want to know anything about this, I want my slaughtered animal, etc."? From my point of view, these questions are not yet so clear in 2023. The question as to which factors contribute to this, we say relatively strongly, this contradicts a bit the thesis that you said at the beginning, that people have conscious ethical questions, sustainability questions. The core questions antibiotics etc. They've heard it all before. Are they also reminded of it occasionally. But when they are already standing on the supermarket shelf or when you are sitting in the restaurant and have everything in front of you, then I say, our research and that is actually our Theory of Change as an organization, that what becomes action guiding in the end is: The price, the taste. That has to be both a pair, so to speak, and also availability. If I have to order the first thing online in a complicated way, that's not attractive either. We believe that this narrative of price convenience is extremely important in getting people. So we have to deal with ourselves until we believe that we have to make the meat either taste as good or taste better and that it has to cost as much or less and that only then will it really become a factor that will get us beyond a few euros then that we can actually transform the system with that.

Interviewer [20:16] Yes, okay, interesting, but as I also heard earlier. So there are also influencing factors like for example that you provide information and that the customer is then just more willing to try it. If, as I said, you only talk about laboratory meat, then that could be more of a hurdle, because then the customer perceives it as very unnatural. But if you then provide information about the process and possibly also that it is better for the environment and ethics, then that could lead to more people buying meat.

Ivo Rzegotta [20:56] And yes, so of course, communication has a huge influence. But we just believe first and foremost that in terms of communication, you have to avoid taking this narrative of supposed unnaturalness. So it has to be in the communication, what will be relevant to whether people actually buy the food etc. will be that we portray how it's really produced he in such a setting, that we make it clear that it's not unnatural, that it's a natural process that's just not inside the animal but outside the animal and where the product is. That's relevant. The question where we are more skeptical is that it will actually have a very large practical relevance, whether we educate to the fact that it will save x million or billion animal lives. We are a bit more optimistic on the climate change issue. That's why we put that in the foreground and not the animal issue. A bit more optimistic. But we still believe that this is more of an argument, which is also of great interest to us and others. That it does not fit however with individual consumption decisions the taste. If the price does not fit, then the topic ethics does not become sufficiently, as it is with purely that it is also a derived factor. Not so that the does not play a role, but it plays a somewhat subordinate role compared to the others.

Interviewer [22:36] Yes, okay. And hypothetically, let's say it's 2030 or 35, the products are already on the market. They cost the same as conventional meat. And taste is also good if there are then different players in the market. How could a company then stand out? So how could a company then convince the consumer to buy its cultivated meat products?

Ivo Rzegotta [23:08] That's of course, that goes a long way into business administration, I have limited expertise in that. But there is of course in the area, so I can move a little bit away from just replicating a product one to one, which product I just want to replicate. And I suppose once, a burger patty or something, then the possibilities to differentiate in the market are limited, of course. then that's kind of a commodity good. But basically yes this this area cell cultivation gives you more possibilities. For example, one could replace unhealthy saturated fatty acids in a meat product with healthy omega three fatty acids. Research is being done on this, for example in the publicly supported project in Spain. There are many who are simply working on the topic of cultivated fat. Of course, I can name completely different things. I can do the whole thing there, of course. I can somehow introduce some species that don't even exist anymore, something like a mammoth, or I don't know if that's really something that should be in demand on the market. I do think that people are trying to maintain their current dietary patterns and that's what you can do with beef and chicken. That's where that will help to differentiate in the market. Otherwise, of course, there are means such as marketing, which plays a huge role here. And there will be companies that clearly position themselves in such a way that they say okay, we have a huge benefit here for animal welfare and for the environment and sustainability, etc. But there should also be some that decidedly don't do that. Because what we have seen here in recent years is that large meat companies are also getting involved in this area. In Germany, we have the situation that the largest company currently active in this area, the CULTIVATED B from Heidelberg, is more or less a spin-off of the company that produces bear sausage, and of course they will not do anything to say in their communication that meat is not sustainable. But we are now coming up with a sustainable product. So they will approach the whole issue very differently. Yes, otherwise. Yes, I think a lot will come from marketing. And otherwise it will still be exciting with the whole area of meat products, meat products, I have quasi the unstructured and the structured products will see. And even in 2030, we're still going to be talking about unstructured products that can stick together like everything that I do so meat. The question when I have every first T bone steak from cell cultivation is a different one. We're talking about completely different time horizons there. Can you do a lot kind of with 3D printing or something. But those are both solutions. It's going to take time before you really think about products like that. And that's also something where you can differentiate yourself from the competition, of course, if you're somehow the first to come up with such products, that's also exciting.

Interviewer [26:44] Yes, okay, I see. And when we just talked about big brands, they would say existing meat producers such as Rügenwalder Mühle and Cultivated B, for example. Those are the ones from Family Foods, as far as I know. Do you think they will catch on as well? As the first largest cultivated meat products manufacturer? Or do you think that it's more likely to be smaller start-ups that specialize in this and could then also advertise with sustainability and ethics, for example?

Ivo Rzegotta [27:20] That is an absolutely open question. And in order to even begin to answer this question, you have to get political. At the moment it's the case that in Germany in particular there is an extremely great reluctance on the part of politicians to provide public funding in this area, to go in there, to do research funding and so on. Worldwide, too, but worldwide we see that this has changed a bit in the last two years with us. The Netherlands is spending 60 million, the U.S. is spending an incredible amount. Israel is spending an incredible amount in this area. In Germany, there is a lot of restraint. So here, people are focusing on other issues, such as ecological animal husbandry, etc.. And why does this point come to mind now? Because it makes the difference in the end. If I use public basic research that is open access and the results don't disappear behind a wall like that, if I use it to lift the foundation, so to speak, if I use it to answer certain fundamentals, technical fundamentals of this industry, for example, how do I get a sustainable, inexpensive medium, then the basis for start-ups will be completely different. Then many more people will decide to say okay, then I'll go into the startup now and can concentrate my efforts to develop a product out of it, which I can push through in the market and which I can also get from others, if that. At the moment it is so that every single after basic research and in between there are everywhere, that is so work in silos, everything unfortunately in each case in the same topics and events.

Interviewer [29:11] Then you can't learn from each other.

Ivo Rzegotta [29:13] Exactly. You can't learn from each other. You don't have a base to go out to. And that, of course, incredibly favors the big companies that are at a huge advantage. That is, as long as that's the case, that the state doesn't recognize that as a research priority as well, to go in there like they did or however that implies, as long as that's the case, there's some danger that that ends up going home with just Nestle, Unilever, et cetera. The issue, that is so! That is, that's where the state now in 23 24 actually has to answer the question, What kind of commercial landscape would I have later on the subject? Quite apart from the question that if this is all developed in the USA, etc., then it can of course also be that this then becomes a pure import story in the end. And that is of course not nice from a German point of view.

Interviewer [30:12] Maybe just from this political point of view. Then do you think that cultivated meat is approved in the EU?

Ivo Rzegotta [30:21] There is currently not a single application for approval in the EU. There has been though before. A week or a week and a half ago it was reported that Cultivated B is now in this process. In some media. If you read through the press releases, it is not the case that they are now in a preliminary procedure. There are others in there too. But not many. A single-digit number of companies are also in there. And these, that means that no official dossier has been submitted yet. If a dossier is submitted, then there is a rule process and the process takes 18 months. That means that no matter what happens now, nothing will happen here before 2026. Experience shows, however, that this is unfortunately a particularly thorough procedure in the EU, which unfortunately also tends to become a bit bureaucratic at one point or another and therefore experiences delays. Experience shows that even in the case of very uncontroversial products, this can take sometimes. 24 months and 30 months can take. That it can take longer, which means an exact prediction in the sense of on day X an application is submitted we get then and then out is not possible here. That means it will still take a little while and at the end of this procedure there is also a very large uncertainty factor, because after the competent authority, that is the EFSA, has checked whether it is a safe product and has said: It is a safe product. This is followed by another step. Then it goes to a rather political committee. This is called the PEF Committee and all 27 member states sit there and in the end a vote has to be taken and a qualified majority has to be reached. And that is actually the biggest hurdle, but there is usually not simply voted, but there is already the idea that the vast majority agree. And sometimes it happens that people say that there is still a need for discussion, "We'll postpone that for another six months. And so it's very, very difficult to predict what a very big problem is and what a reason for it is. Because you're surprised that German start ups are trying their luck here in Singapore and in the US first of all. And also looking with one eye on the UK. There are reasons for that. And they lie in this.

Interviewer [33:02] Yes, yes, we have already heard, the meat lobby is of course also very strong. And when you say for example that in the in the EU Germany is already a very interesting market, or is it rather maybe Netherlands or another country?

Ivo Rzegotta [33:22] I would say that in the EU, Germany is the most interesting market, so the most interesting sales market definitely. We see that Germany is the biggest market for plant-based alternatives by a huge margin. By a huge margin. And also while last year I say the rates growth rates were not good in UK, Netherlands, in Sweden, in Spain, they were 11% in Germany and not 30% as we used to have, but 11%. Germany is the most populous country. Germany produces some of the highest approval ratings in these surveys. That means Germany is incredibly interesting as a sales market in terms of production. In the sense of where are the most startups? It has to be said that the Netherlands is a country. It's about the size of North Rhine-Westphalia, but it's better positioned than we are. And okay, there's still some catching up to do there, too. Where things look good again is in the companies that provide the industrial base, so to speak, that produce the ferments. And here, of course, Germany is extremely well positioned as an industrial and export location with all these companies. Sartorius, GEA, CULTIVATED B, in other words, the industry that is behind them and that ultimately forms the backbone of the entire industry. I could imagine that Germany would want to play a very, very leading role in this.

Interviewer [34:56] Interesting, You need a lot of collaboration, so from different sides. May I ask, I also read at Good Food Institute that they also collaborate with production companies or startups. Which ones are those?

Ivo Rzegotta [35:14] I'll confidently say all of them. Here are 180 worldwide and I am in very good contact with all the companies that exist in Germany on this topic, or at least those that have identified themselves as such. In this area, you always have the phenomenon that a few companies first start and start and only later say: Now we are so far and now we are also quite far. So the companies that somehow demonstrably already have something to do with politics, with the meat and what, we have a lot to do with them and they also come to us as a rule and not really who there already, I think in the whole area yes have a role that is seen.

Interviewer [36:06] Really interesting. And there's one there for Germany in particular that has especially great potential. Or even several perhaps.

Ivo Rzegotta [36:17] In Germany, the situation is that the companies for cultivated meat are very... There are not many. It's already indicated here, with Netherlands and yes, the UK. I think the ones that are closest to the whole launch issue are the ones, CULTIVATED B and Bluu Sea Food. Those are, I think, the ones that are just very close and the ones that are actually looking at an end product now, so big companies that are suddenly working on end products. Otherwise, in Germany we usually have companies that are not working on their products at all, but on either just machines for it or on, I'll say solutions, so something like if you look at Innocent Meat from Rostock. They want to market their own product, but they want more of an industry solution, because they say they supply people who want to produce a ferment, a cell line, a medium. And that then such a plug in complete solution and they can then join that is insofar the top provider and offers them, they essentially in Germany. In fact Bluu Sea Food and Alife Foods are also working on a B2C approach. But they are still very far away.

Interviewer [37:52] Yes, we have already been in contact with Cultivated B, and also with Alife Foods. We find that interesting, but unfortunately nobody has answered us yet.

Ivo Rzegotta [38:03] Well, that happens with the companies, it's there a bit. Otherwise, I think it's particularly exciting to really look at the industry behind it in Germany. So the role that a GEA can have there as well, which is Merck Industries. Merck industries is an absolute pioneer in the field worldwide largest are from Darmstadt, which I think since at least 2019 working on the topic to all possible, So development of cell lines. And I think, so, when it comes to the international ecosystem not so much about what you lie in the German supermarket, these are the Companies.

Interviewer [38:53] Yes, interesting. Because we're looking at more B2C, so also the product for the end consumer, so that's why it's also a little bit hard, but definitely super interesting insights. I might have one last question from me regarding pricing. If it should be the case that at the time of market launch there is a higher price than for conventional meat on the market. How could companies justify this to consumers? What would be the main arguments that could persuade consumers to buy the product anyway?

Ivo Rzegotta [39:35] I'll say, if I really want to hear the great breadth of society at the end, that I then can't help but undercut this price if necessary. But in the beginning, we're talking about early adopters. That is yes, I say, in the plant based area there we are yes also clearly above the prices, clearly still with the prices, so even more so if you compare that on its 100 gram basis and not wrong, where I somehow get 20 chicken legs and in return I get quasi a small pack. Nuggets of Planted and stuff . And as long as I move in the area, where it is not at all about to convince here quasi the last somehow, as from Germany somehow still the last 30% at the end to the acceptance get. As long as I think I'm doing well and I think I even have to go over the sustainability track and say for this product so and so much less percent greenhouse gas emissions have been emitted plus land requirements, so I can also come over the topic of purity of the product. So I can also say, has been produced without antibiotics, without hormones of any kind, because yes cultivated meat is produced in a controlled environment. So there will be arguments in this segment and how they turn out in the end to pay for sustainability. We would have to see what it looks like when the process is scaled up. But there are already initial studies. I don't know if you know the one from the study that says we will at least with beef minus 92% greenhouse gas emissions are possible. With pigs and with chicken it is then not so good. With pigs it's still so about minus 40% or 60 or so and with chicken it's even so, that's the report, so pretty much nothing at all, at least in terms of greenhouse gas emissions. So with all the other factors that are mentioned and built for that air pollution, water consumption or so? There it all still looks very good. So I also see that you can do something with sustainability factors and there will certainly be individual companies that get into this topic via the ethical question. But based on the target group analysis that we talked about at the beginning, that will not be the consequence. Because we must not forget that at this point in time, in four to five years, this plan will be much broader than it is today. And that means that many, many people for whom this is so important will probably already have solutions with the animals.

Interviewer [43:00] Yes, so vegetable is then in no way a substitute, but rather still a supplement. so thank you very much first. Do you two have any more questions? Then really many, many thanks. It was super many interesting insights that we can use very well further. We are still writing our thesis until the middle of December. That means we can send you the final thesis if you are interested. Great, then really 1000 thanks and still a very nice day.

Ivo Rzegotta [43:38] And I thank you too.

Interviewer [43:40] Thank you.

E.5 – Florentine Zieglowski

Interviewee: Florentine Zieglowski

Company / Position: Co-Founder Respect Farms & General Manager CellAg Germany

Interview Duration: 33:50 minutes

Interviewer [00:51] Thank you so much for your time, first of all, we highly appreciate it. And we actually just talked to Monica Röntgen as well, who said we should talk to Respect Farms. So I think you might know her.

Florentine Zieglowski [01:08] Yes. The world is small. Yes.

Interviewer [01:14] So that was already really interesting. But of course, we looked at your profile, and I think you have super interesting insights for us as well. So just to give you a brief introduction, we are writing our master thesis currently about more of the business perspective. So consumer acceptance, especially which factors are influencing consumer purchase decisions for cultivated meat and we are looking at the German market.

But the research question can still change a bit depending on what we find out during the expert interviews. And yes, so this is why we just kind of want to get a big picture in the interviews first and maybe also hear what you have to say regarding your insights. And maybe we could just start with you telling us a bit about yourself and what you're doing at Respect Farms and what you are learning so far.

Florentine Zieglowski [02:19] So I came into the cultivated meat industry, not necessarily through Respect Farms. I led the nonprofit organization CellAg Germany for the past year, and I think that's also how you came across my profile. I'm not sure, but I thought I was acquired by my CellAg email, but, yes, that's what I did for a year. So a lot of public policy work also a little bit like lobbying for cultivated meat in front of key policymakers in Germany, but also on a European level. I was working with CellAg on a European and international level. And then, of course, I wanted to be well, actually, that was before, but I really, really wanted to work in the cultivated meat sphere. And I also wrote my Master Thesis about cultivated meat, decentralized cultivated meat production. And, yes, through some context, I came to a woman called Ira Van Eelen, that is the so-called daughter of the godfather of cultivated meat because he was the first one getting patents on cultivated meat, but also to getting public access research on the topic in the Netherlands. And then, I was invited to join her in Amsterdam and then I did. And what I experienced regarding your question, a lot of openness inspiration, experimentation for the field. A lot about this and that' a little bit my background. So at Nova, I'm coming from a completely different field, politics and I thought it would be a great idea to also have management background to start a career in cultivated meat. So, that's what I did and it's working really well. We are, as respect farms, the only ones or sort of the only ones working on a decentralized approach. So not having the big production facilities, but more like a regional approach, decentralized approach to cultivated meat production. We also believe that it's an alternative to the production and we can ask for premium prices for our products because we have the sustainability approach in a different kind of way, like short transportation kilometers or local cell feed, these kind of things. And you can also add a little bit of a regional taste profile to your end product. So I think that maybe also regarding to your research, what I experienced or what we believe could work and how we can differentiate from other companies.

Interviewer [05:57] Interesting. So does that mean you think that the future will have many different approaches to cultivated meat production because you said alternative or do you think this is a decentralized production is the way to go and it's the only way it could be implemented?

Florentine Zieglowski [06:19] No, it's definitely not the only way to go. I hope it's not, to be honest, because the meat demand will increase by 3% over the years until 2050. So there's a lot of demand that we cannot deliver with only decentralized. But I like to compare it a little bit with the beer industry. So we had in the 1930s to 50s we had a consolidation of the market. So a lot of big players playing in the market and there was a decrease in breweries in the world and actually brewing beer is similar to cultivated meat production. And these taste profiles of beer became quite boring to people. So therefore, craft beers were invented and these work best in smaller breweries. And also you also get this regional taste profile and a little bit more specialty beers. And so nowadays we also have Heineken and we also have craft beers and they coexist and actually they're not even targeting the same market, same part of the market. So I really do believe there will be a coexistence of the different approaches.

Interviewer [07:56] Interesting. If I understood that correctly, is it more that respects farms is more B2B, helping farmers and existing meat production farming companies choose which. And I also saw that you did some research. Did you also do some research on consumer acceptance on this kind of site or only farmer acceptance?

Florentine Zieglowski [08:28] We only did farmer acceptance. If you're interested about current literature, then I would recommend you to go to GFI. Most of the research is done by them and they have a really broad approach and results. So, we really focus on farmers acceptance because we are more the B2B people. We see ourselves as system integrators. So, we think that in collaboration also with other cultivated meat companies we can really make this happen. We are on the production side of the value chain, and others might supply parts of the technology. Some might provide parts of the cell medium, the growth factors. There's a lot to be done, and no one can do everything by themselves. And I think most of the companies have realized that, and we are trying to bring everything together.

Interviewer [09:40] Very interesting. And what would you say are the biggest challenges? Are those more operational or are those also related to the branding side? How do companies then communicate to the market?

Florentine Zieglowski [09:59] I think the challenge is, on one, the technological side and getting a process done. At the moment, everything is on lab scale. Also, the big companies that you see out there, because, simply said, the equipment doesn't exist yet to produce cultivated meat at large scale. So, to get a process done that is in itself automated, where you really where it's a process of not having a petri dish and then putting that into a bigger petri dish, and then maybe into a small bioreactor, and then manually transferring that to a bigger bioreactor. So that's not how manufacturing works. That's how research works. But we have to bring that out to manufacturing companies, farmers really being food producers, and scientists being on the innovation side of things. So, I think that's the biggest obstacle. Yes, maybe branding as well, but companies are not so much focusing on that.

Interviewer [11:24] And in terms of feasibility and maybe also price points and costs, do you have any insights on how long it will still take to get the products to the market and if there's already knowledge about it, how much it will cost?

Florentine Zieglowski [11:49] Yes, I do think it's going to be a premium price. Even if you have price parity, there will be only a few players in the market at the beginning at least. And because of supply and demand, these companies will be able to ask for a premium price. I also think cultivated meat doesn't have to be price on price parity because it provides all the sustainability goals that a lot of consumers have. It uses much less land. It uses much less water. It will be energy efficient if we use renewable energy. So that's also the goal of a lot of companies. So, first of all, I don't think it's necessary at the moment. In Singapore, a cultivated meat dish costs $23. But I don't think that it's covering all the costs at the moment. But that's how they sell it. They're also not very transparent on how much it actually costs. I think at the moment, it's maybe €60 per kilogram, but that's really a rough number. So there are a lot of different numbers out there, and they might not actually be true or based on few assumptions, because at the moment, no one can produce. So, all the cost calculations are of course based on assumptions or based on the assumption that you would be able to use a bigger bioreactor. But you don't have that bioreactor yet. But I mean, since 2013, it has already come down from

250,000 to, let's say under €100. So that's in ten years a big difference. And I really think that in the next ten years, it's only a matter of a few years.

Interviewer [14:17] And in that regard, from your perspective, what would you say are the biggest promising markets? Is it of course probably the US and Singapore, but in terms of the EU, we've heard before that Germany might not be the best, but the Netherlands might be better for producers. Or would you look at it rather from a European perspective?

Florentine Zieglowski [14:49] I would look at it from a European perspective. So if you access the market in Europe, you can sell everywhere, which is great. So let's say the cultivated meat company, Mosa Meat will get a product to the market. Then they will be able to partner with a German meat manufacturer, for example. Well, actually they're working with a Singaporean, but let's say they would. So, I think the Netherlands has a huge advantage in terms of their innovative culture. They're just more open to it. They have a startup culture and there's a lot of innovation happening there. On the other hand, the bioreactors, for example, that are currently used, most of them are German. So, in the supply chain, bioreactors equipment, also growth factors, Germany has a lot of knowledge from the farmer industry and that could be easily applied in the cultural meat industry. So I see a lot of potential in partnering between startups and bigger ventures.

Interviewer [16:18] Okay, Yes, interesting. And I've seen you also partner with Mosa Meet, so would you say this is one of the potential big players in the next years?

Florentine Zieglowski [16:32] Yes, definitely. I think Mosa Meat is the biggest player in Europe on meat. And there's of course also Aleph Farms. They handed in Dossier in Switzerland, which is also an interesting market because they are in Europe, but they're independent. But yes, I think Mosa Meat, Aleph Farms, GOOD Meat also these are the big players. But that has a lot to do with investments and capacity to research.

Interviewer [17:16] Okay. Because actually in our research, we also would like to work more closely together with a company, but unfortunately none so far replied. So if you have anyone from Mosa Meat to be interested, then we would be more than willing to talk to them because then we can also find out what they would be interested in terms of market research for consumers and maybe work a bit together with them.

Florentine Zieglowski [17:50] I would love to, but I can already tell you it's probably going to be a no, because for them it's a lot of effort to work with students on thesis just out of experience because I also tried that. But maybe that changed over the past two years. Could also be but I'll ask.

Interviewer [18:22] Thanks. Yes, it would also be like not close collaboration, but already one interview would be great. Yes. And what else do I want to ask? So do you have any insights on what would be the biggest target population or target consumer group? Would it be like depending on education, demographics.

Florentine Zieglowski [18:52] You mean like in the world?

Interviewer [18:56] Maybe in Europe?

Florentine Zieglowski [19:03] I think it depends on whether you're targeting a bigger market or differentiation in your product. I do think Germany is a big market. Well, it's the biggest country. It's one of the biggest in agriculture. And yes, Germans are eating less and less meat and turning to alternatives. But yes, that's for animal welfare. That's for sustainability reasons. That's for health reasons. So I do think Germany is a big market for differentiated products, but also, of course, for cheap products for the commodity market. Italy, I don't know whether you've heard of the things going on on a political level in Italy that they are trying to ban cultivated meat. But I'm, for example, doubting that that would be a great market. If already politics are against it, then talent and companies go abroad. And I also think it's a more traditional market.

But Yes, Germany, the Netherlands, all these big countries, but they are quite similar in acceptance.

Interviewer [20:41] Okay. And would you say because when we were looking into the research, we found that sustainability and ethics are probably the most important factors for consumers to maybe even pay this premium price? Would you agree with that or do you see any problems in terms of maybe taste or perceived unnaturalness?

Florentine Zieglowski [21:07] I don't really see with acceptance, I I'm quite always quite confident. To me, the more or what I experienced, the more information people got on cultivated meat, the more they were in favor of it. But of course, if there's a lack of information, people also see it unnatural. If someone tells me that is from a lab and that sounds already unnatural and maybe then that sounds unhealthy because it's unnatural. And while it's the complete opposite of it, it's actually a very clean product. So I don't really think that there is a big issue, although information and also media campaigns really matter in that respect.

Interviewer [22:08] Yes and then you would probably say with regard to the decentralized production, that things like sustainable production and also branding from a company perspective are selling points. For instance, if you can say, for instance, you have shorter transport times, as you said before. So this would have to be communicated.

Florentine Zieglowski [22:36] Yes. And branding in that sense is a big part. Although, of course, let's say the brand Aleph farms, but also the brand Mosa Meat. It's not a trusted brand. That's also a big reason why, for example, Rügenwalder Mühle was a big asset for us, not only for us as a company, Respect Farms, but for the whole field, because the brand awareness of this meat company is huge. And if you look at the history of Rügenwalder Mühle, they are now having higher sales in plant based than in conventional meat. And that brand, I think, will make a big change. So, yes, cultivated meat companies, but of course, conventional meat companies have, let's say, history of 150 years, and they build up on that trust. So I really think that trusted brands like these are essential.

Interviewer [23:44] Yes, maybe that would be a good strategy, as you said a couple of times, collaboration wise, coming together with bigger brands. And we've heard before that it might also be that you start into the market with hybrid products, plant-based, mixed with cellular products in one product and build trust that way.

Florentine Zieglowski [24:13] Yes, for sure. That's one part for the brand, it has many benefits of taking hybrid. Not only that, it's a combination of plant-based and cultivated. And let's face it, plant-based is still more sustainable ecologically than cultivated meat. So that would be an additional sustainability factor, but it's also a cost factor. So plant based is cheaper than cultivated meat. And you could enhance the taste and the texture and the smell with cultivated fat, for example, and improve plant-based products in that way and also reduce the ingredients list of plant based products. So, Yes, there's a lot and that would also increase, I think, consumer acceptance on plant based or hybrid.

Interviewer [25:14] Yes, okay, thanks so much. And maybe one last question. Are you also currently, with Respect Farms, are you also looking into ways on how to make cultivated meat, like cleaner with, for instance, I don't know very how do you say clean environment when producing? And for instance, do your partner still use fetal serum for the cells?

Florentine Zieglowski [25:53] I'm not sure what exactly you mean with clean, because we had whether we mean the same thing, because in the culturated meat space, there's actually a discussion going on whether calculated meat is too clean. But on the latter part, we are not using FBS. That's mostly due to our partner Mosa Meat. So they're not using that anymore. The plant-based medium is not as productive as FBS, but we're getting there. So they are currently improving and improving and you see already that they're making good job on it over the years and it will get there, but at the moment it's not as productive. But you can already exclude FBS out of the process. The clean question, I'm not sure Yes.

Interviewer [27:00] This part you answered with the FPS and about clean, I meant like I heard that antibiotics are still maybe an issue and also questions on non GMO maybe. Do you have any take on that?

Florentine Zieglowski [27:18] Yes, that is a trade off that you have to make. So antibiotics are used for sterility reasons. So you want to make sure that your batch is not contaminated by bacteria, for example. And for that, antibiotics are used. I mean, that is also used widely in the pharma industry, but that's the reason why you use it. So at the moment, the industry is trying to, of course, exclude it. And you can you don't always have to have to do it, but you have to make a system that is a closed system, so there's no bacteria coming in, so antibiotics will be excluded out of the equation. But as I explained, it from the petri dish to a bigger to a bioreactor, and that's open. So there are a lot of parts where things could get contaminated. So you just have to be very careful. But once it gets into a closed process, that won't happen anymore. And then you also don't need it. And the other question was the GMO question. So there I can say that it depends what kind of cells you use. So if you take a biopsy from yourself from or from an animal, it doesn't matter. So tissue, then you have, let's say ten more, but let's say ten different cell types in there. And some cell types have the potential to become immortal. And some cell types are just stopping to grow after 30 doublings around that time. And there are different companies working on different things. So with immortal cell lines, you can imagine that if you have 1 million cells in the beginning and you have a doubling time of 30 hours, then that 1 million doubles every 30 hours. And you can continue with this process basically for forever. And from a process point of view, that's perfect because you don't have to use batches, so therefore you also don't have the cleaning costs, which makes the process cleaner, more safe. So there's actually no disadvantage for it. But in Europe, we think that GMO is bad, and it's also actually harder to get regulatory approval with GMO. So therefore other companies, such as Mosa Meat are working on non GMO cell types. So, Yes, after 30 doublings or so, there's just stop and then you have to continue or you have to do it again. But that also means that you have to go back to the animal. So with an immortal cell line, you don't have to do that. So that's a trade off between GMO or an ethical point of view, whether that animal feels pain from a biopsy. So, Yes, there are different ways to go about it. Mosa Meat is an example of non GMO, and Meatable is an example of GMO, and there are different approaches.

Interviewer [31:15] Thank you so much. This was very interesting and super helpful.

Florentine Zieglowski [31:21] Sorry to add, but just today I got a paper sent on GMO and consumer acceptance of GMO in Germany, and there was not cultivated meat, but it was on precision fermentation. And precision fermentation is under the head of cellular agriculture. So maybe you want to have a look at that.

Interviewer [31:51] Yes, of course. Can we find it in the Internet?

Florentine Zieglowski [31:56] Yes, maybe I have it still open. Yes, sorry, that just came to my mind, thought maybe it's interesting for you.

Interviewer [32:14] No, that's great. Super helpful. Thank you. Thanks a lot. Yes, of course. We will also send you our final paper if you're interested. Maybe it helps sometime in the future.

Florentine Zieglowski [32:29] Yes, for sure.

Interviewer [32:32] Okay, great. And Yes, thanks a lot again and if you know anyone who'd be willing to talk to us, we would be super happy to talk to them. But Yes, thanks for your time.

Florentine Zieglowski [32:45] Yes. How many interview do you still need and what kind of company? So you mentioned Mosa Moat? Is there any other type of company or something like that?

Interviewer [32:59] I mean, if you have contacts, that would be great. But Yes, just any startup would be super helpful because I think the business perspective itself would be great. But so far we have four interviews now, which is already a good start and very different perspectives, just I think the business perspective is still missing a bit. So if you know anyone but any interviewee is super helpful.

Florentine Zieglowski [33:31] Okay, great.

Interviewer [33:32] Good to know.

Florentine Zieglowski [33:33] Yes.

Interviewer [33:35] Okay then we will stay in touch and thanks a lot again. Have a nice day.

Florentine Zieglowski [33:41] Thank you.

E.6 – Detlef Exner

Interviewee: Detlef Exner

Company / Position: CEO at Exner Process Equipment

Interview Duration: 30:36 minutes

Detlef Exner [00:12] That's good. Yes, fine, then I would be interested first in the topic of the master's thesis, what it's really about in the first place, and you might do a short introduction. And then, of course, you may ask as many questions as you like.

Interviewer [00:30] Yes, you're welcome. Thanks again for being so proactive in writing to me.

Detlef Exner [00:42] This is a very modern topic. We've actually been dealing with it for some time now. But of course in a completely different perspective. We come more from the process area: How is it manufactured? How can you bring the format from a lab application in the pilot application into the production process at some point? And in the laboratory, it has been about such stories for a relatively long time. How do the cells grow? How do I control the whole thing and so? And it's a topic that we've been working on for quite some time now and we're finding that it's picking up more and more speed. And that's why I'm very interested there and that's why I was surprised when I read your link or read your post from LinkedIn and had taken the time to really read through it.

Interviewer [02:10] Yes, with pleasure. So our master's thesis is more from the business perspective, as I said. We're looking at how to influence customer acceptance and also purchase decisions. So very much from the business perspective and very much from the end consumer product. And we are looking at the German market and probably also the European market, because we have already heard in several interviews that the market should probably be viewed holistically as the European market. Ultimately, this is a product that we develop marketing strategies for a specific company that produces these products. We then take the company that from our perspective will probably be the most successful. We also have to consider all perspectives for the paper in general. And we have already had interviews with biologists, so we are definitely still missing the technological perspective. In our interview guide, we have several areas: generally cultivated meat products, the market view, regulatory purchasing decisions, and then also an outlook. And therefore, if we start with the introduction, it would probably be quite helpful if you could tell us a little bit about your position in the company and also perhaps about one of the products, i.e. the optical sensors, so that we can better understand the product and what you are doing there.

Detlef Exner [04:29] Yes, I am a shareholder and managing director at Exner Process Equipment Company, which has been in existence for 20 years now and we have been dealing with sensor technology, with optical measurement technology in liquids for about 15 years. Yes, and we have found that we can also measure cell growth elements, quite normal cells and the last few years then actually a cell growth for products are also possible. And this process must be controlled with several parameters. These are, for example, temperature and of course the PH value of such a liquid and oxygen content, depending. These are living organisms that reproduce in there, these cells, and one sum parameter, I would simply like to say, is ultimately this optical measurement technology, which ultimately measures light loss. That is, we measure via a certain path how much light we can imitate, how much still arrives on the other side and the less light ultimately arrives on the other side that is a measure of how the cells grow in there. So we can find out about this generally called turbidity from measurement. Are the cells growing in this process as they should from theory or from other applications? Or is something interfering with the process? And then the biologist can respond to that. That's basically what we do. The special feature here is perhaps that we have sensors that can be used both in the laboratory area, i.e. are relatively small and thus already work in the first tests, and can then also be added to or designed in such a way that they can then also be used afterwards in large processes, in large companies. This gives the customer the advantage that they will always find the same measured values in the same processes. And that is what is actually a specialty is a niche, you have to say. And this is where we have worked our way in over the last few years and are actually already a little bit known.

Interviewer [07:10] Okay, interesting. And how long have you guys been doing optical sensors for cultivated meat or their research now?

Detlef Exner [07:17] You can't really say that exactly, because we often don't even know what the customer is using our sensors for, especially in the initial phases of such developments. That is, development labs don't tell you what they're working on at the beginning. They say we want to measure here and there. and is that possible with your sensors? We can't say. But we have noticed that requests for so-called high cell densities, i.e. where a very, very large number of cells are growing. And that is actually an indicator, as we know in the meantime, that this can often also be about cultivated meat, that they have increased in the last three or four years. I assume that we are not everywhere in it, I do not want to say that now. We are not a market leader now, I don't want to say that either. But I will say that the trend in this direction is perhaps too possible in the last 3, 4, 5 years. And that is what we also notice. There are more and more congresses in this direction, there is exchange between scientists and the market seems to develop in the last years.

Interviewer [08:32] Okay, okay. So that means that you haven't exactly branded the product itself as a sensor for that, but they do that themselves. And at the moment your customers are, of course, you can't say that exactly. But here, for now, only development labs and then possibly in the future also larger meat producers and the like.

Detlef Exner [08:58] Yes, that's exactly where we are right now. In these developments, you also have to say, we sell relatively much again through other partners, that we now also do not directly notice where it goes. In other words, there are companies that actually manufacture these small development ferments and then sell them in larger quantities. And they often include our sensors in their products and sell them directly. So we don't know exactly. However, we have noticed that we also manufacture sensors for the food industry, where we have direct end customers, dairies, breweries and so on. Furthermore, the plant manufacturers for these, dairies and breweries, and for example the company GEA is a large plant manufacturer, are setting up projects to develop pilot plants for their customers and also to sell them afterwards. And we are trying to get involved at the moment. So we've made contact with them and that's starting to happen now. From my perspective, I see that the trend is now very slowly starting to move from the actual laboratory sizes to pilot plants. And the next step is then from the pilot plant to the production plant. And then, if necessary, plant manufacturers are now trying to build up their know-how. How do I have to make such a pilot plant? I have to advise my customers, i.e. we have to advise our customers, on what measuring equipment they need behind the scenes, and so on. I see the trend quite clearly.

Interviewer [10:45] Okay, exciting. And can you also estimate how long that will take until it then goes to the production facility?

Detlef Exner [10:55] And that's difficult. That's so, that's now reading crystal ball. That's really the hard to say. That has of course also something to do with your topic, namely with the customer acceptance,. How is it accepted afterwards? Who will buy it later? From our perspective here, I can see that the trend is more prevalent in Asia than here in Europe. We are always very conservative in our approach. We have large regulations down here. In Asia, especially in Singapore, they are already much further along and are already selling some of it. That has to be said clearly. So we have these industry reports here, which I can send you later.

I'm sure they'll be interesting for you, too. Then he'll certainly get a lot of data on how they see the trend. I'm sure they know more than we do. I know it's going really high here. It's only going to take five years in Europe or maybe even ten.

Interviewer [12:08] That would also be exciting to see if there are any projections of how big the market is estimated to be perhaps.

Detlef Exner [12:17] That's quite different in the Industry Reports that I have here. Then I can give you, I'll give you on.

Interviewer [12:24] Stands together and times okay, um, can you maybe also tell a little bit about what are the main challenges and constraints from your point of view? That cultivated meat products are then available soon, so in the next few years, maybe also from a technical point of view or also from another point of view.

Detlef Exner [12:47] That I think the big challenge will probably still be in the price and the production is certainly CO2 reduced compared to normal meat. It's probably ethically better as well. Is from my point of view no question at all. But the price is not even foreseeable at the moment. The production costs will be at the moment still relatively high for at the beginning, it must also be said, as I see it, relatively inferior or low-quality meat from the from the point of view of the consumer rather inferior meat, because of course there will not be a steak, as I see now perhaps an Argentine steak somewhere on the plate. And there is already out for a meat consumer and there won't be. At the moment, I think we are at a stage of development where we can possibly get a reasonable fish stick, which is really fish. Yes, and maybe some small meatball or something. Like that or chicken meat. So I believe that from a technical point of view, you can really get a comparable piece of meat to what a normal piece of meat looks like today. That will still take a long time. And that's why with the current production costs in the quantities or on the scale that it's being produced at the moment, it's simply too expensive. And that's why you also need a very high market acceptance and somebody has to want that. That's how I see it at the moment. And if at some point large-scale plants are built, blah, blah, blah, then maybe it will become cheaper at some point or than if normal meat is charged a CO2 price at some point. Then you might get into regions where the other will be interested, but that will still take a while.

Interviewer [14:50] Okay. So then acceptance in aggregate is the lever to get the big guys to accept the high price? Yes, and what would you say are the opportunities to differentiate yourself as a producer of cultivated meat products? Is it then only this price lever or are there possibly other possibilities?

Detlef Exner [15:17] You mean the ones from the cultivated flesh that stand out from the normal?

Interviewer [15:23] Or also from other manufacturers? Yes.

Detlef Exner [15:26] So for example from a very normal, so from vegetarian made substitute.

Interviewer [15:34] Exactly.

Detlef Exner [15:35] So a cultivated meat versus other meat is clearly in my eyes an ethical point of view and of course also a point of view, you have to say clearly, if you produce it much more environmentally friendly. Ultimately cultivated meat versus other vegetarian substitutes for example. Then I think the cultivated meat is a very good complement. Yes, I also see that from the fact that Rügenwalder, for example, is already starting to invest in this direction here as well. That was yes with the first, which have risen on the vegetarian track then for people who do not want to eat purely vegetarian or vegan, that they say okay, now I can also take additional cultivated meat to feed me, as before also. Ultimately. That's why I think that could be a good lever and is a good demarcation.

Interviewer [16:37] Yes, and then you would also think that the target group is also more likely to be meat eaters.

Detlef Exner [16:46] I'm not quite sure about that. Actually, you have to answer that as a vegan. Whether that has an effect on the target group or not, everyone has to answer that for themselves. It depends on why people make the decision not to eat meat. If the decision comes along purely for ethical reasons, I would such animals is in the foreground for me. And then I think it's already a target group for the question, if you've been vegetarian for a while, whether you're still comfortable with the meat consistency at all. Like in the beginning. If I switch already from meat consumption to vegetarian, I think. So I think that's my thing. When I try from time to time the meat substitutes from my daughter, I always think only about the consistency, it is not so right and the taste is also a bit different not so right. Proper replacement it is not. But I also realize that once you've done that for a while, you get used to the consistency and taste. And then the change back is probably just as difficult. And that's why the question is: That's something that I can't answer, that then someone who actually goes vegan or vegetarian has to answer. Then I would go back to my original habits or or not.

Interviewer [18:17] Well, to come back to the price, I don't know if you can estimate that, but if now from the whole technological point of view everything is made as effective and efficient as possible, will, then from the price, if you can estimate that, will it be equal to equally expensive organic meat, right? Or do you estimate it will still be very much above that.

Detlef Exner [18:48] So I think if, but then we're talking maybe in ten years or so, when the technology is more and more advanced and the plants have been optimized and also run for a while, then I can well imagine that the price would actually have to go so determined direction organic products. In particular, I believe that if one would have to include a CO2 price in the normal meat production at some point, then that can not be completely neglected in the future.

The world is on the way there, it takes time, but it is on the way. And if you take that into account, the cultivated meat will probably become cheaper at some point.

Interviewer [19:38] that makes sense. And then to come back to the customers, do you already have, yes, maybe customers who could then use your sensors later in the production environment. So are there any efforts already there by you guys to recruit a customer? And if so, I don't know if you want to say which ones.

Detlef Exner [20:03] Of course, they don't exist yet. But there are some nice startups in Germany, as I like very much. I made a note of Bluu Seafood. Then maybe you should take a look at it. Yes, that's one of those start ups that just raised a lot of money again and are now actually trying to invest in larger facilities. And we're not part of that yet, they don't know us either.

Interviewer [20:44] Yes, okay.

Detlef Exner [20:48] We go a bit the other way. That is, we go via the plant manufacturers. That's easier for us than approaching end customers, because we only bring a very small part of such a system. We only bring a small sensor part, which is why we can't advise customers on the entire system.

Interviewer [21:06] Yes, that makes sense. Um, exactly. But in general, in your estimation, would you say in Europe, Germany is so the most attractive market or are there other markets that are more attractive? Or do you really have to look at it as the European market?

Detlef Exner [21:26] That's also hard to say in Germany. But that's really just a belief now. I do believe that Germany is an attractive market because we are always relatively fast leaders in such modern things and equipment. But overall for the sales market, we have to look at Europe as a whole. I think so, and I wouldn't try to differentiate.

Interviewer [21:55] Okay. Um. Right. Maybe we can go into that then. Regulatory. What's the status there. I don't know to what extent you are dealing with that, because again, you are providing sensors and not ultimately then producing the end product. But that's the status at the moment. And when can you expect the sale to be approved in the EU?

Detlef Exner [22:26] But I have to say quite honestly, I actually can't tell you much at all. I haven't really dealt with that yet. I know that the EU is lagging behind a bit. As is often the case with approvals. As I said, in the USA and also in Singapore or in Asia back there, the whole thing goes much faster and they are much more courageous. And it's really getting underway here in Europe.

Interviewer [22:55] Say Yes, yes, that really hard to assess too. Exactly. Do you have any other idea for trends that maybe could be leveraged to create increased customer acceptance or interest? So for the cultivated meat products.

Detlef Exner [23:21] So probably afterwards, when the products are there or when the first products are there, where there will probably be just pure marketing actions. So I think. Yes, I don't think so. The marketing as I said can only start with ethics and the environment and ultimately maybe price or simplicity or something. That can also be and probably but I would not know it, how one should put a lever there that it becomes all at once completely great.

Interviewer [23:57] Yes, would you think that health might play a role? Because we've already had biologists tell us that theoretically you could also genetically modify the meat, but, for example, with less fat content and so on, and that it would ultimately be much healthier because of antibiotics. Would that also convince you?

Detlef Exner [24:22] That is of course a good point, that one must already say, because one can model the meat yes probably already in such a way, as one would like that is determined from the fat content quite guaranteed, which is of course then also always a taste carrier, which one does not have to. The taste of the makes but otherwise simply times itself. And naturally medicines, which get the animals otherwise and accumulate in the meat, are naturally with such a motivated meat also not present. One must say that also times. That is with security also and will probably become increasingly important in the future in factory farming, the more drugs are used.

Interviewer [25:12] Okay. Are there any research areas in general that you would find interesting right now? If we were to look at those in more detail? And then finally also the question: Would you try and eat cultivated meat yourself?

Detlef Exner [25:29] The final question yes in any case I would be very interested. So I would always try it. Haven't had the opportunity so far unfortunately and where the research should go and I can't say that in the end. That's actually up to the biologists to decide. They know better what they can do or not.

Interviewer [25:53] So okay, thank you very much in any case. So those were all our questions for now.

Interviewer [26:09] Is there anything else that interests you?

Detlef Exner [26:13] Yes, indeed. I would actually be interested in your opinion. Would you try that or would that go? A vegetarian or vegan setting? Yes.

Interviewer [26:28] Yes. Yes. So, I always liked meat mega. That's why I'm actually happy when that comes up. And ethically and environmentally speaking, it's much better and that's why I find the topic really exciting myself and it could also be really healthy.yes, that's why it's definitely interesting.

Detlef Exner [26:59] I think that's good. So yes, I've also heard other opinions, from there. But there is also is also often so that people do not deal directly with the topic and then also quickly give their opinion, only meat and then maybe not convinced. But if that is really on the market, it will be seen how that goes.

Interviewer [27:25] Yes. We have actually already seen that in the interview. That many are then so concerned about the topic of clean or that this was then somehow bred in the laboratory. And I think, however, that will probably be clarified now also in our question. And I think that's also an in old generation topic, who is then nevertheless ready to sit there perhaps also or not. I had me again. And in the literature, interestingly enough, we have also read that the target group is probably not the vegetarians and vegans, because I believe that some people also forgo the taste because they find the feeling disgusting. But I think generally for the acceptance is already the biggest problem this that it comes from the laboratory and that especially in Europe we have this very strong nonGMO attitude. And it's also completely banned. And I think that will be one of the most difficult things, to get away from the fact that it is so unnatural.

Detlef Exner [28:46] Yes, I think so too. The laboratory always sounds kind of spooky, things happen that you don't know yourself and that's why it has a bad image. That's true, although the processes are actually much more controllable than in nature. And the question is of course always, why do I have to breed or raise a whole cow, only to want to eat the meat from it? That is of course already actually is. It is a stupid attitude of people, if I, if we now get the opportunity to do otherwise. That's why I could imagine that this will catch on. And yes, that will, that will take a generation. Well, that's me too.

Interviewer [29:32] Yes, and we also read that it definitely gets better with more information. Probably with the acceptance. So let's see what it was like with us. It comes of course also very gladly. Then our factory farming, when that's done then, that will be in English, but.

Detlef Exner [29:49] That's not all. Is good. Exactly. I'll send you our industry reports right here. So you already have last year and you could look in there. And there's a lot in there about the market, how they see it. And so on.

Interviewer [30:09] Very interesting and anyway thank you very much for your time, which is not so easy for me to find interview partners. That's why we are very, very grateful there.

Detlef Exner [30:19] No problem, if he has further questions. Simply report after yes. Wish you good luck!

Interviewer [30:28] Thanks.

Appendix F – Consumer Interview Transcriptions

F.1 Interviewee #1

Profession/Training: Apprenticeship as industrial clerk

Other: Stuttgart, 46 years, Female

Interview length: 5:05min

Interviewer [00:01] Hello Andrea, Thank you very much for taking the time for the interview. Is it ok is if I record the meeting.

Interviewee 1 [00:07] Yes.

Interviewer [00:11] Okay, very good. Imagine for a moment that you're standing in front of a shelf in the supermarket. And you want to buy a burger now. What types of burger parties are there?

Interviewee 1 [00:22] So there are meat patties, for example from Angus beef. And vegetarian patties, for example, vegetable, sweet potato, fish and vegan patties for fruit, base or soy base. And so on and so forth.

Interviewer [00:43] Okay. And now when you're standing in front of that shelf? What criteria do you use to decide which patty to choose now?

Interviewee 1 [00:54] Yes, price, list of ingredients and the brand are important to me. So when I'm standing in front of the shelf, I first compare how much they cost, what's in them, and I actually choose a brand that I know.

Interviewer [01:05] And what is the decisive factor for you? Or the most important decision criterion?

Interviewee 1 [01:14] What is most important to me? I would say quality.

Interviewer [01:20] Okay and what do you also include in the decision, but is not decisive? Between which criteria do you weigh?

Interviewee 1 [01:35] So for example the brand or price. And whether it's from a manufacturer I know.

Interviewer [01:47] Does sustainability or animal welfare play a role for you and if so, what does that mean for you exactly?

Interviewee 1 [02:01] For example, consider the aspect of husbandry that always focuses on the well-being of the animal, defining what a proper husbandry form entails. Another consideration is the second factor, likely related to stall conditions, and the importance of animal welfare. I understand that it's crucial for animals to grow up in good conditions, such as on a pasture with abundant greenery, allowing them to graze and ensuring they receive high-quality food. When housed in a stable, it is essential that the animal has sufficient space. Additionally, when it comes to slaughtering, it's preferable for the process to occur on the pasture to minimize stress hormones. This is because the presence of stress hormones in the meat can affect its taste negatively. Therefore, maintaining good conditions throughout the animal's life cycle contributes to both its welfare and the quality of the meat.

Interviewer [02:26] Thank you very much. Then I would still be interested, since you also mentioned brand, so if you know there exemplary brands, vegan products and also meat products?

Interviewee 1 [03:38] I can think of the brands, BBQ, Schulte und Sohn, Rügenwalder Mühle, Beyond Meat, and I think Edeka has No Meat, Just Burger and the Vegetarian Butcher, and Alnatura.

Interviewer [04:03] All right, exactly. Do you know of any brands that are looking to bring cultivated burger patties to market? And under what conditions would you buy cultivated burger patties - what would convince you there?

Interviewee 1 [04:25] I'm not sure about that, possibly Rügenwalder or Beyond Meat? And what would convince me? As far as I understand, no animal has to die for it. You need less animals, less land, less food, less water. And then such points of course as less greenhouse gases, no antibiotics, controlled laboratory conditions, it's just more environmentally friendly.

Interviewer [05:00] Interesting. Thank you so much for your time.

F.2 Interviewee #2 & #3

Occupation/Education: Marketing & Computer science master student

Other: Berlin & Nürnberg, 24 & 25 years old, Females

Interview Duration: 28:59 min

Interviewer [0:09] Okay, then thank you very much for taking the time for this short interview. Before we dive in, I would like to briefly explain what it's about. The focus is on finding out the specific key purchasing decisions for customers, but now specifically for cultivated meat. The goal of our work is also to establish strategies, not only marketing strategies but also communication strategies, for how our company Mosa Meat should position itself in the market. Let's just start directly. Imagine you're standing in front of the shelf in the supermarket, and you want to buy a burger patty. The first question is, what types of burger patties do you know, or what kinds of patties can you imagine being on the shelf?

Interviewee 3 [1:58] Well, there are the standard beef burger patties, which are probably sold in multiple packs. What I've also seen are ones that come with some kind of sauce, like mixed packs. There are also meatless alternatives, like soy, beetroot, etc. That's what comes to mind.

Interviewee 2 [2:28] There are definitely now many burger patties from abroad, categorized, for example, as Wagyu Irish Patty or Argentine beef. And then, as mentioned before, there are these soy alternatives and vegetable alternatives.

Interviewer [2:57] Okay, good. And when you're standing there and you see the different alternatives, what are important factors for you when making a purchase? Or based on what criteria do you decide which burger patty to choose?

Interviewee 3 [3:14] So, are we really only talking about burger patties?

Interviewer [3:20] Exactly, it's only about burger patties, not other meat products, but all the ones you just mentioned that you can find in the supermarket, from conventional meat to substitutes, but only about this product.

Interviewee 3 [3:29] Okay. So, if I already know something and know that it tastes good, then I would choose that. So, taste is probably at the forefront. If I'm buying or seeing it for the very first time, because, as I mentioned, I don't really buy burger patties often, I would probably, honestly, look at the price first. That's often quite prominent. And by now, it would probably also be nice to know some information about how it was made, from which meat. That would likely be higher on the priority list.

Interviewee 2 [4:18] Actually, I bought burger patties recently, so I'm speaking from hands-on experience. I find the quality really important. I believe you meant where the meat comes from or what kind of meat it is. In Germany, there's this labeling system for farming conditions like stall farming, free-range farming, premium. If it's marked as "1," then it's already out for me.

Interviewee 3 [4:44] Yes, similar for me, especially with meat, you wouldn't want to buy something like that.

Interviewer [4:57] Okay, you've mentioned several different factors now. Are there factors that are less or more important with substitutes?

Interviewee 2 [5:12] For substitutes, I think appearance is actually important because sometimes with meat substitute products, they are this strange pink color, and it looks very artificial.

Interviewer [5:23] So, when it comes to appearance, it's really about the patty itself and not the packaging?

Interviewee 2 [5:25] About the patty itself, that it doesn't look synthetic, that it doesn't look like this undefined mass. Because I've seen that at Lidl. It just looked like chewing gum, and no one wants to buy that. So, I'd prefer it to look more like vegetables.

Interviewer [6:03] Okay, interesting. I have another follow-up question regarding what you said at the beginning. You mentioned that you would rather buy something you know. Does that also involve the brand, whether you know the brand itself, or how do you know the product beforehand? Is it something you've bought before, or is it really about the brand behind it?

Interviewee 3 [6:29] Since taste would probably be a significant factor for me, it's a bit difficult. If I'm buying it for the first time, I might even go for a brand I know just to try it out. I don't really know how to formulate it correctly, but taste would be crucial for me. It doesn't necessarily have to taste exactly like meat, but it has to taste good and not like some vague mass with a flavor that easily resembles something else. So, I would judge it based on the taste, especially if I had tried it before.

Interviewee 2 [7:09] Or, in essence, if there's already a bigger brand behind it, where you know the products, then you would be more inclined to buy.

Interviewee 3 [7:18] Yes, I think so, at least for the first time, if it's something new that I haven't bought before and I'm open to trying it, then I would probably start with that. And if I like it, I would stick with it, and if not, try something else. But yes, I would probably judge based on the taste.

Interviewee 3 [7:48] Yes, completely. If you now tell me that this product or brand, I bought it recently, and it tasted really good, then I don't think much further. I'll now take the version you recommended.

Interviewer [8:06] Yes, and we've talked a lot about it now, and I think that's also a problem because cultivated meat has not yet been introduced to the market, not even to the European market. I believe it's still a bit difficult to imagine finding it on the shelf. But I think if we talk about it now, it will probably first be unconventional, already substitutes. But if we now move towards cultivated meat, do the same factors apply to you? Are these the same buying factors? So, if I can summarize, the brand behind it, the taste for sure, and where it's produced. Do these factors shift, or are others relevant?

Interviewee 2 [8:40] I think, for me personally, it's similar or the same factors as with meat substitute patties. Because cultivated meat, I think, many people associate with something artificial, not natural. So, you probably look at natural personal reviews, but also at the appearance, that it doesn't look completely strange, something you've never seen before.

Interviewer [9:13] So, it's similar to meat, perhaps in appearance or not abnormally different from what one already knows.

Interviewee 2 [9:24] Exactly.

Interviewee 3 [9:29] I can imagine that many people, including me, might be a bit skeptical at first about possible health risks because, as already mentioned, cultivated always sounds a bit unnatural.

Interviewer [9:46] Yes.

Interviewee 3 [9:46] Then it might be reassuring to get some kind of assurance that it's not unhealthy, that it's not unhealthier than normal meat.

Interviewer [9:59] Yes, how would that ideally look for you? So that one communicates something like that through, for example, packaging or is it a general communication that has to take place before the product is even introduced to the market?

Interviewee 3 [10:16] It's both, but predominantly probably the second thing, general communication, because most of us probably won't believe the slogan and what's written on the packaging, I assume.

Interviewee 2 [10:30] If there's scientific backup, maybe from doctors.

Interviewee 3 [10:36] Yes, because honestly, I would probably be one of the people who would already be very skeptical. I would probably prefer to do without meat or meat substitutes altogether if I'm even a bit unsure.

Interviewer [10:52] Okay, I find that interesting because then packaging, for you, is not a relevant factor in itself, if I hear that correctly. Because you wouldn't trust the slogans or the sentences written on it, and you wouldn't be swayed by them, right? At least in theory, what is written on it, correct?

Interviewee 3 [11:14] So, when it comes to the health factor, I would probably say no.

Interviewee 2 [11:19] Because there are also alternative products or premium meat products, so maybe something better kept, then I would probably rather do without and go for good meat.

Interviewer [11:33] Yes, okay, so as I understand it, safety is indeed a factor that would deter one from buying it. What about the sustainability factor? Would that be a relevant criterion for you to say, yes, I'd be happy to switch, or honestly, is that not too important, and it wouldn't be a buying criterion for you?

Interviewee 3 [11:34] Okay, I would just eat less meat or no meat, maybe even honestly.

Interviewer [12:09] Before buying cultivated meat, so to speak?

Interviewee 2 [12:11] Yes.

Interviewee 3 [12:12] Currently, yes, because currently, I hardly know anything about it, and the things I've read, really only very, very superficially. So yes, a lot of good things, especially in terms of sustainability, many good steps. But then you read again about things, not to spread any conspiracy theories here, but some people react to it. That it's not tested and has carcinogenic substances and all that, and then you think again about whether you'd rather just not eat meat.

Interviewer [12:42] Yes, but if we were to take that point away now and say, for example, it was approved by experts, but let's say that point would be eliminated because I mean, you also have to consider that it has to be introduced to the market first, it has to go through a lot of regulations, especially in Germany. So, health-wise, it already has to be at a level where it can be sold on a mass scale. So, let's say the point is checked off, and it's proven to be healthy. What would then be other factors where you would say, now I would try cultivated meat?

Interviewee 2 [13:38] Is it about trying, right? Or that I'm very convinced?

Interviewer [13:46] First, maybe just trying.

Interviewee 2 [13:54] Oh, I think in the field of these meat alternatives, a lot happens through personal views, for example, with the concept of Like. I don't know if you know, Like, doner, Like.?

Interviewer [14:07] Yes.

Interviewee 2 [14:08] Personally, a lot happens through marketing, so reviews from non-meat eaters, also on social media, a lot happens. Because I also learned about it because my sister watched a YouTube video and said, that's supposed to taste really good, like doner meat.

Interviewer [14:48] Okay, that's another point because it's more about marketing, but that has nothing to do with the product itself. But I understand very well that you probably have to create awareness first?

Interviewee 2 [15:02] What could also be done is to have a tasting in the supermarket, many companies do that, someone stands there and grills the patties and makes small burgers, then you might be more inclined to try it and say, oh yes, it actually tastes good. But otherwise, if I just see it there and see the product, I find it difficult to say, yes, I'll buy an alternative instead of regular meat or no meat because you just don't know it yet.

Interviewee 3 [15:30] Your question was about sustainability, right?

Interviewer [15:44] Yes, exactly, whether that would matter to you or whether the factor would become more relevant. For example, let me give an example, with traditional or conventional meat, you don't save any water, but with a substitute, you might save 10%, and then imagine with cultivated meat, it really goes down fourfold, so the water consumption goes down by 40%.

Interviewee 3 [17:14] I find it difficult to answer, very difficult. I would try it, definitely out of interest, as if, as I said, all these health aspects were considered safe, everything okay, hypothetically. I would definitely try it out of interest, so sustainability probably also plays a role because I would try it. Yes, to be absolutely honest, I really don't want to completely replace my current meat consumption immediately with cultivated meat, just in quotes, because it's better for the environment, which is very selfish. But I think that's very realistically said.

Interviewer [17:55] Yes.

Interviewee 2 [18:00] Yes, I think I can agree with that.

Interviewee 3 [18:03] Yes.

Interviewer [18:05] Okay, thank you already. Now we've talked a lot about the purchasing criteria. Now maybe onto the next point, so we've already talked a bit about a few brands. But which brands do you know? Both for traditional burgers and for substitute products?

Interviewee 3 [18:34] So this Beyond Burger?

Interviewer [18:37] Yes.

Interviewee 2 [18:39] Rügenwalder Mühle. I would definitely also mention Blockhaus for meat patties.

Interviewee 3 [18:54] Oh yes, Blockhouse is true, that exists too.

Interviewee 2 [18:57] And then there are own brands, I think at Lidl and Aldi, don't they?

Interviewee 3 [19:02] Rewe also has some products under the Ja! brand.

Interviewer [19:08] Yes, so for substitutes for conventional meat, you mean?

Interviewee 3 [19:13] Yes, we're thinking about substitutes now.

Interviewer [19:18] So, you mentioned that you pay attention to taste, but it's probably a bit difficult now because you don't buy burger patties often. From which brands do you usually buy traditional meat?

Interviewee 3 [19:26] I buy it on Fridays at the market. I don't know which company that is. When I buy meat, I usually buy it from them because I find it quite good. At least, they claim it to be good and produced under good conditions.

Interviewer [20:15] Okay, and the last concluding question is, do you know any brands or have you heard of any companies that really want to launch cultivated burger patties?

Interviewee 2 [20:31] No, I don't know any.

Interviewee 3 [20:32] Yes. There is something called "Just," I think. Simply just. As far as I know, I read something about them, and I read about a restaurant in Israel that opened some time ago with the concept of making cultivated burger patties.

Interviewer [20:43] I didn't know Just, but I just looked it up, and it's called, I think, "Eat Just," right?

Interviewee 3 [21:04] Oh, it could be. I only read an article where they were mentioned.

Interviewer [21:08] Yes, exactly. A restaurant opened in Israel and also recently in Singapore.

Interviewee 3 [21:15] Okay.

Interviewer [21:21] Okay, so is there anything from your side? Something you wanted to address during the interview, I wanted to mention, because otherwise, we have reached the end now.

Interviewee 3 [21:36] I can imagine that it will be very difficult to convince people, so I don't know, I think price will be a big factor for many people if it's really not more expensive than regular meat.

Interviewee 2 [21:51] And when it comes to sustainability, it has to somehow show for me whether it is more sustainable than other meat substitute products, such as soy patties or vegetable patties. Otherwise, I can imagine that people will stick to what they are already used to and know unless the taste factor is overwhelmingly good.

Interviewer [22:23] Yes, I understand; that's also a good point. What we are trying to do regarding sustainability is to break this point down a bit more and therefore talk to people. Sustainability is such a big term but consists of so many components, which is a bit difficult to break down, and that's why I always ask what is more sustainable for you?

Interviewee 2 [22:53] The three pillars of sustainability.

Interviewer [22:56] What is personally important for you, so is it enough if it says it is more sustainable or eco-friendly? For many, that is not enough because they still need concrete information on other points. And we are also trying to find out what these other points are.

Interviewee 3 [23:18] So, I believe animal welfare, doesn't animal welfare also count as sustainability? I think that could be a point that is important to many. I don't know if these companies would catch a few more vegetarians or not if animal welfare were more prominent.

Interviewer [23:36] Yes.

Interviewee 3 [23:41] The thing is, I don't know about others, but I know very little about meat production itself and what the actual factors are that are harmful to the environment.

Interviewer [28:42] Yes, okay, good. Thank you very much for your time, and with that, I would now conclude the interview.

F.3 Interviewee #4

Occupation/Education: Real Estate Agent Trainee

Other: Munich, 24 years old, Female Interview

Length: 6:16 minutes

Interviewer [00:01] Well, hello, and thank you for allowing me to interview you on the topic of cultivated meat. A question right at the beginning: Is it okay if I record this meeting?

Interviewee 4 [00:14] Yes, that's fine with me.

Interviewer [00:21] Okay, thank you! Now, please imagine that you are in a supermarket, standing in front of the refrigerated section, and you want to buy a burger patty. What kinds of burger patties would you see or be familiar with?

Interviewee 4 [00:39] Well, theoretically, there are regular meat patties, which are either made from beef, chicken, or game. And there are also various vegetarian and vegan patties, which can be based on vegetables or made from soy or peas, and so on. There are all sorts of options.

Interviewer [01:15] Great, and now I'd like to know, based on what criteria you choose which patty to buy while standing in front of the shelf.

Interviewee 4 [01:32] I would tend to say that for meat, if I buy it, it must be regional and organic. When it comes to vegetarian and vegan options, the taste is crucial for me because it should taste like meat.

Interviewer [02:03] Okay, and what criterion is most important to you?

Interviewee 4 [02:11] As I said, for meat, it must be regional. But the brand, especially for meat alternatives, also plays a role for me. If, for example, I've already tested other products from the brand and liked them, I'm more likely to buy from that brand again.

Interviewer [02:45] Very interesting. What criteria do you consider in your decision, but they are not decisive for you?

Interviewee 4 [02:56] I would say that if I have two different burger patties, both organic, and so on, then I would choose the cheaper one. During my training or studies, that plays a significant role. Of course, other secondary aspects are relevant, like sustainability, which could be considered, but it's not the determining factor for me. I can't think of any other criteria off the top of my head.

Interviewer [03:23] Great, let's briefly focus on the topic of sustainability. I can tell it plays a role, though not the most important one for you. What is particularly important to you in this context?

Interviewee 4 [03:47] So when I buy meat, animal welfare is definitely important to me. I don't support or purchase products from factory farming, or meat imported from abroad. It also depends on how meat substitute products are produced. If it's clearly labeled on the packaging, it's easier to make choices, such as selecting products that use less water or recycle it.

Interviewer [04:17] What do you mean by animal welfare exactly? You mentioned avoiding factory farming, but is there more to it?

Interviewee 4 [03:37] Yes. I definitely avoid factory farming, and I only choose regional products. So, when animals are slaughtered, it's essential that they are not transported long distances but rather everything happens as close together as possible. I also insist on humane treatment of the animals, no overuse of antibiotics, and avoiding pure stall housing.

Interviewer [04:12] Interesting, and which brands do you know that offer traditional or vegan/vegetarian burger patties?

Interviewee 4 [04:31] Yes, for vegetarian and vegan products, I'm familiar with Rügenwalder Mühle, as well as Beyond Meat and, I believe, John Burger. As for others, I'd have to look them up. Honestly, I can't think of any more. And for regular meat, I buy it locally from Herrmann's Dorfer or game meat. My uncle is a hunter, and I get fresh game from him.

Interviewer [05:07] Okay, thanks. Do you also know of brands that aim to introduce cultivated meat in the form of patties to the market?

Interviewee 4 [05:12] I think Beyond Meat is doing cultivated meat, right? But honestly, I'm not very familiar with that. I don't know of any others

Interviewer [05:49] Yes, Beyond Meat focuses on meat substitute products, not cultivated meat, but that's not a problem. This brings us to the end of this brief interview. Thank you for taking the time.

Interviewee 4 [06:01] Ah, okay. I hope that was helpful.

F.4 Interviewee #5

Occupation/Education: Operations Director D-A-CH at Groupe SEB

Other: Frankfurt, 39 years old, Male

Interview Length: 5:46 minutes

Interviewer [00:01] Thank you for allowing me to interview you on the topic of cultivated meat. Is it okay if I record this meeting?

Interviewee 5 [00:12] Certainly, and yes, of course, no problem!

Interviewer [00:14] Great! Then, I would like to ask you to imagine that you are standing in front of the refrigerated section in a supermarket, and you want to buy a burger patty. What kinds of burger patties would you see or be familiar with?

Interviewee 5 [00:41] Okay. So, I would see various types of meat, such as beef, pork, Wagyu, and so on. There are also patties made from fish, like salmon, for example. Additionally, there are meat substitute products like vegan patties or Halloumi, and so on.

Interviewer [01:13] Alright, thank you. Now, imagine you are still standing in front of the shelf. What criteria do you use to decide which patty to purchase?

Interviewee 5 [01:34] I prefer to make my own patties from fresh, organic ground beef from the butcher's counter. If I do buy a pre-made patty, I always look for product quality, preferably organic and sustainable.

Interviewer [01:53] Okay, so that means you mostly purchase products made from traditional meat?

Interviewee 5 [02:03] Yes, I am aware of alternative products, but I don't personally buy them. That's why sustainability is important to me because I don't buy vegan products.

Interviewer [02:11] Okay, what do you mean by sustainability precisely? Does it imply reduced resource consumption for you?

Interviewee 5 [02:23] For me, it primarily means animal welfare. While I'm not vegan, I still want the animals to have been raised and slaughtered in the best possible way. This includes humane treatment, avoiding factory farming, and free-range practices. Therefore, certifications like organic are important to me.

Interviewer [02:43] Okay. What is the most crucial criterion for you when making a purchase? You've already mentioned things like quality and sustainability.

Interviewee 5 [02:57] I would say that the most important aspect for me is this sustainability factor. What also matters is whether the product looks appealing to me. After that, the brand plays a role for me, but mainly if I've had positive experiences with the brand. Price becomes relevant only after these factors.

Interviewer [03:24] Great, and which criteria do you consider in your decision but are not decisive for the final purchase?

Interviewee 5 [03:37] The brand doesn't play a significant role for me in the end. The price is also not crucial unless the product is extremely expensive; then, I wouldn't buy it at all.

Interviewer [04:02] Okay, and what brands do you see in the refrigerated section when you imagine standing in front of it?

Interviewee 5 [04:15] Well, let's start with meat substitute products. I'm familiar with brands like Wiesenhof, Garden Gourmet, and Blockhouse. I honestly can't say for traditional meat because I always get fresh ground meat from the butcher's counter and make my own patties at home.

Interviewer [05:08] Alright, thank you. Do you also know of any brands that aim to introduce cultivated meat in the form of patties to the market?

Interviewee 5 [05:16] No, I'm not familiar with that. I can't think of any in that category.

Interviewer [05:28] No problem at all. That brings us to the end of this brief interview. Thank you for taking the time.

Interviewee 5 [05:44] You're welcome.

F.5 Interviewee #6

Occupation: Cleaning lady/housewife retired

Other: Ulm, 75 years, Female

Interview length: 4:19min

Interviewer [00:01] So thank you for taking the time to do the interview. First of all, I wanted to ask if that's okay then, that I'm recording this now.

Interviewee 6 [00:12] Yes.

Interviewer [00:13] Very good. Okay. Then I would say we'll start right away because I've already explained it. Imagine that you are standing in front of a supermarket shelf and you want to buy burgers now. First of all, do you know the different types of burgers? What do you find on the supermarket shelves?

Interviewee 6 [00:38] We don't know any, if we're honest, because we shop at the butcher.

Interviewer [00:43] Ah, okay. You buy all your meat from the butcher. Okay. Interesting. And at the butcher, is there any criteria that you guys use to decide which product you buy then?

Interviewee 6 [00:56] Yes, you already have your favorite burgers, sausage and stuff, but it has to look good. And it's the butcher where we have confidence.

Interviewer [01:07] Okay, okay. All right. Appearance and quality and trust. Any other decision factors there?

Interviewee 6 [01:19] Because we know the butcher and I think he buys his animals from the farmer.

Interviewer [01:30] All right. And do you guys decide on anything else, like, does it taste good? Is that important as well? Or would you say for you is definitely how it looks, how it looks at the butcher then and that it's the butcher of trust, is that more important than the taste?

Interviewee 6 [01:45] No, it has to taste good of course, otherwise you don't buy it.

Interviewer [01:50] Okay, okay. So taste is the main criterion. Is sustainability important for you somehow or is it an issue or rather not?

Interviewee 6 [02:01] Rather not. We don't really have that on our radar.

Interviewer [02:05] Okay, but animal welfare. So now you said, at the butcher's, you trust that the animals are doing well. So you don't look at anything more than that? So you don't have a brand that says "no factory farming" or something?

Interviewee 6 [02:25] Yes, that is important to us, no factory farming.

Interviewer [02:31] And do you also know that from the butcher?

Interviewee 6 [02:37] Yes, because we live within a radius of here. We live on the country side and then you already know.

Interviewer [02:44] Okay. Interesting and so in individual cases you also buy something in the supermarket?

Interviewee 6 [02:55] No, I don't buy meat at the supermarket. I only buy it from the butcher.

Interviewer [03:01] Okay. Can you name any brands in the supermarket that offer meat now for example?

Interviewee 6 [03:08] Yes, so Rügenwalder you've heard a lot, but yes, I wouldn't buy that.

Interviewer [03:15] Okay, interesting. And so vegetarian vegan substitute burger parties. Have you guys bought that before?

Interviewee 6 [03:25] No, we don't buy that at all.

Interviewer [03:29] Okay. And then lastly, one more question. Have you ever heard of cultivated meat?

Interviewee 6 [03:39] Yes, I don't think I would buy that.

Interviewer [03:43] Okay, why?

Interviewee 6 [03:45] It's not natural, because it's artificially produced.

Interviewer [03:49] Okay. Interesting. And one last question. But you haven't heard more than lab meat about it now, have you? You don't know more about it now, how it's produced or something?

Interviewee 6 [04:11] No, only heard about it.

Interviewer [04:13] Okay, okay, thank you very much for your time. That's it for the interview.

F.6 Interviewee #7

Occupation/Education: Management Student

Other Details: Stuttgart, 24 years old, Female Interview

Duration: 4:50 minutes

Interviewer [00:00] So, thank you for taking the time. Today, I'd like to interview you about cultivated meat. My first question would be as follows: Imagine you're standing in front of a supermarket shelf and want to buy a burger patty. What kinds of burger patties do you see?

Interviewee 7 [00:21] There are vegan and vegetarian burgers, as well as beef, pork, or chicken patties. There are vegan ones that contain just vegetables, and there are also ones that are designed to taste like meat.

Interviewer [00:41] Okay, very good. And what are the criteria you consider when choosing which burger patty to buy?

Interviewee 7 [00:49] The appearance is important; it should look appetizing. The price, of course, matters as well, and I might be a bit swayed by the packaging. The packaging also influences my decision.

Interviewer [01:02] When you mention packaging, do you mean how visually appealing it is?

Interviewee 7 [01:05] Yes, exactly, whether it looks nice and presentable. Sometimes there are water droplets or other unappetizing things in the packaging.

Interviewer [01:17] Okay. What would you say is the most important criterion among those you've mentioned?

Interviewee 7 [01:20] As I mentioned, appearance – it shouldn't look rancid, and how the meat looks.

Interviewer [01:31] So, in summary, quality is the most important criterion for you?

Interviewee 7 [01:33] Yes, exactly.

Interviewer [01:34] Does sustainability also play a role for you?

Interviewee 7 [01:42] Yes, that's important to me as well. For example, cows produce a lot of CO2 emissions, so the entire meat consumption isn't sustainable. Unfortunately, most vegan alternatives aren't much better and only slightly more sustainable, but still not 100% sustainable. It's also important that the patty isn't excessively packaged in plastic, and that the production doesn't waste water or release harmful chemicals into the environment.

Interviewer [02:21] Okay, very good. Does animal welfare matter to you as well?

Interviewee 7 [02:29] Absolutely. Mass animal farming with all those animals is already a concern for me, as well as the suffering that animals endure.

Interviewer [02:47] Okay. Now, imagine you're standing in front of the refrigerated section. What brands do you see, whether they are meat or plant-based alternatives?

Interviewee 7 [03:04] I'm familiar with the vegan brands: Garden Gourmet, Rügenwalder Mühle, the private labels of Aldi and Lidl, and Edeka. Those are the brands that come to mind. I don't really know traditional meat brands.

Interviewer [03:28] Do you know of brands that are trying to introduce cultivated meat?

Interviewee 7 [03:38] I have no idea. I'm not familiar with that.

Interviewer [03:40] Under what conditions would you choose a cultivated meat patty?

Interviewee 7 [03:48] It would be important for me to understand the exact manufacturing process, and it would need to be ensured that no animals suffered.

Interviewer [03:55] Okay, so currently, animals unfortunately have to be sacrificed for its production, but significantly fewer. You still wouldn't buy cultivated meat under these conditions?

Interviewee 7 [04:04] No, I wouldn't. I would want to be sure that no animals were harmed because otherwise, I might as well abstain. So, it's definitely important, and it also needs to be proven to be safe for consumption in any way.

Interviewer [04:26] Okay, so you would also like certifications to guarantee this?

Interviewee 7 [04:29] Yes, I think certifications are very good. They should be reliable and regularly inspected to ensure they're not making false claims. It might also be cool to have a marketing campaign that shows how the process works and that it's generally a good option.

Interviewer [04:49] That's all. Thank you very much.

Interviewee 7 [04:50] You're welcome.

F.7 Interviewee #8

Occupation/Training: Mechatronics Bachelor Student

Other: Stuttgart, 25 years, Male

Interview length: 8:05min

Interviewer [00:01] Okay. Thank you very much for taking the time for this interview. First of all, I still wanted to ask you if it's okay if I record the meeting.

Interviewee 8 [00:14] Yes.

Interviewer [00:15] Okay, very good. exactly. To start right in, I would ask you to imagine that you are standing in front of a shelf in the supermarket. And you want to buy a burger right now? I would like to ask you what you see on this shelf. So, what types of burger patties are there?

Interviewee 8 [00:36] Yes. Basically, there are different brands, quite a lot of different brands. There are vegan patties. Of course, there are also ones with meat. There are ones that are completely natural and with beans there are yes patties, so very diverse.

Interviewer [01:01] Very good. Interesting. And what if you stand in front of this shelf now? What criteria do you use to decide which patty to choose now?

Interviewee 8 [01:14] When I'm standing in front of it, meaning if I were to purchase a patty, I would definitely want to know about the living conditions of the animals. In Germany, we have various types of animal husbandry, and that's already a crucial factor for me. While the patty might be a bit more expensive, I'm willing to pay more when buying meat if it means better conditions for the animals. Additionally, there is the option to choose a vegan alternative, which is a more sustainable choice as well.

Interviewer [01:53] So that means you mostly buy meat parties, but sometimes you also reach for vegan alternatives.

Interviewee 8 [02:01] Exactly. Especially the ones from Beyond Meat, for example, are also very similar to the real burger meat. And that's when I sometimes reach for them.

Interviewer [02:12] If I understand correctly, your choice is based on taste. So, you might opt for an alternative occasionally, especially if it closely resembles the taste of meat. Is your decision influenced by sustainability, as you mentioned earlier?

Interviewee 8 [02:30] Yes, exactly, simply also with regard to the animals. And it's not always healthy to eat only meat. Also, in general it's not healthy to consume too much meat.

Interviewer [02:43] Okay. And when you say animals, what is relevant for you? So what is animal welfare for you?

Interviewee 8 [02:55] Yes, precisely, the crucial point for me is that the animals were not subjected to factory farming conditions. That is of utmost importance to me. As consumption decreases, fewer animals need to be sacrificed, and, of course, there's no need for them to undergo the stress of slaughter. This is a significant factor in choosing an alternative, as it aligns with concerns for animal welfare. It's certainly a better option than supporting animals living in factory farming conditions.

Interviewer [03:44] Yes okay. And you meant it's not healthy. What do you mean by that?

Interviewee 8 [03:54] Yes, you know, they say that if you only consume meat, it's not so optimal. Take burger patties, for example; they're considered red meat. As far as I know, red meat is considered less healthy due to the fats present, and that's why I opt for an alternative.

Interviewer [04:14] Yes okay. And you also mentioned sustainability? What is sustainable for you? So what does sustainability mean to you exactly?

Interviewee 8 [04:26] Yes, well, sustainability is a crucial aspect that immediately comes to mind. It includes considerations like CO_2 emissions, energy consumption, the resources animals require for their living conditions, their feeding, water consumption, and all the food necessary for the animals to thrive.

Interviewer [04:44] Okay, so resource consumption. Okay. So, that means that you basically choose according to taste, but also more often the sustainability aspect or animal welfare aspect, which are important for you. Are there other criteria that you use to make your decisions? Yes, you just mentioned brands. That means that you also look at which brand you choose. So right now with vegan you also look at the brands of meat products?

Interviewee 8 [05:03] With meat products, there are just so many, and each store tends to have different brands, especially when you're on a vegan diet. You get to know which companies produce good patties as you explore different stores.

Interviewer [05:28] Can you tell me a few more vegan brands or meat brands that you buy?

Interviewee 8 [05:35] So, with vegan products, there's Rügenwalder Mühle, exactly. And for meat, there are also private brands. Edeka, for example, offers interesting options.

Interviewer [05:58] Do you purchase meat from any other brands, aside from Edeka organic and private labels? Which brand do you prefer for meat?

Interviewee 8 [06:15] Yes, for example, there was a relatively well-known brand in Hamburg, called Hamburdeheesa.

Interviewer [06:26] And do you also have a third brand that you buy more often?

Interviewee 8 [06:33] Third brand? Yes, well, I know Blockhouse and they also make burger patties.

Interviewer [06:41] And for vegan, you mentioned Beyond meat, do you know another one.

Interviewee 8 [06:50] I'll have to pass on that one.

Interviewer [06:54] Do you know any brand that wants to bring cultivated meat to the market?

Interviewee 8 [07:01] No.

Interviewer [07:05] Okay. Now, if we reassess that. So, in front of the supermarket shelf, taste and price are secondary for you; the decision comes down to whether it's meat or vegan. Apart from that, sustainability and animal welfare are significant factors. But do you base your decision on anything else, or is that pretty much it?

Interviewee 8 [07:26] If you consider meat, the appearance also plays a role. Some brands present their patties directly, visible in the packaging or behind transparent film, while others keep them concealed in the packaging, making it challenging to see what they look like. And, of course, visual appeal is significant for the consumer.

Interviewer [07:52] Okay, thank you very much.

Appendix G – Bonus Part: Brand Book

BRAND BOOK

for Mosa Meat

Anja Held
Allegra Baumanns
Anna-Maria Huber
Agostina Hübscher

Group 2

Mosa Meat

TABLE OF CONTENTS

TARGET SEGMENTS

THOMAS

Traditionalist Meat Enthusiasts

Thomas enjoys the hearty offerings of Blockhouse. As a non-vegetarian, Thomas appreciates the rich taste of traditional meat products and is hesitant to embrace cultured meat, finding comfort in the familiar and time-tested culinary experiences.

CHARACTERISTICS

- Male
- 50 Years
- Highly Educated
- Omnivore

! HARD TO ATTRACT BUT STRATEGICALLY INDISPENSABLE

NICK

Young Innovators

Nick, part of the younger demographic, is drawn to the innovative approach of Mosa Meat. Open to experimenting with alternative meat substitutes, Nick is enthusiastic about embracing cultured meat as part of his progressive and open-minded culinary journey.

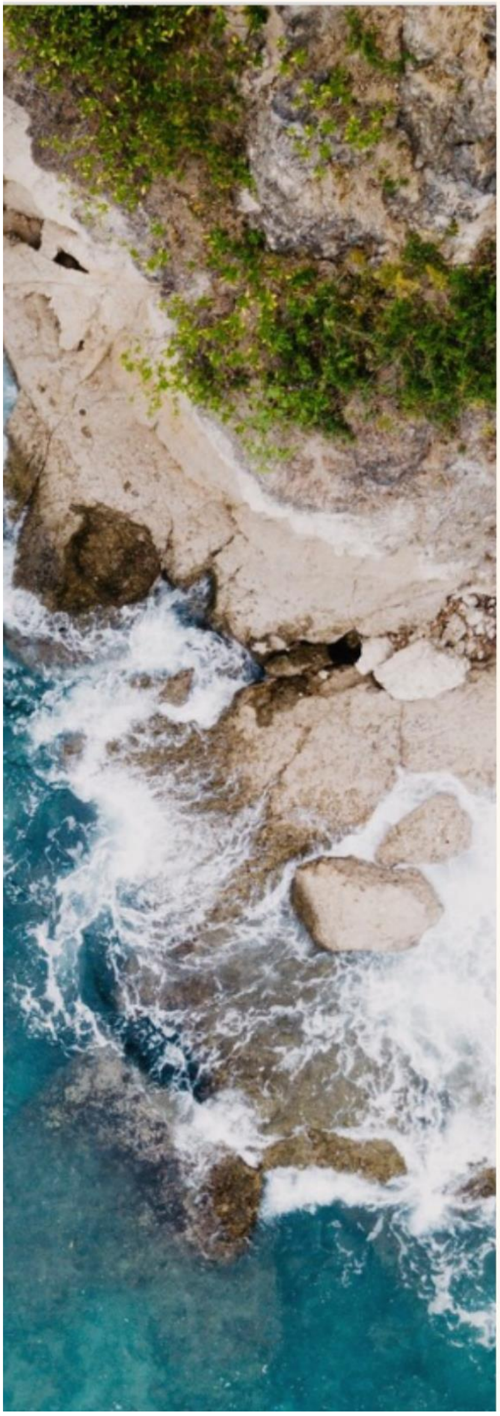
CHARACTERISTICS

- Male
- 27 Years
- Highly Educated
- Omnivore

! EASY TO ATTRACT BUT STRATEGICALLY LESS RELEVANT

Addressing the diverse interests of the target segments presents a **challenge**, given the contrasting profiles of Thomas and Nick. Nick, as an **early adopter**, is eager to try cultivated meat and embraces food innovations. However, Thomas, representing the larger and more **lucrative market**, is a traditional meat eater.

To succeed, the marketing must resonate with Nick's adventurous spirit and Thomas's traditional preferences, ensuring a comprehensive approach that **maximizes appeal across these distinct consumer segments**.



BRANDING

POSITIONING STATEMENT

Mosa Meat, a pioneering Dutch startup in clean meat production, positions itself as the **natural evolution of traditional meat**, cultivating a new era of sustainable, high-quality burger patties.

Pioneering a **cleaner, kinder way of making beef**, Mosa Meat is a food technology company dedicated to helping everyone take a bite out of a better future —starting with the world's kindest beef burger.

With a commitment to animal welfare and a focus on taste that surpasses conventional options, Mosa Meat **appeals to both traditional meat enthusiasts** like Thomas, seeking familiar taste and superior quality, and **innovation enthusiasts** like Nick, drawn to cutting-edge, environmentally conscious food choices.

All this is offered at a reasonable price, ensuring accessibility for consumers who value both **taste and affordability**.

TAGLINE

Crafting Tomorrow's Meat Today - Taste the Evolution at a Fair Bite!

VISUAL IDENTITY

LOGO

Mosa Meat

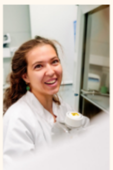
COLOR PALETTE

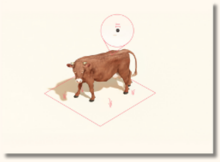
HEX Color: #FF576A

HEX Color: #000001

HEX Color: #FFF9F0

IMAGERY & GRAPHICAL ELEMENTS



FONT

Poppins:
Is a geometric sans-serif with a fairly high x-height. It supports both Latin and Devanagari chararacter sets.

Questography
HAVANA PLYWOOD
Château d'Yquem
hamburgevontpids
Högertrafikomläggning en
difficult waffles

VERBAL IDENTITY

POSITIVE AND OPTIMISTIC:

The language used in the text conveys a positive and optimistic tone. The brand emphasizes the benefits of their approach, from environmental impact to animal welfare, creating a sense of hope and positivity.

INFORMATIVE AND TRANSPARENT:

The brand communicates in an informative manner, providing details about their processes and principles. Transparency is a key element, with a commitment to sharing information about the production of their meat.

INCLUSIVE AND COMMUNITY-ORIENTED:

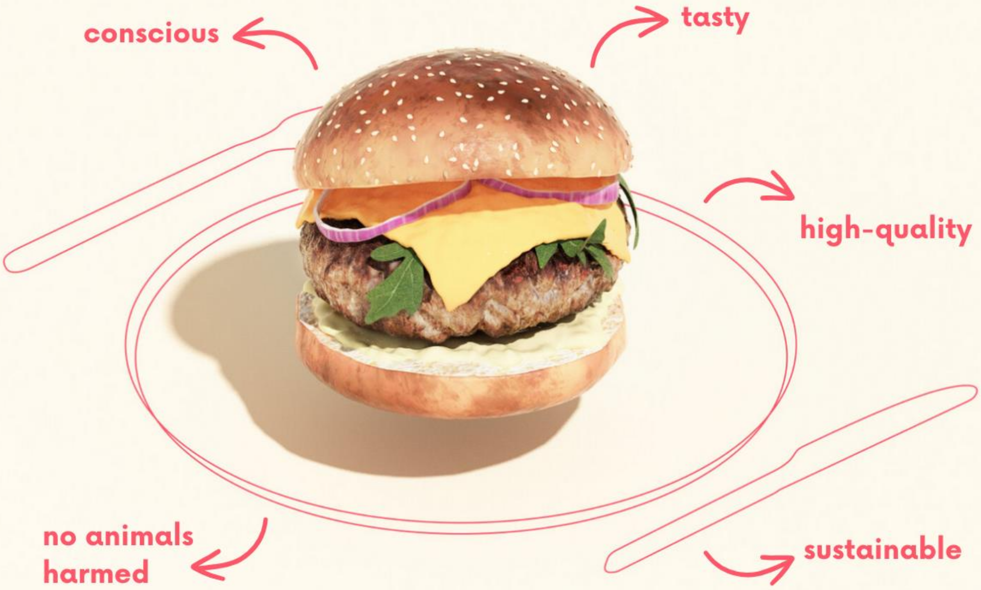
Mosa Meat adopts an inclusive tone, referring to themselves as a "growing team of problem-solving food-lovers" with members from diverse backgrounds. The brand seeks to build a community around responsible eating.

COMPASSIONATE AND EMPATHETIC:

The brand expresses a compassionate view toward animals, particularly cows, highlighting their emotional sensitivity. This adds an empathetic touch to the communication, fostering a connection with the audience.

PRODUCT

THE PERFECT BURGER TASTES LIKE MEAT, IS MEAT AND IS KIND



PRODUCT DEVELOPMENT

Mosa Meat should **prioritize technological advancements** in water consumption, CO2 emissions, and the development of a fully slaughter-free laboratory process. This will enhance competitiveness in sustainability and animal welfare, aligning with the preferred attributes for burger patties.

A potential future strategy involves introducing cultivated mince as a **line extension** to appeal to both target segments. This action should only be undertaken once the business is **firmly established** and has achieved **significant scale**.

!

A **strategic alliance with Gutfried** offers significant market advantages. Collaborating on a **hybrid product**, blending Gutfried's traditional poultry expertise with Mosa Meat's technology, allows them to **earn trust, drive cost savings, expedite market entry, and improve product characteristics**.

PLACE

LET CONSUMERS TRY BEFORE THEY BUY

FOCUS ON BIGGEST RETAILERS

Mosa Meat should focus on the **biggest German food retailers, namely Edeka and Rewe** and neglect discounters such as Aldi and Lidl.

Partnering with these retailers will help Mosa Meat to not only enhance their brands' image and positioning since these retailers are often associated with **high quality**, but also to target more affluent customers that are **willing to pay a higher price.**

IN-STORE PROMOTIONS & TASTINGS

In-store promotions and tastings offer tangible experiences to **overcome customers' hesitancy.**

Real-world tastings, inspired by successful practices in the wine industry, provide a dynamic way to **engage and persuade** hesitant consumers.

Free samples trigger the reciprocity principle, instilling a **sense of obligation** and potentially prompting further exploration.

PLACE

ONLINE GROCERY CHANNELS

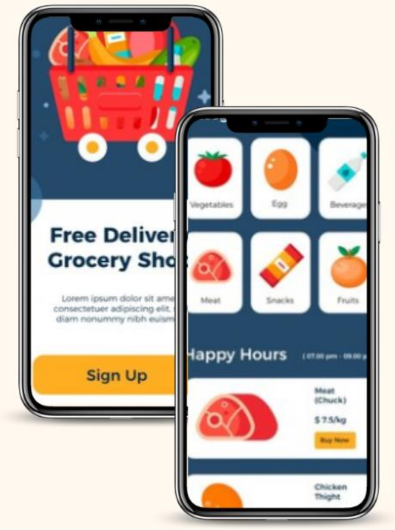
Focus

A new study from Mintel found that **almost half (45%) of Germans aged 16 to 24** have shopped online for groceries from a retailer with physical stores in the last six months prior to the survey, compared to only 31% of Germans overall (Maiseviciute, 2016), making online grocery channels highly attractive for our younger target group represented by Nick.

POTENTIAL PARTNERS

Glovo · Flink · GORILLAS

ADVANTAGES



TIME-SAVING

Online grocery shopping eliminates the need to physically visit a store, stand in queues, and navigate through crowded aisles. This time-saving aspect is especially appealing to younger individuals who may have hectic schedules.

CONVENIENT

Younger customers often have busy lifestyles, with work, studies, and social activities. Online grocery shopping provides the convenience of ordering from anywhere at any time, saving them time and effort.

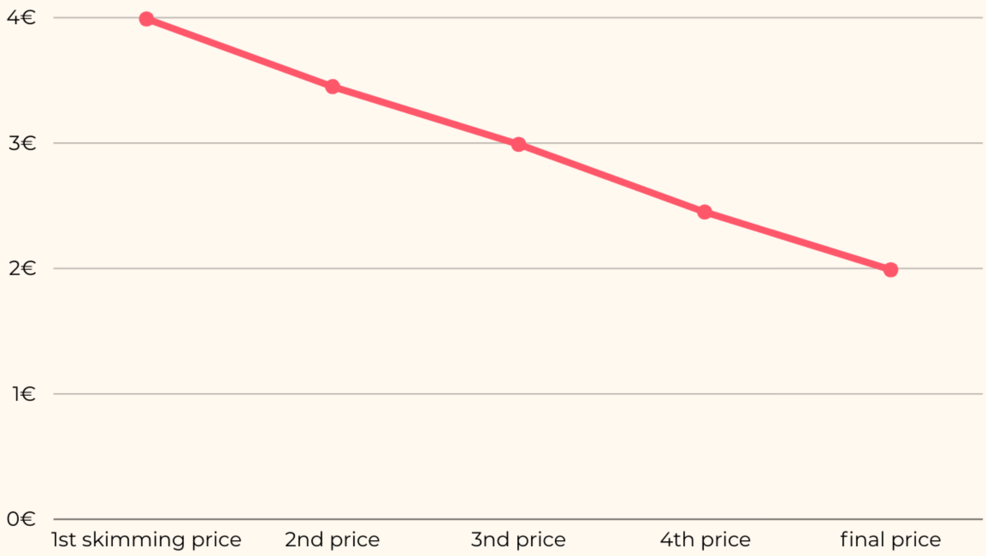
TECH-SAVVY

Younger generations are generally more tech-savvy and comfortable with online platforms. Using mobile apps or websites for grocery shopping aligns well with their digital habits, making the overall experience seamless and enjoyable.

PRICING

PRICE SKIMMING STRATEGY

Mosa Meat is advised to follow a price skimming strategy. This approach allows to set an initial high price at launch, gradually lowering it over time.



SHORT-TERM STRATEGY

Mosa Meat is advised to implement a **value-based pricing at launch.** This strategy will help Mosa Meat to reflect not only their innovative nature of their products but also signals safety and high quality to consumers.

This positioning in the market can **help build trust and confidence** in a new product, especially in the early stages of market adoption.

Implementing a premium pricing strategy will further leave room for decreasing prices and **offering discounts.**

LONG-TERM STRATEGY

Mosa meat is recommended to **invest** heavily in **technological advancements** and operational efficiencies that will allow them to reduce their prices in the long-term.

The rationale behind adopting a long-term strategy of lowering prices stems from the anticipation of **fierce competition.**

The expectation is that with that development, the room for price increases will diminish, leaving the company with no choice than to **lower their prices** in order to stay **competitive**.

PRICING

DISCOUNT STRATEGY EXAMPLES

01. % - DISCOUNT

Deductions of the price for a limited period of time

IDEAL FOR FIRST-TIMERS

- By offering a % - discount, Mosa Meat can adjust prices while still **maintaining** the **perceived value** of the product.
- Consumers often perceive percentage discounts as a **more significant value** compared to fixed amount discounts.

02. BUNDLE DEALS

Get 2, but only pay for one

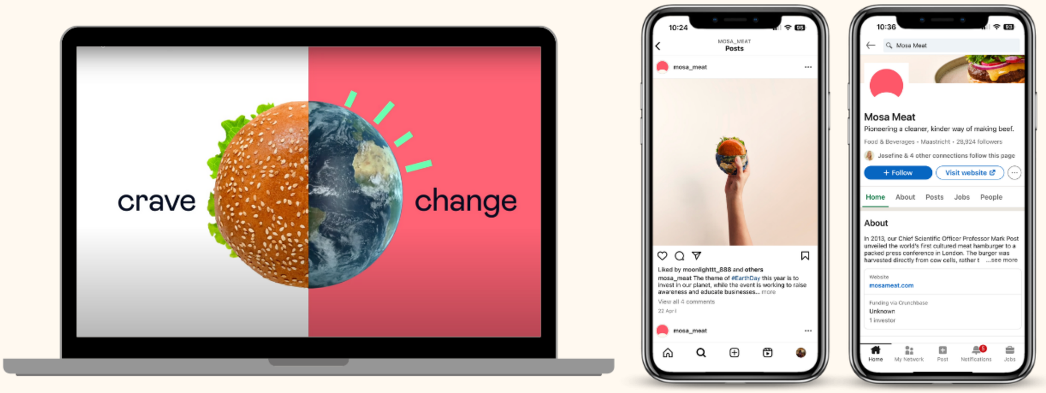
- This type of promotion can **attract price-sensitive consumers**, who already tried out the product in the past.
- This deal often appeal to **impulse buyers** who are swayed by the idea of getting something for free.

PROMOTION

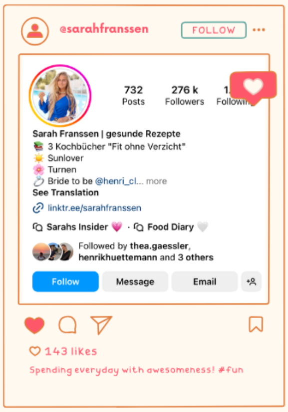
SOCIAL MEDIA

Focus

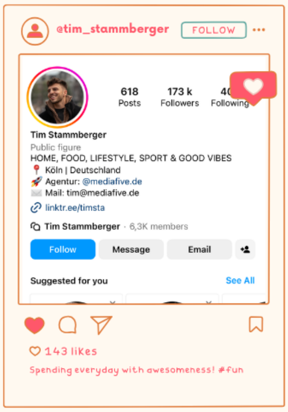
RELEVANT PLATFORMS



INFLUENCER SELECTION



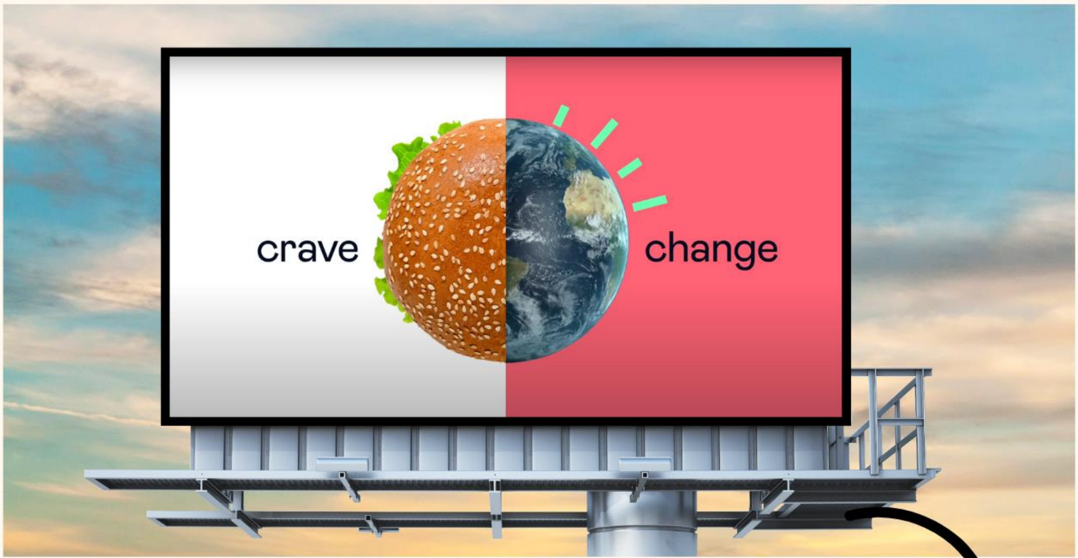
KPI:
Follower: 276k
Engagement: 5.2%
Comments per 1,000 likes: 108.4
Price Feed Post + Story: S500-S5k



KPI:
Follower: 173k
Engagement: 6.1%
Comments per 1,000 likes: 5
Price Feed Post + Story: S500-S5k

PROMOTION

OFFLINE LAUNCH CAMPAIGNS



BILLBOARD ADVERTISING

Billboard advertising is **essential** for **Mosa Meat's launch** of cultivated burger patties.

It captures **attention**, **educates** about the innovative product, and **generates anticipation**.

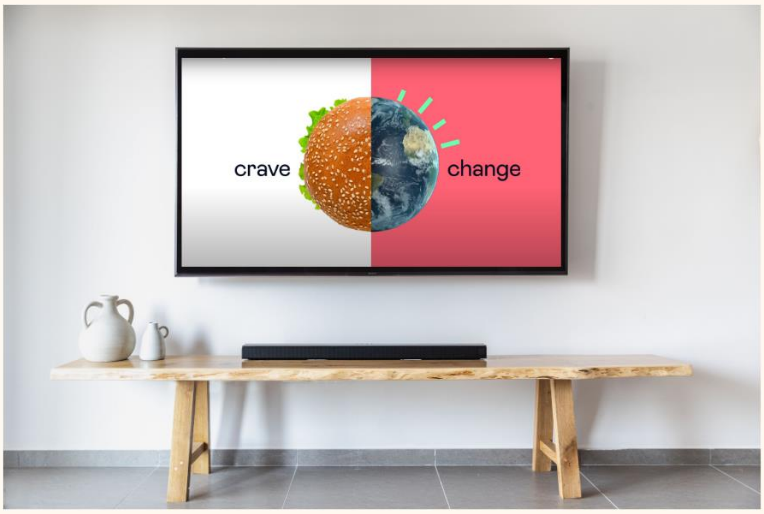
Placed strategically, billboards act as powerful tools to establish **brand presence**, **fostering recognition** for Mosa Meat's mission of sustainability and ethical food production.

PROMOTION

Focus

TRADITIONAL MEDIA

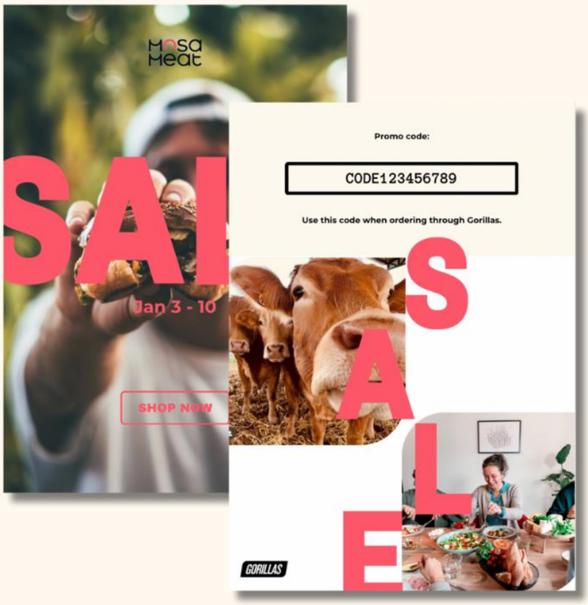
T V



TV stands as a pivotal medium for building **brand awareness.**

Particularly during the launch phase, given its **expansive reach** that can **synergistically amplify** efforts across **various platforms** e.g. digital channels.

E M A I L



Email marketing remains the **preferred** mode of **com-munication** for consumers across all age groups.

Therefore, leveraging email as a pivotal touchpoint is essential for ensuring **robust brand awareness**.

Additionally, it serves as a valuable tool for **monitoring conversion rates** and **mitigating bounce rates**, making it a crucial component of a comprehensive brand strategy.

THANK YOU

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