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# **Sustainable meal servings at Norwegian Folk High Schools**

A Qualitative and Quantitative Investigation of  
motivations, attitudes, and student acceptance

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## Abstract

Due to environmental and human health concerns, it is necessary to transition towards a more sustainable diet. The overconsumption of animal-based food is having harmful impacts on both our health and the planet. The aim of the study was to investigate the experiences of students, kitchen staff, and leadership concerning sustainable meal servings at Norwegian Folk High Schools. Young adults were recruited from Folk High Schools that put emphasis on sustainable diets. This included serving meals with small environmental footprints through vegetarian days, reduction of food waste, making food from scratch, and providing locally sourced food.

Qualitative data were collected through six focus group interviews with a subset of students (n=29, age 18-26 years) and four one-to-one interviews with the school's headmaster and chef (n=4). Quantitative data were collected through an online questionnaire (n=127, age 18-27 years).

The qualitative data revealed that reducing meat consumption, choosing locally produced food, and making food from scratch were important factors to the students when identifying a sustainable diet. Providing a variety of food options, not highlighting too much the environmental aspects of the student's food choices, not forcing a belief system, and teaching young adults to think for themselves were important to the schools. The results also indicate that making sustainable diet choices can help the schools cut costs. The two institutions define sustainable diets similarly but prioritize different approaches. School A puts emphasis on minimizing food waste by implementing a weighing system that displays the results on a common area board, while School B focuses on serving plant-based meals and consistently providing vegetarian alternatives. This seems to influence the student's perceptions of the most impactful ways to promote environmental sustainability.

The findings indicate that the attitudes of Folk High School students towards food are partly shaped by their exposure to sustainable meal servings at the canteen. Especially the emphasis on plant-based meals can give the students new perspectives on sustainable eating. According to multiple students from both institutions, their attitude towards vegetarian food has become more positive following their attendance at the Folk High School. Consuming plant-based food, when prepared the right way, can enhance individuals' preference for these dishes. Focusing on delicious flavors and enjoyment of food may be the most effective strategy for promoting positive attitudes toward sustainable diets.

## Sammendrag

Av hensyn til både miljø og menneskers helse er det nødvendig å gå over til et mer bærekraftig kosthold. Overforbruk av animalsk mat har skadelig innvirkning på både helsen og planeten vår. Målet med studien var å tilegne seg en dypere innsikt i studenter, kjøkkenpersonell og ledelsens erfaringer, rundt temaet bærekraftig matsservering ved norske folkehøgskoler. Unge voksne ble rekruttert fra to internatskoler som la vekt på bærekraftig kosthold. Dette inkluderte servering av måltider med små miljøavtrykk gjennom vegetariske dager, fokus på reduksjon av matsvinn, tilberedning av mat fra bunnen av og bruk av lokalt produsert mat.

Kvalitative data ble samlet inn gjennom seks fokusgruppeintervjuer med studenter (n= 29, alder 18-26 år) og fire en-til-en-intervjuer med skolens rektor og kjøkkensjef (n=4). Kvantitative data ble samlet inn gjennom en nettbasert spørreundersøkelse (n= 127, alder 18-27 år). De kvalitative dataene avslørte at å redusere kjøttforbruket, velge lokalprodusert mat og lage mat fra bunnen av var viktige faktorer for studentene når de skulle identifisere et bærekraftig kosthold. Å tilby stor variasjon, ikke legge for mye vekt på miljøaspektene ved skolens matsservering, ikke tvinge frem et trossystem og å lære unge voksne å tenke selv var viktig for skolene. Resultatene tyder også på at bærekraftige matvalg kan hjelpe skolene med å kutte kostnader.

Institusjonene definerte bærekraftig kosthold på lignende måte, men prioriterer ulike tilnærminger. Skole A legger vekt på å minimere matsvinn ved å veie rester og å vise resultatene på en tavle i fellesområdet, mens skole B fokuserer på å servere plantebaserte alternativer tilgjengelig for alle studenter, til alle måltider. Dette så ut til å ha innvirkning på studentenes oppfatning av hva som er den mest virkningsfulle måten å fremme miljømessig bærekraft. Funnene tyder på at studentenes holdninger til mat delvis påvirkes av deres eksponering for bærekraftige måltider i kantinen ved norske folkehøgskoler. Særlig vektleggingen av plantebaserte retter gir elevene nye perspektiver på hva et bærekraftig kosthold kan innebære. Ifølge flere studenter fra begge institusjonene har deres holdning til vegetarmat blitt mer positiv etter at de har gått på folkehøgskolen. Inntak av plantebaserte måltider, når de tilberedes på riktig måte, kan øke den enkeltes preferanse for disse rettene. Å fokusere på å lage mat som smaker godt og å skape matglede kan være den mest effektive strategien for å fremme positive holdninger til bærekraftige dietter.

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# Innholdsfortegnelse

<b>1. Introduction</b>	<b>8</b>
1.1 <i>What are Folk High Schools?</i>	9
1.2 <i>Research questions and objectives</i>	10
1.3 <i>Structure of the thesis</i>	11
<b>2. Background</b>	<b>12</b>
2.1 <i>What is a sustainable diet?</i>	12
2.1.1 <i>Meat consumption</i>	13
2.1.2 <i>Food's environmental impact</i>	14
2.1.3 <i>The situation in Norway</i>	15
2.2 <i>Dietary behavior</i>	15
2.2.1 <i>Changing habits</i>	16
2.2.2 <i>Alternative diets</i>	17
2.2.3 <i>Perceptions on environmental impacts of food consumption</i>	17
2.2.4 <i>Food waste</i>	18
2.3 <i>Implementation of sustainable and healthy school meals</i>	18
2.4 <i>Plant-based meat analogs</i>	19
2.4.1 <i>Organoleptic properties</i>	20
2.4.2 <i>Nutrition</i>	20
2.4.3 <i>Liking and acceptance of plant-based meat alternatives</i>	21
<b>3 Methodology</b>	<b>22</b>
3.1 <i>Methodological background</i>	22
3.1.1 <i>Qualitative research methods</i>	22
3.1.2 <i>Semi-structured interview</i>	23
3.1.3 <i>Interview guide</i>	23
3.1.4 <i>One-on-one interviews</i>	23
3.1.5 <i>Focus group interviews</i>	24
3.1.6 <i>Analysis of qualitative data</i>	25
3.1.7 <i>Validity in qualitative methods</i>	25
3.1.8 <i>Quantitative research methods</i>	25
3.1.9 <i>Quantitative questionnaire</i>	26
3.1.10 <i>Multivariate statistical analysis - Analysis of Quantitative Data</i>	26
3.1.11 <i>Acceptance testing</i>	27
3.1.12 <i>Semantic Differential Chart</i>	27
3.2 <i>Materials and methods</i>	27
3.2.1 <i>Project workflow</i>	28
3.2.2 <i>Literature search</i>	28
3.2.3 <i>Qualitative data</i>	28
3.2.4 <i>Quantitative data collection</i>	33
3.2.5 <i>Sensory testing of a plant-based burger</i>	40
3.2.6 <i>Ethical considerations</i>	40
<b>4 Results</b>	<b>41</b>
4.1 <i>Qualitative results</i>	41
4.1.1 <i>The Schools, sustainable strategies, and definitions of a sustainable diet</i>	41
4.1.2 <i>Strategies and measures taken to offer a sustainable meal service</i>	45
4.1.3 <i>The schools' experience with serving sustainable meals</i>	49
4.1.4 <i>Characteristics of the interviewees</i>	53

4.1.5 Students' definition of sustainable diets .....	54
4.1.6 Students' experience with being served sustainable school meals .....	56
4.1.7 How do sustainable meal servings affect Folk High School students?.....	61
4.1.8 Other factors influencing students' food attitudes and choices.....	63
4.1.9 Student's attitudes to plant-based replacement products.....	68
<b>4.2 Quantitative results</b> .....	<b>70</b>
4.2.1 Characteristics of the respondents .....	70
4.2.2 Sensory evaluation of plant-based burger .....	70
4.2.3 Students' experience with being served sustainable school meals .....	72
4.2.4 What are the attitudes of students concerning sustainable meal servings?.....	74
4.2.5 PLSR - Days of intended vegetarian meals after the year at the Folk High School .....	78
4.2.6 Attitudes on different components playing the main part in a vegetarian meal serving .....	80
<b>5. Discussion</b> .....	<b>83</b>
5.1 <i>How do sustainable meal servings affect Folk High School students?</i> .....	83
5.2 <i>Staff and students' definition of a sustainable diet</i> .....	85
5.2.1 Communicating sustainability.....	87
5.2.2 Economy .....	87
5.3 <i>Attitudes to vegetarian meals</i> .....	88
5.3.1 Are nutritional needs met on a vegetarian/vegan diet?.....	89
5.3.2 Do you feel full or satisfied after eating a meat-free meal? .....	90
5.4 <i>Food choices</i> .....	91
5.4.1 Barriers to making sustainable food choices .....	91
5.4.2 Preparing vegetarian dinners.....	92
5.5 <i>Sensory evaluation and attitudes of plant-based burgers</i> .....	92
5.5.1 Sensory evaluation of two plant-based burgers .....	92
5.5.2 Students attitudes on plant-based replacement products .....	93
5.5.3 Attitudes and beliefs toward meat burgers and their plant-based analogue.....	94
5.6 <i>Methodological discussion</i> .....	95
<b>6 Conclusion</b> .....	<b>98</b>
<b>Literature list</b> .....	<b>99</b>
<b>Appendices</b> .....	<b>109</b>

## Figures

		Chapter
Figure 1	Flowchart outlining the project workflow.	3.2.1
Figure 2	Example of some of the codes generated from the focus group interviews using Atlas.ti.	3.2.2.3.8
Figure 3	Results from the sensory evaluation.	4.2.2
Figure 4	Pictures of the burgers served at each of the schools.	4.2.2
Figure 5	Percentage representation of students' rating of the importance of different factors that influence food choices.	4.2.3
Figure 6	Reasons for eating outside of the school canteen.	4.2.3
Figure 7	Measures of greatest positive environmental impact.	4.2.4
Figure 8	PCA plot, correlations of attitudes	4.2.4
Figure 9	PLSR plot, Days of intended vegetarian meals after the year at the Folk High School.	4.2.5
Figure 10	Semantic differential chart, Vegetarian vs. meat burgers	4.2.6

## Tables

		Chapter
Table 1	Questionnaire distributed to students at two Folk High Schools.	3.2.4.3
Table 2	Characteristics of the samples participating in the focus group interviews.	4.1.4
Table 3	Characteristics of the respondents (quantitative questionnaire).	4.2.1
Table 4	Sensory evaluation	4.2.2
Table 5	Student satisfaction and the school's food service.	4.2.3
Table 6	Overview of agreement on different attitudes regarding plant-based meat replacers, animal welfare, meat reduction, and preferences in terms of vegetarian and meat servings.	4.2.4
Table 7	Rating of different vegetarian/vegan products as the main ingredient of a meal	4.2.6

**Definitions:**

Omnivorous diet	An omnivore feeds on both animals and plants.
Flexitarian diet	Feeds mostly on plants but occasionally eats meat which includes red meat, poultry, seafood, and fish.
Pescatarian diet	Eliminates all animal flesh (like red meat and poultry) with the exception of fish.
Vegetarian diet	Eliminates all animal flesh products, like red meat, fish, and poultry.
Vegan diet	Eliminates meat, fish, poultry, eggs, and dairy products, as well as other animal-derived products, such as honey.



## 1. Introduction

The recognition of the link between environmental sustainability and human health points to a need for increased awareness on how to change how people think and engage with the food system (Willett et al., 2019). The task of providing sustenance to a global population of 7.6 billion people is being accomplished at the cost of our environment (Poore & Nemecek, 2018). The rampant degradation of terrestrial and aquatic ecosystems and depletion of water resources calls for a shift in our practices (Poore & Nemecek, 2018; Tilman & Clark, 2014; Tubiello et al., 2014). Climate disruption, ongoing conflicts, and the COVID-19 pandemic all pose potential tipping points for the world, making the food systems and their resulting diets more fragile (Fanzo & Miachon, 2023). Unsound diets are a major contributor to the worsening of both human and planetary health. In general, shifting to a plant-centered diet on a global scale can contribute to lowering the environmental impact of food production practices, enhancing human well-being, and mitigating the suffering and mortality of animals in the farming sector (Arnaudova et al., 2022).

Faulty or malfunctioning food systems could be the biggest contributor to global environmental change, addressing the need for common criteria to define sustainable food production (Willett et al., 2019). Policymakers and businesses looking for guidance face challenges since there are no clear scientific targets for the global food system (Willett et al., 2019).

Although there are convincing incentives and increasing awareness of sustainable consumption, some consumers remain hesitant to alter their dietary habits and reduce meat consumption (Arnaudova et al., 2022). The millennials, (often categorized as people who reached adulthood during the early 21<sup>st</sup> century,) appear more knowledgeable and more conscious about environmental issues than older generations (Sánchez-Bravo et al., 2020; Spain et al., 2018). This group may be drivers of change and is therefore an ideal population for analysis. (Arnaudova et al., 2022). Folk high schools offer a setting where this particular demographic is not only present but also provided with meals, making it an excellent arena for investigating how food practices can impact the dietary choices of young individuals. By delving deeper into this context, research may uncover important insights into the factors that shape young people's eating habits, and how such practices can be modified to promote healthier and more sustainable food consumption.

## 1.1 What are Folk High Schools?

After completing high school, numerous adolescents in Norway choose to spend a year at a Folk High School before starting university studies, work, or go traveling. Norway has 85 Folk High schools that collectively offer 914 courses spanning various subjects, including sports, travel, arts, environment, music, theater, and more (Folkehøgskolene, 2023). The Folk High School is a non-formal boarding school that provides accommodation and meals for its students throughout a period of nine months. Students are eligible for a scholarship and loan from the Norwegian State Educational Loan Fund (Statens Lånekasse) to fund their academic year.

The Folk High Schools have a long history of providing students with opportunities to take social responsibility through organized community service projects and volunteer work (Folkehøgskolene, 2023a). In recent years, there has been a heightened commitment to educating students and operating schools in a sustainable manner. In 2017, 45 Folk High Schools partook in the project “Aksjonsforskning og bærekraft - folkehøgskolen for framtiden” (Folkehøgskolene & Framtiden i våre hender, 2017). Sustainable meal service was a focus area with various approaches adopted by the schools, including reducing meat consumption, minimizing food waste, buying organic and fair-trade produce, using local ingredients, cooking meals from scratch, cultivating food, and exploring the relationship between animals and food to achieve self-sufficiency. In addition to the environmental benefits, many schools noticed that the focus on sustainable food had a positive impact on the economy and believed that the promotion of sustainability in the kitchen would continue to be a key focus in the future. In September 2019 members from five school boards (Folkehøgskolerådet, Noregs Kristelige folkehøgskolelag, Folkehøgskoleforbundet, Informasjonskontoret for Folkehøgskolen og Informasjonskontoret for Kristen Folkehøgskole) held a meeting with the purpose of reaching a collective decision for promoting sustainable development at Norway's Folk High Schools. During this meeting, the representatives recognized the urgent need for immediate action to address the global climate crisis. At the gathering, "The Folk High Schools Sustainability Resolution" was created to encourage Norwegian Folk High Schools to increase their efforts towards achieving UN's sustainable development goals, specifically Goal 13 on combating climate change. (Folkehøgskolenes Bærekraftvedtak) The focus is on minimizing greenhouse gas emissions by exploring alternative transportation methods and prioritizing recycling and fair trade. Education for sustainable development, Goal 4.7, is also emphasized as it aligns with the Folk High Schools' educational mission.

## 1.2 Research questions and objectives

While studies on food sustainability in various arenas exist, there are so far few investigations of attitudes and motivators for sustainable diets among students at Norwegian Folk High schools. Given the schools' strong focus on and experience with implementing sustainability measures, they represent an interesting case for exploring how to run a sustainable meal service. The experience of decision-makers, kitchen staff, and students could provide valuable insights into sustainable food practices. Folk High Schools, therefore, offer an excellent setting for engaging in authentic and meaningful discussions on this topic.

The purpose of this thesis is to explore how Norwegian Folk High Schools define sustainable meal service, examine their experiences practicing it, investigate the factors that influence students' food choices, and assess how exposure to a sustainable food service impacts their attitudes and behavior toward food. This thesis is written as a part of the project «*Sustainable Eaters - Consumers in a sustainable Norwegian food System*» (project number 320800), financed by the BIONÆR program of the Norwegian Research Council and led by Nofima. The thesis aims to answer one main research question and four sub-questions that contribute to answering the main question.

### **Main research question:**

*What are the experiences of students, school staff, and leadership concerning sustainable meals at Norwegian Folk High Schools?*

The objective of the main question is to gain a broad knowledge of the experiences of Folk High Schools providing sustainable meal servings and how their students respond to these practices. It also seeks to find out where the schools put their emphasis to ensure an environmentally friendly operation, how this affects young adults' attitudes toward food, and what can be learned from these experiences to find effective and successful methods for switching to a more sustainable diet.

The sub-questions:

1. How do Norwegian Folk High Schools define a sustainable diet?
2. Which drivers, motivations, and attitudes affect the student's food choices?
3. How do sustainable meal servings affect Folk High School students?

#### 4. Which role do vegetarian meat analogs have in the transition to plant-based food at Folk High Schools?

The objective of the first sub-question is to gain insights into how the schools define a sustainable diet to look further into how this affects their approach to food serving. The following question seeks to delve deeper into the food-related beliefs and attitudes of the students and uncover the underlying motivations and driving forces behind their food choices. The third sub-question investigates what one year at a Norwegian Folk High School does to inspire young people's future food choices. The final sub-question aims to investigate whether incorporating plant-based meat alternatives as part of meat-free dinners can increase students' receptivity towards vegetarian meal options.

### 1.3 Structure of the thesis

The thesis is organized into six chapters. The first chapter serves as an introduction that provides information to contextualize the thesis and presents the research questions and objectives. In the following chapter, existing literature provides background information to better understand the topics addressed later in the paper. In Chapter 3 the methodological background and how the data was gathered, processed, and analyzed are outlined. Chapter 4 is divided into two parts wherein the findings from the interviews and questionnaire are showcased. The fifth chapter discusses, interprets, and relates the main findings to existing literature. Furthermore, an assessment is made to determine whether the selected methodology is the most suitable for addressing the research questions. The concluding chapter offers a summary of the main research findings and corresponding discussions.

## 2. Background

Over the last 50 years, focus on increasing crop yields and improving food production practices have decreased global poverty and reduced world hunger (Willett et al., 2019). However, the consumption of low-quality produce is causing over 2 billion of the world's population to suffer from obesity, while 820 million people still suffer from malnutrition, insufficient diets, and insecure food supplies (Popkin et al., 2012; Smil, 2001; Willett et al., 2019). In light of this, it is crucial to develop sustainable food production methods that not only promote human health but also reduce harmful environmental effects (Willett et al., 2019).

### 2.1 What is a sustainable diet?

In 1987 the Bruntland report defined the concept of *Sustainability* as a goal; to “meet the needs of the present generation without compromising the ability of future generations to meet their own needs” (Kuhlman & Farrington, 2010). The term now encompasses social, economic, and environmental dimensions.

More than 25% of all greenhouse gas (GHG) emission stems from global agriculture and food production (Tilman & Clark, 2014; Tubiello et al., 2014). Diet is the link between human and environmental health, leading the course for agricultural practices (Tilman & Clark, 2014). Urbanization and growing incomes drive the replacement of traditional diets with diets high in salt, refined sugars, refined fats, and meat (Tilman & Clark, 2014). Diets rich in legumes, coarse grains, fruits, and vegetables are decreasing in all regions across the globe (Popkin et al., 2012). A globalized food system has also led to the production of food that is often high in energy, but low in important nutrients (Johnston et al., 2014). The consequence of this dietary “westernization” is a lower global life expectancy due to an increased rate of lifestyle-related conditions such as type II diabetes, coronary heart disease, some cancers, and other chronic non-communicable diseases (Popkin et al., 2012; Smil, 2001). If this trend continues these diseases are predicted to cause two-thirds of the global burden of disease (Popkin et al., 2012).

Ensuring sustainability entails the provision of adequate quantities of high-quality food to meet the needs of current generations, while simultaneously conserving the resources required worldwide to facilitate future generations to do the same (Oostindjer et al., 2017). The synergistic relationship between healthy diets and decreased environmental pressure has led to the notion of sustainable diets (Meybeck & Gitz, 2017). Various organizations include

different aspects when defining a sustainable diet. The Food and Agriculture Organization of the United Nations (FAO) defines sustainable diets as those that *"protect and respect biodiversity and ecosystems, are culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources"* (FAO, 2010).

Willet et al. (2019) propose a healthy and sustainable diet that is universal, primarily composed of fruits and vegetables, whole grains, nuts, legumes, unsaturated oils, and a moderate amount of poultry and seafood, as stated in the EAT-Lancet report. As per the report's recommendations, individuals are advised to limit their consumption of red and processed meat, added sugar, starchy vegetables, and refined grains. However, what defines a sustainable diet in one part of the world, does not need to be representative for another (Jones et al., 2016). Geographical variations need to be taken into account when providing advice on healthy and sustainable diets (Willett et al., 2019).

#### 2.1.1 Meat consumption

The sustainability of meat consumption can be measured along multiple sustainability dimensions ranging from economic, social, environmental, and animal welfare issues (Parlasca & Qaim, 2022). Meat is an important source of nutrients, particularly rich in essential amino acids that the human body is unable to produce for itself (Knaapila et al., 2022). In addition, meat is a good source of some micronutrients like iron, zinc, and vitamin B<sub>12</sub> (Godfray et al., 2018). However, with a diverse range of other foods, Godfray and colleagues argue that an adequate intake of most of these nutrients can be achieved without consuming meat.

Population growth, urbanization, and increasing incomes contribute to a larger global consumption of meat on average per capita (Godfray et al., 2018). Milford et al. (2019) also found that social factors play a role in driving ruminant meat consumption, although to a lesser degree for overall meat consumption. Nevertheless, planetary boundaries stress the need for sustainable alternatives, especially to red and processed meat (Godfray et al., 2018).

In high-income countries, meat is consumed in large amounts per capita, and reductions are important for both health and environmental concerns (Parlasca & Qaim, 2022). Germany, Sweden, and the Netherlands have developed health guidelines that take both sustainability and human health into account (Arnaudova et al., 2022). These guidelines promote reduced intake of meat and fish. In Norway, the health authorities recommend a diet rich in vegetables, fruits, whole grain products, and fish, and limited consumption of

processed and red meat (Helsedirektoratet, 2022). Large prospective studies and meta-analyses conducted in high-income Western countries typically indicate a slight increase in overall mortality rates among individuals with high consumption of red and processed meat (Godfray et al., 2018). The risk of diseases such as high blood pressure, obesity, osteoporosis, cancer, and cardiovascular disease is closely associated with excessive consumption of these types of meat products (Arnaudova et al., 2022). The increased risk of colorectal cancer shows the strongest evidence of a specific adverse effect associated with high intakes of processed meat (Godfray et al., 2018)

However, for many households in low- and middle-income countries nutritionally inadequate plant-based diets are the most prominent (Jones et al., 2016). “Hidden hunger” is described by FAO as a lack of or insufficient intake of micronutrients giving rise to various forms of malnutrition. In this case, different sets of dietary options are needed to enhance the nutritional quality and animal-based products could help reduce nutritional deficiencies (Jones et al., 2016; Parlasca & Qaim, 2022). In other regions of the world, nutrient-rich plant-based foods may not be available all year round (Parlasca & Qaim, 2022). Livestock production is also a significant source of revenue for many poor families. Worldwide, the livestock industry employs over one billion people and is an important source of income, especially in developing countries (Salmon et al., 2018). The meat production sector ensures food security through the conversion of non-edible grass and crop residues into food fit for human consumption (Mottet et al., 2017). The livestock sector is nevertheless, a major driver of biodiversity loss in certain regions of the world and represents a substantial portion of the greenhouse gas emissions associated with agriculture (Mottet et al., 2017)

### 2.1.2 Food's environmental impact

Various levels of GHG emissions are associated with different dietary patterns. Although most contributions to GHG emissions from agriculture and food production come from high-income countries, the negative effects of climate change like food insecurity, malnutrition, and ill health will be felt strongest in low- and middle-income countries (Jones et al., 2016).

Most plant-based foods have lower GHG emissions compared to most animal-based foods (Tilman & Clark, 2014). Tilman & Clark reports that one of the most extreme differences is found between ruminant meats and pulses. Beef and lamb have 250 times higher GHG emissions per gram of protein compared to legumes. Pork, poultry, egg, and dairy have a much smaller footprint per gram of protein compared to ruminants. However, the lowest-impact animal products still exceed most vegetable alternatives (Poore & Nemecek,

2018). On average, the production of 1 kg of boneless meat necessitates 2,8 kg of human-edible feed in ruminant systems and 3,2 kg in monogastric systems (Mottet et al., 2017). According to estimates by Mottet and colleagues, livestock worldwide consumes 6 billion tonnes of dry matter feed annually. This includes one-third of the world's cereal production of which 86% comprises non-edible materials for humans. Agriculture is the human activity that consumes the largest amount of water, with livestock alone accounting for almost one-third of its usage (Godfray et al., 2018).

### 2.1.3 The situation in Norway

In Norway, 8,5% of greenhouse gas emissions stem from the production of food (van Oort et al., 2021). According to the Cicero report from 2021, 89% of these emissions are attributed to meat production, and over one-third of the total emission comes from beef and mutton. The report also reveals that one-third of Norwegian women eat over 500g of red meat per week, and one in every four Norwegian males eats more than 1000g of red meat per week (Totland et al., 2012). The Norwegian health authorities recommend limiting meat consumption to a maximum of 500g per week (Helsedirektoratet, 2022).

In 2018, a survey was conducted to examine the consumption of red meat among 2000 individuals aged 18 years or older, revealing that Norway's firm pro-meat culture shows little susceptibility to climate concerns (Vatn et al., 2022). The variation observed in red meat consumption was attributed to three factors, namely habits, beliefs about the positive qualities of red meat such as taste, nutrition, and health, and social norms that support the consumption of red meat. Gender and income had a certain degree of influence, but less compared to that reported in previous studies. The development of climate-friendly personal norms, which to some degree impacted the consumption of red meat, was influenced by a combination of personal values and societal expectations.

## 2.2 Dietary behavior

In recent decades, improved food system chains, urbanization, and higher incomes have led to a global shift in dietary patterns (Cliceri et al., 2018). Cliceri and colleagues report that the present trends involve turning away from diets that are rich in grains, legumes, and other vegetables, and are instead gravitating towards a "Western diet," which is distinguished by high consumption of animal-based food products, refined carbohydrates, and added sugars. According to an IPSOS survey, the majority of respondents worldwide (75%) state that they



prefer food with meat, poultry, or fish over a vegetarian diet (Ipsos, 2019). Norway has also seen a rise in meat consumption over the last few decades, with per capita meat consumption increasing from about 45.7 kg in 1989 to 70.5 kg in 2016 (Austgulen et al., 2018)

### 2.2.1 Changing habits

By examining the factors that influence food choices, it is possible to identify the motivators and hindrances that impact consumption patterns (Clicerì et al., 2018). These factors could include demography, external factors (e.g. institutional, economic social, and cultural factors), and internal factors (e.g. motivation, environmental knowledge, awareness, values, attitudes, emotion, locus of control, responsibilities, and priorities) (Kollmuss & Agyeman, 2002). All these determinants make the question of what shapes pro-environmentally behavior complex and difficult to explain. Behavioral changes are also often something that happens over time, takes practice, and works through different stages (Arnaudova et al., 2022; Kollmuss & Agyeman, 2002). Although we may have the intention to change our behavior, we often struggle to follow through due to a lack of persistence in practicing the new behavior until it becomes a habit (Kollmuss & Agyeman, 2002) Old habits also form a very strong barrier to behavioral change.

Nevertheless, the reasons for choosing sustainable food options, including the adoption of plant-based diets, are of great public health interest (Miki et al., 2020). After identifying 56 publications that portrayed 90 samples of individuals adhering to a plant-based diet, Miki et al. found that health, sensory/taste/disgust, animal welfare, environmental concerns, and weight loss were frequently mentioned motivations to follow plant-based diets.

A 4-week multicomponent intervention aimed at reducing meat consumption was conducted through a randomized controlled trial on 32 young adults (with a mean age of 23.5 ± 3.1 years) (Amiot et al., 2018). The participants were randomly assigned to either the intervention group or the control group. According to the participants, the informational component of the intervention was the most effective in reducing their meat consumption.

The Cicero report from 2021 proposes that encouraging a shift in social norms around dietary choices to promote plant-based options as not only an accepted but also a preferred choice, potentially will lead to a decrease in meat consumption. The report also points out that it is important to highlight the pleasure of food through good tastes, and not necessarily through phrases like 'meat-free'.

### 2.2.2 Alternative diets

The negative effects of meat on sustainable development are one of many reasons why more and more individuals are adopting vegetarian or flexitarian diets (Mottet et al., 2017). In developed countries, omnivores (meat-eaters) and flexitarians (meat-reducers) constitute the largest percentage of the population, while vegetarians and vegans still only comprise a small group (Eckl et al., 2021). Eckl and co-workers propose that making long-term shifts towards sustainable diets implies to first gain understanding of the attitudes and motivations of the different groups, especially the omnivores and the flexitarians. Clicerì et al. (2018) state that investigation of aspects such as taste responsiveness and psychological traits can also improve our understanding of the underlying drivers of food choices.

Looking at different preference groups such as vegans, vegetarians, flexitarians, and omnivores reveals different drivers behind food choices. Eckl et al. (2021) found that the choice of replacing meat with non-meat products among an adult population of flexitarians and omnivores were linked to gender, information on health and the environment, and lower price in meat replacers. In a literature review from 2020, Miki et al. found that individuals following stricter diets like veganism and vegetarianism tended to endorse ethical motivations, whereas those who aimed to reduce their meat intake, such as semivegetarians, were more likely to prioritize health motivations.

### 2.2.3 Perceptions on environmental impacts of food consumption

A study carried out in 2018 investigated Norwegian consumers' readiness to choose their food according to what would have the greatest positive impact on the climate or the environment and which measure they thought would have the greatest effect (Austgulen et al., 2018). The authors note that the literature commonly reports consumers as underestimating the impact of meat consumption on climate change in comparison to other practices such as selecting locally sourced, organic, and seasonal foods, and reducing food waste. Additionally, consumers tend to express skepticism toward scientific evidence linking meat consumption with climate change (Pohjolainen et al., 2016).

The study by Austgulen et al. (2018) concludes that Norwegian consumers are hesitant about making changes toward a plant-based diet due to their limited understanding of the environmental effects of meat consumption. Additionally, they are resistant to the notion that it is their duty as consumers to take responsibility for this issue. Most participants believed

that reducing food waste and increasing the production of locally sourced food are better environmental solutions than reducing meat consumption.

#### 2.2.4 Food waste

Some et al. (2022) report that reducing food waste reduces energy use/demand, water use/demand, and land use/ demand for food production. In Norway, the food industry, public sector, and households collectively generated 400,000 tonnes of food waste in the year 2020 (Stensgård et al., 2021). This corresponds to 75 kg of food waste per capita per year and an annual economic loss of over 20 billion Norwegian kroner.

A large number of consumers find waste-related practices appealing (Gould et al., 2016; Siegrist et al., 2015). This can be attributed to the effectiveness of information campaigns and the availability of garbage sorting facilities, which have led to positive attitudes towards these practices (Thomas & Sharp, 2013). Lorenz et al. (2019) proposes that social actors can contribute to the prevention of food waste. Food service providers, such as canteens in different institutions like educational and office settings, can do their part by adjusting or reducing portion sizes and plate sizes (Lorenz et al., 2019). Reducing the plate size resulted in a 19% decrease in food waste, according to an experiment carried out at a hotel in Norway (Reynolds et al., 2019).

In the US, school meals tend to generate a significant amount of food waste, with an average of 12% of all calories on the plate being discarded (Guthrie & Buzby, 2002; S. L. Smith & Cunningham-Sabo, 2014). The largest portion of this waste is comprised of vegetables. However, in a study conducted at a university canteen in Germany, it was discovered that 86% of participants who remembered seeing the food waste reduction poster exhibited no leftovers on their plates (Lorenz-Walther et al., 2019).

### 2.3 Implementation of sustainable and healthy school meals

Adolescents' dietary preferences are more flexible compared to those of adults, hence, their eating habits are more easily influenced (Oostindjer et al., 2017). Oostindjer and colleagues suggest that this makes the school canteen a good arena for the promotion of sustainable and healthy food behavior.

An organizational change process is often seen as necessary when implementing new interventions at a school level (Holthe et al., 2011). In a report from 2011, Holthe et al. state that the allocation of financial and human resources and having strong support from leadership are the most important factors for implementing new guidelines effectively. The

significance of essential training and information provided to the staff responsible for implementing the changes is highlighted in numerous studies (Asioli et al., 2017; Dawkins et al., 2019; J. Smith et al., 2016).

The interest in improving sustainability within school meal programs is increasing and several approaches have emerged as a result of this interest, with a strong focus on enhancing food quality within schools (Oostindjer et al., 2017). The advancement of food quality pertains not only to nutritional improvements but also to greater sustainability, including a reduction in food waste and an increase in locally sourced and organic food items. Oostindjer and co-workers (2017) argue that school meals could serve as an integrative learning platform for healthy and sustainable food behavior. By teaching about culinary heritage, consumption norms, sustainability, and health, school meals could play a vital role in creating a social and physical learning environment centered on food (Oostindjer et al., 2017).

#### 2.4 Plant-based meat analogs

There can be many approaches to reducing meat. Conventional vegetarian food usually includes legumes and pulses as alternative protein sources (Knaapila et al., 2022). There are also hybrid meat products that contain both meat and plant-based ingredients, and meat alternatives that exclude meat altogether. Meat analogs, meat substitutes, or meat alternatives are food products made from non-animal protein-rich sources intended to resemble the appearance and sensory properties of meat. Insects and cultured meat are other sources to products mimicking meat from livestock. According to Knaapila and co-workers, (2022) from the consumers' perspective, products made from plant-based protein appear to be the preferred alternative. Although processed plant-based products such as tofu have been available for centuries, new plant-based meat substitutes that offer sensory qualities that are similar to meat, have only recently been introduced to the market (Knaapila et al., 2022).

In their report from 2020, Rubio et al. explain how the production of plant-based meats usually includes three steps. Initially, target plant proteins are extracted from the raw material (Rubio et al., 2020) Hydrolysis can be utilized to enhance protein functionalities such as solubility and cross-linking capacities. To achieve a meat-like texture, plant proteins are combined with other ingredients such as food adhesives, plant-based fat, and flour. Nutrients are then added to ensure that the product's nutrient profile matches or exceeds that of meat. Finally, to achieve a texture that resembles meat, the blend of plant protein and other ingredients is subject to protein reshaping techniques, such as stretching, kneading, trimming,

pressing, folding, and extrusion (ibid).

The report goes on to explain that protein derived from soy, wheat, pea, and other legumes is the most commonly used ingredients in these plant-based alternatives (Rubio et al., 2020). The sources are relatively inexpensive, 3,8-12,7 times lower than prices received for hogs, cattle, and broilers (US). Despite this price difference, in a retail setting novel plant-based meat alternatives tend to cost more than their animal-based counterparts. The difference could in part be attributed to processing expenses. Post-harvest processes make up 94,3% of retail costs for crop products, whereas they account for around 50% of the retail costs for beef (Lusk & Norwood, 2009). Moreover, plant-based meat alternatives often contain plant-based fats, flavor enhancers, and color additives, in addition to primary proteins, all of which add to the overall cost (Rubio et al., 2020)

#### 2.4.1 Organoleptic properties

The primary sensory characteristics of meat include appearance, aroma, flavor, and texture (Rubio et al., 2020). To imitate the look of meat, Rubio and co-workers explain that some meat analogs producers add heat-stable fruit and vegetable extracts (e.g., beet juice, apple extract) to resemble the color of fresh meat. These ingredients will also change color upon cooking, further mimicking the characteristics of animal-based products. Fats like coconut oil or cocoa butter can be utilized to mimic the appearance of animal fat (Rubio et al., 2020) Developing the right flavor and aroma compounds is important to recreate the smell and taste of meat (Joshi & Kumar, 2015). Joshi and Kumar (2015) report that to achieve this, flavor additives are commonly incorporated, and may constitute 3-10% of the final product. Plant proteins are often associated with an astringent and bitter taste, making the flavor additives crucial to mask specific flavor notes. These compounds could also be removed through post-processing. The flavor additives can also act as taste enhancers (Joshi & Kumar, 2015). High-moisture extrusion, shear cell technology, mycelium cultivation, and 3D printing are some of the methods that can influence texture in plant-based meat alternatives (Rubio et al., 2020). Achieving the desired mechanical properties while still preserving the nutritional value can be challenging (Joshi & Kumar, 2015).

#### 2.4.2 Nutrition

The primary proteins used in plant-based meat formulations, such as pea, soy, and wheat offer a content that is comparable to regular meat (Rubio et al., 2020). Rubio and colleagues report

that achieving a balanced amino acid profile usually requires combining multiple plant-based proteins. Legumes tend to be low in sulfur-containing amino acids and high in lysine, while cereals are low in lysine but high in sulfur-containing amino acids. From a nutritional standpoint, proteins from these two sources complement each other (ibid).

Some factors might decrease the nutrient bioavailability of plant-based protein post-ingestion (Neacsu et al., 2017). Neacsu et al (2017) explain that these include structures resistant to proteolysis, protein conformation, and antinutrients (e.g., tannins, phytates, lectins) Increased digestibility has been demonstrated through the use of various processing techniques such as soaking, heating, and sprouting (Neacsu et al., 2017).

#### *2.4.3 Liking and acceptance of plant-based meat alternatives*

Investigating consumer acceptance is an important part of the development of novel plant-based meat alternatives (Rubio et al., 2020). A survey looking into consumer perception of plant-based meat products revealed high acceptance in China (95,6%) and India (94,5%) compared to the US 74,7% (C. Bryant et al., 2019). A focus group study conducted in Germany, France, and the Netherlands revealed taste as a key factor inhibiting the consumption of plant proteins (Godfray et al., 2018). Other factors included price, habit, and convenience. According to the IPSOS food report on Norwegian eating habits from 2019, 1 in 4 individuals in the younger age group reported using meat substitute products on a weekly basis or more frequently (Ipsos, 2019).

## 3 Methodology

The aim of this master's thesis was to investigate the experiences of students and leadership in serving sustainable meals at Norwegian Folk High Schools.

The initial part of this chapter will explain some of the background behind the chosen methods. This is followed by a description of how the data was collected, processed, and analyzed. For this thesis, data was gathered through both qualitative and quantitative methods. When qualitative and quantitative methods are combined it is termed “*mixed methods*” (Malterud, 2012). Here the results from both data-collection approaches are compiled and synthesized to substantiate the validity of the outcomes. Using different techniques or mixed methods can potentially yield a more rigorous study design that can contribute to a richer and more comprehensive data collection (DiCicco-Bloom & Crabtree, 2006).

The qualitative part includes focus group interviews with small groups of students and one-to-one interviews with school staff members. The quantitative data was gathered through a questionnaire distributed online to all the students at the selected schools. In relation to this project, the schools agreed to serve their students a vegan dinner consisting of a plant-based burger. Liking and attitudes toward plant-based meat replacers were addressed through both qualitative and quantitative methods. The schools will be referred to as School A and School B.

### 3.1 Methodological background

To better understand why the different approaches were chosen, some background is provided to introduce the methodology into the context of this project.

#### 3.1.1 Qualitative research methods

Qualitative research methods consist of different approaches that aim to provide an in-depth understanding of people's beliefs, experiences, and actions (Kvale & Brinkmann, 2009; Malterud, 2012). The technique is often used when handling complex and subjective topics as opposed to a quantitative approach which analyzes numerical data (Kvale & Brinkmann, 2009). Structured, semi-structured, or unstructured interviews are common ways to gather qualitative data. The scientific interview is a professional conversation where knowledge is gathered through interactions between people. The methods can be flexible, meaning that as new information arises, the direction and content of the inquiry may change (Malterud, 2012). The questions should make room for reflection, which in some cases may widen the horizon or change the opinions of the participants, thereby changing the direction of the conversation.

Preliminary data analysis can even result in adding or removing questions from the interview guide if these are not eliciting relevant data (DiCicco-Bloom & Crabtree, 2006). Yes/No questions should be avoided (Lawless & Heymann, 2010). To address the research questions in this thesis, the semi-structured format was considered the most suitable approach for the interviews.

### 3.1.2 Semi-structured interview

Semi-structured interviews consist of predetermined open-ended questions, that serve as a guide and can be conducted with individuals or in a group (DiCicco-Bloom & Crabtree, 2006). The method is flexible and allows for follow-up questions based on the participants' responses. This approach was deemed the most fitting when choosing a style for both the one-to-one interviews and the focus group interviews. Some structure was necessary to steer the conversation in the direction of the main topics and research questions. However, it was also important to leave room for new perspectives to emerge.

### 3.1.3 Interview guide

An interview guide serves as a roadmap for the scientist when conducting qualitative research and should reflect the project's research question (Malterud, 2012). An interview guide should be structured logically with a clear focus on the key themes. The researcher should however be prepared to depart from the planned route since some detours can yield interesting digressions and give important insights into the interviewees' viewpoints (DiCicco-Bloom & Crabtree, 2006). Creating an interview guide can also be helpful in the further development of the research questions (Malterud, 2012). It can highlight the central elements of the project and even drive ideas into new territory.

A good interview guide ensures necessary preparation, but should not predetermine the content of the conversation in too much detail (Malterud, 2012). It is a tool to sharpen the focus of the research, but also enhance opportunities for increased understanding through new perspectives.

### 3.1.4 One-on-one interviews

Conducting individual interviews can be an effective means of gathering in-depth information on people's perceptions, understandings, and expertise related to a particular phenomenon, thereby contributing to in-depth data collection (Frances et al., 2013). It is a suitable approach



when an issue requires insights from an expert or a decision-maker (Lawless & Heymann, 2010). Successful outcomes in interviews depend heavily on the interactions between the interviewer and the interviewee (Frances et al., 2013).

### 3.1.5 Focus group interviews

Focus group interview is a qualitative research method where the data material derives from texts representing conversations or human interactions (Malterud, 2012). The method seeks to gather nuanced perspectives and explore matters without necessarily aiming for verification (Lawless & Heymann, 2010). Focus group interviews create a different framework for a conversation than individual interviews (Kvale & Brinkmann, 2009). A successful group dynamic can help mobilize associations, inspire relevant discussions, and pave the way for new thoughts and ideas.

A focus group interview is led by a moderator. The moderator's primary task is to ask open-ended questions while keeping the conversation focused on the research questions and without imposing any personal opinions (Kvale & Brinkmann, 2009). Thorough preparations through a clear interview guide and several test runs help to achieve good results when acting out the role of the moderator (Malterud, 2012).

The recommended number of participants for focus group interviews has traditionally varied from eight to twelve (Malterud, 2012). Focus groups with a large sample size can harvest great variation but require a moderator with a competent ability to control the conversation. In her book *“Fokusgrupper som forskningsmetode for medisin og helsefag*, Kirsti Malterud argues that groups of five to eight participants are desirable. This gives the researcher the opportunity to merge or split groups depending on attendance. Guerrero and Xicola (2018) claim that a group size of 7 to 10 individuals strikes a balance between ensuring each person has an opportunity to express their views and providing a diverse range of opinions. Ideally, if time and resources permit, conducting multiple focus groups until redundant information is produced would be the optimal approach (Guerrero & Xicola, 2018). Although it is important to allow time for opening and closing the session, it is essential to bear in mind that participants' ability to maintain focus and engagement is limited (Malterud, 2012). Hence, each interview should not last longer than 2 hours.

### 3.1.6 Analysis of qualitative data

Data analysis in qualitative research usually starts by transcribing the interviews (Kvale & Brinkmann, 2009). By using the questions provided in the script as a basis, it is possible to classify the data further (Guerrero & Xicola, 2018). Categorizing patterns, themes, or concepts within data is called coding (Malterud, 2012). Although a researcher plays an active part in identifying themes and patterns for the project, an exciting part of analyzing data could be the discovery of new concepts and themes embedded throughout the interviews (Braun & Clarke, 2006). Braun and Clarke (2006) explain that a theme represents “some level of patterned response or meaning within the dataset” and illustrates information of importance in relation to the research questions. Coding the data patterns or themes will be uncovered either through their prevalence in terms of space within each data item or prevalence across the entire data set. Quantifiable measures do not necessarily determine how essential a theme is for a project, most importantly, the information must be relevant to the research questions (Braun & Clarke, 2006).

### 3.1.7 Validity in qualitative methods

During the process of data analysis, the researcher acts as an instrument for analysis, taking decisions on coding theming, decontextualizing, and recontextualizing of the data (Starks & Trinidad, 2007). Approaching different qualitative research methods requires specific techniques for conducting, documenting, and evaluating the data analysis process, but it falls upon the individual researcher to ensure rigor and trustworthiness (Starks & Trinidad, 2007). By showing transparency through each step of the investigation, the reader can evaluate the credibility of the results (Nowell et al., 2017).

### 3.1.8 Quantitative research methods

In contrast to qualitative methods which seek to probe deep into matters through a small number of participants, quantitative research methods approach issues through a large number of participants to provide numerical data. (Dalland, 2012; Lawless & Heymann, 2010). Mathematically based methods, statistics in particular, are used to analyze the data (Sukamolson, 2007). Sukamolson (2007) states that attitudes, opinions, and beliefs are examples of data that are not inherently in a quantitative form but can still be collected in a quantitative way. This is achieved by employing a research design that is developed to transform phenomena into numerical data (Sukamolson, 2007).

### 3.1.9 Quantitative questionnaire

The primary method for gathering quantitative data is through the use of a questionnaire (Roopa & Rani, 2012). Through the questionnaire, the participants can be asked to rate statements through scaling or to answer fixed questions that will yield numerical data. This data can further be analyzed statistically using tools like Analysis of Variance (ANOVA) or multivariate analysis using Principal Component Analysis (PCA) or Partial Least Squares Regression (PLS-R). The researcher doesn't have to be in direct contact with the respondents, which means that the method does not vary depending on who is conducting the study (Dalland, 2012). Many respondents mean better representativity of the target population. These are some of the reasons why quantitative approaches make it easier to assess reliability compared to qualitative research methods (Lawless & Heymann, 2010).

### 3.1.10 Multivariate statistical analysis - Analysis of Quantitative Data

Multivariate statistical Analysis investigates how observations and/or variables are related within a multivariate dataset. It is an umbrella term that consists of multiple approaches customized for different disciplines (Nguyen, 2020). Principal Component Analysis (PCA) and Partial Least Squares Regression (PLSR) are two types of multivariate techniques used to analyze large quantitative data sets with the purpose of extracting important information.

PCA maps relationships among observations (rows) and variables (columns) in 2D plots of scores and loadings, respectively (Nguyen, 2020). Nguyen (2020) explains how observations close to each other on the map (similar scores) have similar variable profiles, while observations that are farther apart indicate dissimilarity between profiles. The variable coordinates in a PCA are referred to as loadings (Nguyen, 2020). Interpretation of the loadings can be done by examining the angles between the vectors that serve as an approximation of the correlation between the variables. A small angle signifies a positive correlation, an angle of 90 degrees indicates no correlation, and an angle close to 180 degrees suggests a negative correlation between the variables. PLSR builds upon the foundation of PCA and can be applied to analyze the relationship between two sets of variables (explanatory variables and dependent variables) within the same set of observations (Nguyen, 2020). While PCA focuses on assessing the largest variance of observations on each component, PLSR aims to capture the largest variance of observations between the two sets of variables (Nguyen, 2020). When dealing with regression analysis involving a large number of explanatory variables where there is a likelihood of correlated predictors, PLSR is a well-fitting approach (XLSTAT, n.d.).

### 3.1.11 Acceptance testing

Acceptance testing through scaled liking gives information about the sensory appeal of one or more products (Lawless & Heymann, 2010). Lawless & Heymann (2010) explains that scaling provides detailed insights into the degree of acceptability and that the scale can have different ranges. The 9-point scale is the most commonly used method in the field of sensory science, but there are also instances where 7- and 5-point scales are appropriate alternatives. In acceptance testing, consumers are presented with one or more products and asked to evaluate sensory characteristics such as taste, texture, appearance, and overall liking (Lawless & Heymann, 2010) The results of acceptance testing can be analyzed statistically to provide insights into the product's sensory properties and consumer acceptance. To compare the results of two products a t-test can be utilized.

### 3.1.12 Semantic Differential Chart

XLStat help center describes a semantic differential chart as a visualization method Participants of different groups (for example dietary groups) are first asked to describe a product on a series of scales anchored with words ranging from one extreme to the other (for example not tasty/tasty) (XLSTAT Help Center, n.d.). The Semantic Differential chart plots the difference in attitudes between the groups. The method can be used for a variety of applications, for example, the visualization of respondents' perceptions of a product.

## 3.2 Materials and methods

The chosen methods should be well-suited to answer the research questions investigated (Dalland, 2012). Existing literature could help identify which approaches have been used to tackle similar issues. One also has to consider the feasibility of each method. Factors such as time and resources will play a role. The timeframe of this thesis (September 2022 – May 2023) allowed for the use of a quantitative method in addition to the qualitative approaches. The motivation behind this choice was to see the research questions from different angles to increase the reliability of the results. This would also add to the experience and learning outcome of writing a master's thesis.

This section describes how the data for the thesis was collected through both qualitative and quantitative approaches. This sub-chapter also includes a sensory evaluation of a plant-based burger that was served at each of the schools in the context of this project.

### 3.2.1 Project workflow

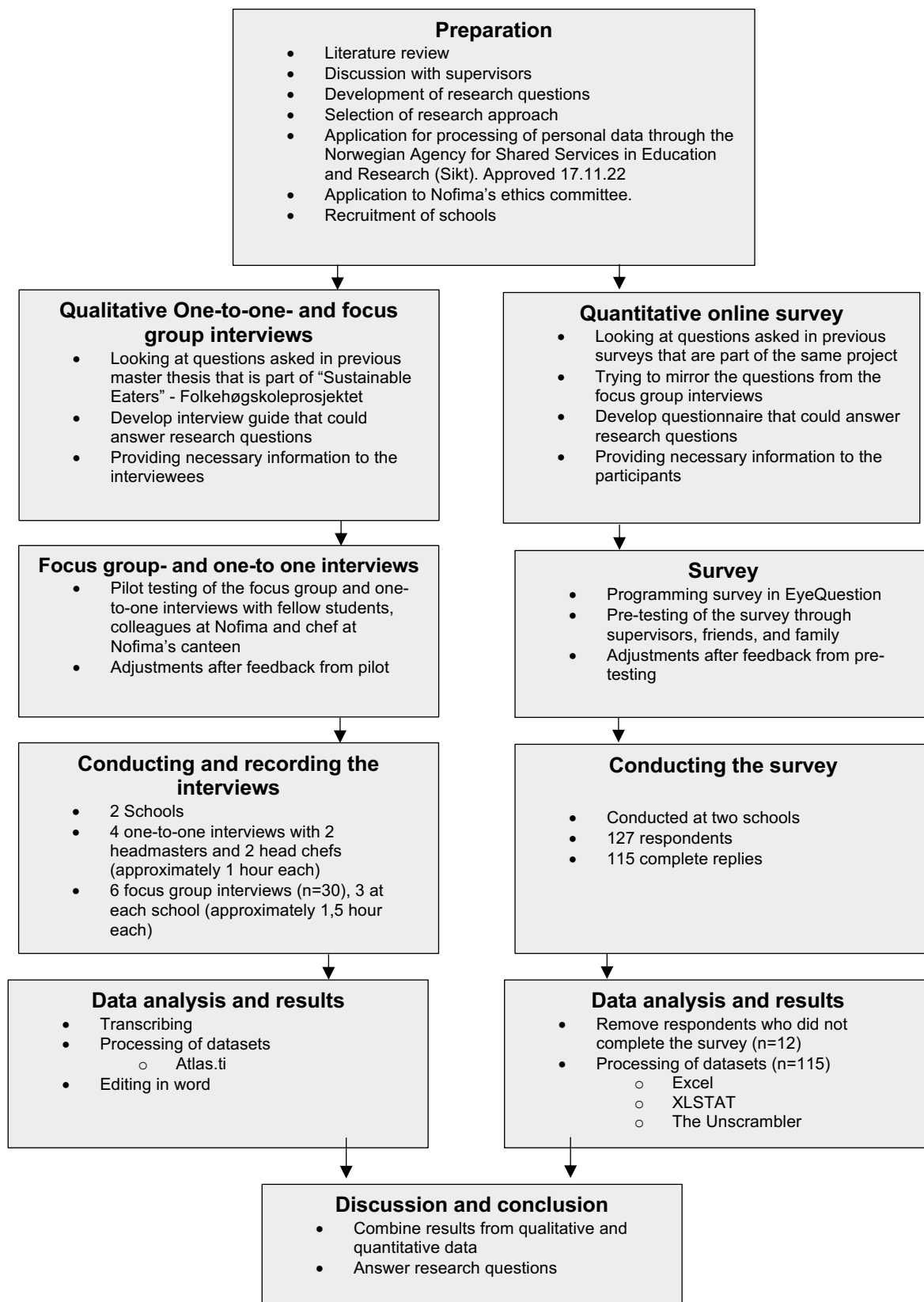
The project workflow is presented in Figure 1, illustrating the various stages from the initial preparations such as literature search and development of research questions, to the selection of appropriate methods, gathering and processing of data, and ultimately, answering the research questions.

### 3.2.2 Literature search

Relevant literature was reviewed to get an overview of the central topics of this thesis. Initially, the papers helped to establish a context and inspire the research questions. Further on the literature would either support or challenge findings. The main topics for this thesis included sustainable and healthy diets, behavior habits related to food, and attitudes toward plant-based replacement products. PubMed, Web of Science, and Google Scholar were platforms used to collect the data. An examination of the different schools' websites was conducted to explore their emphasis and commitment to sustainability and how these topics were communicated to possible future students.

### 3.2.3 Qualitative data

This section outlines the methodology employed to gather qualitative data, including the development of the interview guides, pilot testing, conducting the interviews, and finally how the data were processed and analyzed.



**Figure 1.** Flowchart outlining the project workflow.

### *3.2.3.1 Selection of the Schools*

Before contacting the schools, some research was conducted to ensure that certain criteria were met. A background check of their respective websites ensured some emphasis on the subject of sustainability especially regarding the food serving. It was important to select schools with some track record in terms of addressing sustainability issues in order to obtain relevant answers to the research questions. The number of students at the different schools also played a role in the selection process. Schools with under 70 students were not invited. This was to ensure a large enough sample size for both the qualitative and especially the quantitative data gathering. Initially, contact was established with four schools via email. Subsequently, follow-up phone conversations were conducted, resulting in two schools agreeing to participate in the project.

### *3.2.3.2 Selection of staff*

The principal and the head of the kitchen were interviewed to gain insights into the motivations and the decision-making process behind the schools' sustainable food servings. The head chef was regarded as the authority and the one with the most knowledge about the menu-planning, time management in the kitchen, and the general practicalities surrounding the food service.

The headmaster was thought to be able to provide information regarding finances, the school's sustainability strategies, and how to make decisions and motivate environmentally friendly practices.

### *3.2.3.3 Selection of students*

To select candidates for the focus group interviews a digital recruitment form was distributed through a QR code one week ahead of the focus group interviews. The students who wanted to partake had to answer a question about which diet they adhered to and what motivated their food choices (see Appendix A). Thirteen and sixteen students from schools A and B were further split into six focus groups containing 4-6 people. This resulted in three groups per school. The first group were omnivores, the second group were flexitarians, pescatarians, and vegetarians, and the last group was a mix of students adhering to all types of diets. The aim was that this gathering and division of different diet belief systems would create a variation in the discussions so that more insights would emerge.

#### *3.2.3.4 Development of the Interview guides*

The interview guides were crafted in consultation with the project supervisors and with the help of a researcher with extensive experience in conducting both one-to-one and focus group interviews. Interview guides previously developed for another Master's thesis, written as a part of the Folk High School project were also used as inspiration (Dypdal, 2022).

#### *3.2.3.5 Pilot of focus group interviews and one-to-one interviews*

To ensure that the interview guide was conveyed in an understandable way and would yield relevant and interesting answers, several test runs were conducted to get a feeling of the response and to simulate the interview setting before meeting the real interview objects. Pre-testing would also give some indication of whether the content of the interview guide could answer the project's research questions in an adequate way.

#### *3.2.3.6 Conducting one-on-one interviews*

Four one-on-one interviews were conducted throughout November of 2022, this included conversations with the headmaster (see Appendix C for interview guide) and the head of the kitchen (see Appendix D for interview guide) at each of the two participating schools. The duration of the interviews was set to 1-1,5 hours. The school staff was given a short introduction to the project and subsequently informed about their rights. This included insurance regarding anonymity, the right of access to the data material, and the possibility to resign from the project if desired.

The headmaster could explain why focusing on sustainability was a priority, how to implement environmentally friendly strategies, and how these conscious decisions can affect the mindset of young adults. The head of the kitchen was interviewed to provide knowledge about the practicalities surrounding the meal serving, how the students' attitudes towards food changed during a year, and how to motivate, develop and maintain sustainable food practices. Both of them were asked about how finances affected the food serving.

#### *3.2.3.7 Conducting the focus group interviews*

For this thesis, six focus group interviews (see Appendix B for interview guide), including 4-6 students at each session, were conducted in November (2022). By carrying out repeated interviews, the aim was to uncover common themes that would provide a more comprehensive understanding of students' attitudes and beliefs. (Malterud, 2012). The



timeframe of the interview was set to a maximum of 1,5 hours. Sticking to this was important to show professionalism and respect for the interviewee's time.

The interviews started with a presentation of the interviewer and the project and information regarding recording and privacy concerns. The interviewees were then asked to state their names, their age, which program they took, and what their favorite dish was.

The interview was divided into six sections; “the Introduction”, “Eating habits; School vs home”, “the School, diet and sustainability”, “Plant-based vs meat”, “Diet and influencing factors”, and finally, “Thoughts about the future” to round things up. Each section had a predetermined time frame.

After someone had shared their views and or experiences, questions like «Does anyone think, do, or experience the same thing? » or even more importantly; «Does anyone think, act, or experience this matter differently? » were included to encourage that all views were heard. The students selected for the interviews were asked to answer as open and honestly as they felt comfortable within the focus group setting. The interviewer emphasized that there were no right or wrong answers and that the point of the discussion was not to reach an agreement on any matter but rather to have a conversation where all opinions and stories would be received in a neutral manner.

#### *3.2.3.8 Qualitative data analysis*

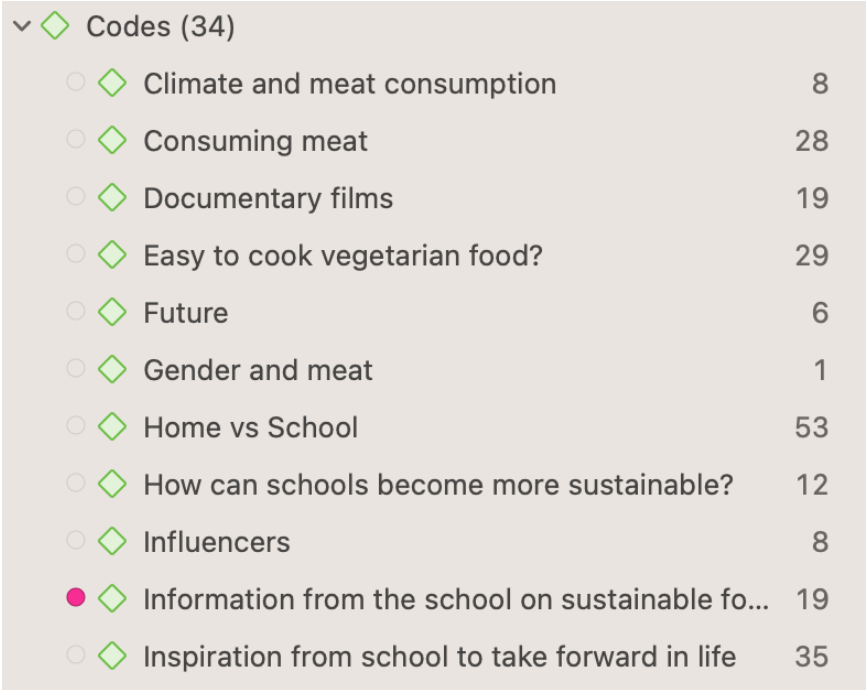
The qualitative data were analyzed following Braun and Clarkes' (2006) guide for thematic analysis. Thematic analysis gives a well-structured approach to summarizing essential elements of large data sets, yielding a clear and organized final report (Nowell et al., 2017).

The method provides a more accessible and flexible form of data analysis. It does not necessitate intricate theoretical or technical knowledge of other qualitative methods, thereby matching the author's experience level. A potential drawback is that its flexibility may result in inconsistency and lack of coherence when themes from the research data are derived. In order to address this challenge, the solution was trying to establish an epistemological position through existing literature that would underpin the study's empirical claims.

The thematic analysis included transcribing interviews, getting familiar with the data, coding, sorting, and selecting relevant data. Coding was conducted using Atlas.ti, (Version 23.1.0 (4207), Scientific Software Development GmbH, Berlin) a qualitative data analysis computer software.

The data gathered from focus group interviews with students and one-on-one interviews with school staff were analyzed separately, as they would provide insights into

different sub-research questions representing the young adult's attitudes and the school's attitudes. Numerous codes were generated and subsequently organized according to their relevance to specific research questions. This facilitated the process of structuring the results of the thesis and was accomplished in collaboration with one researcher (supervisor) with experience analyzing quantitative data. For the focus group interviews, 34 codes were generated and for the one-to-one interviews, 30 codes were generated. Figure 2 showcases some of the codes generated from the focus group interviews.



**Figure 2.** Example of some of the codes generated from the focus group interviews using Atlas.ti.

3.2.4 Quantitative data collection

This section outlines the methodology employed to gather quantitative data, including the development and distribution of the questionnaire, the following analysis of the data by the utilization of different statistical tools, and finally how the data is presented. The questionnaire was developed to mirror the questions of the focus group interviews and to get a quantitative perspective on the same issues.

3.2.4.1 Development of the Questionnaire

The questionnaire was crafted through a collaborative effort involving brainstorming with supervisors and research in the existing literature. Some of the questions were copied from a

similar survey distributed earlier to other schools participating in this project and some of the questions were inspired by earlier research papers. In the first part of the survey, the students got to evaluate some of the sensory characteristics of the plant-based burger, served for dinner in relation to this project. In the second part, the students used scales to rank agreement on different attitudes concerning vegetarian food, meat, plant-based meat analogs, and their respective school's food serving. The final segment comprised demographic inquiries. The survey included different question types like Likert scales, 7- and 5-point scales, multiple-choice questions, and open-ended questions.

#### *3.2.4.2 Pre-testing the questionnaire*

The questionnaire was distributed to supervisors and acquaintances to assess its functionality, ensure the clarity and comprehensibility of the questions, and determine if the survey length was appropriate. Some adjustments were made after feedback.

#### *3.2.4.3 Distributing the questionnaire*

The data were collected in November 2022 at the respective schools by using a web survey (EyeQuestion Software, Version 4.11.67, provided by Logic 8, Netherlands) which was completed online during the school's morning meeting. The researcher was present to give a short briefing about the project and to make sure the students filled out the survey individually, not consulting their peers. The questionnaire provided information regarding privacy concerns and a letter of consent that the students had to agree to before filling out the survey. To ensure anonymity, no names or information that could identify the participants were collected. The length of the survey did not exceed 20 minutes since this is the attention span of most adults (Lawless & Heymann, 2010). Table 1 presents the survey themes, the questions posed, and the manner in which they were presented.

**Table 1.** Questionnaire distributed to students at two Folk High Schools

Themes	Question/Clam	Alternatives	Nr
<b>Tasting Plant-based Burger</b>			
	Did you have a burger in the canteen for dinner (day, date)?	Yes/No (If the answer is No, the participant is sent to Q10)	Q2
Liking Plant-based Burger	How much did you like the burger served for dinner in the canteen on (day)?	Scale: 1 (do not like at all) to 7 (like very much)	Q3
	How much did you like the <ul style="list-style-type: none"> <li>• Taste</li> <li>• Texture</li> <li>• Appearance</li> </ul> for dinner in the canteen on (day)?		Q4-Q7
	Do you have more comments about the burger? Write them here:	Open field	Q8
<b>Attitudes vegetarian food, meat, and serving in the canteen</b>			
How much do you like the following?	<ul style="list-style-type: none"> <li>• Vegetarian products from the grocery store that do not imitate meat (e.g., falafel, beetroot burger).</li> <li>• Vegetarian products from the grocery store that imitate meat (e.g., vegetarian burgers, vegetarian sausages, vegetarian minced meat).</li> <li>• Dinner where the main ingredient is legumes (e.g., beans, lentils, peas).</li> <li>• Dinner where the main ingredient is legumes (e.g., beans, lentils, peas).</li> </ul>	Scale: 1 (do not like at all) to 7 (like very much)	Q10- Q13
How much do you agree or disagree with the following statements?	<ul style="list-style-type: none"> <li>• I try to avoid eating vegetarian food that is ultra-processed.</li> <li>• I try to avoid eating vegetarian food made from soy.</li> <li>• I am more positive about buying vegetarian food made in Norway than abroad.</li> <li>• I am more positive about buying vegetarian food made with Norwegian rather than imported ingredients.</li> <li>• Vegetarian burgers and other vegetarian foods that mimic meat are sustainable.</li> <li>• Vegetarian burgers and other vegetarian foods that mimic meat are healthy.</li> </ul>	Scale: 1 (strongly disagree) to 7 (strongly agree)	Q15- Q18  Q20- Q23

	<ul style="list-style-type: none"> <li>• Vegetarian burgers and other vegetarian foods that mimic meat make it easier for me to reduce my meat consumption.</li> <li>• I am concerned that the animals bred for meat production have had a good life.</li> <li>• A dinner taste best when it's with meat.</li> <li>• I don't get really full of a dinner without meat.</li> <li>• It is impossible for those who exercise a lot to meet their protein needs without eating meat.</li> <li>• Cooking vegetarian dinners is easy.</li> <li>• It's easy to make dinners where the main ingredient is meat.</li> <li>• Reducing meat intake can help fight climate change.</li> </ul>		Q25-Q30
How would you describe a vegetarian burger?	<ul style="list-style-type: none"> <li>• Unhealthy → Healthy</li> <li>• Bad for the climate → Good for the climate</li> <li>• Not tasteful → Tasteful</li> <li>• Low protein content → High protein content</li> <li>• Artificial → Natural</li> <li>• Not satiating → Satiating</li> </ul>	8-point Likert scale	Q31-Q36
How would you describe a meat burger?	<ul style="list-style-type: none"> <li>• Unhealthy → Healthy</li> <li>• Bad for the climate → Good for the climate</li> <li>• Not tasteful → Tasteful</li> <li>• Low protein content → High protein content</li> <li>• Artificial → Natural</li> <li>• Not satiating → Satiating</li> </ul>	8-point Likert scale	Q37-Q42
What is most important to you when choosing food in the canteen?	<ul style="list-style-type: none"> <li>○ That the food tastes good</li> <li>○ That the food is nutritious and healthy</li> <li>○ Food works well in combination with exercise</li> <li>○ That the food we eat is not harmful to the climate and environment</li> </ul>	Rank from least important to most important by moving the text boxes to the boxes below.	Q43
	To what extent are you satisfied with the food served at school?	Scale: 1 (to a very small extent) to 5 (to a very large extent)	Q44
	Is there anything you miss about the food on offer in the canteen?	Open field	Q45

	Did the school's food service with a focus on sustainability influence your decision to apply to this particular school?	Yes/No	Q46
	To what extent has the school's food service expanded what you like to eat?	Scale: 1 (to a very small extent) to 5 (to a very small extent)	Q47
How often do you choose to buy food other than what the school serves for dinner?	<ul style="list-style-type: none"> <li>▪ Never/rarely</li> <li>▪ 1-2 times a moth</li> <li>▪ About once a week</li> <li>▪ 2-4 times per week</li> <li>▪ Over 4 times per week</li> <li>▪ Varies/don't know</li> </ul>	Choose an option	Q48
If you sometimes skip school dinners, on which days are you most likely to do this?	<ul style="list-style-type: none"> <li>▪ When the school serves vegetarian dishes based on vegetables and/or legumes</li> <li>▪ When schools serve plant-based meat substitutes</li> <li>▪ When the school serves fish</li> <li>▪ When the school serves meat</li> <li>▪ Random/Other</li> </ul>	Choose an option	Q49
If the participant choses to skip school dinners during meat servings, this question is shown:			
Why do you choose to avoid meat?	<ul style="list-style-type: none"> <li>▪ Climate and environment</li> <li>▪ Animal welfare</li> <li>▪ Health reasons</li> <li>▪ I don't like the taste</li> <li>▪ My social circle expects me to choose meat-free alternatives</li> <li>▪ Other</li> </ul>	Choose an option	Q50
If the participant choses to skip school dinners during serving of plant-based meat replacers, this question is shown:			
Why do you choose to avoid plant-based meat substitutes?	<ul style="list-style-type: none"> <li>▪ I don't like the taste of plant-based substitutes</li> <li>▪ Plant-based substitutes are too processed</li> <li>▪ Plant-based substitutes are not a good alternative to meat</li> <li>▪ Plant-based substitutes are not healthy</li> <li>▪ Plant-based substitutes are for vegans and vegetarians only</li> <li>▪ Plant-based substitutes are too similar to meat</li> <li>▪ Other</li> </ul>	Choose an option	Q51

	Have you ever watched documentaries or read articles that have made you change your views on animal production and/or the meat industry in a negative way?	Yes/No/Don't know	Q52
	Do you follow influencers or organizations on social media that are concerned about food, sustainability and/or animal welfare?	Yes/No/Don't know	Q53
Which of the following measures do you think will have the greatest environmental impact?	<ul style="list-style-type: none"> <li>○ Reduced food waste</li> <li>○ Increased production and consumption of local food</li> <li>○ Increased production and consumption of organic food</li> <li>○ Reduced production and consumption of meat</li> </ul>	Rank from least to greatest impact by moving the text boxes to the boxes below.	Q54
	Do you like meat-free days at school?	Yes/No/Don't know	Q55
	How many days a week do you think you will choose to eat vegetarian food for dinner after you finish Folk High School?	Choose an alternative from 1-7 days	Q56
Sex	<ul style="list-style-type: none"> <li>● Female</li> <li>● Male</li> <li>● Other</li> </ul>		Q57
Age		Type age	Q58
How do you define your diet?	<ul style="list-style-type: none"> <li>● I am vegan (do not eat eggs, fish, dairy or meat products)</li> <li>● I am a vegetarian (do not eat meat products)</li> <li>● I am a pescetarian (do not eat meat, but do eat fish)</li> <li>● I am a pescetarian (do not eat meat, but do eat fish)</li> <li>● I am omnivorous (none of the above apply to me)</li> </ul>	Choose an option	Q59
	Do you have any further comments on the topic of sustainable food service or on the survey? Write them here:	Open field	Q60

#### 3.2.4.4 Quantitative data analysis

The data were downloaded from EyeQuestion to Excel format and processed using Microsoft Excel (Version 16.72). To get an overview of the results, data were first visualized either through a bar chart or a pie chart. Excel was further utilized to calculate the means and standard deviations for the liking of the plant-based burger, the student's age, different attitudes on sustainability in terms of food, and satisfaction with the school's food service.

Through the use of the software XLSTAT (Lumivero 2023.1.2 (1406), New York), t-tests were conducted to check for significant differences ( $p < 0,05$ ) between the results of the two schools. The same software was used to generate a PCA plot that visualized relationships between variables (Q2-Q60, table 1) in a two-dimensional space. In order to prevent the resulting plot from becoming too packed, the variable “pro-meat” was computed as the mean of four attitudes categorized as positive toward meat. These include: “A dinner tastes best when it's with meat”, “I don't get really satiated of a dinner without meat”, “It is impossible for those who exercise a lot to meet their protein needs without eating meat”, and “It's easy to make meat dinners”. The variable Pro-vegetarian was computed as the mean of the four attitudes “Vegetarian burgers and other vegetarian foods that mimic meat are sustainable”, “Vegetarian burgers and other vegetarian foods that mimic meat are healthy”, “Vegetarian burgers and other vegetarian foods that mimic meat make it easier for me to reduce my meat consumption”, and “Cooking vegetarian dinners is easy”.

XLSTAT was also utilized to create a Semantic Differential Chart. The chart showcased differences in scores for vegetarian and meat burgers scales ranging from one extreme to the other

A Partial Least Squares Regression analysis (PLS-R) was conducted in The Unscrambler X (v.10.4.1, CAMO Software AS, Oslo) to investigate intentions to eat vegetarian dinners after the Folk High School year. Question items Q2-Q55, and Q57-Q60 table 1 were initially used as explanatory variables, and number of planned weekly vegetarian dinners (Q56) as the dependent variable. In the first model, all explanatory variables were included. Significance testing was used for variable selection. The final model builds upon 25 explanatory variables. The data was standardized, and cross-validation with 20 random segments was used.



### 3.2.5 Sensory testing of a plant-based burger

In addition to letting their students participate in focus group interviews and answering a questionnaire, the schools selected also agreed to serve their pupils a plant-based burger for dinner. Offering the students a vegan meal, previous to the focus group interviews and distribution of the questionnaire, was viewed as a strategic approach to create a foundation for engaging discussions on various facets related to sustainable dietary practices, gain insights into the student's opinions on industrially produced vegetarian/vegan food versus plant-based dishes made from scratch and their perceptions of imitation products as a strategy to reduce meat consumption in the focus group interviews. The survey included questions on liking of the burger as well as general queries regarding attitudes toward plant-based meal substitutes and preferences for Norwegian versus foreign-produced plant-based meat replacers.

Both schools were provided with the opportunity to serve their students an industrially produced vegan burger made from Nordic fava beans from the Norwegian producer of plant-based meat replacers, Floowfood (Floowfood, 2023). School A chose this option while School B decided to prepare their own vegan burger from scratch, utilizing chickpeas as the primary protein source.

### 3.2.6 Ethical considerations

Projects that fall into the category of The Personal Data Protection Act have to be reported to Sikt (formerly NSD) (Malterud, 2012). Sikt is a privacy association for scientists and students at schools of higher education, research institutes, and more. The interviews for this thesis were recorded and contained personal information about the participants, hence had to be approved by NSD. (See appendix F, ref nr. 569523).

Before the interviews started, the participants were handed information about privacy concerns and signed a letter of consent (Appendix G). The survey also included information about privacy and the student's rights (Appendix H).

## 4 Results

The initial segment of this chapter will showcase the qualitative outcomes, comprising discoveries from individual interviews with head chefs and headmasters of both schools, followed by findings from focus group interviews with the students. The final part of the chapter will include the quantitative results from the questionnaire including the sensory evaluation of plant-based burgers.

### 4.1 Qualitative results

Initially, this section will provide an introduction to both schools, before delving into key findings from the qualitative part of the study, shedding light on the experiences and motivations of Folk High Schools in serving sustainable meals. Furthermore, the attitudes, beliefs, and thoughts of students on sustainable diets and how they think a year at a Norwegian Folk High School will influence their future food choices will be presented. The students' attitudes on plant-based meat replacers will be included at the end of this section. The students are given fictional names for anonymity.

#### 4.1.1 The Schools, sustainable strategies, and definitions of a sustainable diet

This initial section will provide background information that includes an introduction to the two schools, their sustainability strategies, how the food service is carried out, and how the headmaster and head chef define a sustainable diet.

##### 4.1.1.1 *Introducing the schools*

School A is situated near the coast and provides a diverse range of courses that includes outdoor activities and creative courses like music production, performing arts, and photography among others. The institution can accommodate nearly 90 students and enrolls people from the age of 18 years. The head chef at School A has been working in the school's kitchen since 2007 and took on the role of head chef within the past year. Prior to joining the Folk High School, the head chef had acquired extensive experience in the culinary industry. In January 2020, the headmaster of School A took on the position, having previously served as a principal at a non-Folk High School.

School B is situated near the coastline, surrounded by mountains. The school provides both creative courses and an array of outdoor activities. This school can also accommodate nearly 90 students and enrolls individuals from the age of 18 years. At School B, the head

chef has been working in this role since February (2022), after working in the kitchen for four years prior. The head chef had extensive experience from the culinary industry prior to starting at the Folk High School. In 2018, the headmaster of School B took on the position without any prior experience in this role.

#### *4.1.1.2 Sustainability strategy*

Both schools have formulated unique sustainability strategies that encompass various facets of their operation. This sub-chapter will summarize some of the focal points that are not related to the food service. Two years ago, School A started developing a sustainability plan that is now a continual working progress. The school also submits an annual climate report. In keeping with the resolution made by the five Folk High School boards in 2019 the school is committed to reducing its greenhouse gas emission. A measure that has been put into effect is the restriction on air travel. Each program now allows only one trip abroad (by plane) per academic year.

School A is actively engaged in the "Keep Norway Clean" initiative, whereby students and staff partake in cleaning up garbage on nearby beaches. Efforts are also directed towards redesign and repurposing. Many of the school's furniture is acquired second-hand. In the elective course "Redesign," students have the opportunity to sew or repair old clothes, and at swap nights, they can acquire new wardrobe items inexpensively and sustainably.

The UN sustainability goals are often a basis for theme-based classes. Part of the school's vision is to challenge the students with regard to different aspects of sustainability. Discussions are therefore brought up that could focus on themes like mental health, gender equality and identity, personal finance, and responsible consumption and production.

During the previous academic year, School B's staff and students collaborated in a series of workshops and staff meetings to develop a sustainability strategy, which resulted in concrete goals set for the school year of 22/23. Enabling the students to live as sustainably as possible during their stay at the school is a clear goal. The headmaster wants the sustainable choice to be the default option. When not taking an active decision, the sustainable alternative should be what you receive.

School B has eliminated air travel from its programs and invested in new energy solutions to reduce electricity usage. As a result, the school has achieved a reduction of over 30% in energy consumption. Folk high schools have access to a portal (Miljøfyrtårnsplattform) to compute energy consumption. School B uses this portal when

generating its annual climate report which is used as a visualization for staff and students. Another sustainable measure is switching “Black Friday” to “Green Friday”, where the students can exchange and buy used equipment and clothing.

The headmaster at School B also starts the year by informing the students about their sustainable choices. This encompasses details on strategies to reduce the carbon footprint, sustainability initiatives such as garbage sorting on nearby beaches, and a commitment to addressing environmental issues in their educational practices.

#### *4.1.1.3 What do the school headmaster and kitchen staff define as a sustainable diet?*

At School A, making food from scratch, using locally sourced ingredients, utilizing leftovers, reducing food waste, and serving meat-free dinners are ways the school focuses on sustainable meal servings. Emphasis is also put on giving the students a broader perspective of the culinary world by serving a wide variety of dishes from different nations. Additionally, a popular elective course teaches students how to prepare food from scratch using affordable ingredients. In a world of increased uncertainty and rising food prices, School A also believes it is important to teach students about economic sustainability.

When asked what the schools define as a sustainable diet the principal at School B states that serving plant-based meals is the most important measure. Exposing their students to a diet containing reduced amounts of meat is part of the school's vision. The school is also deeply invested in making food from scratch and emphasizes the importance of utilizing whole foods. A crucial aspect of their practice is to steer clear of products that contain questionable ingredients, provide minimal nutritional value, and that are resource-intensive to produce and transport. The commodities used are preferably locally sourced and ethically justifiable in terms of energy consumption. Knowing the origin of the food is important and something that made school B coin the term “Honest food”. The head chef also emphasizes the importance of choosing seasonal food.

#### *4.1.1.4 The food serving*

At School A, dinner is served at the table so that the students can help themselves. The rest of the meals, which include breakfast, lunch, and supper are served as a buffet. Breakfast and supper often include porridge in addition to bread, crispbread, and yogurt. School A usually has 10-15 vegetarians and 1-2 vegans per school year. Because of this, there is always a vegetarian and vegan option at dinner. The weekly menu comprises a minimum of one

vegetarian or vegan dinner, two dinners featuring fish, and the remainder including meat.

Many of their students dabble with the idea of testing new diets, therefore the kitchen at School A makes a suggestion that those who want to can try to be vegetarian for a week. If they wish to continue this lifestyle for an extended period, this is ok.

The school is dedicated to minimizing food waste by weighing all discarded food, instilling in their students a sense of awareness about the amount that goes to waste, and motivating them to serve themselves only with what they can consume. The head chef at School A always informs the students about food serving and food waste at the start of the school year.

Homemade bread is served every day, and to avoid throwing away too much of what is not eaten when fresh, cheese sandwiches are served for lunch once a week.

School A gets fish and eggs from the local area and prioritizes buying organic grains and coffee.

At School B, all meals, which include breakfast, lunch, dinner, and supper are served as a buffet. The headmaster states that this is one of the Folk High Schools in the country that serves the most vegetarian food, offering at least three vegetarian dinners per week and a consistent vegetarian lunch menu for six out of seven days. Additionally, students have the option of choosing a vegetarian dish at every meal, regardless of having defined themselves as vegan or vegetarian. In the canteen, there are always two queues. One line leads to the vegetarian and vegan meal serving and one leads to the meal containing meat. Not to be mistaken, animal-based food is a part of the menu, and once a year the students get to participate when a lamb is craved. When buying food for expeditions the students are also provided with the option of buying moose meat from the local area instead of farm-raised meat. In general, the school aims to provide the students with high-quality meat. The kitchen avoids serving farmed fish.

The school serves freshly baked bread every day and leftovers turn into cheese sandwiches that are served for lunch once a week. Apart from this, the lunch at school B is always vegetarian unless leftovers from dinners are included and contain meat. The kitchen also focuses on waste reduction by utilizing leftover food. On Tuesdays, leftovers are often served for dinner. Introducing smaller plates as a means of preventing students from serving more food than they can consume is another method the school utilizes to minimize food waste.

The institution buys fish, eggs, and some meat locally and always offers organic yogurt for supper.

Both schools report high scores for their respective kitchens in terms of student

satisfaction. At last year's evaluation survey, the students at School A gave the meal servings the highest rating amongst all the categories. The kitchen at School B is one of the schools with the best scores in the country, according to a national comparison of the food serving at all Norwegian Folk High Schools.

#### 4.1.2 Strategies and measures taken to offer a sustainable meal service

This subchapter will address implementation practices as well as the motivating factors that inspire the schools to offer sustainable meal options and how the schools communicate their sustainability strategies to their students. Also approached are how the school leadership thinks during a recruitment process and how the students can influence everyday school life, especially in relation to the food service.

##### 4.1.2.1 Implementing sustainable meal service

According to the headmaster of School A, the implementation of sustainable meal changes in the kitchen has been carried out without any significant or controversial restructuring. The increased focus on sustainable food serving was an organic process in line with a societal development towards increased knowledge about climate and environmental issues. When changes were made, all involved parties have been well-informed about the reasons behind the new implementations. There are usually discussions ahead of changes. Nothing is decided from the top down to make sure that when changes are made, whoever is going to carry it out feels ownership to the action being taken. The head chef, who had been working in the school's kitchen since 2007, highlighted that when implementing changes like vegetarian days, there was some initial resistance encountered several years ago.

Ten years ago, School B upgraded its kitchen facilities, and this is when the changes toward a more sustainable meal serving started. At that time, neither the head chef nor the headmaster had yet begun their employment at the school and details about this process were difficult to obtain. Currently, the head chef asserts that the effective implementation of new practices depends heavily on the chefs' skill set. In some cases, staff turnover due to resignations could present an opportunity to introduce new procedures (see section 4.1.2.4).

*“I believe that what sets modern Folk High Schools apart from their predecessors. It was much more boiled potatoes, margarine, fish, patties, and brown sauce prior. But none of us who work in the kitchen now are interested in making that kind of food. You also see the*

*response when you have couscous instead of boiled potatoes. We have a lot of potatoes too, but you know what I mean.”*

Head Chef (School B)

#### *4.1.2.2 Motivations and inspirations*

The head chef at School A states that one of the main motivations for practicing sustainable meal serving is the environmental and health benefits that accompany this practice. The head chef at School B highlights the joy of working with fresh produce in contrast to just opening plastic containers with pre-cooked meals. This is also the view of the head chef at School A.

*“We are cooks, so we don't want to be opening plastic bags. We sometimes use ready-made products, but mainly we use raw vegetables. So, we make things ourselves. We are conscious of that.”*

Head Chef (School A)

The head chefs at both kitchens think that attending courses and seminars is a good source of new inspiration. In the past, the schools have participated in courses with a focus on vegetarian and vegan meal servings. One chef at school B participated in a course teaching how to use algae in cooking. However, working and practicing cooking with other professionals is seen as the most valuable way to attain new skills and get new ideas. The head chef at School B thinks that working in a well-regarded kitchen for a short time frame each year could be a smart way to learn new techniques and spark creativity in the culinary profession. The head chef at School A feels that visiting other schools and working with the chefs there can provide valuable new insights into how to better utilize resources and come up with new ideas for tasty dishes.

Kitchens at both schools have relatively free rein when it comes to meal serving. This is also a strategy both head chefs practice for their staff. The head chef at School A emphasizes the importance of having a good plan. The head chef at School B put more focus on creativity and personal expression in the kitchen, highlighting that this is only possible with competent colleagues. Additionally, he stresses the importance of keeping up with the development and innovations in the field of food.

*For me, cooking can be compared to technological advancement or any other field of development. Is it sustainable to still drive around in an old Volvo 240? Maybe you have to move on? And it's the same with food. I may think old-fashioned food is nice, but at the same time, there is a limit to how cool boiled carrots can become. You can spice it up and roast it instead, and you have a completely different product. Food is evolution.*

Head Chef School B

#### *4.1.2.3 Communicating sustainability*

Both schools communicate their focus on sustainability on their respective web pages and through their social media channels. School A has included a tab on their homepage summarizing all the sustainability initiatives. Concerning the kitchen and the canteen, information is provided about the school's focus on reducing food waste, choosing local food suppliers, and serving meat-free dinners. The headmaster is careful not to engage in greenwashing and acknowledges that it is easy to use rhetoric that doesn't necessarily reflect reality.

*“We do it with basic and simple information. Then, we try to live up to that and get really good at it. Then we can start promoting it as something we are very good at. I'm a little afraid of overselling the concept of sustainability.”*

Headmaster (School A)

School B has also a dedicated section on their homepage that showcases various sustainability initiatives. This includes highlighting the use of environmentally friendly ingredients in the kitchen and emphasizing environmental issues in teaching.

The kitchen staff at School B always presents the meals to the students before they are served. This is not always done at School A, but the students appreciate it when it is done. If the dinner is vegetarian or vegan, no emphasis is put on the sustainable aspects of this. Experience from both schools suggests that excessively emphasizing the absence of meat in a meal can lead to unintended consequences, such as causing individuals to feel ashamed of their dietary decisions. A “show, don't tell” strategy is, therefore, most often the chosen approach.



*“I hope we don't over-communicate. But we do write about it on the website and show it on social media. We also talk about it, especially at the beginning of the school year. For example, I show the students the school's environmental accounts.”*

Headmaster (School B)

None of the schools operate with suggestion boxes for the kitchen, but there is a low threshold for making suggestions directly to the kitchen staff. Morning meetings are another platform where the schools and kitchens communicate their sustainability choices. Emphasis on the food serving is however not a large source of content for these gatherings.

School A also has a screen in the common area for relevant information, like the week's menu. Sometimes there are also pictures of food from different local food suppliers. An example is a picture of the boat where the kitchen gets its local fish from. There is also a board informing the students about the amount of food wasted per week.

#### *4.1.2.4 Recruitment of new kitchen staff*

At School B the focus on sustainable food is firmly rooted in the way the kitchen is run. Plant-based meals have been served for many years and interest in this way of making food is emphasized when recruiting new staff. Hiring young people with diverse experiences from the culinary world has proven beneficial. A new skillset and mindset, and knowledge of new ingredients or new ways to use already familiar ingredients have brought new inspiration into the kitchen. When hiring new staff, taking the sustainability aspect into account is important to make sure the school keeps developing in the wanted direction. Recruitment should be done with a particular focus on the type of food you want to serve, the head chef states.

*“New things happen all the time. It's also about updating yourself and keeping up with techniques. And the only way to do that is to bring in younger people so that you get a dynamic kitchen. I think that's the absolute best. Because you can watch TV, you can google, you can read cookbooks and all that, but it's completely different when you have a person next to you, showing you something. Then you just think: Wow! That's how it's done!”*

Head Chef (School B)

The headmaster at School B states that the subjects of vegetarian meal servings, leftover food, and food waste are addressed in interviews when hiring new staff members for the kitchen. Already existing staff should also be willing to attain new knowledge. Doing the same thing

for many years can eventually prove tiring. Having chefs who are genuinely interested in the craft and its development is essential for succeeding. The headmaster at School A highlights the commitment to meet the school's climate targets and the importance of hiring staff that is pulling in the same direction.

#### 4.1.2.5 Student influence

Each year the students at school B get to participate in a workshop where questions like, “Where do you see the school in 2027”, “How do you envision pulling the school in a more sustainable direction” and “What will this mean”, are addressed. The headmaster also appreciates this opportunity to find out what the students think about what is already being done. What is missed and what do they do right?

At school A, the student council is an important channel where the students can give feedback to the kitchen. The council is also presented with the school’s sustainability plan and gets to pick projects based on this. At both schools, the student nights offer a chance for students to plan and prepare a meal of their choice for the entire school. The kitchen service is also an opportunity to share attitudes and wishes for the meal servings.

#### 4.1.3 The schools’ experience with serving sustainable meals

This sub-chapter includes different aspects of the school's experiences attained by providing a sustainable meal serving. It covers the school's endeavors in serving vegetarian meals, the economic implications of a sustainable approach in the kitchen, and lastly how the school's hopes to inspire their students with its food service.

##### 4.1.3.1 The schools experience with serving vegetarian meals

According to the headmaster at School B, students typically develop a more favorable outlook toward vegetables and vegetarian diets after spending a year at the school.

*“We always get some who are vegetarians and vegans explicitly. But what I like is when the boys come to me and say: Before I came here, I thought you had to eat meat. But I've found out that I don't have to. It's perfectly fine without it. And the vegetarian food tastes very, very good. That's the best. Music to my ears. Then we have achieved something, I think. Then we utilize the tool that the Folk High School can be.”*

Headmaster (School B)

The headmaster goes into detail about why the school chooses to serve vegetarian food as an option, every day, for every meal.

*Yes, we serve vegetarian meals every day. It's to enable the students to make sustainable choices by default. Make it so that it's easy. You don't have to define yourself as vegetarian or vegan. Because then I think you'll get a result where many people will say, "I don't know if I'm ready to give up meat." It's just an old thing to define yourself as one or the other.*

Headmaster (School B)

At School A, some students have shown dissatisfaction with the meat-free dinners and asked why this is necessary. This is often met by an explanation about how not everyone needs to be vegan or vegetarian, but limiting meat consumption and increasing vegetable intake can be highly beneficial. The headmaster does however rule out the idea of turning the school 100% vegetarian. The emphasis is on exposing the students to different approaches to food, to teach them to think for themselves, and ultimately make up their own decisions.

Both schools want to show their students how tasty food does not need to be expensive or the techniques do not need to be intricate. The head chef at school B explains that vegetarian food is all about textures. One does not have to be limited to bean casseroles and rice. Adding several components with differences in creaminess and crispiness can help to complete the dish and make the students feel full and satiated.

#### *4.1.3.2 Economy*

Chefs at both schools see financial benefits in taking sustainability measures. However, the schools feel the increase in food prices but operate under different circumstances in terms of budget. The headmaster at School B states that their school has one of the highest expenditures among the countries Folk High schools when it comes to food service.

Nevertheless, the kitchens have taken steps to reduce food costs. This means holding back on some of the goods that were more generously consumed in the past. This includes meat.

*"The most economical are vegetables and lentils and beans and chickpeas. And also lots of potatoes, carrots, and cabbage. These are the cheapest things you can eat. That's what we cook most of here. I don't know what to buy that's cheaper. Because it doesn't get cheaper to buy pre-processed in any way."*

Head Chef (School B)

The headmaster states that it is in the economic interest of the kitchen to have as many students as possible choose the vegetarian food since meat is comparatively more expensive.

*"I think that the vegetarian option is often better than the meat option. So, then it would be in everyone's interest, including the kitchen's economic interest, to get as many people as possible to join the vegetarian queue. And then to have a system that keeps people away from that queue is not smart."*

Headmaster (School B)

School A has also implemented cost-cutting measures, which among other things involve reducing their meat consumption. The school year 22/23 has been extra hard. The school fees were set in 2021, and the students were admitted in 2022. The rise in food prices became evident in April/May 2022. At this point, it was too late to increase prices. The war in Ukraine has brought with it an escalation of grain prices. Wheat, which is used in big quantities when making bread has undergone a 33% price surge. The headmaster can report a 12% increase in general expenditures. The Folk High Schools appealed to the Parliament to request compensation, but their plea was not taken into consideration in the state budget.

*"And that really just means that the schools have to raise their fees in the future, and then it is the students who have to pay. It is clear that when prices become so high, it will also be more difficult for students to go to Folk High Schools. Then you have to think a little alternatively. And that is sad. Because you know that traditionally, healthy food has been more expensive than unhealthy food."*

Headmaster (School A)

At School A they still see the economic benefits of making sustainable choices. By agreement with a local farmer, the school can pick leftover potatoes and carrots that would otherwise

become animal feed. The head chef also reached out to the community and received apples that would otherwise go unpicked. These turned into jars of apple jam. Serving hot porridge in the morning and cold porridge in the evening, made from oats, is another way for the school to cut costs. It has also been suggested to contact households in the municipality to harvest other sorts of fruit and different berries and there have been discussions about raising chickens for the purpose of producing their own eggs. Feeding the poultry would also be a sustainable way to get rid of some of the food waste.

Both schools emphasize the significance of preparing meals from scratch and utilizing whole foods as a crucial component of maintaining a sustainable kitchen. This entails additional working hours dedicated to preparing the food. The head chef at school B thinks the shortage of workers at some Folk High Schools may be the reason why dishes are not always prepared using fresh ingredients. But he believes that despite the additional working hours required, making food from scratch can still prove economically viable.

*“Opening a package of ready-made vegetarian burgers and putting them on baking trays, takes 10 minutes. But if I'm making vegetarian burgers for everyone, the actual work takes an hour. I think I spent an hour on the dough. And then maybe another hour to cook all the burgers. So, 10 minutes versus two hours. But then my base costs about 25-30 kroner per kilo. And the vegetarian burger costs maybe 150 kroner per kilo. And then it's 200 grams per person. That's 20 kilos, approximately. So, the pre-made veggie burgers will cost 4000 roughly. Mine costs a thousand. And with two hours of work, I cost what I cost. All in all, I come out cheaper with burgers made from raw materials. That's interesting to think about.”*

Head chef (School B)

While School A has tested different sorts of meat replacers like Vegofarse and vegan meatballs, School B always makes everything from scratch. School A is still very restrictive with the use of industrially produced meat alternatives and points out that these products are very expensive in Norway. In the past, both schools have purchased organic vegetables, but because of high prices, this is no longer the practice. The schools do however still buy organic grains. School B also serves organic yogurt at supper. School A prioritizes organic coffee and some seeds.

*“But then there is the issue of vegetables. It's impossible for us to buy organic. It's too expensive. But wheat and grains, on the other hand, are not that expensive, it's not such a big difference.*

Head Chef (School B)

#### *4.1.3.3 How does the school hope to inspire?*

The headmaster of School A aims to promote mindful consumption among students enabling them to make conscious decisions as they transition into adulthood. The students are being encouraged to responsibly manage resources and avoid taking them for granted. The headmaster also talks about the importance of equipping young people for the future, given the current reality of food shortages and rising prices due to the war in Ukraine. As such, it is advantageous for students to acquire knowledge of alternative and more cost-effective methods of food preparation.

*“So I think that the motivation behind our sustainable meal servings is simply to have a diet that is sustainable for the future. For young people who are going out and living on their own. And to educate them about the possibilities.”*

Headmaster (School A)

The headmaster at School B strives to promote sustainable living among students during their time at the Folk High School and hopes to inspire them to incorporate more vegetarian dishes into their diets. The head chef aspires for students to discover the pleasure of preparing food from scratch and understand that it does not have to be intricate or challenging. Additionally, he hopes that the students have developed a willingness to try new food and that they leave the Folk High School with some new recipes to add to their repertoire.

#### 4.1.4 Characteristics of the interviewees

In the following section of this chapter, the student's viewpoints on sustainable diets, collected through focus group interviews, will be presented. The students participating in the interviews are presented in Table 2. The gender distribution is relatively even at School A, whereas at School B, three-quarters of the participants are female, and one-quarter are male. At both schools, over half of the interviewees follow diets that either reduce or eliminate meat

**Table 2.** Characteristics of the samples participating in the focus group interviews, ranging from gender, and age to diet.

	School A (n = 13)	School B (n = 16)	Total (N= 29)
Gender			
Female	7	12	19
Male	6	4	10
Age			
Age 17-19	8	7	15
Age 20-27	5	12	17
Mean in years	19,5	20,5	19,5
Diet			
Omnivore	6	6	12
Flexitarian	3	6	9
Pescetarian	3	3	6
Vegetarian	1	1	2
Vegan	0	0	0

#### 4.1.5 Students' definition of sustainable diets

When asked what they define as sustainable diets, the students highlight different themes. Eating more fruits and vegetables and reducing the consumption of meat are often described as the most important factors. Others believe a balanced and varied diet, including meat, fish, fruits, and vegetables, is important. Local production of food and eating food according to the season is also pointed out as an important measure for food sustainability. Organically produced food is repeatedly mentioned. Reducing food waste and using leftovers were also deemed important and dumpster diving (searching for edible food in garbage cans outside food stores) is by some viewed as positive in this regard. Finances are by some, pointed out as being a motivator for eating vegetarian or vegan since meat is considered expensive. Making food from scratch is also something the students associated with a sustainable diet.

The students also include personal satisfaction as a measure of sustainability. This is often accompanied by the acknowledgment that a burger or other types of meat is fine now and then. Others mention the importance of having a good relationship with food and the value of eating in a way that makes you happy. Not being too restrictive or limiting in their food choices is a crucial factor for many.

Most of the students relate a healthy diet to eating vegetables. A varied diet is what most of the students adhere to and something they also associate with a healthy diet. Meat consumption is seen as part of a healthy varied diet by some of the students. Meat being a valuable source of proteins is emphasized in this context. Eating enough fish is also

highlighted as important for some. Some students see processed food as a food category that should be avoided.

The students' answers are not always cohesive when asked if a sustainable diet correlates with a healthy diet. Some draw the link between a plant-based diet, sustainability, and health, and thereby conclude that a sustainable diet most often also is a healthy diet. Meat is often mentioned as unsustainable, and some also view meat consumption as unhealthy. It is pointed out that eating healthy does not need to be sustainable if the food has a long transportation route. Eating vegan or vegetarian can be unhealthy, if the diet includes lots of processed food, even if it is sustainable. Some students suggest that locally produced food usually is both sustainable and healthy. This implies eating according to the season.

*“I believe that sustainable food is most likely healthy food. But not all healthy food is necessarily sustainable. Too much food that is healthy is difficult to obtain or difficult to produce in Norway. And requires a lot of energy to get to us as a customer. But at least here in Norway, if you buy things that are locally sourced or things that are made in such a way that you have low emissions, then it is likely to be healthy food”*

Philip (Omnivore) School A

To gain a better understanding of the students' perspectives on various sustainability measures and their effects, the interviewees were queried about their opinions on the most sustainable choice between locally produced meat or vegetables from countries further down south in Europe. The students acknowledge that there are a lot of fruits and vegetables that are not easily grown in Norway. And that the different seasons put limitations on the availability of locally produced plants. Students still feel that eating imported fruits and vegetables is a more sustainable choice compared to locally sourced meat.

*“It takes more energy to feed a pig for over a year than to feed just one person. It takes up a lot of energy. Vegetables become feed for livestock. If you cut out a step, you use less energy and you get better utilization of the plant and... So, I think that just by thinking about it logically in terms of energy consumption, it's more sustainable, simply eating vegetables instead of eating meat.”*

Philip (Omnivore) School A



Several students highlighted that raising an animal entails providing it with feed, which can add to the energy expenditure of food production. Particularly when the feed is sourced from soy produced in South America where rainforests are cut down to make room for crops. In this context, eliminating a step in the supply chain is perceived as the primary reason why vegetable production is an eco-friendlier option.

Others are less sure and mention the area and the pesticides needed to produce plant-based products. Some also think that it is relevant to know if the vegetables were transported by boat, trailer, or plane.

*“I say vegetables are the most climate-friendly. Land transportation has the least impact on the environment. The production of meat requires much more than land transportation. And it's still transported, even if the animal comes from here.”*

James (Omnivore) School A

Some of the students think that locally produced meat is the most sustainable option. In this regard, it is also mentioned that some animals grazing outside help to preserve the cultural landscape. Supporting the local farmer is also seen as a positive element.

#### 4.1.6 Students' experience with being served sustainable school meals

*“It's the highlight of the day, going to the canteen. The atmosphere is so good, and the food is so good. It really lifts the whole Folk High School experience.”*

Anna (Flexitarian) School B

*I think they are too creative! I don't know what I'm going to do when I leave here. I'm going to go into food shock.*

Mina (Omnivore) School B

Students at both schools report a positive attitude towards the canteen's food serving. Their impression is that the schools take the subject of sustainability seriously and prioritize environmentally friendly food serving to a significant extent. The biggest difference from school to home is the big variation and the increased exposure to vegetarian food. Many of the students also think that the meal servings in the school canteen are healthier than the one they are used to from home.

*“It is a very varied diet, although we get a lot of plant-based food. We get fish, we get what we need plus more.”*

Emma (Pescetarian) School B

*“It is often what you buy yourself in your spare time that is the problem. Which makes it unhealthy. The school lets you have a fairly healthy diet.”*

Catherine (Pescetarian) School A

At School B the students state that the food is both tasty and leaves you with a good feeling post-meal. A girl attributes this to the food being both varied and full of vegetables. This provides energy in a way that she was not familiar with earlier. Many students feel that the school is providing the ideal diet.

*“I’ve never had such a varied diet as I have now. Before, I might have had to work a bit to get through five a day. Now that’s not even relevant, because I get enough vegetables and enough fruit during the day. So, it’s just great!”*

Mina (Omnivore) School B

Another girl from School B highlights that they have received insightful information and reasoning regarding the school's decision to serve less meat. She finds it logical that the school prioritizes vegetarian meal options after being informed of the school's sustainability goals and the significant reduction in emissions achieved as a result.

At both schools, student's general impression is that there is an emphasis on choosing locally produced food. They believe that fish is always locally sourced. At School B many describe how dinners, where fish is the main ingredient, are something that they really look forward to comparing to when this is served at home.

The ones that eat mostly plant-based at home, but do not define themselves as vegan or vegetarian report a higher meat intake at school compared to home. This is true for students at both schools. Some students at school A think that the school serves more traditional food (husmannskost) than what they are used to from home.

Two girls at School B commend the school for finding creative and tasty ways to use leftover food in new dishes.

*If it's a gratin, then you can suddenly see that oh, this was the sauce we had three days ago. I think that's cool. Also, if we have a leftover dinner, they just put together everything we've had for the last couple of days. Then it becomes the best dinner of the whole week.*

Jenny (Flexitarian) School B

*“They put real effort into finding ways to use leftovers in a new way. We can get pasta in a gratin or yesterday’s vegetables are made into a wok. We are made aware that it's leftovers. But here it comes in a fun meal where we get a lot of different things at once. It makes the whole concept of leftovers so much more enjoyable.”*

Julia (Omnivore) School B

#### 4.1.6.1 Attitudes to vegetarian meals

This subchapter will address the student's attitudes on vegetarian meals, whether they feel satiated after consuming a meat-free dish, and if they felt that nutritional needs are met, especially in terms of proteins.

Many of the students want to reduce their meat intake and give the schools credit for being an inspiration for vegetarian and vegan food servings.

*“I think the school does a good job of educating but not shaming. They make great vegetarian food and still serve meat. I think that if the school had only served vegetarian food and looked down on meat, many people would eat vegetarian here, but as soon as they got home, they would start eating more meat than they did initially. Here I think many people discover that eating vegetarian is good and that it is something they want to continue.”*

Eric (Vegetarian) School B

The students also acknowledge the school canteen as a good arena for introducing new types of food. Some of the students are new to meat-free dinners, and exposure to this is thought of as something that can bring in new perspectives and inspiration in the realm of food. The students feel that people that are initially skeptical or unknowing can alter their views and attitudes throughout the school year. Some of the students have noticed that eating meals containing meat feels heavier on the body and the system than when they consume plant-based dishes. A girl at School B thinks that excluding meat can increase consciousness of the health effects of different diets. Another student points out that meat-free dinner options taste better at the Folk High School canteen than what she has eaten in the past.

*“It gives a little push. Or a kick in the but that will make you try something new. Because not everyone would make that choice voluntarily.”*

Troy (Omnivore) School A

The fact that there is always a vegetarian option at School B's canteen is highly appreciated. The students feel that not having to make a stand on which diet they adhere to makes it easier to cut meat intake without it being an absolute decision to exclude animals from their diet.

*“I think it's a plus that you always have the opportunity to choose vegetarian if you want to, and that you don't have to sign up to eat only vegetarian. Also, they often serve meat-free dinners to the whole school, and I think that's really nice. And there are also generally quite small amounts of meat, but a little now and then. We are served a lot of fish, and a lot of food that is just really tasty.”*

Julia (Omnivore) School B

*“I try to eat as little meat as possible. And here it has become so easy to do because there is always a vegetarian offer in front of me. Yes, we ate meat yesterday, but otherwise, I can't remember the last time meat was such a central part of the meal. And if I eat it now, I don't necessarily think it's that good anymore. Not only do they serve a lot of vegetarian food, but they make us aware. And I think they should be credited for making us conscious.”*

Jenny (Flexitarian) School B

Students at School A mention that the vegetarian alternative taste best when this is the dinner served for the entire school. The students feel there is room for improvement since some of the vegetarian dinner alternatives can be a bit repetitive. A certain type of falafel and burger is recurring. The students adhering to a vegetarian diet feel there is room for improvement in the daily meat-free dinner options, which do not always feel appetizing. Many students also wish for more and a wider variety of fruits and a variation of the vegetables served at dinner.

At school B some of the students feel that the vegan alternatives are best prepared when the rest of the school also eats a meat-free dinner. A girl experimented with eating only vegan meals from the school's canteen for a period. She found that when the protein source was cauliflower or other vegetables, it sometimes was not sufficiently filling. The students at

School B also wish for more coarse grain products and a wider variety of vegan toppings for breakfast and supper.

#### 4.1.6.1.1 Are nutritional needs met on a vegetarian/vegan diet?

At School A, a girl believes that making a conscious decision to reduce meat intake could lead to a more diverse diet, as it would require becoming familiar with the body's nutritional requirements. At the same school, a boy is uncertain whether a vegetarian diet can provide sufficient amounts of protein.

*“My goal is to be vegan at some point. But I want to get there in a healthy way by learning how to get the nutrients I need. It's almost a science I think.”*

Andrea (Flexitarian) School B

*“I think you learn quite a lot in the beginning if you have a big change in diet. It is an opportunity to find out how the body reacts.”*

Mina (Omnivore) School B

Some of the students at School B have experienced feelings of fatigue after excluding meat from their diet. Other students have experienced that transitioning to a plant-based diet increased their energy levels. It also allowed them to include a wider variety of different foods, especially vegetables.

#### 4.1.6.1.2 Satiety after meat-free meals

At School A many of the students don't feel as satiated after a vegetarian meal compared to a meal containing meat. As a result, they often end up eating larger portions than they normally would. Many also attach feelings of wellness to eating meat.

*“I am very much a meat person, so when I get meat, that's it: Ahh, delicious! You don't get the same good feeling eating vegetarian food. Meat is better.”*

Troy (Omnivore) School A

Others associate a sense of lightness with consuming a vegetarian or vegan meal and express feeling fully satisfied afterward. Some feel that meat-free diets give a more pleasant sense of

satiety. A girl at school A thinks that how you experience a meal has to do with what you are used to. Many reports feeling full after a plant-based meal but find that they become hungry again in a shorter amount of time.

*“Vegetarian food tends not to be as heavy on the body in its entirety. It's easier to process and then you'll get hungry more quickly.”*

Isak (Omnivore) School A

Most students agree that as long as the food servings are tasty, this is the factor that weighs heaviest when deciding whether or not they feel satiated after a meal. At School A, some of the students think that this criterion is not always being met at meat-free dinner servings and feel like the vegetarian food could include more flavors.

#### 4.1.7 How do sustainable meal servings affect Folk High School students?

When questioned about what they would take away from their year at the Folk High School in regard to the food service, the students mainly expressed an interest in maintaining a diet with less meat and a greater focus on vegetables. The kitchen at the Folk High Schools serves as a source of inspiration for some. The fact that it is particularly easy to choose the vegetarian option at School B has made many of the students aware of the possibilities within plant-based cuisine.

*“I might have had a narrow view of vegetarian dishes. Because at my house we either had meat or fish or chicken. But now I have more ideas to build vegetarian dishes on.”*

Mina (Omnivore) School B

Many of the students at School B can't see themselves buying meat when living by themselves. This is partly because of sustainability and animal welfare issues and partly because of finances. At School B the students feel that the kitchen has introduced them to how to make plant-based meals in an easy way, using cheap ingredients. Some of the students are also inspired to make a large variety of dishes and to spend more time preparing meals. This student is particularly inspired to eat more vegetarian meals:

*“For my part, I also feel that it has opened up a lot in terms of vegetarian food, because there is such a crazy variety of vegetarian options, and at home, you often think that meat is the main ingredient in the meal. So, I think I have opened my eyes to the fact that there is so much more you can cook than meat”.*

Jenny (Flexitarian) School B

According to a male student at school B, spending a year at a Folk high school provides lots of inspiration on how to utilize inexpensive and sustainable ingredients in a delicious manner.

*“Sometimes we don't get any meat at all, only vegetarian. And that's good. Because then you learn how to survive without meat. As Julia says, you don't buy meat if you have little money. Here you find out how to eat a varied and sustainable diet without meat.”*

Thomas (Omnivore) School B

During expeditions, students are accountable for their individual food budgets. A male student attending School B has experienced this as something positive and intends to continue budgeting when living independently as a student. Many have discovered that eliminating meat from their shopping list reduces costs and allows for a more diverse range of food options to bring along on the journey. Some of the students' perspective has also been transformed by exposure to alternative diets shared by individuals they encountered during their time at the Folk High School. Observing how others reduce or exclude their consumption of meat and listening to their thoughts and opinions on matters related to food choices is something that many have found inspirational.

*“I went on a camping trip, where there were four of us and half of us were vegans. Also, there was one who was gluten allergic. So, we were like; what? Are we supposed to cook just using water? But I think we ended up having the best food on that trip and I felt I learned a lot from those who are vegan. Because they are very concerned about food and have to think about it quite a lot. Then I felt like; cool! I didn't know that this was vegan, and if you just do that, it could be vegan. So that was interesting.”*

Amanda (Omnivore) – School B

Some feel inspired to start harvesting berries and mushrooms while others want to become better at eating leftovers. Some students referred to particular dishes that they had been served in the school's canteen or had learned to prepare in elective courses, expressing a desire to recreate these dishes on their own.

*“I hope I've learned how to cook a little cooler food from what I've been served here.”*

Tom (Flexitarian) School A

A student at School A wants to start making her own bread. For her, returning to store-bought bread would be a letdown, after enjoying the luxury of having freshly baked bread every day for a year. At School B, a girl believes that the timing of the year at the Folk High School is ideal for acquiring new knowledge that could potentially affect future food choices.

*“This is perhaps a very important time in our lives. Most of us are used to being served what we have been given at home by our parents. And it becomes much more set now, how we are going to eat further in our lives. I think it affects a lot.”*

Jenny (Flexitarian) School B

#### 4.1.8 Other factors influencing students' food attitudes and choices

Part of the objective of this thesis is to record the impact of meal servings offered at Norwegian Folk High Schools on the food attitudes of young adults. In this respect, it is interesting to look into other aspects that influence the student's attitudes and choices, concerning food.

##### 4.1.8.1 Who or what influences the student's food choices?

The students believe their food choices are mostly influenced by people in their immediate circle. Many point out mum and dad as heavy influencers while others draw inspiration from their closest friends. A multitude of students reported that they were exposed to information about food, animal welfare, and sustainability via films and TV shows that were screened during prior schooling. A girl at School B states that what is presented in the news as healthy sometimes influences her food choices.



Animal welfare is also highlighted as an important factor when making food choices. Knowing that the animal has had a good life is important to many. Very few of the students mention influencers and social media as something that has changed their opinion about their diet. Not many of the students follow people on social media that are concerned with food and the environment, hence this is rarely mentioned as an influence with regard to diet beliefs. Nonetheless, a documentary film that was sometimes mentioned in interviews was NRK 's (Norwegian Broadcasting) film about the conditions in certain Norwegian pig farms.

*“When I started eating vegetarian, it was in connection with the NRK documentary about pigs. There are some places where the animals are absolutely miserable. So if you can do without it, why eat meat when the animals don't have to live to be slaughtered.”*

Tom (Flexitarian) School A

Despite that, this documentary keeps being brought up as a reason for going meat-free the students still have confidence in the Norwegian farmer and believe that local conditions are better within national borders compared to big industrial farms abroad.

*“I haven't seen many documentaries, but I really trust the Norwegian farmer and the Norwegian Food Safety Authority does a good job. And they do quite a lot of checkups. A lot of farmers love their animals. It's kind of a family where they want the animals to be well. There are however a few, unfortunately, who do stupid things.”*

John (Omnivore) School A

#### *4.1.8.3 Transitioning to a plant-based/sustainable diet*

To change habits and chose more sustainable food options, many of the students think that increased information and seeing the consequences of certain choices are important to change diet beliefs. Knowing more about the way food is produced and its effect on both health and climate could be an eye-opener for many. However, being open or interested in this information is not a given.

The students feel that embarking on a new dietary approach should originate from one's personal curiosity and desire to prioritize their own health and environmental sustainability, rather than being motivated by feelings of fear or shame. Several students aspire to decrease their meat consumption but do not aim to eliminate it entirely and do not wish to put a label on their diet. Categorizing oneself as a vegan, vegetarian, pescetarian, or

omnivore is by some considered outdated. School B's provision of a vegetarian alternative for every dish, irrespective of the student's dietary preferences, facilitates a simpler decision-making process in selecting the meatless option.

*“Yes, I also think information is important. But as I said earlier, I think it's important not to make those who eat meat feel ashamed. But that you have alternatives, and that you have good vegetarian food. So, then those who usually identify with eating meat can try some vegetarian food and maybe think, okay, now I've eaten sustainably, and it was good. So maybe I can start eating a little less meat at home. It is important to make it easy, doing what's right.”*

Eric (Vegetarian) School A

One male student at School B finds the concept of repurposing meat as a garnish or a side dish appealing. Several students have noticed that some individuals do not consider a meal to be a proper dinner unless it contains meat, and therefore, may require some encouragement to embrace plant-based options. Providing easily accessible vegetarian options for sampling without forcing the alternative is regarded as a viable solution.

#### 4.1.8.3.1 Making vegetarian and vegan meal servings

Some of the students feel like preparing vegetarian dishes is difficult. A factor that may deter them from trying out new dishes is the lack of information on how to prepare nutritious and tasty meat-free meals.

*“Not many people have a lot of knowledge about how to cook vegetarian food. I notice that there are a lot of people who want to try it. But they overthink it a bit, they don't really know; Do I suddenly have to add a lot of supplements, or make everything with beans? They don't really have any knowledge or information. It takes some effort to get started.”*

Mary (Vegetarian) School A

Conversely, meals comprising meat have been customary for the majority of students since childhood. The process of cooking meat or fish dishes is perceived as requiring less research. Despite being familiar with cookbook websites and apps that offer various meat-free recipes, many students feel that they lack the knowledge and skills to prepare vegetarian dishes that can rival the taste of meat. A student from School B states that seasoning chicken is easy, but

not many people know how to make vegetables truly flavorful. According to a girl at School B, preparing any kind of food requires one's interest, time, and effort. If this is put into crafting vegetarian or vegan dishes, achieving success should not be a problem. A girl at school A puts it this way:

*“I think it can be just as easy or difficult to cook with meat as with vegetarian food. It kind of depends on how much interest you have in cooking. How much interest you have in trying out new dishes.”*

Mary (Vegetarian) School A

Several students who are inexperienced in preparing meat dishes find it easier to work with vegetables as they believe that meat tends to dry out quickly if overcooked. One student finds Asian and Indian cuisine preferable for vegan food preparation due to the ease of adapting recipes to fit this dietary choice.

#### 4.1.8.3.2 Reasons for why it is difficult to reduce meat from the diet

The main argument as to why the students are hesitant to reduce their meat intake is because of their appreciation for its flavor.

*“The flavor, that's the hardest thing, I think. Meat is very good, and I don't think vegan or vegetarian options can match the taste at all.”*

Rita (Omnivore) School A

Meat is also recognized as a rich source of essential nutrients that are crucial for maintaining good health. By consuming meat, individuals can obtain a diverse range of vital nutrients, which lessens the need to be concerned about nutrient deficiencies. Additionally, social events and family gatherings are frequently centered around savory meat dishes, and not fully engaging in these occasions is a sacrifice that many of the students are unwilling to make. Many of the students are reluctant to be perceived as difficult if they opt for a different dietary approach than the norm. The ability to eat anything that's being served is often viewed as the simpler alternative.

*“For me, the hard part was the loss of choice. Because I think it's crazy fun to try all new foods.”*

Amber (Pescetarian) School B

A girl at School A, who has chosen to be a pescetarian expresses that she doesn't want to inconvenience others when invited for dinner and feels guilty when hosts have to prepare a separate dish because of her dietary choice.

While the younger generation grows up with a wealth of information regarding climate and may be more easily persuaded to adopt new habits, the students observe the former generations as a group that struggles the most with changing their lifestyle. Despite some students' attempts to introduce vegetarian dinners to their families, they often encounter difficulty in changing the attitudes of those who have not been exposed to plant-based meal servings in the past. At School A, a boy faced challenges when he tried to introduce his father to meat-free dinners, leaving him feeling discouraged about transitioning towards a more vegetarian diet.

*“I think it's very difficult to change your eating habits when you come home. It's easier for us because we've experienced it and, in a way, have been forced to do so. But that is not the case for those at home. And trying to turn Dad around is almost impossible. I tried when I came home last year, last summer. But it's not easy. I mean, it wasn't easy at all. So that's why I think most people are going to go back to old habits again.”*

Troy (Omnivore) School A

A girl at School B feels like their generation relates to food in a different way, and many do to a larger extent make active decisions when it comes to their food choices.

The students feel that there is some social stigma and prejudices attached to vegetarianism and veganism. You can easily be seen as a know-it-all and a moralist, and many don't understand the choice to exclude meat.

Anna (Flexitarian) School B: *“I think there is an extreme amount of prejudice against vegans”*

Jenny (Flexitarian) School B: *“You can get reactions for choosing the vegetarian option here. Even if you eat meat twice a week.”*

Anna (Flexitarian) School B: *“When I was vegan, I was at a student party, and someone compared veganism to a political eating disorder”.*

A lifelong vegetarian at School A often gets the question if she only eats beans and salads. Although many students have felt judgment when experiencing with meat-free diets in the past, they feel that vegetarianism and veganism are normalized at their Folk High School.

#### 4.1.9 Student's attitudes to plant-based replacement products

Many of the students have tried meat replacers like plant-based burgers and sausages. Some products like schnitzel, nuggets, and mince were appreciated, while others were deemed tasteless. The nutritional value and health aspects of these products are questioned by some.

*“And ready-made products are very processed as well. It's not good to eat too much of it. Instead, you can make a beetroot burger yourself. I haven't made it myself, but I can't imagine that it's very difficult.”*

Thomas (Omnivore) School B

Whether or not there is a need for industrially produced meat replacers is also questioned by some. A boy from school A thinks that it's better to make plant-based burgers by using fresh ingredients. A boy from school B feels that the variety of dishes in vegetarian and vegan cuisine is so rich that there is no need to imitate meat products. Choosing a vegan or vegetarian diet also means adjusting to a new lifestyle, which in turn involves familiarization with different new sources of vitamins, minerals, and macronutrients. He does however recognize that meat replacers could be valuable during a transitional phase for those who want to reduce their meat consumption. A girl from school B agrees with this and argues that most people's motivation for reducing or excluding their intake of meat is climate or animal welfare issues, and not that they don't like the taste of meat. Replacement products are convenient in the sense that there is no need to do research for recipes and find new satiating calorie sources. The procedure for food preparation stays very much the same as with meat and fish, making the transition process less demanding. If the taste and texture imitate meat in an adequate manner, the feeling that something is missing might not be present.

*“It probably also has a lot to do with creativity. I'm not creative when it comes to food. And then it's nice that there are alternatives that you recognize. At least in the beginning.”*

Susan (Flexitarian) School A

*“For my part, I am actually very fond of meat. I used to eat a lot of meat. So, if it had only been a matter of taste, I would probably have just eaten it. The fact that there are alternatives that are similar is actually very positive. I'm quite impressed with how far they've come. Because there are some products that are hard to believe are not meat.”*

Tom (Flexitarian) School A

A boy from School B highlights products derived from soy as a viable source of protein. Other students are not sure whether the replacement products give an adequate protein intake compared to animal-based products. A girl from school A believes that it is easy to add vitamins and minerals to plant-based replacement products to make them nutritionally adequate. Many of the students think that the health aspect of different meat replacers varies depending on the producer and production method. Some are worried about the products being too processed and containing too many preservatives and flavor enhancers. One girl at School B makes a comparison between store bought Naturli burger and the homemade burger served in the school canteen some days earlier.

*“I trust the homemade burger we had on Friday more than the mass-produced burgers from Naturli. There's a lot of stuff in that burger that isn't in the homemade burger. But they're both healthy.”*

Mina (Omnivore) School B

A boy at school A reaches a different conclusion:

*“I think we all agree that synthetic food is neither healthy nor sustainable.”*

John (Flexitarian) School A

Most students believe that vegetarian or vegan burgers ultimately are a healthy option compared to a meat burger. There is also consensus that these products are the sustainable and

environmentally friendly option, although products made from soy are recognized as a contributor to deforestation through the ongoing use of large land areas.

## 4.2 Quantitative results

In this section, the results from the questionnaire will be presented. In total 115 students submitted a complete set of answers. This includes 50 respondents from School A and 65 respondents from School B. The results of the two schools are most often separated to highlight the differences between the sample sets. The data presented include the sensory evaluation of two plant-based burgers.

### 4.2.1 Characteristics of the respondents

Table 3 presents the percentage distribution of various characteristics of the respondents in the sample. At School A, 50% of the respondents were female, 46% men, and 4% other, while at School B 77% of the subjects were female and 23% male. The mean age for the entire sample set is 19,5 years. At School A, 76% reported being omnivores, while at School B, 54% reported adhering to an omnivorous diet.

**Table 3.** Characteristics of the respondents.

	School A (n = 50)	School B (n = 65)	Total (N= 115)
Gender (%)			
Female	50	77	65
Male	46	23	33
Other	4	0	2
Age (%)			
Age 17-19	35	37	72
Age 20-27	15	28	43
Mean in years (SD)	19,3 (1,0)	19,8 (1,6)	19,5 (1,4)
Diet (%)			
Omnivore	76	54,0	63
Flexitarian	14	21,5	18
Pescetarian	4	21,5	14
Vegetarian	4	1,5	3
Vegan	2	1,5	2

### 4.2.2 Sensory evaluation of plant-based burger

Both schools were presented with the opportunity to receive free burgers from a Norwegian producer of plant-based replacement products, Flow Food. School A accepted while School B

declined and instead made their own take on a vegan burger consisting of chickpeas, onions, garlic spices, and more.

Table 4 shows the rating of different sensory aspects of an industrially produced plant-based burger served at School A and a homemade plant-based burger served at School B. All results show a significant difference (p-value <0,05). The mean overall liking of the burger at School A was rated 4,6 out of 7, while the overall liking of the burger served at School B was rated 6,2 out of 7. The commercially manufactured burger is valued more for its texture than its taste, whereas the homemade burger is esteemed more for its taste than its texture.

**Table 4.** Results from the sensory evaluation of industrially produced plant-based burgers served at School A and homemade plant-based burgers made at School B. The factors of overall liking, taste, texture, and appearance were measured on a 7-point scale (1 do not like at all -7 like very much). A p-value under 0,05 shows a statistical difference between the two burgers.

Liking Burger	School A Industrially produced plant-based burger Scale 1-7 Mean (SD)	School B Homemade plant-based burger Scale 1-7 Mean (SD)	(T-test) p-value
Overall Liking	4,6 (1,4)	6,2 (0,9)	0,0001
Taste	4,3 (1,4)	6,0 (1,0)	0,0001
Texture	4,6 (1,4)	5,3 (1,4)	0,01
Appearance	4,8 (1,4)	5,8 (1,4)	0,0001



**Figure 4.** The burger on the left is the industrially produced burger prepared at School A. The burger on the right side is the homemade burger made at School B.



At School A the opinions about the burger were mostly positive although some of the students were reluctant.

*“I thought it was very good. I think it's strange that it can taste the way it does, considering it's plant-based. It actually tasted meat-ish. So I was a bit like; what is this made of?»*

Frida (Omnivore) School A

*“I actually disagree completely. I don't think it tasted anything. It just tasted of some spices. I don't think it tasted like meat at all. And I think meat is much better.”*

Rita (Omnivore) School A

#### 4.2.3 Students' experience with being served sustainable school meals

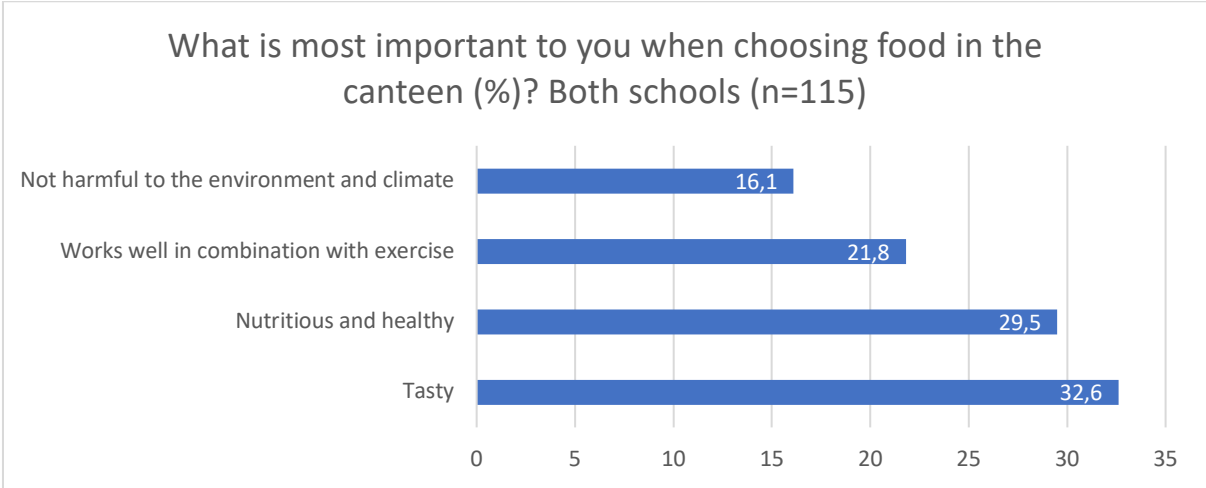
Table 5 displays the mean score of student's satisfaction with the school's food serving on a 5-point scale (from 1-5). At School A, the students report a mean score of 4 out of 5, while at School B the students report a mean score of 4,8 out of 5. The t-test shows a significant difference between the two schools. At School A, the students rated the school's influence on the expansion of what they like to eat at an average of 3 out of 5, whereas at School B the students rated the influence at an average of 3,8 out of 5. The t-test shows a significant difference between the two schools. 10% of students at School A reported that the school's sustainability-focused food service played a role in their decision to apply. At School B, the same was true for 44% of the students. At School A, 68% percent of the students like the school's meat-free days, whereas 95% of the students at School B report the same.

**Table 5.** Student satisfaction and the school's food service.

	School A (n = 50)	School B (n = 65)	p-value (T-test)
To what extent are you satisfied with the food service at school? <sup>1</sup> Mean (SD)	4 (0,8)	4,8 (0,4)	<b>0,0001</b>
To what extent has the school's food service expanded what you like to eat? <sup>1</sup> Mean (SD)	3 (1,0)	3,8 (0,8)	<b>0,0001</b>
Did the school's food service with a focus on sustainability influence your decision to apply to this particular school? (%)			
Yes	10	44	
No	90	56	
Do you like meat-free days at school? (%)			
Yes	68	95	
No	16	2	
Don't know	16	3	

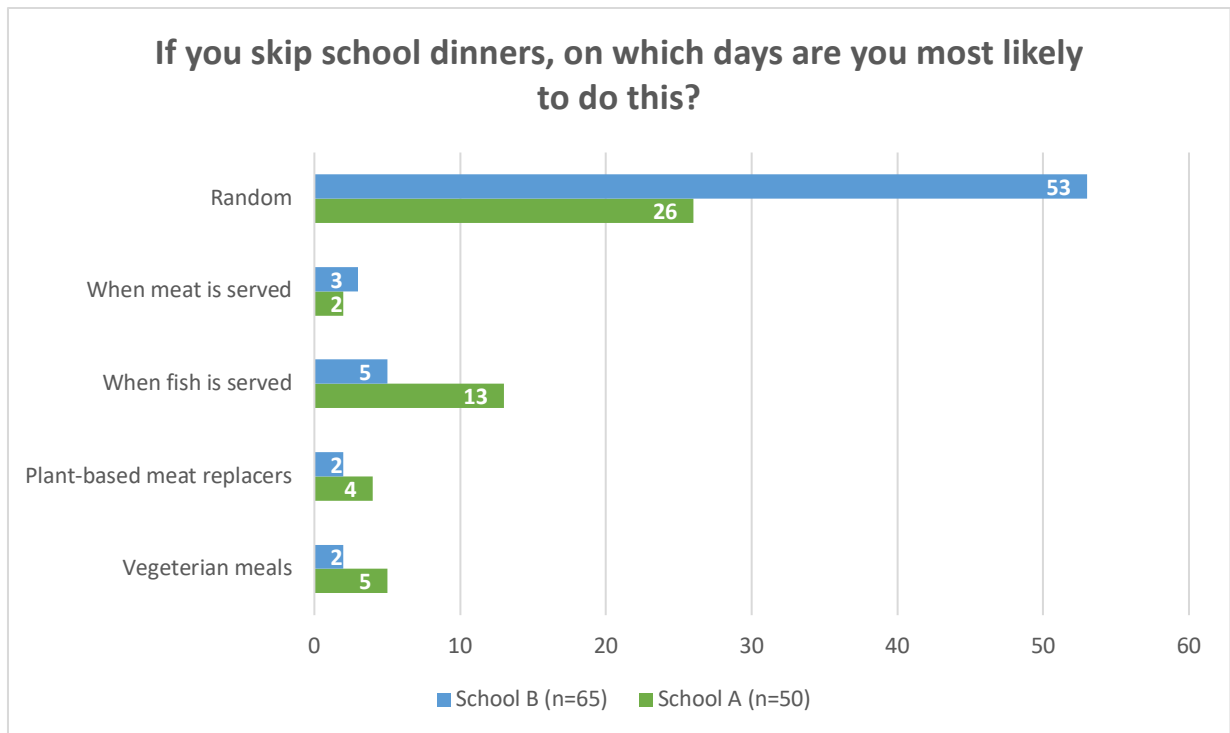
<sup>1</sup> Scale 1 to a very small extent – 5 to a very large extent

Figure 5 shows the percentage results of how the students rated the most important factors when choosing food in the canteen. Given that there were no significant differences in the separate results of the two schools, the results are merged in this figure. The majority of students rate taste as the most important aspect when choosing food (32.6%) while the least important factor among students is the food's environmental impact (16.1%).



**Figure 5.** Percentage representation of students' rating of the importance of different factors that influence food choices. Both schools combined.

In the questionnaire, the students were asked to report approximately how many days a week/month they eat outside of school. At School A, 56% reported never or rarely eating outside the school's canteen and 32% of the students reported eating outside of school 1-2 times per month. For School B 94% reported never or rarely eating outside of school and 4 % reported eating outside of school 1-2 times per month. Students at both schools report that the main reason why they would choose to eat outside of school is random (Fig 6). At School A 13% report that the reason would be serving of fish, while at School B 5% report the same.



**Figure 6.** Reasons for eating outside of the school canteen.

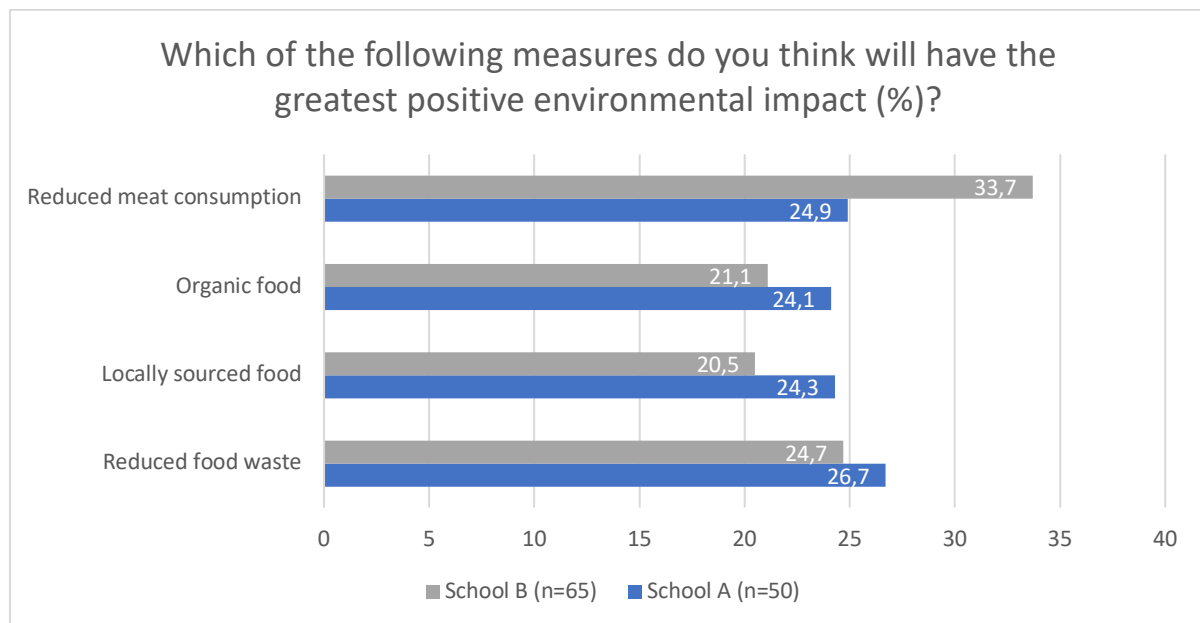
#### 4.2.4 What are the attitudes of students concerning sustainable meal servings?

Table 6 shows an overview of the agreement to different attitudes concerning plant-based meat replacers, animal welfare, meat reduction, and preferences in terms of vegetarian meals and meat servings. There are no significant differences between the students at the two schools concerning the subjects of plant-based meat replacers, whether they try to avoid products made from soy or ultra-processed foods, and whether or not they are concerned that the animals bred for meat production have had a good life. There are however significant differences concerning the perspectives reflecting the agreement on pro-meat attitudes and pro-vegetarian attitudes. At School A the belief “A dinner tastes best when it's with meat” receives an average rating of 4,5 out of 7, whereas School B records an average score of 3,1 out of 7 for the same attitude. The belief “Cooking vegetarian dinners is easy” is rated 4,5 out of 7 at School A, while School B rates the same attitude with an average of 5,4 out of 7.

**Table 6.** Overview of agreement on different attitudes regarding plant-based meat replacers, animal welfare, meat reduction, and preferences in terms of vegetarian and meat servings rated on a 7-point scale (1 strongly disagree – 7 strongly agree).

How much do you agree or disagree with the following statements?	School A Mean (SD)	School B Mean (SD)	(T-test) p-value	Both Schools Mean (SD)
I try to avoid eating vegetarian food that is ultra-processed.	4,2 (1,5)	4,5 (1,4)	0,33	4,3 (1,4)
I try to avoid eating vegetarian food made from soy	3,5 (1,2)	3,5 (1,6)	0,99	3,5 (1,4)
I am more positive about buying vegetarian food made in Norway than abroad.	4,8 (1,4)	5,2 (1,3)	0,09	5,0 (1,4)
I am more positive about buying vegetarian food made with Norwegian rather than imported ingredients.	4,9 (1,6)	5,4 (1,5)	0,11	5,2 (1,5)
Vegetarian burgers and other vegetarian foods that mimic meat are sustainable.	5,9 (1,3)	4,9 (1,4)	0,76	4,9 (1,3)
Vegetarian burgers and other vegetarian foods that mimic meat are healthy.	4,8 (1,3)	4,5 (1,4)	0,25	4,6 (1,4)
Vegetarian burgers and other vegetarian foods that mimic meat make it easier for me to reduce my meat consumption.	4,4 (2,0) 4,3 (1,6)	4,6 (1,9) 4,5 (1,4)	0,57 0,89	4,6 (1,9) 4,4 (1,5)
I am concerned that the animals bred for meat production have had a good life.	5,9 (1,3)	6 (1,3)	0,59	6,0 (1,3)
Reducing meat intake can help fight climate change.	5,5 (1,7)	6,5 (0,8)	<b>&lt;0,0001</b>	6,1 (1,4)
A dinner tastes best when it's with meat	4,5 (2,0)	3,1 (1,9)	<b>&lt;0,0001</b>	3,7 (2,1)
I don't get really full of a dinner without meat.	3,2 (1,9)	2 (1,6)	<b>&lt;0,0001</b>	2,5 (1,9)
It is impossible for those who exercise a lot to meet their protein needs without eating meat.	3,3 (1,6)	2,1 (1,6)	<b>&lt;0,0001</b>	2,7 (1,7)
Cooking vegetarian dinners is easy	4,5 (1,5)	5,4 (1,4)	<b>0,003</b>	5,0 (1,5)
It's easy to make meat dinners	5,8 (1,2)	5,2 (1,6)	<b>0,05</b>	5,5 (1,4)

Figure 7 presents the sustainability measures that students at the different schools believe will have the most significant positive environmental impact when it comes to food serving. At School A, the measure deemed most important is the reduction of food waste (26,7%), while School B rates the reduction of meat consumption as the measure with the greatest positive environmental impact (33,7%).

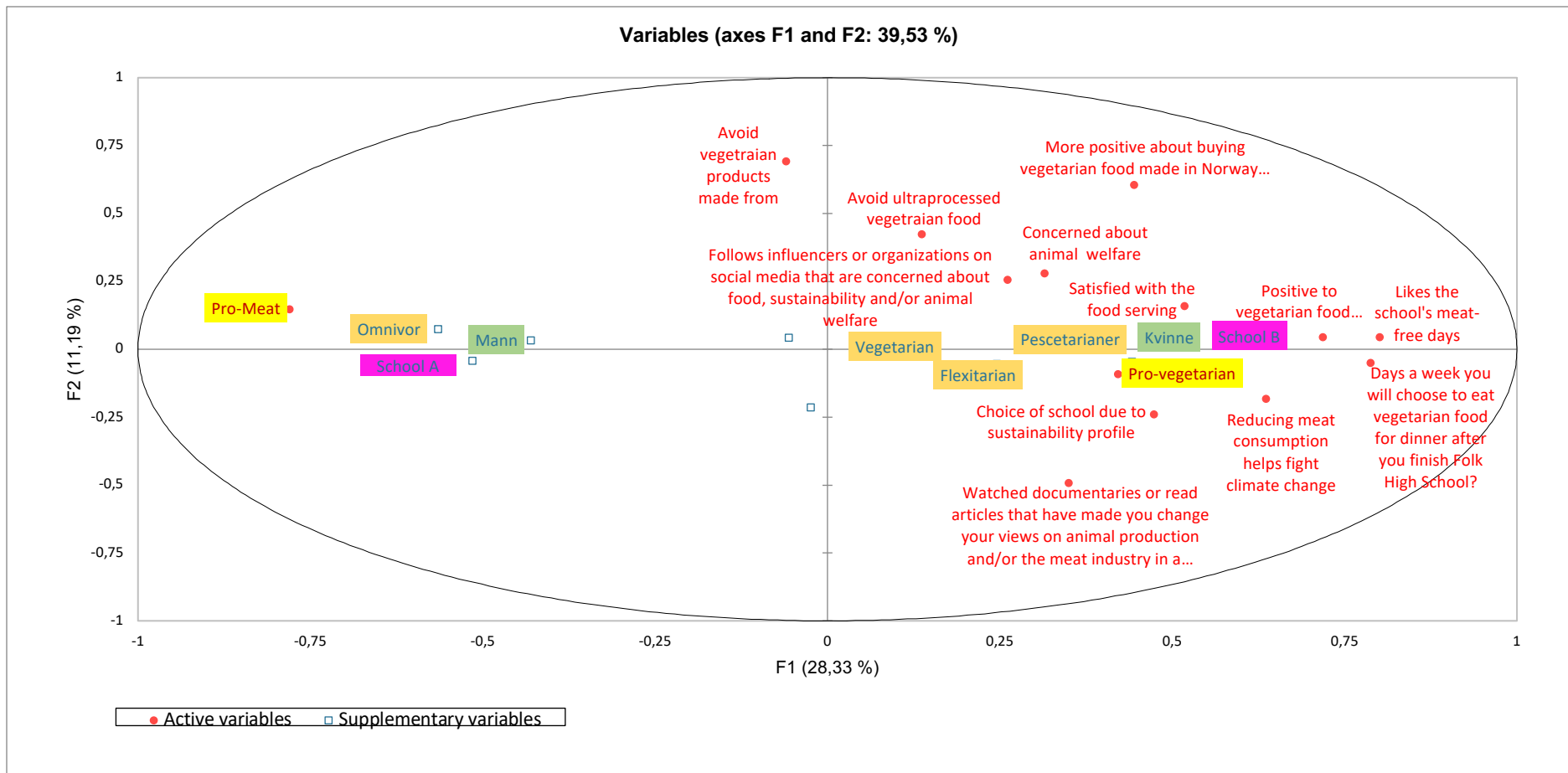


**Figure 7.** The graph displays what the students at the two schools think have the greatest positive environmental impact among the measures: reduction of meat consumption, increased production and consumption of local food, increased production and consumption of organic food, and the reduction of food waste.

The questionnaire included queries regarding students' attitudes toward sustainable diets, meat consumption, and plant-based replacement products. The PCA plot (Figure 8) shows how different attitudes correlate with each other and with sex, diet, and school. Factor 1 (28,3% explained variance) is driven by a positive attitude toward meat-free days and an intention to eat vegetarian food after finishing Folk High School. This is positively correlated with pro-vegetarian attitudes and negatively with pro-meat attitudes. Factor 2 (11,2% explained variance) is driven by negative attitudes to foods containing soy and ultra-processed foods, and positive attitudes toward buying food made in Norway. None of the attitudes are fully explained with only two principal components. This indicates that these beliefs cover multidimensional aspects.

The variables omnivore, male, School A, and pro-meat are strongly correlated. This reflects the fact that at School A, 46% of the respondents are male and 76% omnivores, while at School B 23% of the respondents are male and 54% omnivores.

All the remaining attitudes and variables were to a greater or lesser extent negatively correlated with the variables already mentioned. Being a female, attending School B, and being a pescetarian are also correlated with pro-vegetarian attitudes and other attitudes, including concern about animal welfare and satisfaction with the school serving.



**Figure 8.** The PCA plot shows how different variables are positively, negatively, or not correlated. Factor 1 explains 28,3% of the variance in the data set, while Factor 2 explains 11,2 % of the variance (total 39,5 %). The variable “pro-meat” represents a cluster of attitudes categorized as positive toward meat. These include: “A dinner tastes best when it's with meat”, “I don't get really satiated of a dinner without meat”, “It is impossible for those who exercise a lot to meet their protein needs without eating meat”, and “It's easy to make meat dinners”. The variable Pro-vegetarian represents a grouping of different attitudes that include “Vegetarian burgers and other vegetarian foods that mimic meat are sustainable”, “Vegetarian burgers and other vegetarian foods that mimic meat are healthy”, “Vegetarian burgers and other vegetarian foods that mimic meat make it easier for me to reduce my meat consumption”, and “Cooking vegetarian dinners is easy”.

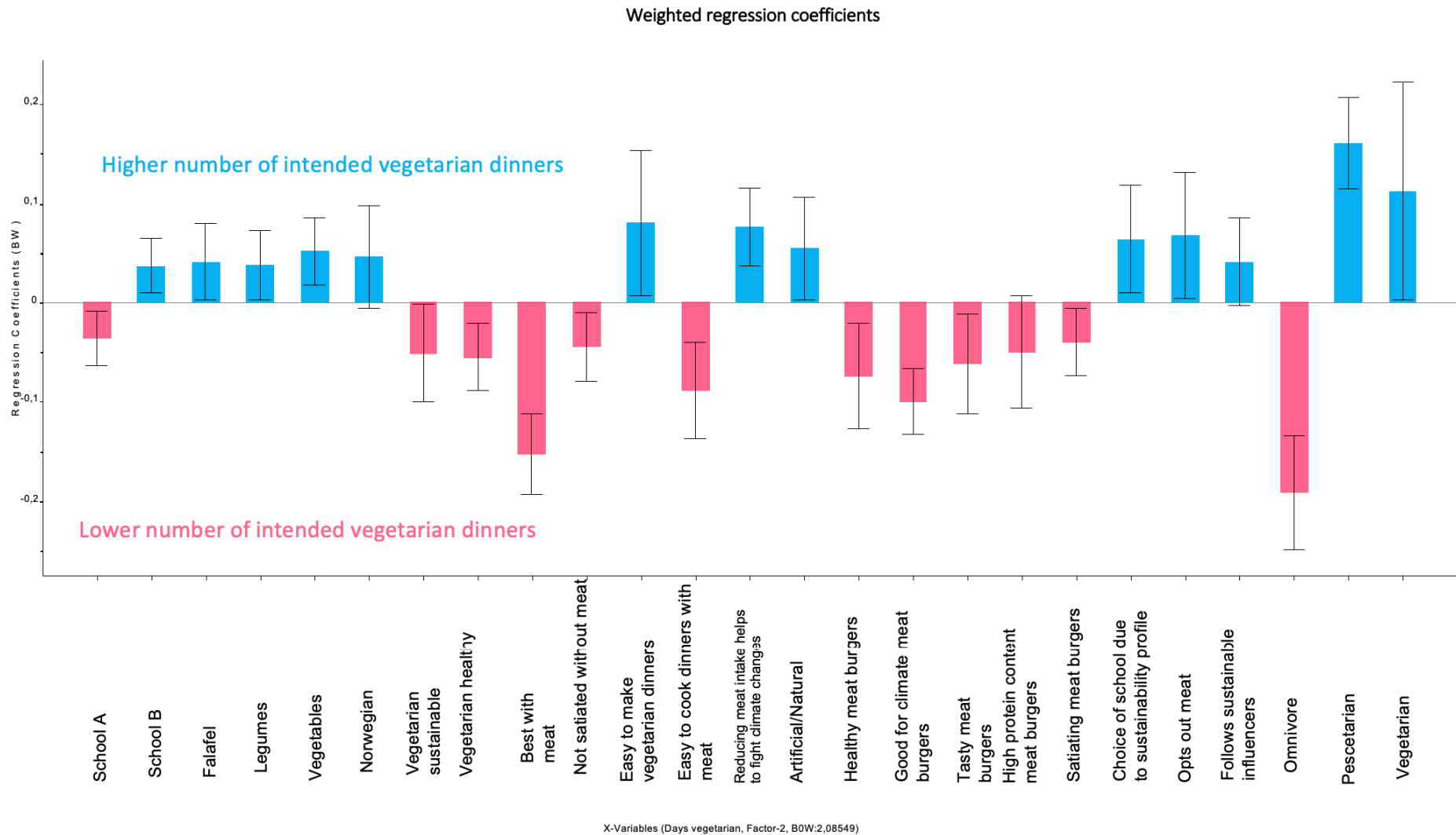
#### 4.2.5 PLSR - Days of intended vegetarian meals after the year at the Folk High School

Figure 9 shows the results from PLSR aiming at identifying the attitudes that explain the students' intention to eat vegetarian dinners frequently after they finish their Folk High School year. Attending School A is significantly associated with fewer planned vegetarian dinners per week while attending School B is associated with more planned vegetarian dinners. Measuring means for the two schools shows that the students at school A planned on having meat-free dinners 2,2 days per week, while students from School B planned to have vegetarian dinners 4 out of 7 days.

A high liking of falafel, pulses, and vegetables as the main ingredients in a dinner is positively correlated with more vegetarian dinners during the week. The two attitudes "Vegetarian burgers and other vegetarian foods that mimic meat are sustainable" and "Vegetarian burgers and other vegetarian foods that mimic meat are healthy" are correlated with fewer vegetarian dinners. This is also the case for the attitudes "A dinner tastes best when it's with meat", "I don't get really full of a dinner without meat", and describing a meat burger as healthy, good for the climate, tasteful, high in protein content, and satiating.

High agreement with statements "Cooking vegetarian dinners is easy" and "Reducing meat intake can help fight climate change" were positively correlated with higher numbers of planned vegetarian dinners, together with high ratings on the question "Did the school's food service with a focus on sustainability influence your decision to apply to this particular school?". At School A, 10% reported that the school's food service with a focus on sustainability influenced their decision to apply to the school while at School B 44% reported the same.

For the diets, the omnivores were significantly associated with fewer intended vegetarian dinners while the pescetarians and the vegetarians were associated with higher numbers of intended vegetarian dinner



**Figure 9.** The plot shows weighted regression coefficients from the PLS regression analysis, with the attitudes underlying the ranking of how many days a week the students see themselves eating vegetarian food for dinner after finishing Folk High School. Blue bars represent attitudes that were found to be significant ( $p < 0.05$ ) for those who ranked the number of vegetarian days per week highly, the gray bars represent attitudes/variables that were close to, but not quite significant ( $p > 0.05$ ).



#### 4.2.6 Attitudes on different components playing the main part in a vegetarian meal serving

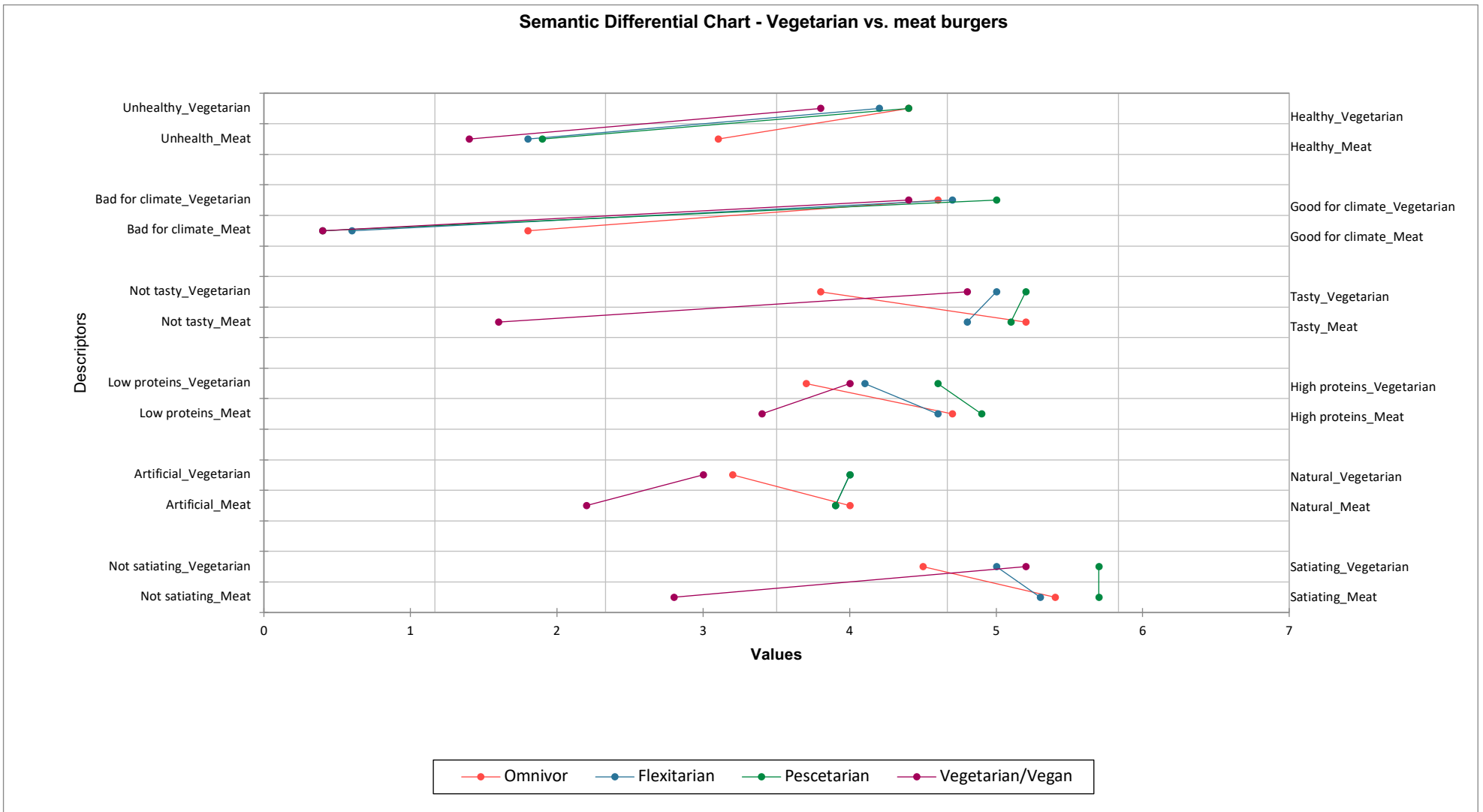
The students reported liking of different vegan/vegetarian produce as the main ingredient of dinner serving on a 7-point scale (Table 7). These included vegetarian products from the grocery store that do not imitate meat and those that do, in addition to legumes and vegetables. There were significant differences, between School A and B, in the liking of all categories except for “Vegetarian products from the grocery store that imitate meat”. The biggest difference is seen in the comparison between the liking of “Dinner where the main ingredient is vegetables”. At School A, the average liking is rated at 4,6, while at School B rated the same liking at 6,0.

**Table 7.** Rating of different vegetarian/vegan products as the main ingredient of a meal on a 7-point (1 do not like at all – 7 like very much) scale. A t-test showcases significant differences between the results from the two schools (p <0,05).

How much do you like the following?	School A Scale 1-7 Mean (SD) (n = 50)	School B Scale 1-7 Mean (SD) (n = 65)	p-value T-test	Both Schools Scale 1-7 Mean (SD) (N = 115)
Vegetarian products from the grocery store that do not imitate meat (e.g., falafel, beetroot burger).	4,6 (1,6)	5,7 (1,4)	<b>&lt;0,0001</b>	5,2 (1,6)
Vegetarian products from the grocery store that imitate meat (e.g., vegetarian burgers, vegetarian sausages, vegetarian minced meat).	4,1 (1,3)	4,5 (1,4)	0,868	4,1 (1,4)
Dinner where the main ingredient is legumes (e.g., beans, lentils, peas)	4,4 (1,8)	5,2 (1,6)	<b>0,013</b>	4,9 (1,7)
Dinner where the main ingredient is vegetables	4,6 (1,5)	6,0 (1,2)	<b>0,0001</b>	5,4 (1,5)

The Semantic differential Chart (figure 10) presents a comparison of the student's attitudes on meat burgers versus vegetarian burgers through a series of scales ranging from one extreme to the other. The students are divided into groups according to which diet they adhere to. The first scale indicates that the group vegetarian/vegan perceives both meat burgers and vegetarian burgers as the least healthy, compared to other dietary groups. The same group categorizes vegetarian burgers as least good for the climate and most artificial compared to

the other groups. The scale bad for climate/good for climate showcases the largest variation between the meat burger and vegetarian burger in terms of scores from all the groups combined. With the exception of omnivores, all groups rated the vegetarian burger as more natural than the meat burger. The pescatarians are the group scoring the vegetarian burger as the most satiating.



**Figure 10:** Comparing opposite attitudes among omnivores, flexitarians, pescatarians, and vegetarians/vegans on vegetarian burgers and meat burgers

## 5. Discussion

The primary aim of this master's thesis was to explore the experiences of students and school leadership regarding sustainable meal offerings at Norwegian Folk High Schools.

Based on the results, it appears that the two schools define sustainable diets similarly but prioritize different approaches. This seems to have an effect on the student's perceptions of the most impactful ways to promote environmental sustainability. Findings also indicate that the attitudes of Folk High School students towards food are partly shaped by their exposure to sustainable meal servings at the canteen. Especially the emphasis on plant-based meals gives the students new perspectives on sustainable eating further in life. The results propose that making sustainable food choices can help the schools cut costs.

In this chapter, the findings will be examined and interpreted and, where relevant, viewed in light of previous studies and existing literature, while also exploring the limitations of the methodology employed.

### 5.1 How do sustainable meal servings affect Folk High School students?

At school B, a student holds the belief that the timing of the year at the Folk High School - implying the period after finishing high school and before beginning further studies - is opportune for gaining new knowledge that could have a lasting impact on future dietary choices. This is in line with Oostindjer et al. (2017), who find that school meals have the potential to function as an inclusive educational platform to promote healthy and sustainable food behavior.

In the focus group interviews, both schools' students expressed their intent to adopt healthier eating habits, particularly by adding more fruits and vegetables to their diet, and reducing or completely eliminating their meat consumption, based on what they learned during their year at the Folk High School. Many of the students were however conscious of their food choices prior to the year at the Folk High School. In the questionnaire, 40% of the students at School B reported that the school's food service with a focus on sustainability influenced their decision to apply to the school (Table 5). This suggests that almost half of them were concerned about food and sustainability prior to enrollment. Moreover, the influence and inspiration of their peers could strengthen the students' pre-existing beliefs and attitudes, further reinforcing their convictions. Findings from a study conducted by Morren

and co-workers (2021) indicate that participants' pre-existing knowledge about sustainable or healthy eating is linked to the sustainability of their dietary decisions.

At School A 10% reported that the school's food service with a focus on sustainability influence their decision to apply to the school (Table 5). The dissimilarity between the student groups of the two institutions could indicate that students at School B possessed a higher level of environmental consciousness compared to those at School A prior to enrollment. It could also be that the students at School A were just as environmentally conscious, but the sustainability profile of the school did not play a significant role in their decision to choose the school. Comparing the school's websites, School B has a more explicit sustainability profile, with a dedicated focus on their sustainable practices on their homepage. In contrast, School A's sustainability measures are located in a separate tab on their website. The headmaster of School A stated that they purposely avoided excessive emphasis on sustainability to prevent greenwashing. This approach may have resulted in students being less informed about the school's commitment to sustainability before they started.

One could argue that although some students were already mindful of their food choices prior to beginning their year at the Folk High School, their experiences there further heightened their awareness. When asked to rate, using a 5-point scale, to what extent the school's food service had expanded their food preferences, the results showed that School A had a mean score of 3, while School B had a significantly higher mean score of 3.8 (Table 5). This indicates that the student's preferences to some degree were broadened as a result of the school's food servings.

The PLSR regression analysis shows the attitudes underlying high ranking of intended vegetarian dinners per week after finishing Folk High School (Figure 9). While attending School B was positively linked to high amounts of planned vegetarian dinners per week, attending School A was negatively correlated. Looking closer at the data, the average amount of days the students at School B plan to make vegetarian dinners during a week is 4,1, whereas at School A the mean number of days is 2,2. These results further highlight the differences between the two student groups and suggest that students at School B may have a stronger inclination towards vegetarianism than those at School A. The possible reasons behind this will be presented and discussed throughout the following sections.

## 5.2 Staff and students' definition of a sustainable diet

During the discussions on sustainable diets, both schools presented similar summaries of the factors they considered important for serving sustainable meals. These included making meals from scratch, minimizing food waste, utilizing locally sourced ingredients, offering meat-free options, and exposing students to a diverse array of dishes. However, where they chose to focus their attention differed. While School A emphasized the importance of reducing food waste through a system that weighed the food and displayed the results on a board in a common area, School B prioritized providing plant-based meals and consistently offering a vegetarian alternative to their students.

According to research by Guthrie and Buzby (2002) and Smith and Cunningham-Sabo (2014), a significant amount of food served in school meals goes to waste, representing around 12% of all calories on the plate. This raises concerns about the consistency of school meals in promoting sustainability. To address this problem and raise awareness, weighing food waste could be a useful measure. Increasing student consciousness through the displaying of the amount of food wasted on a board is in line with previous research conducted at a university canteen in Germany where 86% of the participants who remembered seeing a food waste reduction poster exhibited no leftovers on their plates (Lorenz-Walther et al., 2019).

In Figure 7, results from the questionnaire show that students from School A deem reduction of food waste as having the greatest positive environmental impact (26,7%). This could be attributed to the Folk High Schools' emphasis on the issue, and the results are in line with Austgulen and colleagues' findings from 2018, where Norwegian consumers rated the reduction of food waste as the most important environmentally beneficial measure, before meat reduction and consumption of local and organic food. Gould and colleagues (2016) and Siegrist and colleagues (2015) report that a large number of consumers find waste-related practices appealing. Thomas and Sharp (2013) point out that the effectiveness of information campaigns and the availability of garbage sorting facilities might have led to positive attitudes towards these practices.

The results also show that 33,7% of the students at School B deem the reduction of meat consumption as the factor having the greatest positive environmental impact. This could be attributed to exposure and increased awareness of meat-free options through School B's food serving. The students' rating of the reduction of meat consumption as having the most positive impact on climate contradicts Austgulen's findings, which show that Norwegian consumers consider foregoing meat as the least environmentally beneficial measure. The 2017

report by "Folkehøgskolene" and "Framtiden I våre hender" underscores the crucial role of Folk High Schools in educating students about the nutritional benefits of vegetarian food, emphasizing that it can be both tasty and healthy and that there are many alternative sources of protein beyond meat. The consumption of meat has been identified as a significant contributor to climate change (Clicerì et al., 2018; Jalil et al., 2020; Willett et al., 2019). Hence, altering diets by cutting down on the consumption of animal-based products may be a key approach to lessening the effects of the food supply chain on the environment while simultaneously improving health.

Although there is no agreement on which action has a more significant environmental impact between reducing food waste and decreasing meat consumption, it is, however, interesting to see that what the schools choose to emphasize is what their students deem as most important.

The students, headmasters, and head chefs share many common attitudes when it comes to defining a sustainable diet. These factors include reducing meat consumption, which is motivated by both climate and financial considerations, consuming locally sourced and organic food, and following seasonal food patterns. In addition, the students emphasized the importance of having a healthy relationship with food, which allows for occasional indulgences, such as meat burgers. Some of the students emphasized avoiding restrictions in their diet, as a measure of sustainability. This last point may be related to Austgulen and colleagues' (2018) findings that some Norwegian consumers resist the idea that they have a responsibility to reduce meat consumption as a sustainability measure.

Some of the students were uncertain when asked to choose the more sustainable option between carrots imported from the Netherlands and lamb meat sourced from a local farm, emphasizing the importance of supporting the local farmer and preserving the cultural landscape. Purchasing seasonal and locally sourced products has emerged as a widely accepted food-related measure to mitigate climate change, potentially due to its connection to reducing carbon emissions from transport (de Boer et al., 2016; Hoolohan et al., 2013; Whitmarsh et al., 2011). However, the majority of food-related emissions stem from food production rather than transportation, underscoring the significance of consuming low-emission food types like plant-based options rather than locally sourced items (Poore & Nemecek, 2018). In addition to environmental concerns, opting for locally sourced food can stem from a desire to back local food producers and promote regional employment opportunities (Seyfang, 2006; Weatherell et al., 2003).

### 5.2.1 Communicating sustainability

Both Schools have a green profile. School A is particularly focused on avoiding exaggeration and not overselling the concept on the school's website, instead prioritizing the introduction of their practices to students once they have enrolled. School B, which offers an abundance of vegetarian meals, takes care not to excessively emphasize its sustainable choices or create a sense of guilt among the students who consume meat. Some of the students at School B commend the school for making them more conscious of matters concerning sustainability while not instilling any sense of shame. The 2017 reports from "Folkehøgskolene" and "Framtiden I våre hender" indicate that students who were educated about the reasoning behind meat-free days at their respective Folk High Schools were more engaged and felt a greater sense of ownership towards the implemented practice.

Several students at Schools A and B, believe that obtaining more knowledge and understanding the impact of their food choices are crucial to shifting towards sustainable eating habits. According to a 2018 intervention study conducted by Amiot et al., (2018) participants reported that the informational component of the intervention was the most effective measure for reducing their meat consumption. This finding suggests the potential positive impacts of being more vocal about the sustainability practices within the school's food service and highlighting the environmental benefits that accompany them to their students.

### 5.2.2 Economy

Chefs at both schools see financial benefits in taking sustainability measures. This is in line with findings from the 2017 report by "Folkehøgskolene" and "Framtiden I våre hender" where the implementation of sustainable food practices in participating Folk High Schools led to positive economic outcomes.

To promote both sustainability and economic efficiency, School A had established an arrangement with a nearby farmer to collect any excess potatoes and carrots that would have otherwise been utilized as animal feed. In the US, farm-to-school initiatives have been found to enhance the reduction of food waste, decrease the transportation of food products, and provide greater economic stability for local farmers while improving the overall sustainability of communities.(Bagdonis et al., 2009; Oostindjer et al., 2017; Rojas et al., 2011; Vallianatos et al., 2004).



At School B the head Chef states that vegetables and pulses are the cheapest things you can purchase and this the ingredients that are most frequently used. Both schools want to show their students that tasty food does not need to be expensive. The headmaster at school A does however note that healthy food is known to be more expensive suggesting that there might be some confusion related to what categories of food that are the most costly.

A considerable number of students state that they will be opting for vegetarian food in the future, due to the financial motivation brought about by the high cost of meat.

### 5.3 Attitudes to vegetarian meals

One of the biggest differences in the schools' food service is the number of vegetarian options available. The headmaster of School B emphasized that introducing students to a vegetarian diet is a crucial aspect of the school's mission. Throughout the focus group interviews the students from School B continually express their enthusiasm for the meal serving, commending the school for always offering a vegetarian alternative. In the questionnaire, 95% stated that they like the school's meat-free days (Table 2).

At school A the students were a bit more reluctant when describing the vegetarian alternatives and many felt like there was some room for improvement. Results from the questionnaire show that 68% reported that they like the school's meat-free days (Table 2).

At School A 76% of the students adhered to an omnivorous diet, while at School B 54% reported the same (Table 3). Previous studies find that vegetarians and flexitarians are more likely to link positive emotions with meat-free dishes compared to Omnivores, thus aligning with their stated eating habits (Clicerri et al., 2018). This might be part of the explanation as to why a higher percentage of the students at School B appreciate meat-free days.

The correlations between attitudes toward sustainable meal servings, gender, diet, and school are visualized through the PCA plot (Figure 8). The statements including pro-vegetarian attitudes, being a vegetarian, pescetarian, or flexitarian, and being concerned with animal welfare are correlated with attending School B. These variables are also correlated with being female. There are certain demographic groups that are more attracted to vegan/vegetarian diets than others, but the most notable difference is observed between genders (Modlinska et al., 2020) When it comes to plant-based products and meat consumption, men and women exhibit contrasting preferences and attitudes (ibid). In School B, the proportion of female respondents was 77%, whereas in School A, it was 50%. This

could be part of the explanation as to why attending school B is correlated to pro-vegetarian attitudes.

Another example of differences between the schools' students when it comes to vegetarian meal serving is shown in Table 7 where the participants are asked to rate the degree of liking of pulses and vegetables as the main protein source in a dish. School A's students rated the two categories at 4.4 (1.8) and 4.6 (1.5) respectively, whereas School B's students rated them significantly higher at 5.2 (1.6) and 6.0 (1.2) respectively. According to the chef at School B, legumes and vegetables like potatoes and carrots are the most frequently served items in the school's canteen. Given that students rate the school's food service 4.8 out of 5, it makes sense that they have also acquired a positive attitude toward these products.

The level of satisfaction among students at School B with the canteen's meal service could significantly influence their appreciation of vegetarian food, given that this is a common offering. The headmaster noted that School B's food service had received one of the highest scores in the country in a national survey that assessed various aspects of life at Norwegian Folk High Schools. The findings of this thesis indicate that being exposed to certain food, when prepared the right way, increases the liking of these dishes. Here, the cooking skills of the chefs could be a factor playing an important role. In their report, Austgulen and colleagues (2018) point out that Norwegian consumers might be reluctant to change their eating patterns because of climate motivations. Van Oort et al. (2021) suggest that highlighting good flavors and enjoyment of food rather than focusing on concepts like "meat-free days" could be effective in the promotion of more sustainable food practices. Maybe serving tasty food is the best way to change dietary attitudes. This aligns with earlier research demonstrating that young adults are greatly influenced by taste when determining what they like to eat. (Boek et al., 2012; Deshpande et al., 2009; Shannon et al., 2002).

### 5.3.1 Are nutritional needs met on a vegetarian/vegan diet?

It is established that a well-balanced, plant-based diet will provide adequate amounts of essential amino acids and provide vegans and vegetarians with sufficient amounts of proteins (Tuso et al., 2013; Young & Pellett, 1994). However, during the focus group interviews, it came to light that several students from School A were uncertain whether a vegetarian diet could sufficiently meet their body's protein requirements. As part of the survey, students were asked to indicate their level of agreement with the statement "Individuals who exercise regularly cannot meet their protein requirements without consuming meat". The results show that in both schools most students disagreed with the statement. However, 10% of the students

at School A rated a high level of agreement while 5% of the student at School B did the same. Insufficient knowledge of plant-based diets and the polarized media discussions may be why many students are uncertain about the health aspects of plant-based diets (Michielsen & van der Horst, 2022; Sievert et al., 2022). Nevertheless, several studies have demonstrated that it is possible to fulfill one's nutritional needs without consuming meat (Eshel et al., 2019; Grant, 2017) In 2022, Arnaudova et al. (2022) conducted a study that revealed that certain consumers struggle to shift their ingrained viewpoint that meat is crucial for maintaining good health and that vegetarian diets lack essential nutrients. The findings of this thesis imply that there remains some uncertainty regarding the ability of meat-free diets to provide adequate amounts of essential nutrients. To remove this confusion, further information is required.

### 5.3.2 Do you feel full or satisfied after eating a meat-free meal?

At School A, a number of students reported feeling less full or satisfied after consuming a vegetarian dinner compared to a meat-containing meal. A girl at school B tried a vegan-only diet from the school canteen but found that when her main protein source was vegetables like cauliflower, she didn't feel full and returned to eating meat. There is no agreement regarding the varying impacts of animal and plant-based proteins on one's appetite (Nielsen et al., 2018). In Denmark, Nielsen et al., (2018) compared protein-rich meals with fava beans, pork/veal, or eggs, all with the same caloric and protein content (19%). Hunger, satiety, fullness, prospective food consumption, and appetite score were not significantly different (all  $p > 0.05$ ). Results suggest that matching calorie content can achieve satiety regardless of the protein source (Nielsen et al., 2018). Vegetables like cauliflower do however have much less caloric density than for example pork (SouperSage, n.d), and for vegans that also exclude cheese and egg from their diet, it is important to include satiating protein sources like beans and potatoes during a meal.

Based on the survey results, students from both schools generally do not agree with the statement "I don't feel fully satisfied after a dinner without meat." On a 7-point scale, School A rated their level of agreement at 3.2 (1.9), while School B had significantly lower results, with a score of 2 (1.6). This indicates that the majority of the students experience satiety after consuming a vegetarian meal.

At School A, the students express a greater level of agreement when asked to rate the statement "A meal tastes better with meat." The level of agreement towards this attitude was rated at 4.5 (2.0) out of 7, which aligns with the opinions expressed in the focus group

interviews, where many of the students conveyed their preference for meat-based meals. The average score at School B was 3.1 (1.9) out of 7, which could reflect the students' positive experiences with vegetarian meals offered at their Folk High School.

#### 5.4 Food choices

When asked to report what most influenced their food choices, students at both schools rated taste as the most important factor when choosing food in the canteen (32,6%) (Figure 5). As mentioned earlier, findings from previous studies indicate that taste is a factor that greatly affects the food preferences of young adults (Boek et al., 2012; Deshpande et al., 2009; Shannon et al., 2002).

The category “Not harmful to the environment or climate” was rated the least important factor when choosing food in the canteen (16,1%) In their study from 2018 Austgulen and colleagues report that Norwegian consumers had an inadequate understanding of the environmental effects of their food choices, but were focused on healthy eating, cooking from scratch, limiting processed foods, and eating tasty meals. According to Wyker and Davison (2010), people who are aware of the environmental benefits of eating less meat have better control when carrying out this behavior than those who still contemplate it (Wyker & Davison, 2010). Providing consumers with information regarding the average impacts of products can facilitate changes in dietary habits and ought to be encouraged (Poore & Nemecek, 2018).

##### 5.4.1 Barriers to making sustainable food choices

While students express that information about the environmental benefits of sustainable food choices and exposure to sustainable meal practices can encourage adherence to a more sustainable diet, they also recognize that not everyone is naturally receptive or curious about this type of lifestyle change. A student at School A shared his attempt to encourage his father to try vegetarian cuisine, having been introduced to this at the Folk High School. However, he faced a challenge in convincing his father, as he had not been exposed to meatless meals in the same way. Recent studies have shown that interventions aimed at reducing meat consumption have led to a certain extent of heightened consumer consciousness and changes in dietary patterns (Jalil et al., 2020; Lacroix & Gifford, 2020; Morren et al., 2021). However, in their study from 2022, Knaapila and colleagues found that despite being an adaptable group, some students who were living with their parents did not decrease their meat

consumption. The researchers suggest that tradition plays a role in their decision-making process (Knaapila et al., 2022)

#### 5.4.2 Preparing vegetarian dinners

Not knowing how to prepare dinners without using meat, is also pointed out as something that could be a hindrance when transitioning into a plant-based diet. According to Morren et al. (2021), having procedural knowledge about how to prepare a healthy meal has the highest potential for affecting dietary behavior, especially among individuals who haven't previously reported any dietary restrictions. Figure 5 demonstrates a statistical difference between the students from the two schools regarding their ratings of the statement "Cooking vegetarian dinners is easy" on a 7-point scale. Students from School A rated the statement with an average of 4.54 (SD=1.5), while those from School B gave an average rating of 5.4 (SD=1.4). This suggests that exposure to vegetarian meals may have contributed to the students' confidence in preparing such dishes, particularly at School B, where vegetarian cuisine is served most frequently. As mentioned earlier, there is also a higher proportion of females and students adhering to a meat-free diet at School B, which could also explain the observed results.

Some of the students point out that some social stigma is attached to implying sustainable practices especially related to the choice of excluding or reducing meat. In their paper from 2021 Boer and Aiking propose that a diet shift without broad social legitimation, aimed at changing social norms, will fall short.

### 5.5 Sensory evaluation and attitudes of plant-based burgers

#### 5.5.1 Sensory evaluation of two plant-based burgers

This study included a sensory evaluation of a plant-based burger. Initially, the plan was for students from both schools to try an industrially produced vegan burger made with fava beans from a Norwegian company. School B has a more restrictive approach towards pre-made products, and thus, opted to prepare their vegan burger entirely from scratch. Based on the responses received in the questionnaire, students at School A gave the burger an average rating of 4.6 (SD=1.4) in terms of overall liking, whereas students at School B rated the burger with a mean score of 6.2 (SD=0.9) (p-value = 0,0001) (Table 4). The homemade burger also received statistically higher ratings on all the remaining attributes which included taste, texture, and appearance. However, for the homemade burger, the score was higher for

taste than for texture, whereas, for the industry-made burger, it was the opposite, texture got a higher score than taste. This indicates that the advantage of industrial burgers is their texture, more than their taste.

As the test was conducted on a different sample set of students and with two different products, there are limits to the interpretations that can be made from the results. Regardless, it is interesting to see a homemade burger receive higher ratings, compared to the industrially produced alternative that mimics meat.

#### 5.5.2 Students attitudes on plant-based replacement products

The questionnaire comprised several statements regarding plant-based replacement products, which the students at both schools rated similarly without any significant differences (Table 6). In the focus group interviews, some of the students questioned the need for plant-based meat replacers. Some were unsure whether these products were healthy, but most tended to think they were more sustainable than the animal-based version of the product. Results from the survey show that the attitude “Vegetarian burgers and other vegetarian foods that mimic meat are sustainable.” rated with a high level of agreement at School A (5,9 out of 7) and a relatively high level of agreement from School B (4,9 out of 7). The results of Bryant's (2022) study support the assertion that plant-based analogs are a sustainable choice in contrast to animal products across a range of outcomes, including greenhouse gas emissions, water usage, and land usage (Bryant, 2022).

Compared to other vegetarian produce like plant-based products that don't imitate meat (etc. falafel), pulses, and vegetables, vegetarian products that imitate meat (etc. burgers) receive the lowest scores in terms of liking (4,1 out of 7) (Table 7). After the sensory test of the industrially produced plant-based burger at School A, some of the students revealed that they did not find these products tasty. Rubio and colleagues suggest that for these products to be widely accepted, they must offer consumers more direct advantages, such as improved taste, lower costs, and greater convenience (Rubio et al., 2020). Clicerri and coworkers (2018) emphasize the importance of focusing on sensory properties as well as consumer food consciousness when developing plant-based replacement products with hedonic liking similar to meat. According to Michel et al., (2021), the optimal chance for meat alternatives to replace meat successfully is when they closely mimic the taste and texture of highly processed meat products and are available at competitive prices.

Some students believe that vegetarian foods that resemble meat can help reduce meat consumption. In focus group interviews, it was noted that most people don't stop eating meat

because of its taste but rather due to concerns about the environment and animal welfare. Some of the students believe that having alternatives that don't require learning new cooking methods could be a smart way to start transitioning into a diet containing less meat. This is supported by Michel and colleagues (2021), stating that a shift toward reduced consumption of meat is required and one way to accomplish this is to replace meat with meat alternatives.

### 5.5.3 Attitudes and beliefs toward meat burgers and their plant-based analogue

An interesting finding from the PLS regression analysis (Figure 9) is that the attitudes “vegetarian burgers and other vegetarian foods that mimic meat are sustainable” and “vegetarian burgers and other vegetarian foods that mimic meat are healthy” were negatively correlated with high amounts of planned vegetarian dinners after the year at the Folk High School. The results indicate that the group that planned on eating many vegetarian dinners in the future did not believe that vegetarian burgers were healthy or sustainable. Analyzing these results in the context of the findings from Figure 10 might provide a more holistic picture.

In Figure 10 the students are asked to rate opposites on an 8-point Likert scale. When evaluating different attitudes in relation to a vegetarian burger, the vegans/vegetarians were the ones providing the lowest scores concerning whether or not a vegetarian burger is healthy, good for the climate, and natural. In the focus group interviews, one male vegan and a female former vegan expressed how the variety of dishes in vegetarian and vegan cuisine is so rich that there is no need to imitate meat products. These statements could explain why the attitudes mentioned above, linking burgers imitating meat to health and sustainability, do not correlate with high numbers of planned vegetarian dinners after the year at the Folk High School. Students who intend to cook a large number of vegetarian meals in the future may not plan to use meat analogs due to their perception of these products as unhealthy and unsustainable. In a study from Lacroix & Gifford (2020), the authors suggest that promoting small dietary changes within already-familiar meal formats (i.e., substitution) is a promising approach to more plant-based meals for strong-hindrances meat eaters. Whereas groups that are already reducing meat should just be supported in existing behavior. In a literature review, Eckl and co-workers (2021) found that cooking skills and knowledge about food played important roles when meat was replaced with non-meat protein sources. Participants identifying themselves as skilled in cooking, to a higher degree substituted meat with plant-based proteins such as legumes, lentils, and tofu. Participants less experienced and confident in the kitchen preferred to substitute meat with analogs such as vegetarian burgers and sausages.

## 5.6 Methodological discussion

The timeline of this master's thesis extended from September 2022 to May 2023, initially planned with focus group interviews and one-to-one interviews as data collection methods. However, due to the long timeframe, quantitative methods were incorporated to offer a more comprehensive understanding of the research questions. My personal goal throughout the process was to maximize my learning opportunities. The integration of quantitative data not only enriched the results but also presented opportunities to acquire new skills through the development and distribution of the questionnaire and the subsequent analysis.

The fact that my thesis was part of a larger project provided a substantial advantage in preparing interview guides and questionnaires, as inspiration could be drawn from a previously written master's thesis (Dypdal, 2022) and an already distributed survey. The broader objective of the project had already been established, allowing for the formulation of research questions within an existing framework.

Conducting pilot tests before conducting focus groups and one-to-one interviews gave me a sense of confidence in the role of an interviewer. Although I was initially nervous about interviewing young adults of the particular age group, the students were impressive in their willingness to open up and share their thoughts, motivations, and beliefs. The ability to conduct a good interview is of great matter when it comes to qualitative methods (Dalland, 2012). How well the researcher connects with the interviewees means a lot for yielding results that answer the research questions adequately. It is also important to note that with a different moderator, a different setting, and with different interviewees other data can be produced (Kvale & Brinkmann, 2009).

Conducting interviews with students at a Folk High School presents the benefit of homogeneity, as it allows for the grouping of participants within the session, facilitating the generation of an inclusive dialogue among them (Guerrero & Xicola, 2018). A disadvantage could be that the participants know each other and interact socially. If past discussions have been comparable, their response to the presented issues may also be similar. The diverse focus groups exhibited different dynamics, and the small number of participants in some cases (four), posed limitations in generating dynamic discussions.

To ensure representative results from the qualitative data material the focus group interview was carried out three times at each school. The aim of the repetitions was to ensure higher validity for the results as opposed to just having one interview at each school which could have made the amount of qualitative data somewhat scarce. The optimal number of focus group interviews needed to effectively address the research question(s) depends on



different factors related to the project (Johannessen et al., 2016). The literature exhibits a lack of consensus, with recommended numbers ranging from a minimum of three to five interviews to a maximum of twelve to fifteen. Reaching the point where focus groups cease to generate any additional novel data is typically considered a sign that information saturation has been achieved (Johannessen et al., 2016). In this study, such a point was not reached, and with an extended timeframe, it would have been beneficial to carry out additional interviews.

Only two out of eighty-five Folk High Schools, with a fairly similar profile, were invited to join this project. A larger number of schools or schools with different profiles could have generated a wider variety of views and ultimately yield different results. According to Fabregues and Paré (2013), homogeneity (in this case related to schools with similar profiles), may facilitate a more in-depth description of the phenomenon under study, while heterogeneity may entail a broader perspective regarding the research topic.(Fàbregues et al., 2013; Guerrero & Xicola, 2018). In the case of this task, the aim was to gather experiences from schools with a clear environmental profile that had a long experience in sustainable food service. Homogeneity was therefore desirable.

At School B, 40% of the students reported that their motivation for applying to this particular institution was influenced by the school's sustainability profile. This raises the question of whether their stay at the Folk High School is the predominant factor influencing their attitudes or if preexisting beliefs have a more significant impact on shaping their behaviors with regard to food choices. In this context, it is also important to note that the timing of the data gathering is a disadvantage for the study because it occurred in the middle of November, which was before the students had even reached the halfway point of the academic year. A more appropriate time to evaluate how sustainable meal servings had affected the young adults' dietary habits would have been toward the end of the school year. The data collected may also be susceptible to the influence of the student's awareness that the interview theme revolved around sustainability, potentially prompting them to offer responses that align with what they perceive as fitting in this context.

Qualitative methods such as focus group interviews can serve as a tool when creating a quantitative survey (Malterud, 2012). The interviews can identify key focus points that help in the development of relevant questions for the survey. For this project, the guide for the interviews and the questionnaire were developed at the same time. It was important that the questions to a large extent reflected on each other across the two different methods. To ensure that the subject matter chosen for the two different approaches was as relevant as possible it would perhaps have been better to conduct the focus groups beforehand and use the results

from the qualitative method to develop the quantitative questionnaire. A different strategy would be to start by designing the questionnaire and utilizing the findings to create an interview guide that delves deeply into the "what," "how," or "why" inquiries that may arise from reviewing the quantitative data.

For the sensory evaluation, the original plan was for both schools to serve an industrially produced plant-based burger. The headmasters at each school were positive to this plan. However, due to School B's strong dedication to preparing meals from scratch, the kitchen opted to make their own homemade burger for the evaluation. While this decision was viewed as an interesting example of how different schools set different premises for their food service, serving the same plant-based burger at both schools would have made it easier to compare the results and draw conclusions from the sensory evaluation. In hindsight, this should have been clarified to a greater extent beforehand.

In this thesis multiple topics were addressed, and different methods utilized, something that resulted in a comprehensive and lengthy report. To give a rich description of the data were deemed appropriate due to the lack of prior research conducted at Norwegian Folk High Schools. The approach was intended to provide the reader with the overall most important and predominant insights. A disadvantage to this approach is the possible loss of depth and complexity (Braun & Clarke, 2006).

Each researcher carries their own set of values, expectations, and preconceptions as they embark on a research process (Johannessen et al., 2016). Being conscious of this and making an effort to manage it can prevent one's acquired knowledge and perception of reality from adversely influencing research outcomes by distorting the findings (Saunders et al., 2019). It is vital to engage a larger group of individuals to prevent the findings from being biased and that no significant points are overlooked. During the entirety of the process of writing this thesis, I consulted with my supervisors to discuss the decisions made.

## 6 Conclusion

This thesis aimed to answer *What are the experiences of students, school staff, and leadership concerning sustainable meals at Norwegian Folk High Schools?* This was investigated through both qualitative and quantitative approaches, including focus group interviews, one-to-one interviews, and a digital questionnaire. The results show that the two schools define sustainable diets similarly but prioritize different approaches. School A puts emphasis on minimizing food waste by implementing a weighing system that displays the results on a common area board, while School B focuses on serving plant-based meals and consistently providing vegetarian alternatives. This seems to influence the student's perceptions of the most impactful ways to promote environmental sustainability. The results also indicate that making sustainable diet choices can help schools cut costs. Providing a variety of food options, not highlighting too much the environmental aspects of their food choices, not forcing a belief system, and teaching young adults to think for themselves were important to the schools. Students at both schools rated taste as the most important factor when choosing food in the canteen and the findings indicate that exposure to plant-based foods, when prepared the right way, can enhance one's preference for these dishes. Focusing on providing tasty dishes and the enjoyment of food may be the most effective strategy for promoting positive attitudes toward sustainable diets. In this regard, the culinary abilities of the chefs may play an important role.

The findings indicate that the attitudes of Folk High School students towards food are partly shaped by their exposure to sustainable meal servings at the canteen. Especially the emphasis on plant-based meals gives the students new perspectives on sustainable eating. According to multiple students from both institutions, their attitude towards vegetarian food has become more positive following their attendance at the Folk High School.

Some students express that information is key to altering dietary attitudes, while the schools are concerned about overcommunicating their sustainability measures. Potential future research could investigate the effectiveness of a more vocal approach to sustainable food choices and if young adults are susceptible to information about the reasoning behind environmentally friendly food to increase awareness and to a larger extent change food-related behavior. Folk High Schools that are considering implementing sustainable food practices should ensure that their kitchen staff is not only motivated and committed to moving towards sustainability, but also possess the necessary skills to provide students with food that has a low environmental impact yet is still delicious in flavor.

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## Appendices

### Appendix A

Questionnaire for the recruitment of participants for focus group interviews

## Spørreskjema for rekruttering av deltagere til fokusgruppeintervju

### Vil du delta på gruppeintervju om bærekraftig matservering på Lofoten folkehøgskole?

Dette er et kort spørreskjema for å rekruttere **15 deltagere til tre gruppeintervjuer** om bærekraftig matservering.

Intervjuene inngår i en masteroppgave ved Norges miljø- og biovitenskapelige universitet (NMBU), tilknyttet forskningsprosjektet 'Sustainable Eaters' og er finansiert av Norges forskningsråd. Du og din skole vil bli anonymisert ved rapportering av resultater.

**Det kreves ingen forkunnskap for å delta.** Vi håper på mange forskjellige meninger 😊. Har du lyst er du kvalifisert!

Intervjuene vil foregå på skolen, **(dag, dato) på ulike tidspunkt fra (tidspunkt)** med varighet på ca. 1,5 t. Det vil bli servert boller og kakao under intervjuene.

Obs! I tillegg til intervjuene, vil samtlige elever ved Lofoten fhs bli invitert til å besvare et spørreskjema i tilknytning til samme forskningsstudie. Undersøkelsen vil bli presentert av masterstudent Marie under "Ord for dagen", tirsdag 22. nov. Husk å ta med mobilen eller PC'en den dagen.

**Klikk neste hvis du ønsker å delta i gruppeintervju.**

Hvis du ikke ønsker å delta kan du lukke denne siden nå.

### Demografi

**Alder (for å delta må du være over 18 år):**

**Kjønn**

- Kvinne
- Mann

- Annet

**Skriv din epost nedenfor. Den vil kun brukes til å informere om tid og oppmøtested for intervju:**

**Hvilken linje går du på?**

(Eksempler på linjer):

- Naturfoto
- Analogfoto
- Matverksted
- Fridykking og fiske
- Teater
- E-sport
- Film &TV
- Jakt & Fiske

**Hva definerer du deg som:**

- Jeg er altetende/omnivor
- Jeg er fleksitarianer (reducerer aktivt forbruk av kjøttprodukter)
- Jeg er pescetarianer (spiser ikke kjøtt men fisk)
- Jeg er vegetarianer (spiser ikke kjøttprodukter)
- Jeg spiser vegansk (spiser ikke egg, meieri- eller kjøttprodukter)

**Hva er viktigst for deg når du spiser middag?**

- At maten smaker godt
- At maten er sunn
- At maten fungerer som en del av mitt treningsregime
- Annet

**Takk for at du tok deg tid til å svare på disse spørsmålene!**

- Du vil motta en mail innen fredag 18. oktober dersom du blir plukket ut til å delta i intervjuet.
- I denne mailen vil du få oppgitt tidspunktet for når du skal møte opp og hvor intervjuet holdes.



## Appendix B

### Interview guide - Students

#### Intervjuguide - Elever

Tema og hensikt: formålet med masteroppgaven er å kartlegge hvilke muligheter og utfordringer norske folkehøyskoler har når de legger om til et mer bærekraftig kosthold. Masteroppgaven er en del av prosjektet Sustainable Eaters ved Nofima, og den vil se nærmere på hvordan menyendringene gjennomføres og hvilke erfaringer som blir gjort underveis. Videre vil det bli sett på hvordan elever reagerer på disse endringene.

**Generelt tips: hoved oppfølgingsspørsmålene dine bør være hele veien, nesten hver gang noe blir sagt:**

- «Er det andre som tenker/gjør/erfarer det samme?», eller enda viktigere:
- «Er det andre som tenker/gjør/erfarer dette annerledes?»
- Også: hva vil dere tilføye til dette? (f.eks. etter at førstemann har svart på spørsmål om hva man definerer som et bærekraftig kosthold)
- Eller: Er dere enige i dette, eller har dere andre synspunkter på dette?

Forklare personvern og taushetsplikt, evt. opptak av intervju. Spørre om det er noe uklart eller om noen har spørsmål før man starter.

Ber elevene å signere samtykkeskjema. Skrive navnelapper.

Forklar spillereglene:

- Mobil på lydløs
- Rettigheter: Anonyme, hverken skolen eller navnene deres vil bli brukt.
- Du har rett på tilgang til materialet. Lydopptak, informasjonen skal brukes til masteroppgave.
- Det er lov å trekke seg når som helst om du skulle ønske det.
- Man snakker hver sin tur
- Alle får komme til orde. Alle sine meninger og erfaringer er like relevante og verdifulle
- Samtalen har ikke som hensikt til å komme til enighet på noe. Det er mangfoldet i innspillene, som gir verdi i forskningen.
- Dere står fritt til å reagere på hverandres innspill eller stille oppfølgingsspørsmål til hverandre.
- Hvis samtalen sporer av i forhold til tema, kommer jeg til å lede den tilbake på planlagt spor. Dette av hensyn til tid. 1-1,5t.
- Det som blir sagt i samtalen (av privat karakter), forblir mellom dere som sitter her i dag

<b>Introduksjon:</b> <b>10 min</b> <b>Informasjon fra moderator</b> <ul style="list-style-type: none"><li>• Ønske velkommen til fokusgruppe-intervju</li><li>• Presentere meg selv</li></ul>	<b>Sjekk lydopptak og starte opptak</b> <ul style="list-style-type: none"><li>• Med dette intervjuet ønsker jeg å få et innblikk i deres opplevelse av matserveringen ved skolen.</li><li>• Den overordnede i ideen er å få innsikt i utfordringer og barrierer som oppstår i en endringsprosess mot en mer bærekraftig</li></ul>
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<ul style="list-style-type: none"> <li>• Takke for deltakelse</li> <li>• Forklare hvorfor elevene er valgt ut med bakgrunn i elektronisk spørreskjema og presentasjon av tema for intervjuet</li> <li>• Informasjon om opptak og beskyttelse av data</li> <li>• Underskrift infoskriv</li> <li>• Hvor lenge vil intervjuet vare → 1,5 t.</li> </ul> <p><b>Deltagerne presenterer seg selv og skriver navn på en navnelapp.</b></p> <ul style="list-style-type: none"> <li>• Moderator starter med en å gi alle deltagerene en mulighet til å presentere seg selv med <b>fornavn, alder, hvilken linje de går på, og hvilken rett på skolen som er deres favoritt</b>. Hvis deltageren ønsker det kan vedkommende også fortelle om han/hun følger noen <b>spesiell diett</b>.</li> <li>• Hva synes dere om maten på skolen?</li> <li>• Hva er det som blir servert?</li> <li>• Gjengangere på skolen?</li> </ul>	<p>matsservering. Og hvordan opplever dere; elevene/ekspertpanelet dette?</p> <ul style="list-style-type: none"> <li>• Jeg ønsker å gå i dybden, og høre deres tanker, erfaringer og ideer rundt dette temaet.</li> </ul> <p>Spilleregler:</p> <ul style="list-style-type: none"> <li>• Her er jeg ikke ute etter riktig svar. Kun hva du tenker og har erfart rundt temaene som tas opp.</li> <li>• Poenget er heller ikke at vi skal være enige om alt.</li> <li>• Jeg kommer til å legge til rette for at alle skal komme til ordet, samtidig som vi ønsker en naturlig diskusjon.</li> <li>• Dere har mulighet til å stille oppfølgingsspørsmål til hverandre. Men jeg kommer til å bryte inn for å holde samtalen på riktig spor, og for å sørge for progresjon.</li> <li>• Mobil på lydløs</li> <li>• Det er lov å trekke seg når som helst om du skulle ønske det.</li> </ul>
<p><b>Måltider – skolen kontra hjemme</b> <b>10 min</b></p> <ul style="list-style-type: none"> <li>• Hva tenker du er den største forskjellen på maten dere får servert her, sammenlignet med den du er vant med hjemmefra?</li> <li>• Har dere blitt kjent med noen nye matretter, som dere ikke visste om fra før av?</li> <li>• Er det noe du savner av mat i hverdagen?</li> <li>• Har skolens matsservering endret dine tanker om hva ditt eget</li> </ul>	<ul style="list-style-type: none"> <li>• Hvis du tenker på selve maten, alle ingrediensene i maten. Hva vil dere si er forskjellig fra det du er vant til å spise?</li> </ul>

<p>kosthold burde innebære, eventuelt hva som er mulig?</p> <ul style="list-style-type: none"> <li>• Velger du ofte å kjøpe annen mat enn den skolen serverer?</li> <li>• Hva er det som gjør at du velger å spise mat utenfor skolen?</li> </ul>	<ul style="list-style-type: none"> <li>• I så fall ved hvilke måltider? Restaurant, matbutikk eller takeaway?</li> </ul>
<p><b>Skolen, kosthold og bærekraft:</b> 10 min</p> <ul style="list-style-type: none"> <li>• Hva innebærer et sunt og bærekraftig kosthold for deg? Hva er idealet?</li> <li>• Kan du komme med eksempler på bærekraftige retter skolen serverer, som du setter pris på?</li> <li>• Er dette et tema som opptar deg og de andre elevene på skolen?</li> <li>• Er bærekraft noe du tenker på når du spiser? Hvorfor/hvorfor ikke?</li> <li>• Hva tenker dere er fellestrekkene og forskjellene mellom et sunt og et bærekraftig kosthold?</li> <li>• Har dere fått noen informasjon om mat og kosthold og hvorfor skolen serverer de rettene de gjør?</li> <li>• Er det viktig for deg å spise sunt?</li> <li>• Er et sunt kosthold forenelig med en bærekraftig matservering?</li> <li>• Har du noen ideer til hvordan skolen kan få en enda mer bærekraftig matservering?</li> <li>• Hva tenker dere er mest bærekraftig? At maten er lokalprodusert eller at maten er plantebasert? La oss si det var gulrøtter fra Nederland. Og kjøttet var fra Voss for eksempel.</li> <li>• Er kjøtterstatninger en fin overgang for de som ønsker å prøve ut vegetarmat?</li> </ul>	<ul style="list-style-type: none"> <li>• Plantebasert/lokalt/økologisk/ redusere matsvinn/</li> <li>• Hva er dine tanker om bærekraftig kosthold</li> <li>• Har skolens kantine meny med fokus på bærekraft hatt innflytelse på ditt valg med å søke akkurat denne skolen?</li> <li>• Ville du kvalifisere kostholdet på skolen som bærekraftig? Hvorfor/hvorfor ikke?</li> </ul> <ul style="list-style-type: none"> <li>• Hva innebærer et sunt kosthold for deg? Nok proteiner? Vitaminer? Lite fett? Lite sukker?</li> </ul>

<ul style="list-style-type: none"> <li>• Er vegetardag bra for klimaet?</li> <li>• Liker dere at skolen har vegetardager?</li> </ul>	
<p><b>Plantebasert/vegetar vs. kjøtt</b> 20-25 min</p> <ul style="list-style-type: none"> <li>• Hva tenker du om at skolen velger å ha kjøttfrie dager?</li> <li>• Hvis dere kan velge mellom et kjøttalternativ og et plantebasert alternativ – hva velger dere og hvorfor?</li> <li>• Hva er deres forhold til plantebaserte erstatningsprodukter som for eksempel vegan burger?</li> <li>• Hva er vanskelig med å kutte kjøtt?</li> <li>• Er det lett å lage vegetarmat?</li> <li>• Hva synes dere det vegetarianerne/veganerne får av mat?</li> <li>• Hva er deres mening om skolen og bærekraftig kosthold?</li> <li>• Har du sett dokumentarer som omhandler kjøttindustri, klima, miljø, bærekraft og/eller helse? Eventuelt lest avisartikler eller innlegg på sosiale medier</li> <li>• Har du forbilder og/eller følger du influensere eller organisasjoner på sosiale medier som er opptatt av mat og bærekraft, dyrevern eller lignende?</li> </ul>	<ul style="list-style-type: none"> <li>• Kan du bli mett under et måltid som ikke inneholder kjøtt? Ønsker dere mer av dette?</li> <li>• Er smaksopplevelsen annerledes? Blir du like fornøyd som med en vanlig burger?</li> <li>• Får man i seg nok næringsstoffer ved å utelate kjøttet?</li> <li>• Får du like godt treningsutbytte om du kutter kjøttet?</li> <li>• Får du i deg alle næringsstoffene du trenger om du kutter kjøttet?</li> <li>• Føler dere at dette er et tema skolen tar på alvor?</li> <li>• Hvorfor/hvorfor ikke? Hva mener du de evt. kan gjøre bedre?</li> </ul>
<p><b>Kosthold og påvirkningsfaktorer</b></p>	

<p><b>15 min</b></p> <ul style="list-style-type: none"> <li>• Hva motiverer eller påvirker deg til å ta de matvalgene du gjør?</li> <li>• Hva tror du må til for at du skal endre matvaner?</li> <li>• Hvorfor er det vanskelig å holde på vaner.</li> <li>• Hva slags ansvar føler du for den informasjonen du sitter på.</li> <li>• Hva skal til for at vi tar gode beslutninger? Og føler et felles ansvar for saker som miljø?</li> <li>• Har dere venner som er veganere/vegetarianere?</li> <li>• Kjøtterstatningsprodukter</li> <li>• Dyrevelferd</li> </ul>	<ul style="list-style-type: none"> <li>• Samfunnsnormer. Familie, venner, influensere, sosiale medier</li> <li>• Tradisjoner, identitet, vaner</li> <li>• Økonomi</li> <li>• Miljø</li> </ul> <ul style="list-style-type: none"> <li>• Vi blir rådet til å redusere kjøttforbruket, hvorfor tror du det er vanskelig å handle på?</li> </ul> <p>Hvor lett er det å ta valg som er bra for miljøet, men som gjør at du må avstå fra noe du setter stor pris på, og som er viktig i ditt liv?</p>
<p><b>Avslutning:</b> <b>5 min:</b></p> <ul style="list-style-type: none"> <li>• Se for dere dere selv om 1 års tid – kanskje dere har flyttet for å studere – hvordan tror dere kostholdet deres vil være?</li> <li>• Er det noe du ønsker å føye til?</li> <li>• Tusen takk for deltagelsen!</li> </ul>	<ul style="list-style-type: none"> <li>• Er kostholdet påvirket av tiden på folkehøgskolen?</li> <li>• Hva skal til for å holde på vanene?</li> <li>• Hva tror du er grunnen til at du ikke klarer å holde på vanene?</li> </ul>

## Appendix C

### Interview guide - Headmaster

## Intervjuguide – Rektor

Tema og hensikt: formålet med masteroppgaven er å kartlegge hvilke muligheter og utfordringer norske folkehøgskoler har når de legger om til et mer bærekraftig kosthold. Masteroppgaven er en del av prosjektet Sustainable Eaters ved Nofima, og den vil se nærmere på hvordan menyendringene gjennomføres og hvilke erfaringer som blir gjort underveis. Videre vil det bli sett på hvordan elever reagerer på disse endringene.

- Mobil på lydløs
- Rettigheter: Anonyme, hverken skolen eller navnene deres vil bli brukt.
- Du har rett på tilgang til materialet. Lydopptak, informasjonen skal brukes til masteroppgave.
- Det er lov å trekke seg når som helst om du skulle ønske det.

<b>Introduksjon:</b> <b>10 min</b> <ul style="list-style-type: none"><li>• Ønske velkommen</li><li>• Informasjon om tema for intervjuet</li><li>• Informasjon om at det blir gjort opptak av intervjuet og beskyttelse av data</li><li>• Varighet intervju</li><li>• Underskrift infoskriv</li></ul>		<b>Sjekk lydopptak og starte opptak</b> <ul style="list-style-type: none"><li>• Presentere meg selv</li><li>• Takke for deltagelse</li><li>• Prosjekt: «Sustainable Eaters» ved Nofima. Dine erfaringer og holdninger rundt en bærekraftig matsservering</li><li>• Hensikten er å få en bedre forståelse av barrierer og muligheter ved omlegging til et mer bærekraftig kosthold<ul style="list-style-type: none"><li>- For ansatte</li><li>- For elever</li></ul></li></ul>
<ul style="list-style-type: none"><li>• Hvor lenge har du vært rektor?</li><li>• Har du jobbet som rektor noe annet sted før?</li><li>• Har du selv gått på folkehøgskole?</li><li>• De som jobber på kjøkkenet, hvor lenge har de jobbet her?</li></ul>		
<b>Skolen, kosthold og bærekraft:</b> <b>15 min</b> <ul style="list-style-type: none"><li>• Har skolen noen form for bærekraftstrategi?</li></ul>		<ul style="list-style-type: none"><li>• Utviklet selv?</li></ul>

<ul style="list-style-type: none"> <li>• Profilert som en miljøvennlig skole utad?</li> <li>• Har dere valgfag som er knyttet til tema bærekraft?</li> <li>• Hva innebærer et sunt og bærekraftig kosthold for akkurat deres skole? Idealet?</li> <li>• Hva slags informasjon blir elevene gitt rundt de bærekraftige valgene dere har tatt?</li> </ul>		<ul style="list-style-type: none"> <li>• Folkehøgskoleforbundet eller ansatte på skolen?</li> <li>• Leverer skolen klimaregnskap?</li> <li>• Hva legger skolen vekt på når det kommer til tema bærekraft?</li> <li>• Frekvens vegetardag, fiskedag. Betaler elever mer for en vegetar/vegans diett?</li> <li>• Hvorfor blir det eventuelt ikke gitt informasjon?</li> </ul>
<p><b>Endringsprosessen:</b> 10 min</p> <ul style="list-style-type: none"> <li>• Hvor vil du si endringsprosessen startet? Hvordan har dere kommet frem til endringene som er gjort?</li> <li>• Mottakelse av forslag til endringer blant ansatte og spesielt kjøkkenansatte</li> <li>• Har de kjøkkenansatte gått kurs for å få ideer og inspirasjon til en mer bærekraftig matserving?</li> <li>• Har kjøkkenet fokus på å velge lokalt?</li> <li>• Har kjøkkenet fokus på å velge økologisk?</li> <li>• Hvordan er responsen blant elevene til maten?</li> </ul>		<ul style="list-style-type: none"> <li>• Hva vil du si var hovedmotivasjonen?</li> <li>• Hvem var initiativtager?</li> <li>• Hvordan samarbeider ledelsen og kjøkkenet?</li> <li>• Hvordan responderte de kjøkkenansatte da endringene ble implementert?</li> <li>• Er det gitt informasjon til de kjøkkenansatte om hvorfor endringer blir gjort?</li> <li>• Har kjøkkenet tatt eierskap til endringene?</li> <li>• Er rektor involvert i det som skjer på kjøkkenet? Er det god dialog mellom kjøkken og ledelse?</li> <li>• Endrer innstillingen seg i løpet av året?</li> <li>• Har elevene mulighet til å komme med innspill som blir tatt til følge?</li> <li>• Forskjell mellom årskull?</li> </ul>

<p><b>Hverdagen:</b> 10 min</p> <ul style="list-style-type: none"> <li>• Kan du si noe generelt om matrutinene på skolen?</li> <li>• Er det hovedsakelig kjøkkenet som selv utformer menyene?</li> <li>• Hva slags retter serveres de dagene det er vegetar/vegan-dag?</li> <li>• Hvor mange veganere og vegetarianere har dere i løpet av et skoleår?</li> <li>•</li> </ul>		<ul style="list-style-type: none"> <li>• Måltidsfrekvens</li> <li>• Buffet?</li> <li>• Faste vegetardager?</li> <li>• Bønner/linser? Erstatningsprodukter for kjøtt?</li> <li>• Kun vegetar på vegetardag, eller er det alternativer?</li> <li>• Øker tallet i løpet av året?</li> </ul>
<p><b>Erfaringer:</b> 15 min</p> <ul style="list-style-type: none"> <li>• Under omleggingen, hva har fungert eller ikke fungert?</li> <li>• Har dere nok kompetanse?</li> <li>• Hva er viktig for å lykkes i et endringsarbeid?</li> <li>• Hva er hovedmotivasjonen for å gjøre endringer?</li> <li>• Hvilke utfordringer har dere møtt på?</li> <li>• Har kostnadene økt med endringene?</li> <li>• Opplever du at bevisstheten øker hos elevene i løpet av året?</li> <li>• Opplever du at elevene er tilfredse med mattilbudet på skolen?</li> <li>• For å sikre at elevene blir tilbudt sunn og næringsrik mat, følger dere noen spesielle retningslinjer?</li> <li>• Hvordan blir dette fulgt ved servering av vegetarmat eller for elever som følger en vegetarisk diett?</li> </ul>		<ul style="list-style-type: none"> <li>• Hvilke erfaringer sitter dere igjen med?</li> <li>• Hvordan har endringene påvirket skolens økonomi?</li> <li>• Har arbeidsmengden økt med endringene?</li> </ul>

<ul style="list-style-type: none"> <li>• Er det noe du ville gjort annerledes?</li> </ul>		
<p><b>Avslutning:</b>  <b>5 min:</b></p> <ul style="list-style-type: none"> <li>• Er det noe du ønsker å føye til?</li> <li>• Tusen takk for deltagelse!</li> </ul>		<ul style="list-style-type: none"> <li>• Kan du anbefale andre folkehøgskoler å gjøre det samme?</li> <li>• Hva er utbyttet av en slik endring? Hva har skolen oppnådd?</li> </ul>



## Appendix D

### Interview guide – Head Chef

#### Intervjuguide - Kjøkkensjef

Tema og hensikt: formålet med masteroppgaven er å kartlegge hvilke muligheter og utfordringer norske folkehøyskoler har når de legger om til et mer bærekraftig kosthold. Masteroppgaven er en del av prosjektet Sustainable Eaters ved Nofima, og den vil se nærmere på hvordan menyendringene gjennomføres og hvilke erfaringer som blir gjort underveis. Videre vil det bli sett på hvordan elever reagerer på disse endringene.

- Mobil på lydløs
- Rettigheter: Anonyme, hverken skolen eller navnene deres vil bli brukt.
- Du har rett på tilgang til materialet. Lydopptak, informasjonen skal brukes til masteroppgave.
- Det er lov å trekke seg når som helst om du skulle ønske det.

<b>Introduksjon:</b> <b>10 min</b> <ul style="list-style-type: none"><li>• Ønske velkommen</li><li>• Informasjon om tema for intervjuet</li><li>• Informasjon om at det blir gjort opptak av intervjuet og beskyttelse av data</li><li>• Varighet intervju</li><li>• Underskrift infoskriv</li></ul>	<b>Sjekk lydopptak og starte opptak</b> <ul style="list-style-type: none"><li>• Presentere meg selv</li><li>• Takke for deltagelse</li><li>• Prosjekt: «Sustainable Eaters» ved Nofima. Dine erfaringer og holdninger rundt en bærekraftig matservering</li><li>• Hensikten er å få en bedre forståelse av barrierer og muligheter ved omlegging til et mer bærekraftig kosthold<ul style="list-style-type: none"><li>- For ansatte</li><li>- For elever</li></ul></li></ul>
<ul style="list-style-type: none"><li>• Hvor lenge har du vært kjøkkensjef?</li><li>• Tidligere arbeidserfaring?</li><li>• Har du selv gått på folkehøgskole?</li></ul>	
<b>Hverdagen:</b> <b>10 min</b> <ul style="list-style-type: none"><li>• Kan du si noe generelt om matrutinene på skolen?</li><li>• Er kjøkkenet ansvarlig for innkjøp?</li><li>• Hvilke retter er populære? Og hvilke retter er mindre populære?</li></ul>	<ul style="list-style-type: none"><li>• Måltidsfrekvens</li><li>• Buffet?</li><li>• Faste vegetardager?</li></ul>

<ul style="list-style-type: none"> <li>• Er det hovedsakelig kjøkkenet som selv utformer menyene?</li> <li>• Hva slags retter serveres de dagene det er vegetar/vegan-dag?</li> <li>• Hvor mange veganere og vegetarianere har dere i løpet av et skoleår?</li> </ul>	<ul style="list-style-type: none"> <li>• Bønner/linser? Erstatningsprodukter for kjøtt?</li> <li>• Kun vegetar på vegetardag, eller er det alternativer? Øker tallet i løpet av året?</li> </ul>
<p><b>Skolen, kosthold og bærekraft:</b> <b>10 min</b></p> <ul style="list-style-type: none"> <li>• Hva innebærer et sunt og bærekraftig kosthold for akkurat deres skole? Idealet?</li> <li>• Hva slags informasjon blir elevene gitt rundt de bærekraftige valgene dere har tatt?</li> <li>• Hvilke hensyn tas i forhold til ernæring?</li> <li>• Er det forenelig med en bærekraftig matserving, og en sunn matserving?</li> </ul>	<ul style="list-style-type: none"> <li>• Hva legger skolen vekt på når det kommer til tema bærekraft?</li> <li>• Frekvens vegetardag, fiskedag. Betaler elever mer for en vegetar/vegans diett?</li> <li>• Hvorfor blir det eventuelt ikke gitt informasjon?</li> <li>• Blir vegetardag annonsert?</li> <li>• Hvilket fokus har dere på helseaspektet ved matservingen?</li> </ul>
<p><b>Endringsprosessen:</b> <b>10 min</b></p> <ul style="list-style-type: none"> <li>• Hvor vil du si endringsprosessen startet? Hvordan har dere kommet frem til endringene som er gjort?</li> <li>• Mottakelse av forslag til endringer blant dere på kjøkkenet?</li> <li>• Har dere på kjøkkenet gått kurs for å få ideer og inspirasjon til en mer bærekraftig matserving?</li> <li>• Har kjøkkenet fokus på å velge lokalt?</li> <li>• Har kjøkkenet fokus på å velge økologisk?</li> </ul>	<ul style="list-style-type: none"> <li>• Hva vil du si var hovedmotivasjonen?</li> <li>• Hvem var initiativtager?</li> <li>• Hvordan samarbeider ledelsen og kjøkkenet?</li> <li>• Er det gitt informasjon til de kjøkkenansatte om hvorfor endringer blir gjort?</li> <li>• Har kjøkkenet tatt eierskap til endringene?</li> </ul>

<ul style="list-style-type: none"> <li>• Hvordan er responsen blant elevene til maten?</li> </ul>	<ul style="list-style-type: none"> <li>• Er rektor involvert i det som skjer på kjøkkenet? Er det god dialog mellom kjøkken og ledelse?</li> <li>• Endrer innstillingen seg i løpet av året?</li> <li>• Har elevene mulighet til å komme med innspill som blir tatt til følge? Forskjell mellom årskull?</li> </ul>
<p><b>Erfaringer:</b> 15 min</p> <ul style="list-style-type: none"> <li>• Under omleggingen, hva har fungert eller ikke fungert?</li> <li>• Har dere nok kompetanse?</li> <li>• Hva er viktig for å lykkes i et endringsarbeid?</li> <li>• Hva er hovedmotivasjonen for å gjøre endringer?</li> <li>• Hvilke utfordringer har dere møtt på?</li> <li>• Har kostnadene økt med endringene?</li> <li>• Opplever du at bevisstheten øker hos elevene i løpet av året?</li> <li>• Opplever du at elevene er tilfredse med mattilbudet på skolen?</li> </ul>	<ul style="list-style-type: none"> <li>• Hvilke erfaringer sitter dere igjen med?</li> <li>• Har arbeidsmengden økt med endringene?</li> </ul>
<p><b>Avslutning:</b> 5 min:</p> <ul style="list-style-type: none"> <li>• Er det noe du ønsker å føye til?</li> <li>• Tusen takk for deltagelse!</li> </ul>	<ul style="list-style-type: none"> <li>• Kan du anbefale andre folkehøgskoler å gjøre det samme?</li> <li>• Hva er utbyttet av en slik endring?</li> </ul>

## Appendix E

### Quantitative questionnaire

Tema	Spørsmål/Påstand	Alternativer	Nr
Testing av plantebasert burger			
	Spiste du burger på kantinen til middag (dag. dato)?	Ja/Nei (Hvis svaret er nei blir respondenten sendt til Q10)	Q2
Liking plantebasert burger	Hvor godt likte du burgeren som ble servert til middag i kantinen på (dag)?  Hvor godt likte du <ul style="list-style-type: none"> <li>• Smak</li> <li>• Konsistens</li> <li>• Utseende</li> </ul> på burgeren som ble servert til middag i kantinen (dag)?	Skala: 1 (liker ikke i det hele tatt) til 7 (liker veldig godt)	Q3  Q4- Q7
	Har du flere kommentarer om burgeren? Skriv disse her:	Åpent felt	Q8
Vi vil nå spørre om dine meninger om vegetarmat, kjøtt og matserving i kantinen.			
Hvor godt liker du følgende?	<ul style="list-style-type: none"> <li>• Vegetarprodukter fra butikk som etterligner kjøtt (f.eks vegetarburger, vegetarpølse, vegetar kjøttdeig)</li> <li>• Vegetarprodukter fra butikk som ikke etterligner kjøtt (f.eks. falafel, rødbetburger)</li> <li>• Middagsmåltid der hovedingrediensen er belgfrukter (bønner, linser, erter)</li> <li>• Middagsmåltider der hovedingredienser er grønnsaker</li> </ul>	Skala: 1 (liker ikke i det hele tatt) til 7 (liker veldig godt)	Q10- Q13

Hvor enig eller uenig er du i følgende utsagn?	<ul style="list-style-type: none"> <li>• Jeg prøver å unngå å spise vegetarmat som er ultraprosessert.</li> <li>• Jeg prøver å unngå å spise vegetarmat som er laget av soya.</li> <li>• Jeg er mer positiv til å kjøpe vegetarmat laget i Norge enn i utlandet.</li> <li>• Jeg er mer positiv til å kjøpe vegetarmat laget med norske enn med importerte ingredienser.</li> <li>• Vegetarburgere og annen vegetarmat som etterligner kjøtt er bærekraftig.</li> <li>• Vegetarburgere og annen vegetarmat som etterligner kjøtt er sunt.</li> <li>• Vegetarburgere og annen vegetarmat som etterligner kjøtt gjør det enklere for meg å redusere kjøttforbruket.</li> <li>• Jeg er opptatt av at dyrene som blir avlet frem for kjøttproduksjon har hatt et godt liv.</li> <li>• Et middagsmåltid smaker best når det er med kjøtt</li> <li>• Jeg blir ikke skikkelig mett av et middagsmåltid uten kjøtt</li> <li>• Det er umulig for de som trener mye å få proteinbehovet dekket uten å spise kjøtt</li> <li>• Det er lett å lage vegetarmiddager</li> <li>• Det er lett å lage kjøttmiddager</li> <li>• Å redusere kjøttinntaket kan hjelpe mot klimaendringer</li> </ul>	Skala: 1 (helt uenig) til 7 (helt enig)	Q15- Q18  Q20- Q23  Q25- Q30
How would you describe a vegetarian burger?	<ul style="list-style-type: none"> <li>• Usunt → Sunt</li> <li>• Dårlig for klimaet → Bra for klimaet</li> <li>• Ikke smakfull → Smakfull</li> <li>• Lavt proteininnhold → Høyt proteininnhold</li> <li>• Kunstig → Naturlig</li> <li>• Ikke mettende → Mettende</li> </ul>	8-poengs aksept-skala	Q31- Q36
Hvordan ville du beskrive en kjøttburger?	<ul style="list-style-type: none"> <li>• Usunt → Sunt</li> <li>• Dårlig for klimaet → Bra for klimaet</li> <li>• Ikke smakfull → Smakfull</li> <li>• Lavt proteininnhold → Høyt proteininnhold</li> <li>• Kunstig → Naturlig</li> <li>• Ikke mettende → Mettende</li> </ul>	8-poengs aksept-skala	Q37- Q42
Hva er viktigst for deg når du velger mat i kantinen?	<ul style="list-style-type: none"> <li>○ At maten er næringsrik og sunn</li> <li>○ At maten ikke er belastende for miljø og klima</li> <li>○ At maten smaker godt</li> <li>○ At maten fungerer godt I kombinasjon med trening</li> </ul>	Ranger fra minst viktig til mest viktig ved å flytte	Q43

		tekstboksene til rutene under.	
	I hvilken grad er du fornøyd med matserveringen på skolen?	Skala: 1 (i svært liten grad) til 5 (i svært stor grad)	Q44
	Er det noe du savner i mattilbudet i kantinen?	Åpent felt	Q45
	Har skolens matservering med fokus på bærekraft hatt innflytelse på ditt valg av å søke akkurat denne skolen?	Ja/Nei	Q46
	I hvilken grad har skolens matservering utvidet hva du liker av mat?	Skala: 1 (i svært liten grad) til 5 (i svært stor grad)	Q47
Hvor ofte velger du å kjøpe annen mat enn den skolen serverer til middag?	<ul style="list-style-type: none"> <li>▪ Aldri/Sjelden</li> <li>▪ 1-2 ganger i måneden</li> <li>▪ Omtrent en gang i uken</li> <li>▪ 2-3 ganger i uken</li> <li>▪ Over 4 ganger i uken</li> <li>▪ Varierer/Vet ikke</li> </ul>	Velg et alternativ	Q48
Hvis du av og til velger bort middagene på skolen, hvilke dager er det mest sannsynlig at du gjør dette?	<ul style="list-style-type: none"> <li>▪ Når skolen serverer vegetarretter basert på grønnsaker og/eller belgfrukter</li> <li>▪ Når skolen serverer plantebaserte erstatningsprodukter for kjøtt</li> <li>▪ Når skolen serverer fisk</li> <li>▪ Når skolen serverer kjøtt</li> <li>▪ Tilfeldig/Annet</li> </ul>	Velg et alternativ	Q49
Hvis respondenten velger å stå over middag som inneholder kjøtt vises følgende spørsmål:			
Hvorfor velger du å unngå kjøtt?	<ul style="list-style-type: none"> <li>▪ Klima og miljø</li> <li>▪ Dyrevelferd</li> <li>▪ Helsemessige årsaker</li> <li>▪ Jeg liker ikke smaken</li> <li>▪ Min sosiale krets forventer at jeg skal velge kjøttfrie alternativer</li> <li>▪ Annet</li> </ul>	Velg et alternativ	Q50

Hvis respondentene velger å stå over middag som inneholder plantebaserte erstatningsprodukter vises følgende spørsmål:			
Hvorfor velger du å unngå plantebaserte erstatningsprodukter?	<ul style="list-style-type: none"> <li>▪ Jeg liker ikke smaken av plantebaserte erstatningsprodukter</li> <li>▪ Plantebaserte erstatningsprodukter er for prosesserte</li> <li>▪ Plantebaserte erstatningsprodukter er ikke et godt alternativ til kjøtt</li> <li>▪ Plantebaserte erstatningsprodukter er ikke sunt</li> <li>▪ Plantebaserte erstatningsprodukter er kun for veganere og vegetarianere</li> <li>▪ Plantebaserte erstatningsprodukter er for likt kjøtt</li> <li>▪ Annet</li> </ul>	Velg et alternativ	Q51
	Har du noen gang sett dokumentarfilmer eller lest artikler som har fått deg til å endre ditt syn på animalsk produksjon og/eller kjøttindustrien i en negativ retning?	Ja/Nei/Vet ikke	Q52
	Følger du influensere eller organisasjoner på sosiale medier som er opptatt av mat, bærekraft og/eller dyrevern?	Ja/Nei/Vet ikke	Q53
Hvilke av følgende tiltak tror du vil ha størst miljøpåvirkning?	<ul style="list-style-type: none"> <li>○ Redusert matavfall</li> <li>○ Økt produksjon og forbruk av lokal mat</li> <li>○ Økt produksjon og forbruk av økologisk mat</li> <li>○ Redusert produksjon og forbruk av kjøtt</li> </ul>	Ranger fra minst til størst påvirkning ved å flytte tekstboksene til rutene under.	Q54
	Liker du at skolen har kjøttfrie dager?	Ja/Nei/Vet ikke	Q55
	Hvor mange dager i uken tror du at du vil velge å spise vegetarmat til middag etter at du er ferdig på folkehøyskolen?	Velg et alternativ fra 1-7	Q56
Kjønn	<ul style="list-style-type: none"> <li>• Kvinne</li> <li>• Mann</li> <li>• Annet</li> </ul>		Q57
Alder		Skriv inn alder	Q58
Hvordan definerer du ditt kosthold?	<ul style="list-style-type: none"> <li>• Jeg er veganer (spiser ikke egg, fisk, meieri- eller kjøttprodukter)</li> <li>• Jeg er vegetarianer (spiser ikke kjøttprodukter)</li> <li>• Jeg er pescetarianer (spiser ikke kjøtt, men spiser fisk)</li> <li>• Jeg er fleksitarianer (reduserer aktivt forbruket av kjøttprodukter, men spiser det av og til)</li> <li>• Jeg er altetende/omnivor (ingen av de ovennevnte gjelder for meg)</li> </ul>	Velg et alternativ	Q59
	Har du flere kommentarer på tema bærekraftig matservering, eller om undersøkelsen? Skriv disse her:	Åpent felt	Q60

## Appendix F

### Approval from Sikt

Meldeskjema for behandling av personopplysninger

20.01.2023, 14:30

# Vurdering av behandling av personopplysninger

## Referansenummer

569523

Vurderingstype: Standard

Dato: 17.11.2022

## Prosjekttittel

Masteroppgave om bærekraftig kosthold ved folkehøyskoler - Sustainable Eaters

## Behandlingsansvarlig institusjon

NIBIO – Norsk institutt for bioøkonomi / Divisjon for matproduksjon og samfunn

## Prosjektansvarlig

Anna Birgitte Milford

## Student

Marie Noste Bjørnbeth

## Prosjektperiode

01.09.2022 - 15.03.2025

## Kategorier personopplysninger

Alminnelige

Lovlig grunnlag

Samtykke (Personvernforordningen art. 6 nr. 1 bokstav a)

Behandlingen av personopplysningene er lovlig så fremt den gjennomføres som oppgitt i meldeskjemaet. Det lovlige grunnlaget gjelder til 15.03.2025.

[Meldeskjema](#)

Kommentar



#### OM VURDERINGEN

Personverntjenester har en avtale med institusjonen du forsker eller studerer ved. Denne avtalen innebærer at vi skal gi deg råd slik at behandlingen av personopplysninger i prosjektet ditt er lovlig etter personvernregelverket.

Personverntjenester har nå vurdert den planlagte behandlingen av personopplysninger. Vår vurdering er at behandlingen er lovlig, hvis den gjennomføres slik den er beskrevet i meldeskjemaet med dialog og vedlegg.

#### VIKTIG INFORMASJON TIL DEG

Du må lagre, sende og sikre dataene i tråd med retningslinjene til din institusjon. Dette betyr at du må bruke leverandører for spørreskjema, skylagring, videosamtale o.l. som institusjonen din har avtale med. Vi gir generelle råd rundt dette, men det er institusjonens egne retningslinjer for informasjonssikkerhet som gjelder.

#### TYPE OPPLYSNINGER OG VARIGHET

Prosjektet vil behandle alminnelige kategorier av personopplysninger frem til den datoen som er oppgitt i meldeskjemaet.

#### LOVLIG GRUNNLAG

Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 og 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse som kan dokumenteres, og som den registrerte kan trekke tilbake.

<https://meldeskjema.sikt.no/632d7b9a-4ae0-45ae-9db3-f707227d9adc/vurdering> Side 1 av 2

Meldeskjema for behandling av personopplysninger 20.01.2023, 14:30

Lovlig grunnlag for behandlingen vil dermed være den registrertes samtykke, jf. personvernforordningen art. 6 nr. 1 bokstav a.

#### PERSONVERNPRINSIPPER

Personverntjenester vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen om:

- lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen
- formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke behandles til nye, uforenlige formål
- dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet
- lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet

#### DE REGISTRERTES RETTIGHETER

Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), og dataportabilitet (art. 20).

Personverntjenester vurderer at informasjonen om behandlingen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13.

Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

#### FØLG DIN INSTITUSJONS RETNINGSLINJER

Personverntjenester legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).

Ved bruk av databehandler (spørreskjemaleverandør, skylagring eller videosamtale) må behandlingen oppfylle kravene til bruk av databehandler, jf. art 28 og 29. Bruk leverandører som din institusjon har avtale med.

For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og/eller rådføre dere med behandlingsansvarlig institusjon.

#### MELD VESENTLIGE ENDRINGER

Dersom det skjer vesentlige endringer i behandlingen av personopplysninger, kan det være nødvendig å melde dette til oss ved å oppdatere meldeskjemaet. Før du melder inn en endring, oppfordrer vi deg til å lese om hvilke type endringer det er nødvendig å melde: <https://www.nsd.no/personverntjenester/fylle-ut-meldeskjema-for-personopplysninger/melde-endringer-i-meldeskjema>

Du må vente på svar fra oss før endringen gjennomføres.

#### OPPFØLGING AV PROSJEKTET

Personverntjenester vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til med prosjektet!

Information about privacy concerns and letter of consent distributed ahead of the interviews

## **Vil du delta i forskningsprosjektet «Sunt og bærekraftig kosthold ved norske folkehøyskoler»?**

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å lære fra omlegginger av kosthold i en bærekraftig retning ved norske folkehøyskoler. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

### **Formål**

Formålet med masteroppgaven er å kartlegge hvilke muligheter og utfordringer norske folkehøgskoler har når de legger om til et mer bærekraftig kosthold. Oppgaven vil se nærmere på hvordan en slik menyendring gjennomføres, og hvilke erfaringer folkehøgskolene gjør seg underveis. Elevenes reaksjon og hvordan de mottar menyendringene vil også undersøkes. Det vil utføres kvalitative intervjuer ved utvalgte folkehøgskoler, og disse vil utgjøre hoveddelen av oppgaven. Masteroppgaven er en del av prosjektet «Sustainable Eaters» ved Nofima som er finansiert gjennom Norges forskningsråd sitt BIONÆR-program, prosjektnr. 319049.

### **Hvem er ansvarlig for forskningsprosjektet?**

NIBIO – Norsk institutt for bioøkonomi er ansvarlig for prosjektet. Masteroppgaven skrives ved Norges miljø- og biovitenskapelige universitet (NMBU).

### **Hvorfor får du spørsmål om å delta?**

Du er vurdert til å være en person som har relevant innsikt om omlegging av bærekraftig kosthold ved norske folkehøyskoler.

### **Hva innebærer det for deg å delta?**

Datainnsamlingen vil foregå gjennom intervju for ansatte og fokusgruppeintervju for enkelte elever. Du vil også bli bedt om å delta under en middag der det serveres vegetar-mat, og vi ønsker din tilbakemelding, gjennom et elektronisk spørreskjema i etterkant av måltidet.

### **Det er frivillig å delta**

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

### **Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger**

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket.

- Data lagres elektronisk på NIBIOs filtjener for prosjektdata, i en arbeidsmappe med begrenset tilgang. Kun forskerne som deltar i dette delprosjektet har tilgang til mappen, i tillegg til it-teknisk personale med ansvar for systemforvaltningen.
- Prosjektansvarlig, student og interne medarbeidere vil kunne behandle og ha tilgang til opplysningene.

### **Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?**

Prosjektet «Sustainable Eaters» skal etter planen avsluttes i mars 2025. Arbeidsmappen med begrenset tilgang nevnt ovenfor vil iht. NIBIOs rutiner flyttes til prosjektarkivet. Alle data som lagres vil være anonymiserte.

### **Hva gir oss rett til å behandle personopplysninger om deg?**

Vi behandler opplysninger om deg basert på ditt samtykke. På oppdrag fra *NIBIO* har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

### **Dine rettigheter**

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke opplysninger vi behandler om deg, og å få utlevert en kopi av opplysningene
- å få rettet opplysninger om deg som er feil eller misvisende
- å få slettet personopplysninger om deg
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger

Hvis du har spørsmål til studien, eller ønsker å vite mer om eller benytte deg av dine rettigheter, kan du ta kontakt med:

- NIBIO – Norsk institutt for bioøkonomi ved Anna Birgitte Milford, [anna.birgitte.milford@nibio.no](mailto:anna.birgitte.milford@nibio.no), 99049836 (mobil).
- Marie Noste Bjørnbeth, student ved NMBU, [marie.noste.bjornbeth@nmbu](mailto:marie.noste.bjornbeth@nmbu), 92469773 (mobil)
- NIBIOs personvernombud: Harald Lossius, Avdeling for dokumentforvaltning, [harald.lossius@nibio.no](mailto:harald.lossius@nibio.no).

Hvis du har spørsmål knyttet til NSD sin vurdering av prosjektet, kan du ta kontakt med:

- NSD – Norsk senter for forskningsdata AS på epost ([personverntjenester@nsd.no](mailto:personverntjenester@nsd.no)) eller på telefon: 53 21 15 00.

Med vennlig hilsen

*Anna Birgitte Milford*  
(Forsker/veileder)

*Marie Noste Bjørnbeth*  
(Student)

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## Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet «Sunt og bærekraftig kosthold ved folkehøyskoler», og har fått anledning til å stille spørsmål. Jeg samtykker til å delta i elektronisk spørreskjema og intervju, og til at mine opplysninger behandles frem til prosjektet avsluttes, 1.4.2025.

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(Signert av prosjektdeltaker, dato)

Information about privacy concerns and letter of consent distributed ahead of the questionnaire.

## Vil du delta i forskningsprosjektet

«Sustainable Eaters»?

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å lære om sunt og bærekraftig kosthold ved norske folkehøgskoler og universiteter. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

### Formål

Formålet med prosjektet er å kartlegge hvilke muligheter og utfordringer norske folkehøgskoler og universiteter har når det gjelder å sørge for sunt og bærekraftig kosthold. Prosjektet er en del av prosjektet «Sustainable Eaters» ved Nofima som er finansiert gjennom Norges forskningsråd sitt BIONÆR-program, prosjektnr. 319049.

### Hvem er ansvarlig for forskningsprosjektet?

NIBIO – Norsk institutt for bioøkonomi er ansvarlig for prosjektet.

### Hvorfor får du spørsmål om å delta?

Fordi du er elev ved en norsk folkehøgskole eller student ved et norsk universitet

### Hva innebærer det for deg å delta?

Datainnsamlingen vil foregå gjennom elektronisk spørreskjema.

### Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

### Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket. Data lagres elektronisk på NIBIOs filtjener for prosjektdata, i en arbeidsmappe med begrenset tilgang. Kun forskerne som deltar i dette delprosjektet har tilgang til mappen, i tillegg til it-teknisk personale med ansvar for systemforvaltningen. Prosjektansvarlig og interne medarbeidere vil kunne behandle og ha tilgang til opplysningene.

### Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?

Prosjektet «Sustainable Eaters» skal etter planen avsluttes ved i mars 2025. Arbeidsmappen med begrenset tilgang nevnt ovenfor vil iht. NIBIOs rutiner flyttes til prosjektarkivet. Lyddopptakene vil slettes. Alle data som lagres videre vil være anonymiserte.

Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke. På oppdrag fra *NIBIO* har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

### **Dine rettigheter**

Så lenge du kan identifiseres i datamaterialet, har du rett til:  
innsyn i hvilke opplysninger vi behandler om deg, og å få utlevert en kopi av opplysningene  
å få rettet opplysninger om deg som er feil eller misvisende  
å få slettet personopplysninger om deg  
å sende klage til Datatilsynet om behandlingen av dine personopplysninger

Hvis du har spørsmål til studien, eller ønsker å vite mer om eller benytte deg av dine rettigheter, ta kontakt med:

*NIBIO – Norsk institutt for bioøkonomi* ved Anna Birgitte Milford,  
[anna.birgitte.milford@nibio.no](mailto:anna.birgitte.milford@nibio.no), 99049836 (mobil).

Marie Noste Bjørnbeth, student ved NMBU, [marie.noste.bjornbeth@nmbu](mailto:marie.noste.bjornbeth@nmbu), 92469773 (mobil).

NIBIOs personvernombud: Harald Lossius, Avdeling for dokumentforvaltning,  
[harald.lossius@nibio.no](mailto:harald.lossius@nibio.no).

Hvis du har spørsmål knyttet til NSD sin vurdering av prosjektet, kan du ta kontakt med:  
NSD – Norsk senter for forskningsdata AS på epost ([personverntjenester@nsd.no](mailto:personverntjenester@nsd.no)) eller på telefon: 53 21 15 00.

Med vennlig hilsen,

*Anna Birgitte Milford*  
(Forsker/veileder)

*Marie Noste Bjørnbeth*  
(Student)



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