

What did your last meal consist of?  
Was it environmentally-friendly? Healthy? Expensive?







# **Strategies towards a more sustainable Swiss food system**

**Anita Frehner, Imke de Boer,  
Adrian Müller, Hannah van Zanten,  
Christian Schader**

**SGA Tagung | 29.4.2022 | FiBL Frick**

**FiBL**

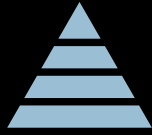
## Consumption- and production-side strategies



**RM**

Reduced meat  
consumption

25% | 50% | 100%



**SFP**

Adherence to  
Swiss Food  
Pyramid

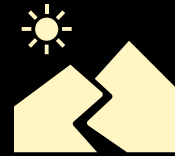
25% | 50% | 100%



**FW**

Reduced food  
waste

25% | 50%



**DOM**

Increase domestic  
produce

≥ 50%



**ORG**

Increase share of  
organic produce

25% | 50% | 100%

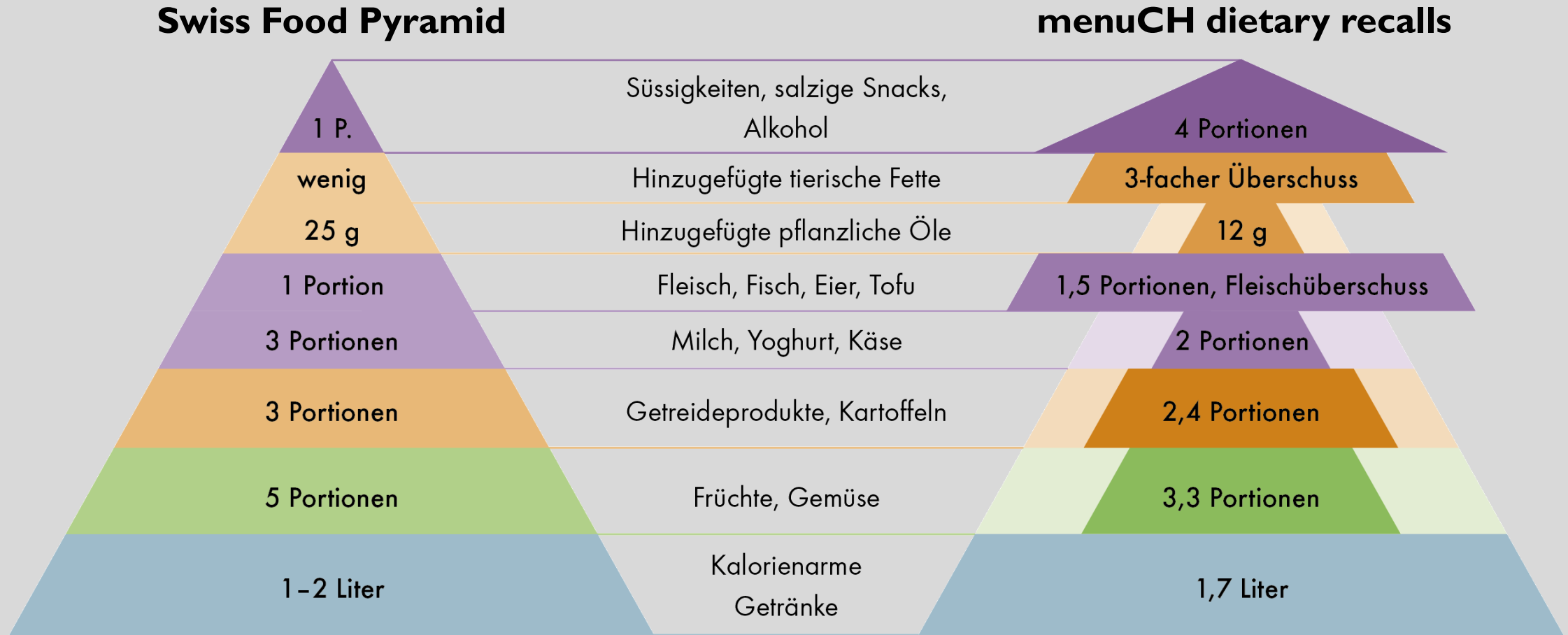


**ORGCIR**

Increased organic  
produce with  
circularity

25% | 50% | 100%

# Reference: menuCH dietary recalls









# SOLm



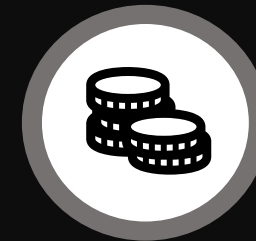
**Environmental impacts**  
(greenhouse gas emissions, land use, nitrogen surplus)



**Social risks**  
(Social Hotspots Index)



**Diet quality**  
(Alternate Healthy Eating Index)



**Consumer costs**  
(costs)

<20%
20-40%
>40%
<20%
20-40%
>40%
no diff

 **RM**

 **SFP**

 **FW**

 **DOM**

 **ORG**

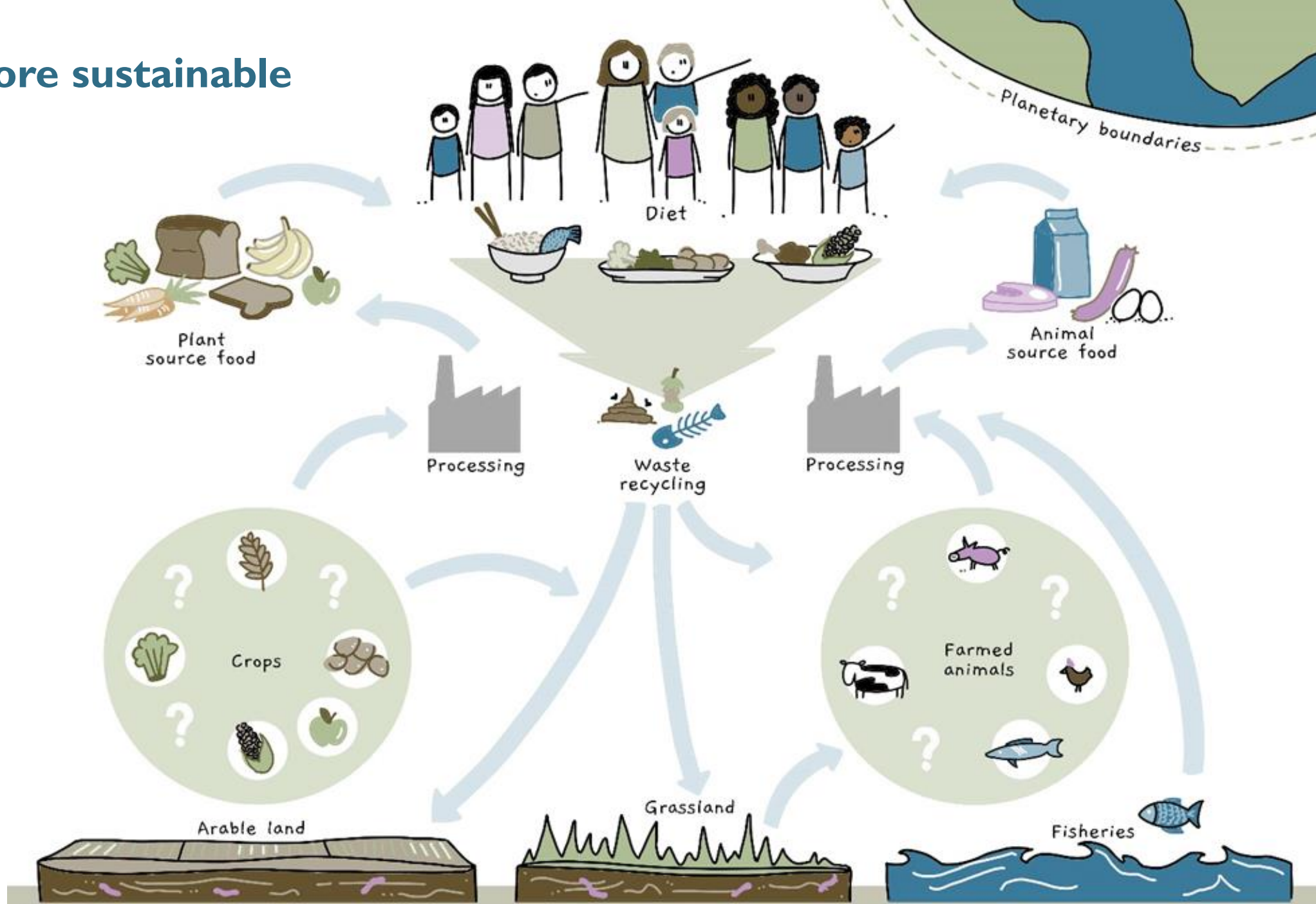
 **ORGCIR**

25%  
50%  
100%  
25%  
50%  
100%  
25%  
50%  
100%  
25%  
50%  
100%

**GHGe**   **Land use**   **N surplus**   **SHI**   **AHEI**   **Cost**

	GHGe	Land use	N surplus	SHI	AHEI	Cost
	<20%	<20%	<20%	<20%	<20%	<20%
	20-40%	20-40%	20-40%	no diff	<20%	<20%
	>40%	>40%	>40%	20-40%	<20%	<20%
	<20%	<20%	<20%	20-40%	<20%	<20%
	20-40%	20-40%	20-40%	20-40%	20-40%	20-40%
	>40%	>40%	>40%	20-40%	>40%	20-40%
	<20%	<20%	<20%	20-40%	no diff	<20%
	20-40%	20-40%	20-40%	20-40%	no diff	<20%
	>40%	>40%	>40%	20-40%	no diff	<20%
	<20%	<20%	<20%	20-40%	no diff	20-40%
	20-40%	20-40%	20-40%	no diff	no diff	20-40%
	>40%	>40%	>40%	no diff	no diff	>40%
	<20%	<20%	<20%	no diff	no diff	20-40%
	20-40%	20-40%	20-40%	no diff	no diff	>40%
	>40%	>40%	>40%	no diff	no diff	>40%

# Towards a more sustainable food system



CiFoS MODEL  
van Zanten, 2020, WUR





Die Natur in Bestform  
Nature in its finest form  
La Nature au mieux de sa forme  
La Natura al meglio forma

## Anita Frehner

anita.frehner@fiBL.org  
Phone +41 62 865 04 66

Research Institute of  
Organic Agriculture FiBL  
Ackerstrasse 113  
5070 Frick  
Switzerland  
www.fibl.org

## Consumer strategies towards a more sustainable food system: insights from Switzerland

A Frehner,<sup>1,2,3</sup> IJM De Boer,<sup>2</sup> A Muller,<sup>1,4</sup> HHE Van Zanten,<sup>3</sup> and C Schader<sup>1</sup>

<sup>1</sup>Department of Socioeconomics, Research Institute of Organic Agriculture FiBL, Frick, Switzerland; <sup>2</sup>Animal Production Systems group, Wageningen University & Research, Wageningen, the Netherlands; <sup>3</sup>Farming Systems Ecology group, Wageningen University & Research, Wageningen, the Netherlands; and <sup>4</sup>Institute of Environmental Decisions, Federal Institutes of Technology Zurich ETHZ, Zurich, Switzerland

### ABSTRACT

**Background:** To improve the sustainability performance of food systems, both consumption- and production-side changes are needed.

**Objectives:** To this end, we assessed multiple sustainability impacts of 6 consumer strategies together with production-side aspects such as organic and circularity principles for Switzerland.

**Methods:** Two strategies encompassed dietary changes: following a pescetarian diet and adhering to the national dietary guidelines. Two strategies employed alternative farming systems: increasing the share of organic production and, in addition, applying the circularity principle of avoiding feed-food competition by limiting livestock feed to low-opportunity-cost biomass. A fifth strategy reduced food waste. The sixth strategy increased the share of domestic produce. For all strategies, we assessed greenhouse gas emissions, land use, nitrogen surplus, social risks, diet quality, and diet costs.

**Results:** The strategies revealed trade-offs between impact categories, unless combined in a synergistic way. Whereas dietary changes towards more plant-based diets reduced environmental impacts ( $\leq 51\%$ ) and increased diet quality ( $\leq 57\%$ ), they increased social risks due to increased sourcing from contexts with potentially bad labor conditions ( $\leq 19\%$ ). Further, when the share of organic produce was increased, land use and dietary costs were increased

### Introduction

In most high-income countries, current food consumption habits and the associated food production cause substantial impacts on multiple sustainability dimensions (1, 2). Dietary patterns are important factors for human health, and their roles in noncommunicable diseases, such as diabetes, cardiovascular disease, stroke, and cancer, are well established (3). The transition towards diets containing more processed and refined products with a higher share of animal-source food (ASF), in combination with lower consumption of fruits, vegetables, nuts, and legumes, has substantially aggravated this. Further, current food production practices contribute substantially to approaching or already transgressing multiple planetary boundaries (4–6). The latest report by the Intergovernmental Panel on Climate Change found that agriculture, including agriculturally driven land use change, contributes 23–34% of global anthropogenic greenhouse gas (GHG) emissions (7, 8). Moreover, agricultural production has and continues to alter substantially the earth's biogeochemical cycles (9). In addition, ~40% of the earth's land surface is used as croplands and pastures (10). Of these

<https://doi.org/10.1093/ajcn/nqab401>