



Environmental, social, and economic consequences of six food system strategies for Switzerland

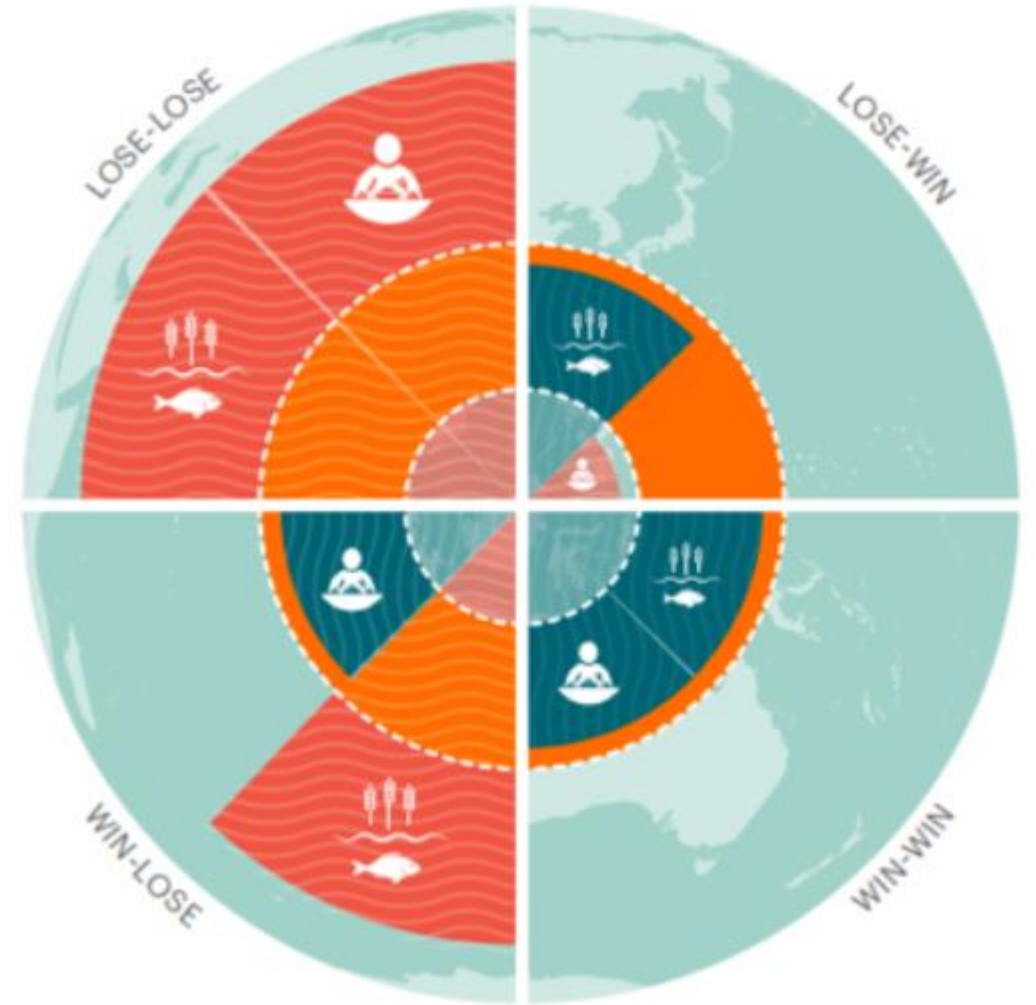
Anita Frehner, Imke de Boer, Adrian Muller, Hannah van Zanten, Christian Schader

17.06.2022 | XIV International Conference of the European Society for Ecological Economics | Pisa

Operating space for food systems



Source: EAT-Lancet



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Consumption- and production-side strategies

Consumption- and production-side strategies



RM

Reduced meat
consumption

25% | 50% | 100%

Consumption- and production-side strategies



RM

Reduced meat
consumption

25% | 50% | 100%



SFP

Adherence to
Swiss Food
Pyramid

25% | 50% | 100%

Consumption- and production-side strategies



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Consumption- and production-side strategies



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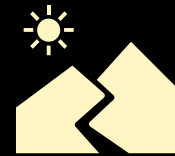
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FW

Reduced food
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25% | 50%



DOM

Increase domestic
produce

≥ 50%

Consumption- and production-side strategies



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DOM

Increase domestic
produce

≥ 50%



ORG

Increase share of
organic produce

25% | 50% | 100%

Consumption- and production-side strategies



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ORGCIR

Increased organic
produce with
circularity

25% | 50% | 100%

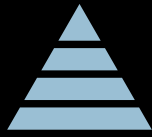
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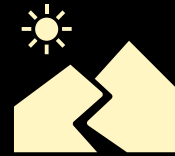
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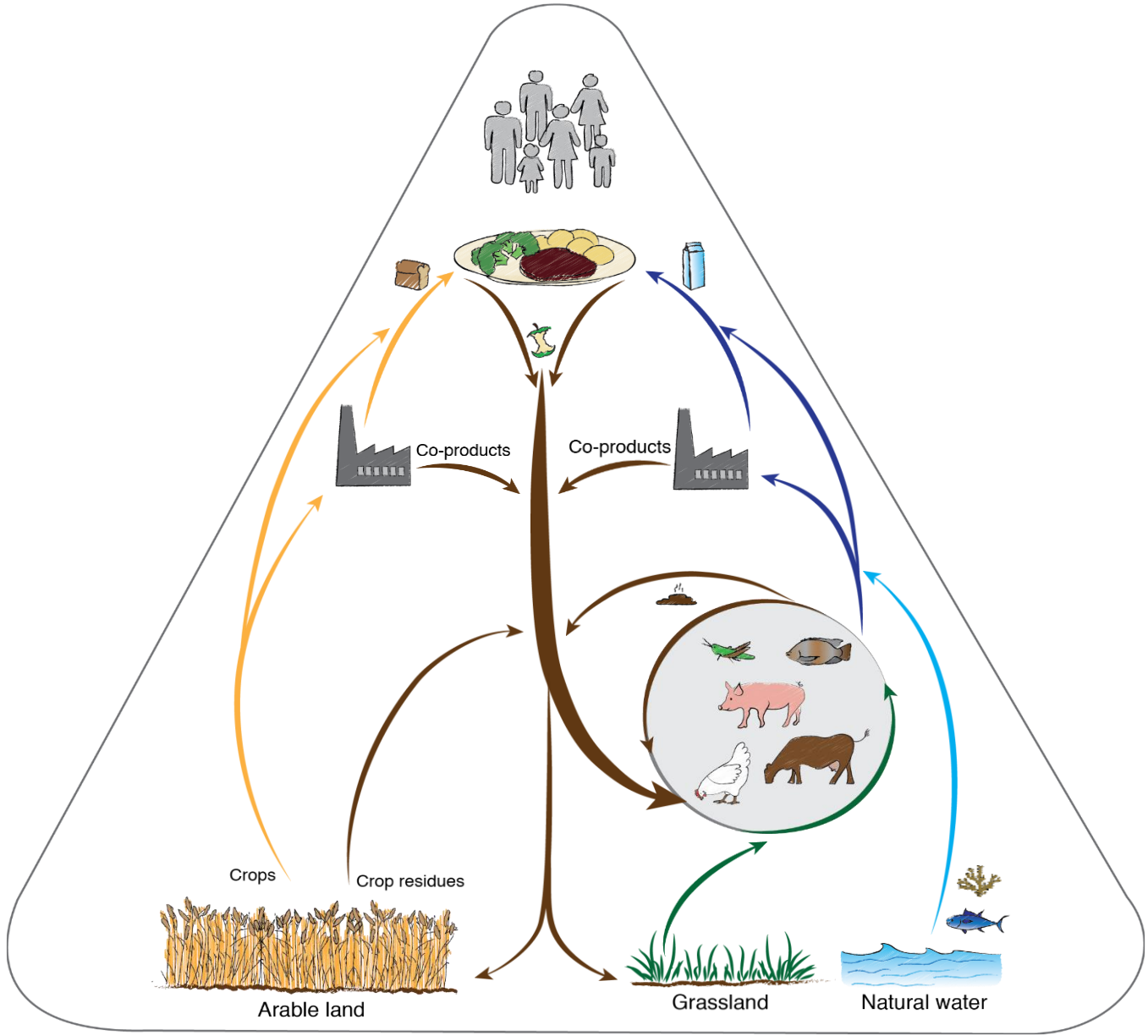


ORGCIR

Increased organic
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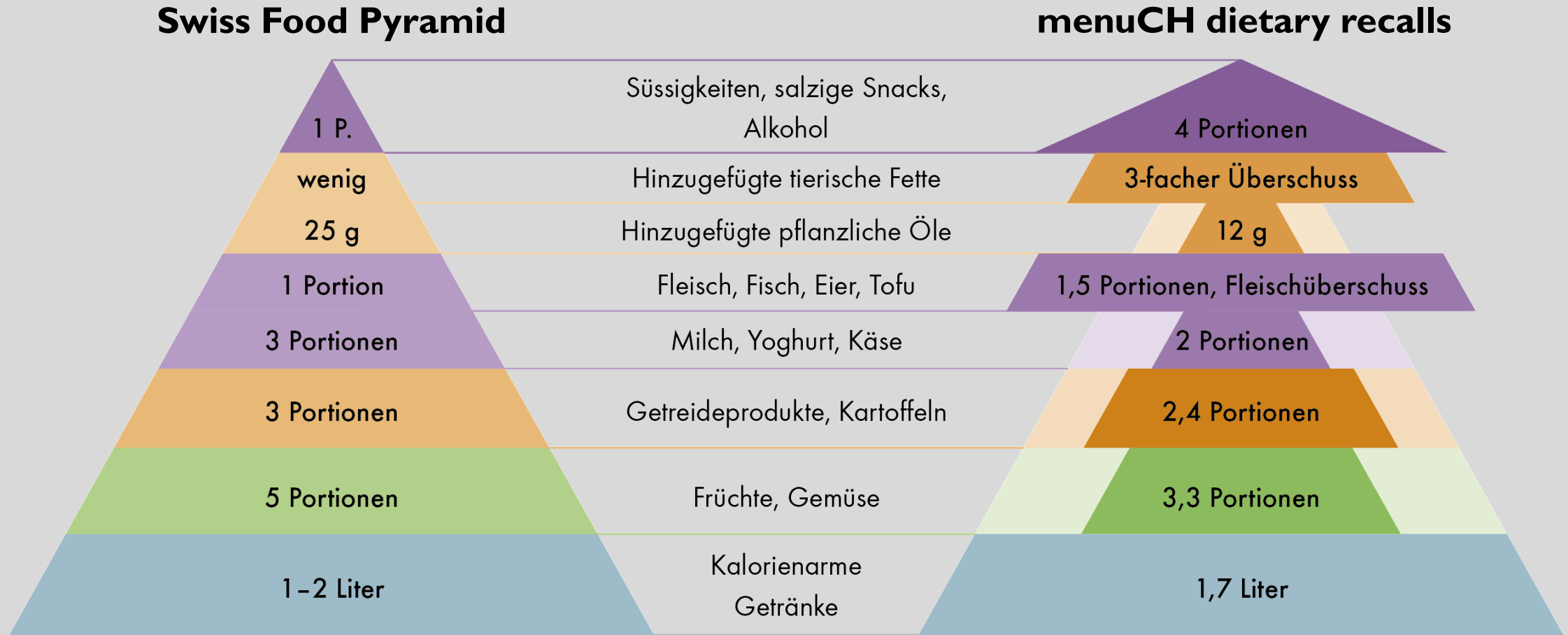
25% | 50% | 100%

Circularity: avoid feed-food competition



Source: Van Zanten et al., 2019, *Global Food Security*

Reference: menuCH dietary recalls





SOLm



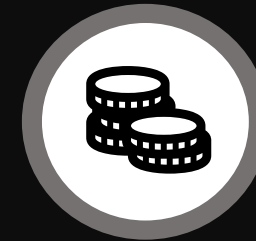
Environmental impacts
(greenhouse gas emissions, land use, nitrogen surplus)



Social risks
(Social Hotspots Index)



Diet quality
(Alternate Healthy Eating Index)



Consumer costs
(costs)

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

GHGe

**Land
use**

**N
surplus**

SHI

AHEI

Cost

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



RM

25%
50%
100%

	GHGe	Land use	N surplus	SHI	AHEI	Cost
25%	-14.8%	-17.1%	-14.9%	-1.8%	2.1%	-6.0%
50%	-29.1%	-32.5%	-28.7%	0.0%	13.6%	-11.0%
100%	-55.3%	-56.0%	-51.0%	18.9%	17.9%	-17.0%

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

 **RM**

 **SFP**

25%
50%
100%
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	GHGe	Land use	N surplus	SHI	AHEI	Cost
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	-29.1%	-32.5%	-28.7%	0.0%	13.6%	-11.0%
	-55.3%	-56.0%	-51.0%	18.9%	17.9%	-17.0%
	-8.5%	-8.3%	-8.0%	2.6%	14.3%	-6.9%
	-17.0%	-16.1%	-16.6%	5.3%	28.6%	-13.8%
	-34.0%	-33.2%	-32.2%	10.6%	57.3%	-27.6%

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

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 **SFP**

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	50%	-17.0%	-16.1%	-16.6%	5.3%	28.6%	-13.8%
	100%	-34.0%	-33.2%	-32.2%	10.6%	57.3%	-27.6%
	25%	-1.9%	-1.9%	-2.0%	-2.8%	0.0%	-2.4%
	50%	-3.8%	-3.7%	-4.0%	-5.6%	0.0%	-4.9%

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

 **RM**






 **SFP**







 **FW**

 **DOM**

25%
50%
100%
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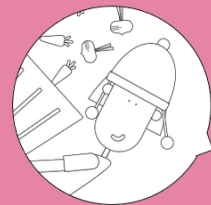
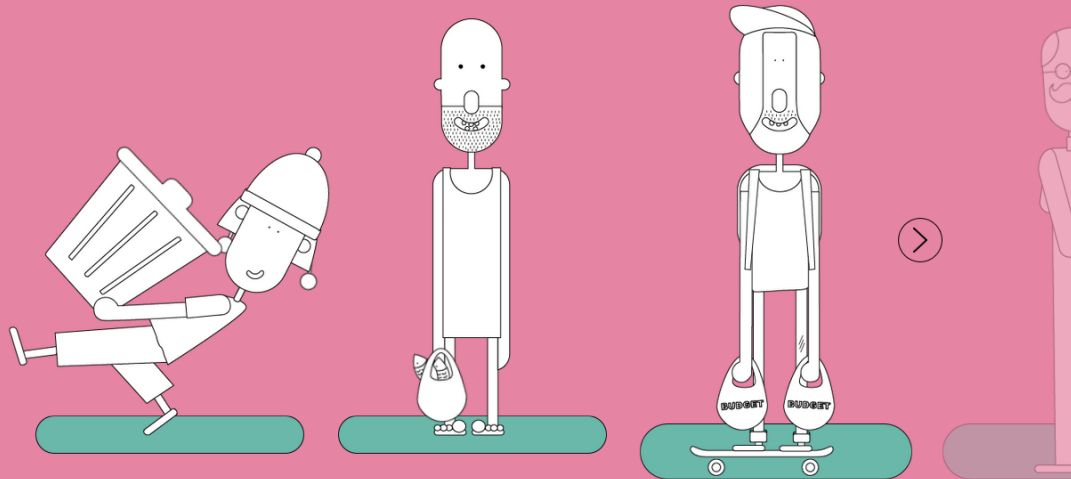
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	-55.3%	-56.0%	-51.0%	18.9%	17.9%	-17.0%
	-8.5%	-8.3%	-8.0%	2.6%	14.3%	-6.9%
	-17.0%	-16.1%	-16.6%	5.3%	28.6%	-13.8%
	-34.0%	-33.2%	-32.2%	10.6%	57.3%	-27.6%
	-1.9%	-1.9%	-2.0%	-2.8%	0.0%	-2.4%
	-3.8%	-3.7%	-4.0%	-5.6%	0.0%	-4.9%
	-0.3%	2.0%	-0.4%	-20.2%	0.0%	0.0%

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20-40%								
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		100%	-34.0%	-33.2%	-32.2%	10.6%	57.3%	-27.6%
	 FW	25%	-1.9%	-1.9%	-2.0%	-2.8%	0.0%	-2.4%
		50%	-3.8%	-3.7%	-4.0%	-5.6%	0.0%	-4.9%
	 DOM	50%	-0.3%	2.0%	-0.4%	-20.2%	0.0%	0.0%
	 ORG	25%	0.3%	8.3%	-15.0%	0.0%	0.0%	10.6%
		50%	0.5%	16.7%	-30.0%	0.0%	0.0%	21.1%
		100%	1.0%	33.3%	-60.0%	0.0%	0.0%	42.2%

			GHGe	Land use	N surplus	SHI	AHEI	Cost
<20%								
20-40%								
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		100%	-34.0%	-33.2%	-32.2%	10.6%	57.3%	-27.6%
	 FW	25%	-1.9%	-1.9%	-2.0%	-2.8%	0.0%	-2.4%
		50%	-3.8%	-3.7%	-4.0%	-5.6%	0.0%	-4.9%
	 DOM	50%	-0.3%	2.0%	-0.4%	-20.2%	0.0%	0.0%
		25%	0.3%	8.3%	-15.0%	0.0%	0.0%	10.6%
	 ORG	50%	0.5%	16.7%	-30.0%	0.0%	0.0%	21.1%
		100%	1.0%	33.3%	-60.0%	0.0%	0.0%	42.2%
		25%	-7.3%	-12.5%	-18.8%	0.0%	0.0%	10.6%
	 ORGCIR	50%	-14.6%	-28.1%	-37.5%	0.0%	0.0%	21.1%
		100%	-29.3%	-68.9%	-75.0%	0.0%	0.0%	42.2%

Healthy and sustainable: Simulator

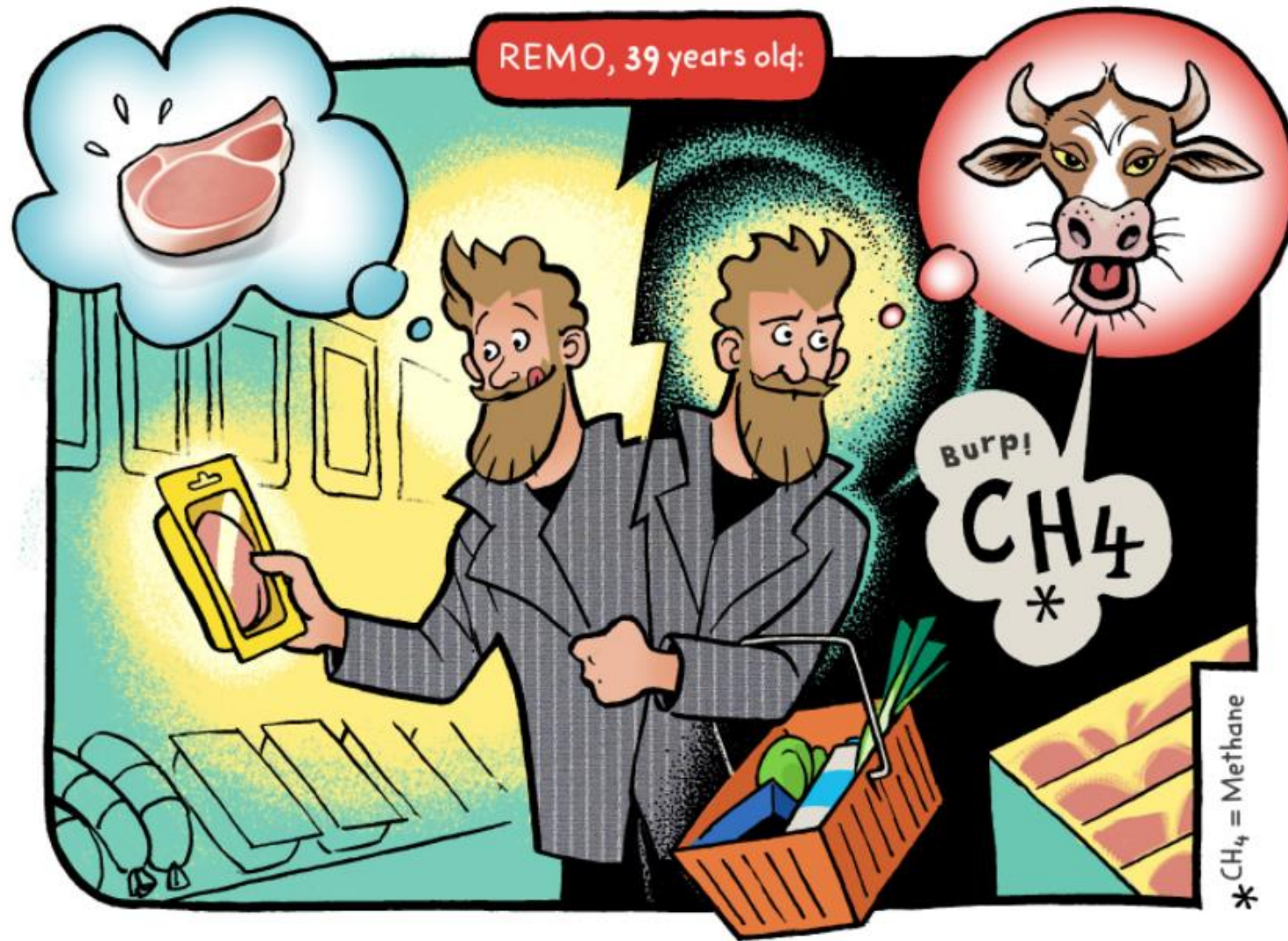
What type of consumer are you?



Sarah the food waste avoider

One third of global food production is either thrown away or wasted as it makes its way along the food chain. The resources used to produce it are therefore also wasted. This has made 51-year-old Sara sit up and think. Nowadays, she and her family take much greater care to ensure they don't leave food to rot or simply throw it away. As a result, Sara has been able to reduce household waste, and the family is saving money too.

<http://healthyandsustainable.ch/en/simulator>



<https://www.sge-ssn.ch/comic/>

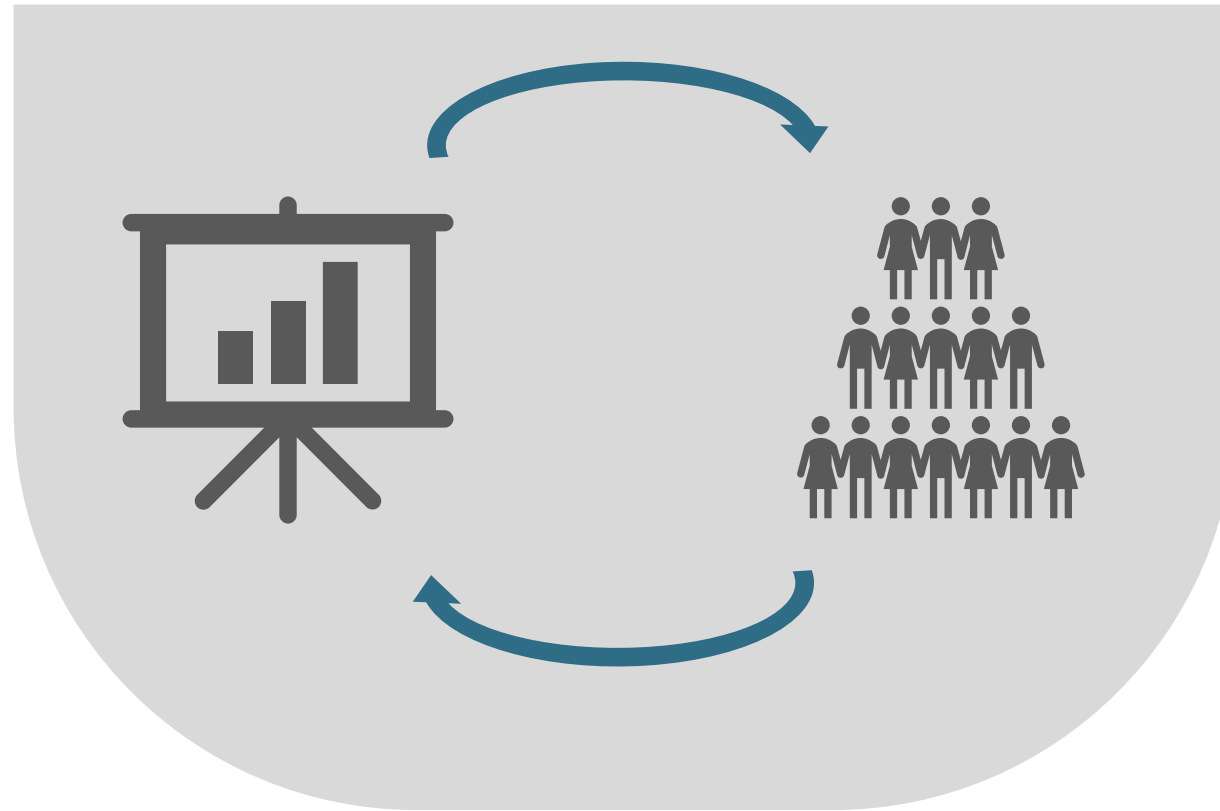
FiBL

MORE SUSTAINABLE ENJOYMENT — THIS IS HOW IT WORKS!

What we eat and buy has an impact on our health, the environment, the economy, and on humans and animals — both in Switzerland and in other countries. How can we make sure our influence is as positive as possible? How can we eat in a way that is healthy and sustainable? Here are some ideas...

Deliberative diets – food system modelling in deliberative processes

Outlook



- Measures that are better supported and accepted (yet impactful)
- Targeted policy recommendations

Contact

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