

2022



European Industrial Hemp Association

Hemp protein: new market opportunities

Agenda

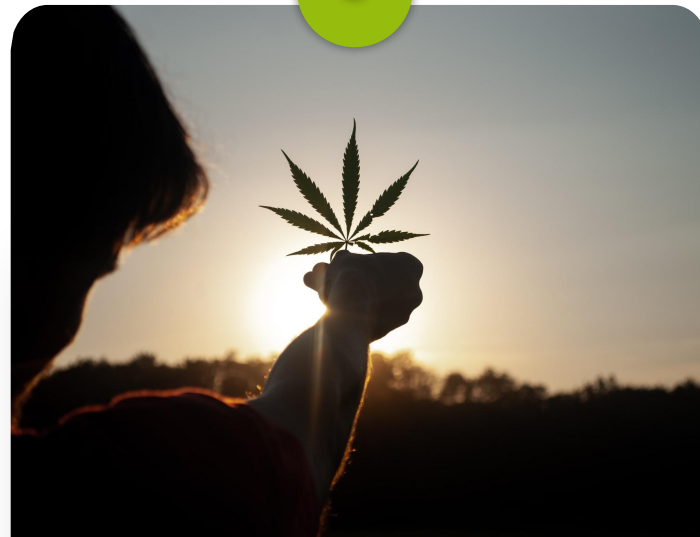
1



Overview

of the plant-based market

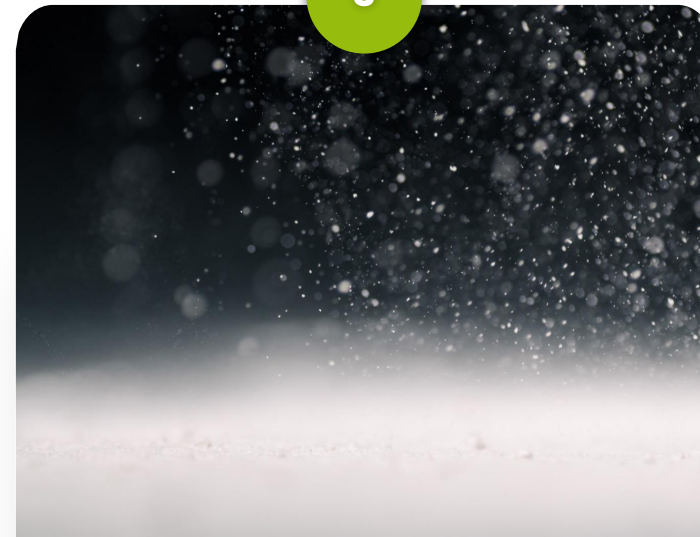
2



Existing solutions

for the plant-based market
and their comparison to
hemp

3



Examples

of implementation of hemp
protein in plant-based
technologies

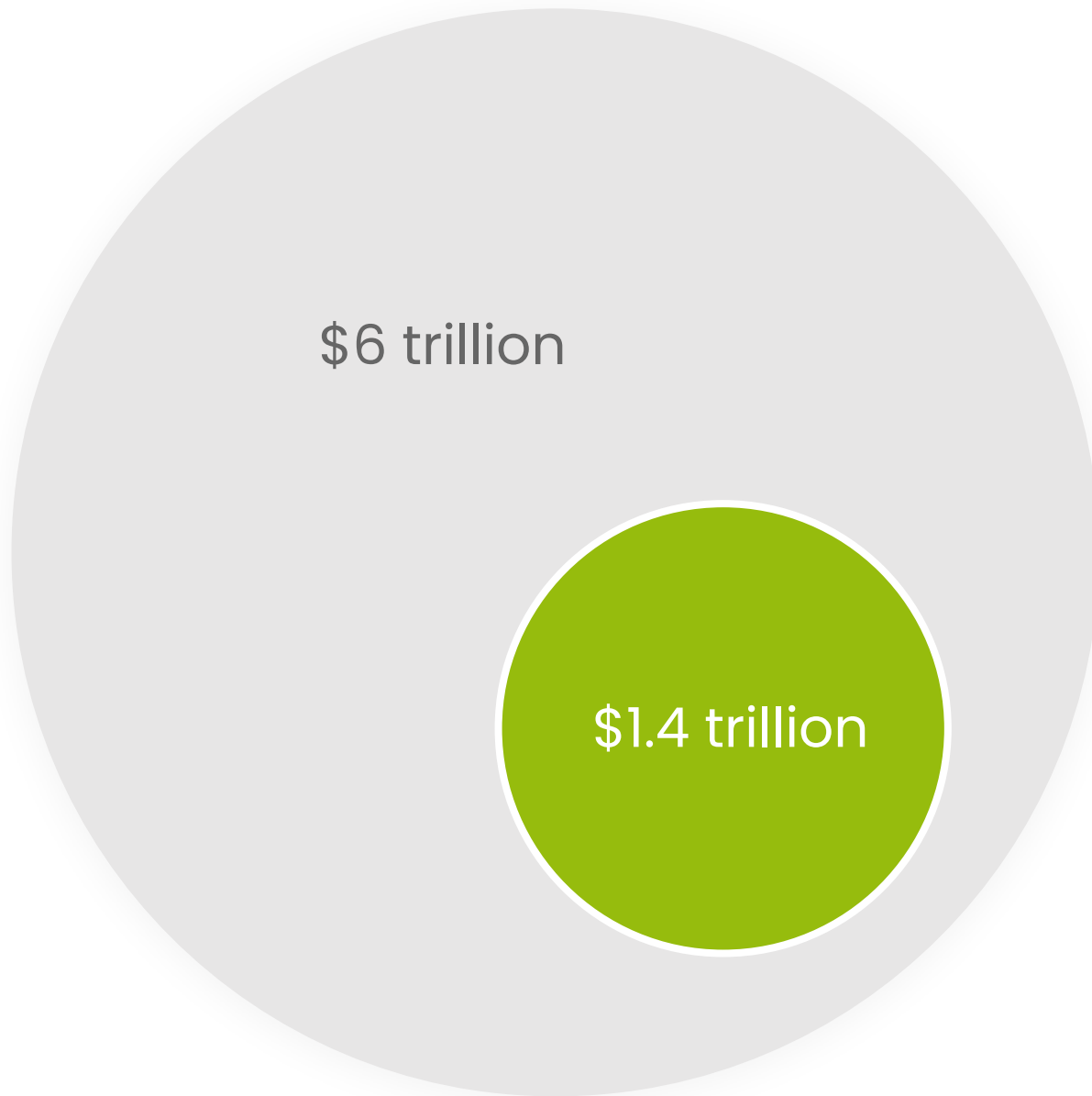


1

OVERVIEW

of the plant-based market

Food Market – The Big Picture

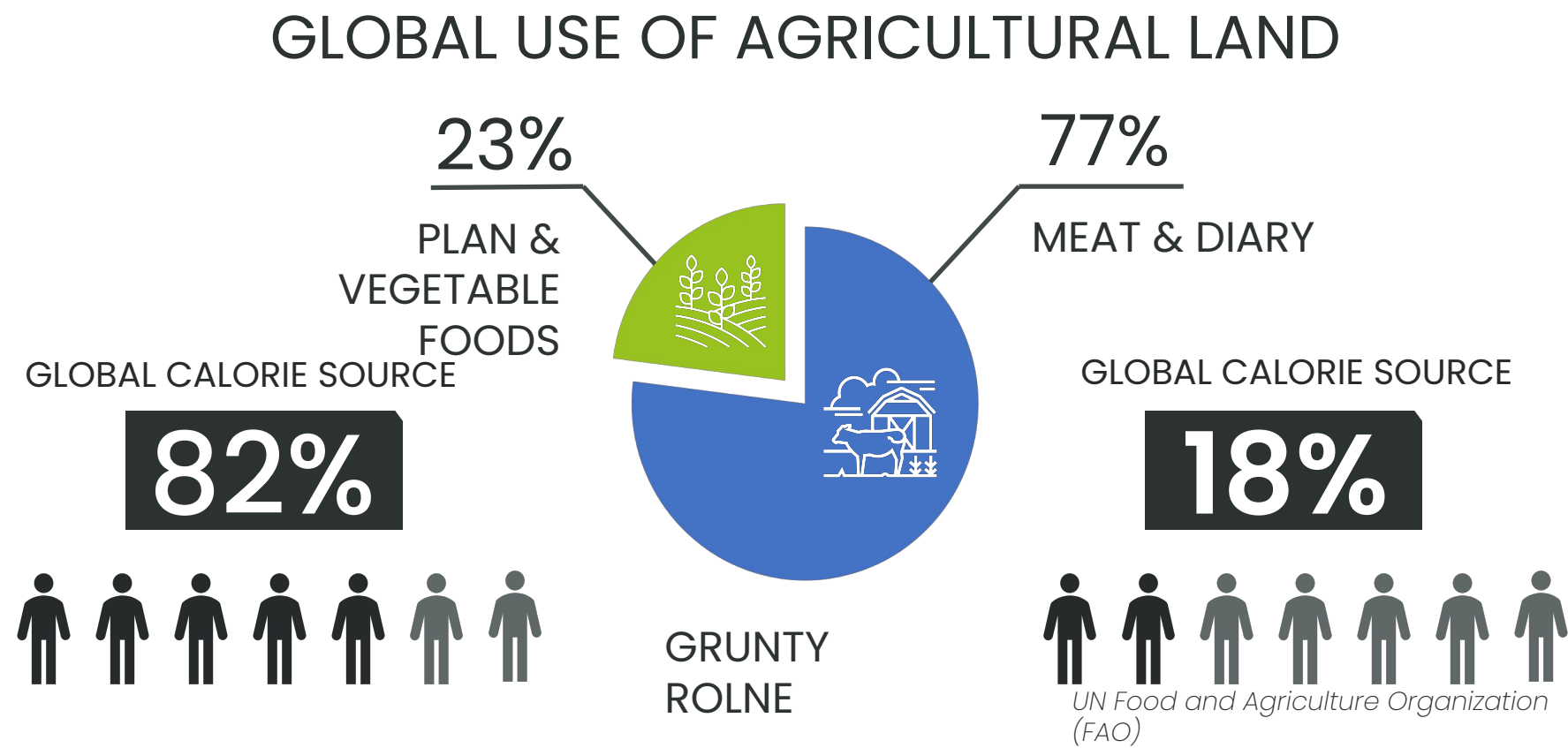


The global food industry is worth **over \$6 trillion**

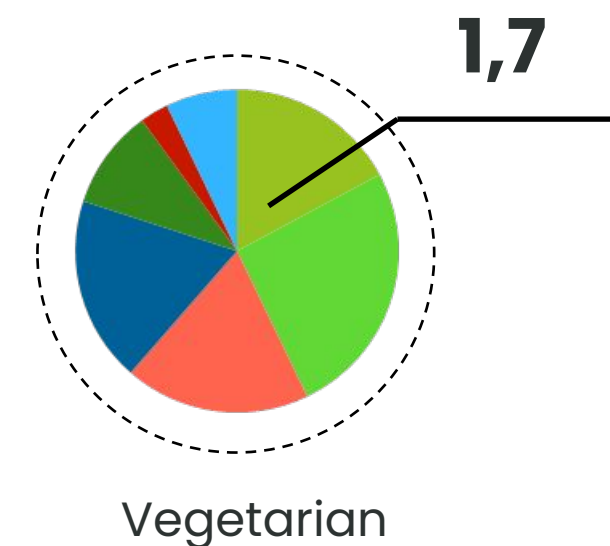
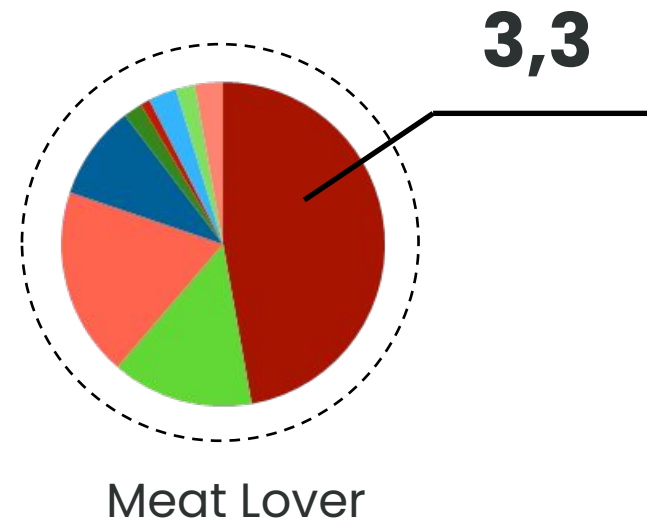
The **meat industry** is the biggest category in the food industry

Source: Barclays, 2019. Alternative meat sales to hit \$140 annually

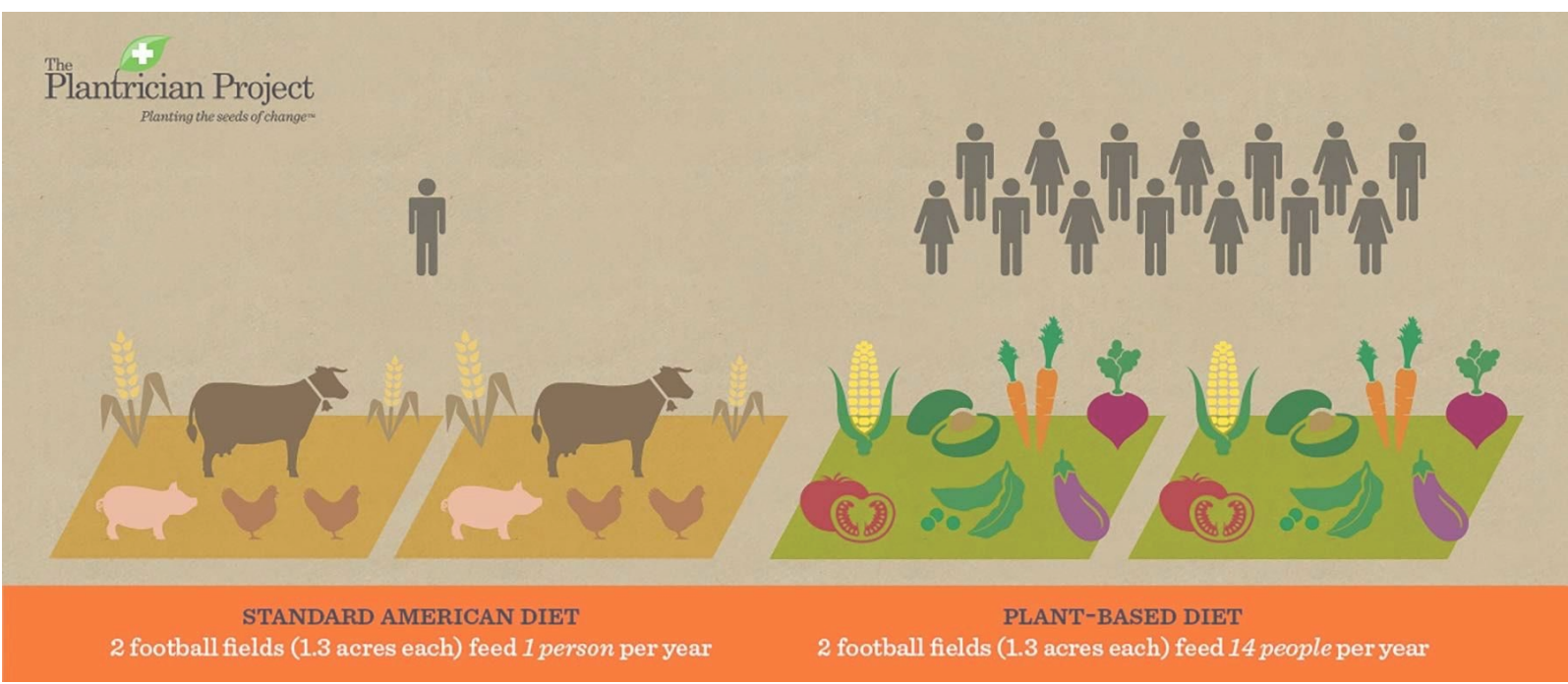
Problem – the cost of feeding the world today



COMPARING CARBON FOOTPRINTS (T CO2E)



*Shrink That Footprint



Food Market – Global Meat Market Forecast



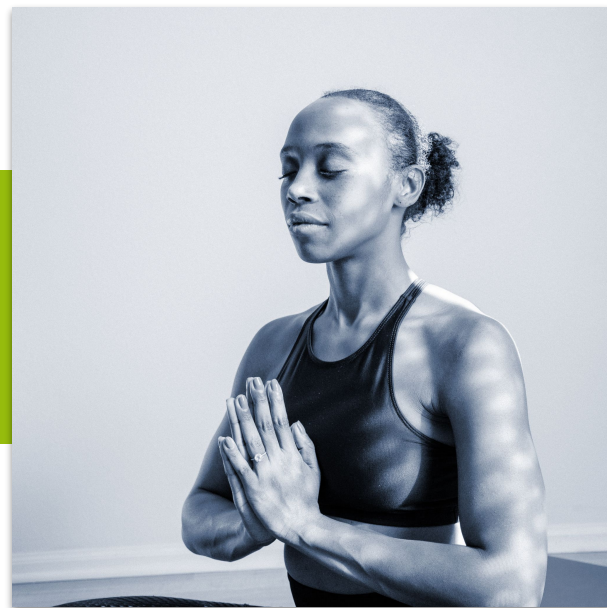
2025



2040

Source: ATKearney: How will Cultured Meat and Meat Alternatives Disrupt the Agricultural and Food Industry

Reasons for Customer Interest in Plant-Based Meat



**Health
Ambitions**



Price



**Climate
Concern**

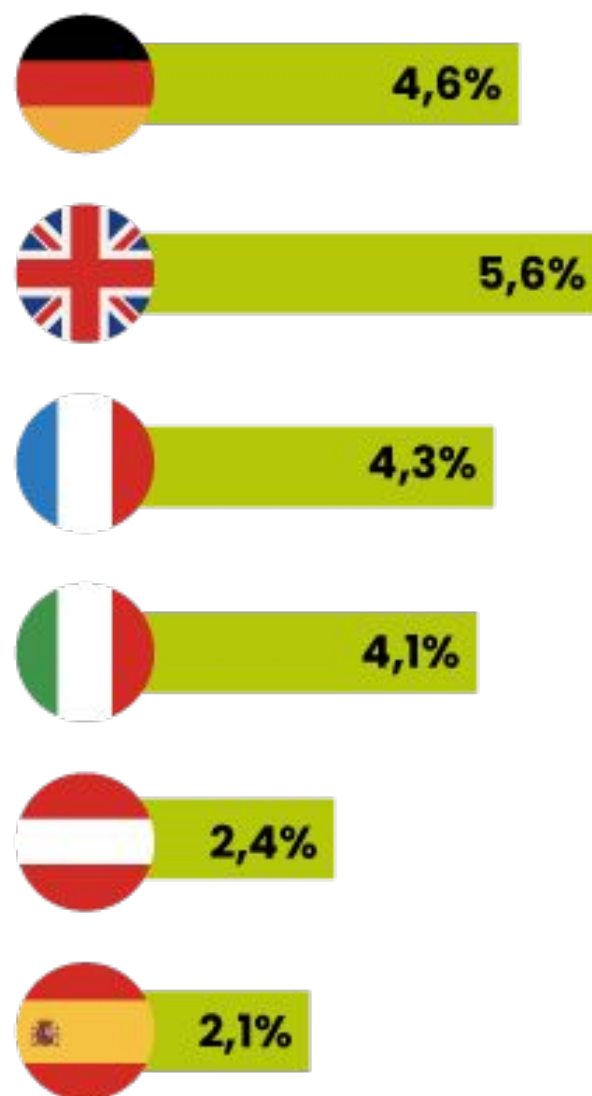


**Animal
Welfare**

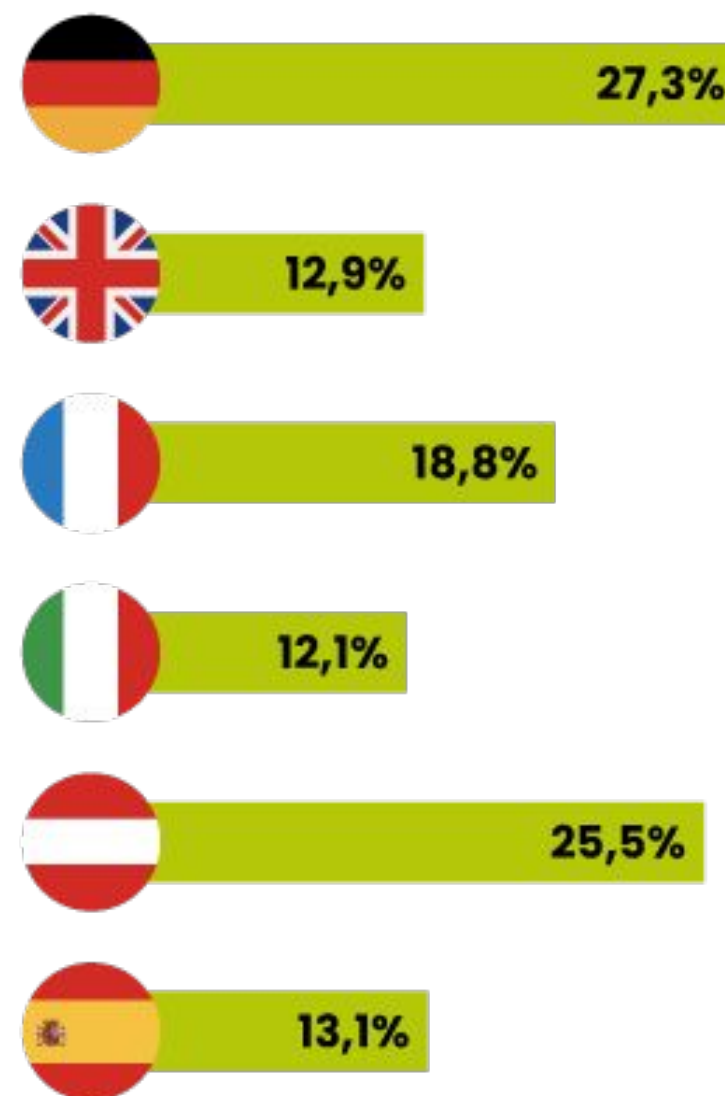
Source: Euromonitor International

How Europeans Eat

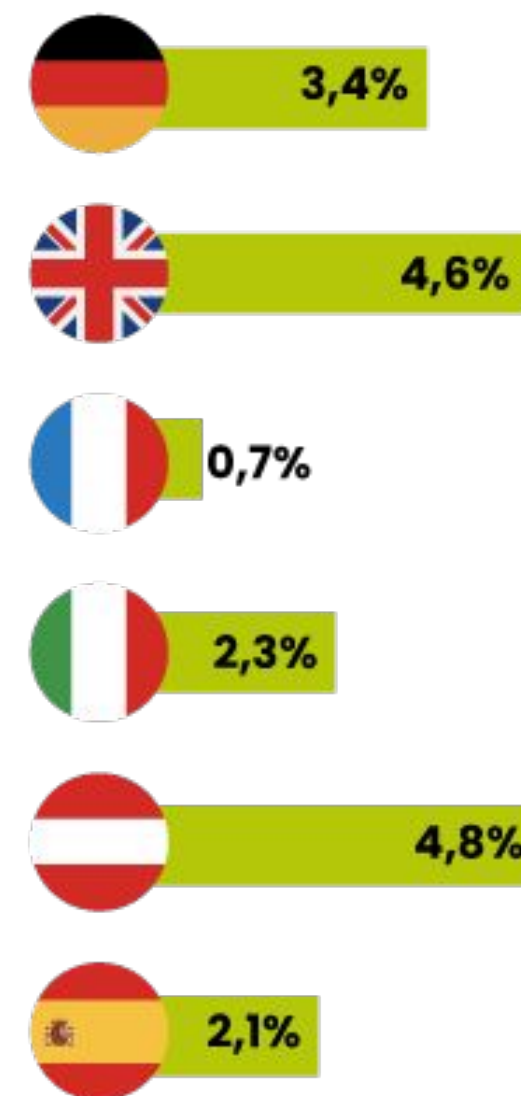
vegetarian



flexitarian



pescetarian



Source: Veganz Ernährungsstudie 2021

INVESTORS INTEREST IN THE PLANT-BASED INDUSTRY IS GROWING

IN 2020 INVESTMENTS IN THE INDUSTRY WILL EXCEED **USD 2.15 TRILLION**

CORPORATE INVESTORS ARE ALSO PRESENT ON THE INVESTMENT MARKET

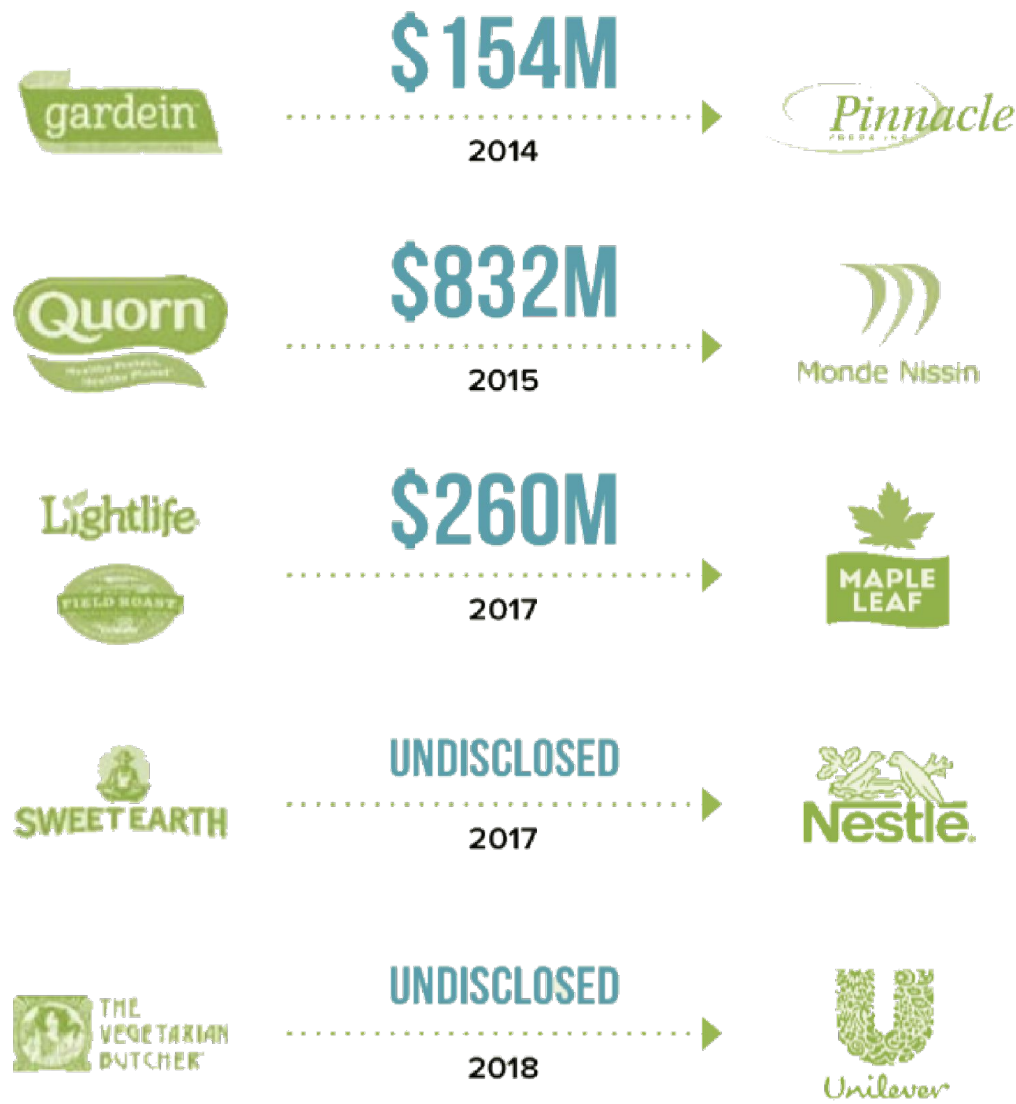
Table 3: Top 10 plant-based food producer fundraising rounds of 2020

Company	2020 invested capital (\$M)	Headquarters
Impossible Foods	\$700	Redwood City, USA
LIVEKINDLY Co.	\$338	Los Angeles, USA
Oatly	\$278	Malmö, Sweden
Califia Farms	\$172	Los Angeles, USA
NotCo	\$85	Santiago, Chile
Green Monday	\$70	Hong Kong
Ripple Foods	\$56	Berkeley, USA
v2food	\$55	Sydney, Australia
Good Catch	\$37	Heath, OH, USA
Meatless Farm	\$32	Leeds, UK

Source: GFI analysis of PitchBook data.
Note: Data has not been reviewed by PitchBook analysts. See Box 6 for GFI’s data collection methodology and the definition of “invested capital.”

MAJOR ACQUISITION

Several large FMCG (Fast-Moving Consumer Goods) and meat companies worldwide have acquired plant-based meat brands, including:



All figures are USD

*Source: Alternative Proteins: Market Research on Consumer Trends

A silhouette of a person's head and hand holding a cannabis leaf against a bright sunset sky. The person is on the left, looking towards the right. The hand is holding the leaf up, and the sun is visible in the background, creating a strong backlight effect.

2

EXISTING SOLUTIONS

for the plant-based market and their comparison to hemp

Current problems on the market

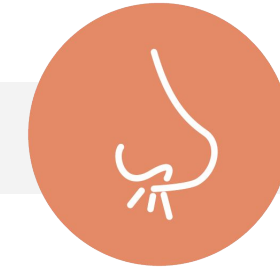
Why do we need a better ingredient?



Bad taste



Lack of healthy ingredients
that make a nutritious
product



Bad smell



Not full for long



Not healthy
(full of processed unhealthy
vegan ingredients)



Bad for the
environment



Doesn't grow
locally

Hemp – the most sustainable protein as an ingredient

But why hemp?



Plant-based, organic & can be cultivated fully in Europe in large amounts



Nutrition value make it to a super food



Sustainable and supports officially the Green Deal of the European Union



Neutral smell and taste



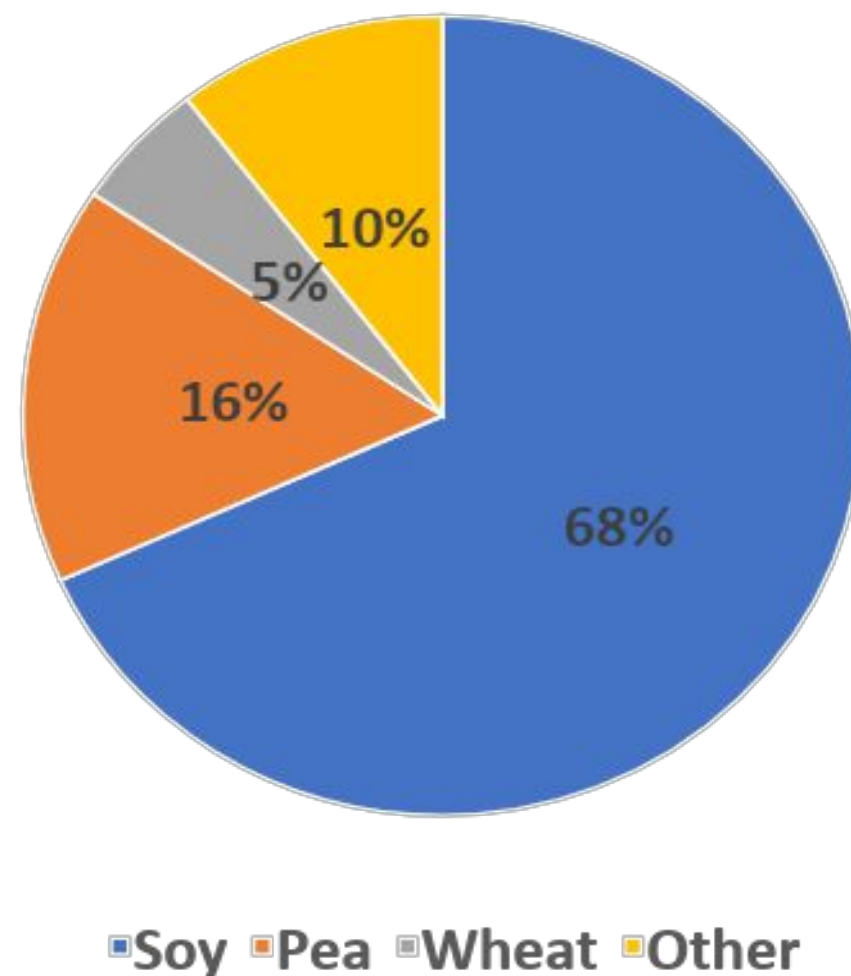
High non-digestible & digestible fiber which make full for a long time



Contain omega 3. 6 & 9 and all essential amino acids

Hemp vs other major sources of plant protein

Global sources of plant based meat



Perimeter	Soy	Pea	Hemp
Amino Acid & minerals	<ul style="list-style-type: none"> Contains all 9 essential amino-acids Missing methionine 	<ul style="list-style-type: none"> Iron, magnesium, phosphorus, vit. B6, B2, A, K Niacin, molybdenum, fiber 	<ul style="list-style-type: none"> Contains all essential amino acids Magnesium, calcium, iron, zinc, copper Omega 3 & 6 fatty acids
Digestibility/ Health concerns	<ul style="list-style-type: none"> Contains high amounts of isoflavones (plant estrogens) Contains high amounts of thryspin inhibitors May cause allergies 	<ul style="list-style-type: none"> Low in fat, high in carbohydrates May cause bloat 	<ul style="list-style-type: none"> Easy to digest Hypoallergenic
Environmental Impact	<ul style="list-style-type: none"> Most crop is genetically modified Grown in areas of deforestation 	<ul style="list-style-type: none"> Uses low amounts of water Low environmental impact 	<ul style="list-style-type: none"> No pesticides and little fertilizers used Uses low amounts of water Absorbs more CO2 than any other protein plant
Price	<ul style="list-style-type: none"> Relatively low 	<ul style="list-style-type: none"> Medium 	<ul style="list-style-type: none"> Relatively high

Source: Plant-based meat market, Arizton Advisory & Intelligence 2020



3

EXAMPLES

of implementation of hemp protein in plant-based technologies

Government grant project

Sustainable regional plant-based food products made of hemp



→ build a regional **hemp supply chain**



→ In-depth research on hemp seeds, which have a high-seed yield but also high protein, fibre etc. content



→ develop **plant-based food** made of hemp



Government grant project

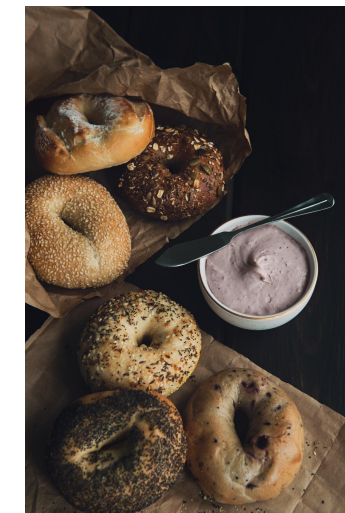
Sustainable regional plant-based food products made of hemp



- ✓ already grow hemp in Europe on over 400 ha to test different hemp seeds



- ✓ Used different method to process hemp protein for example with dry and wet extrusion



- ✓ developed so far different products and had success in sausages, cold cuts, meat balls, protein shakes, spreads & schnitzel

HEMPEAT – Hemp based meat alternative



HEMP PROTEIN



Perimeter

per 100g

Calories	252 kcal/ 1111 kJ
Fat	12,6 g
Saturated	1,3 g
Unsaturated	10,3 g
Carbohydrate	5,8 g
Sugar	1,65 g
Fiber	1,7 g
Protein	27,3 g
Salt	1,16 g

HOTELS, RESTAURANTS & CATERINGS



FOODS MANUFACTURERS & READY TO EAT



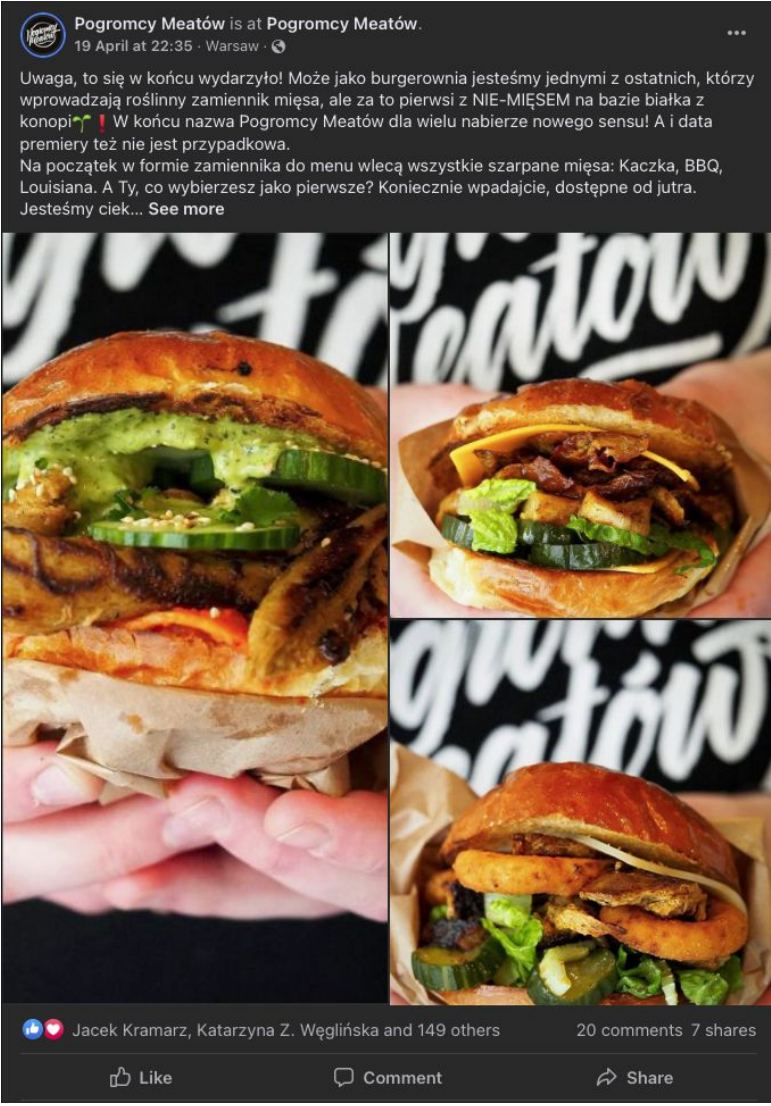
RETAIL



HEMPEAT – examples of application



HEMPEAT – examples of application





**Thank
You**