

# Precision Fermentation

A deep-dive into the precision fermentation venture space in Europe and Israel

# About

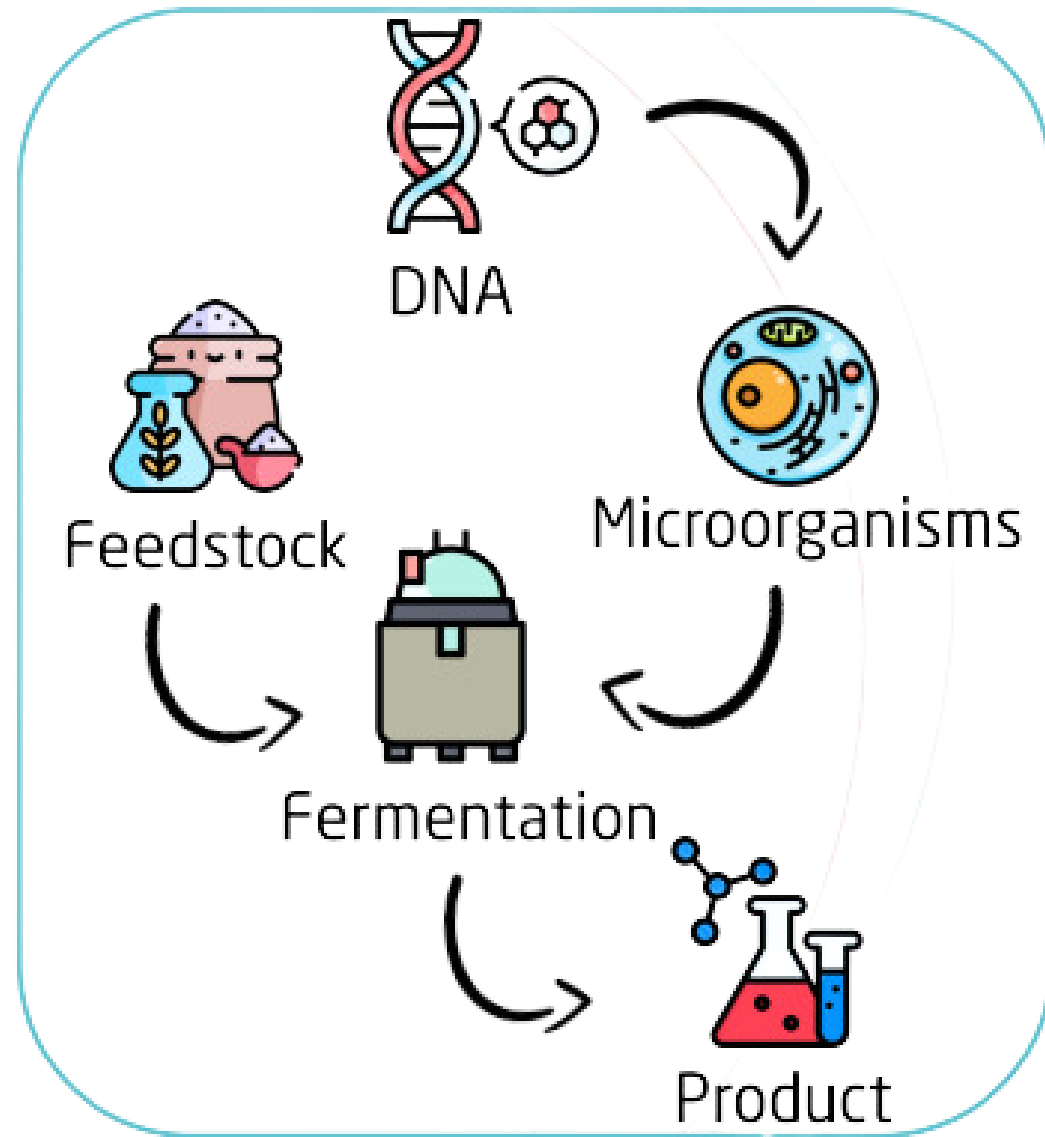
The logo for Net0 features the text "Net0" in a large, black, sans-serif font. To the right of the "0" is a green icon consisting of three horizontal bars of increasing height, resembling a staircase or a bar chart.

Net Zero Insights is a data and research firm that exclusively focuses on Climate Tech. The company operates the most comprehensive database in the climate innovation space, with a specific emphasis on venture capital. By leveraging its data and domain knowledge, Net Zero Insights regularly produces research on the industry's current state.



The European Circular Bioeconomy Fund (ECBF) is the first venture fund exclusively dedicated to the Bioeconomy. The fund aims to catalyze the transition towards a sustainable future by investing in biobased growth-stage companies driving the shift from a fossil-based to a bio-based economy.

# Precision Fermentation: Sustainable Production with Microbial Cell Factories



## Definition

Precision Fermentation is an innovative approach in which microorganisms are used as "cell factories" in order to generate different functional ingredients. Learn more [here](#).

This approach can reduce the environmental footprint of production processes by optimizing resource usage, including land, water, and energy, while also enabling waste and pollution minimization.

## Scope of analysis

Precision fermentation can be used in a wide range of applications such as food, agriculture, textiles, pharma, chemicals, biofuels, and others. The following analysis excludes biofuels and pharma.

# Key Takeaways

## Funding Peak in 2022

p.05

Precision fermentation funding hit an all-time high in 2022 with a 160% YoY growth. 2023 is predicted to be a strong year.

## Food & Beverage Companies Leading

p.14

Over 50% of companies focus on food and beverage applications, with a significant 70% of the funding being allocated to the sector.

## Investment Into Low TRL Companies

p.09

Deals and funding into low-maturity technologies reflect investors' confidence in the potential of precision fermentation.

## Second Generation Feedstock Grows

p.12

Companies using first-generation feedstock get most funding. But, waste as feedstock companies start to catch investors' attention.

## 85% of Deals Under €10m

p.08

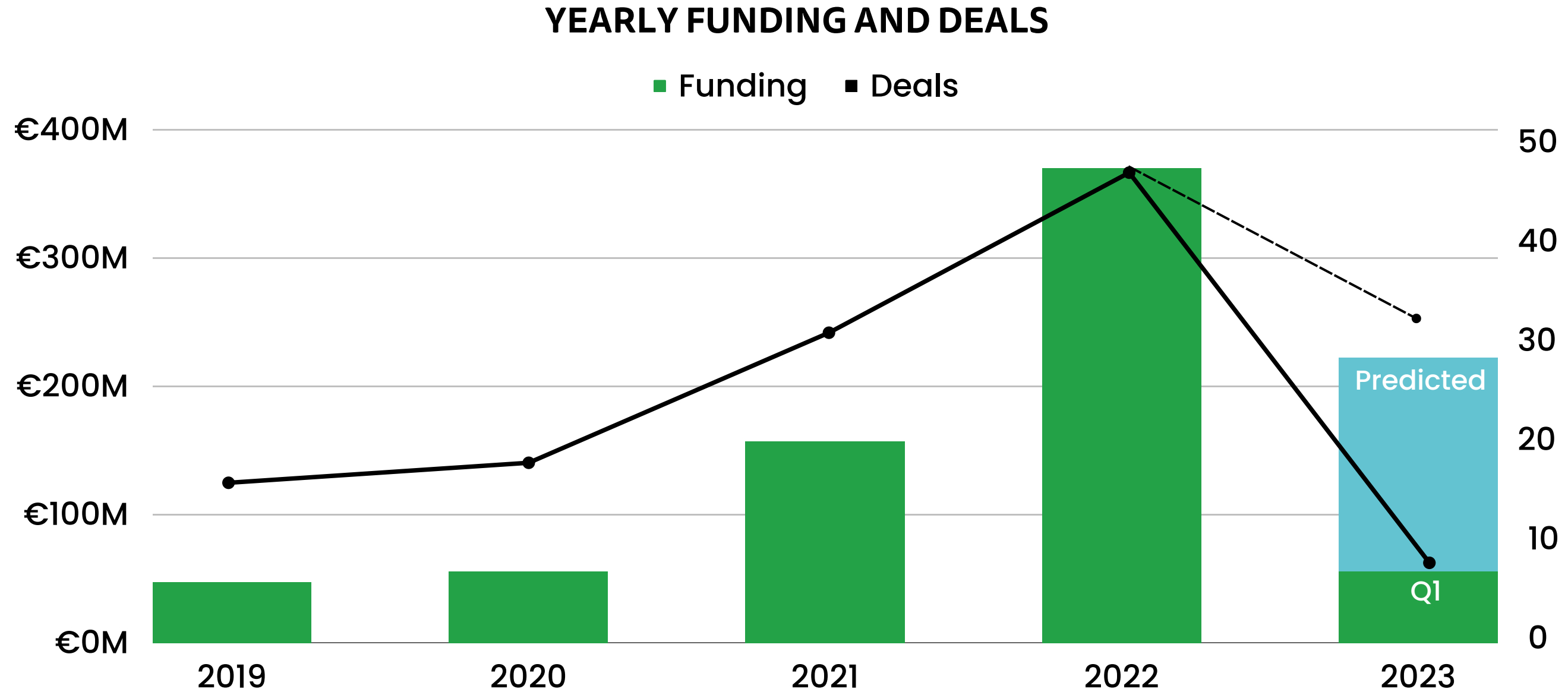
Great majority of deals have been under €10M, with only 2 surpassing the €50M mark (both in 2022).

## Israel Leads Funding

p.16

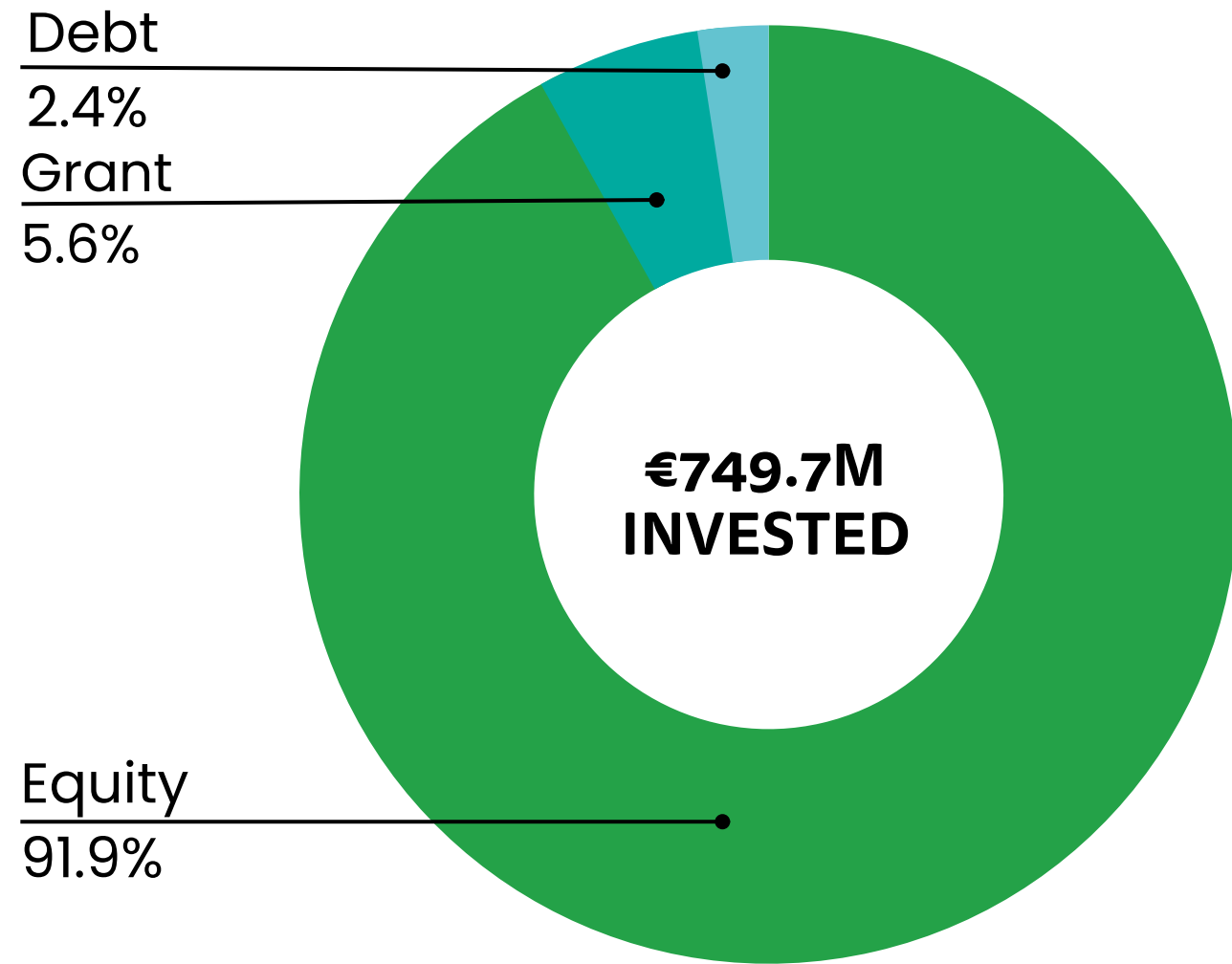
Israel attracts most funding. Especially Remilk and Amai Proteins deals in 2022

# Precision Fermentation Funding is Surging Towards a Strong 2023 After a Peak in 2022

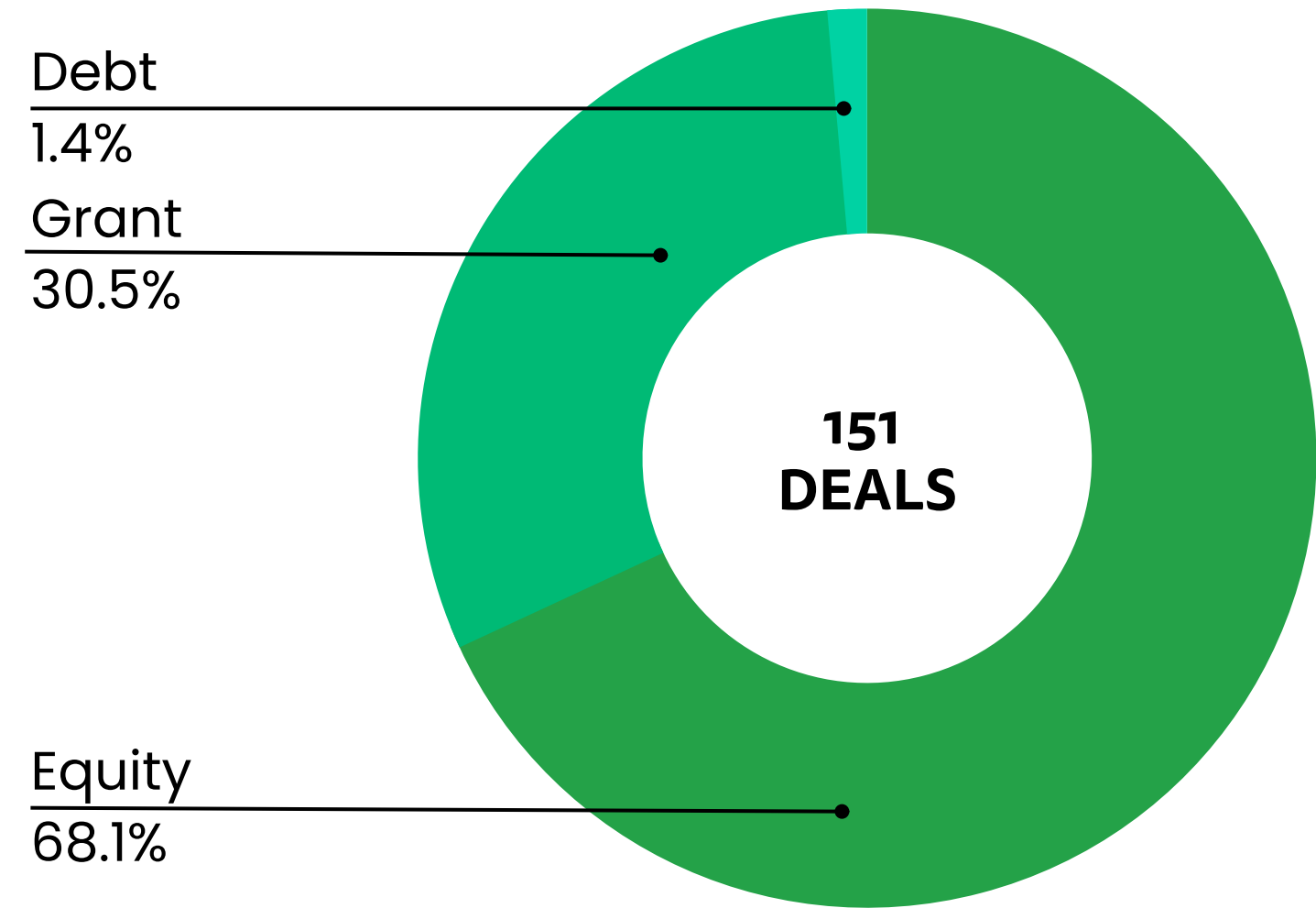


# Out of the €750M Invested in Precision Fermentation, Equity Plays a Dominant Role, Accounting for Over 90% of Funding

SHARE OF FUNDING BY INVESTMENT TYPE

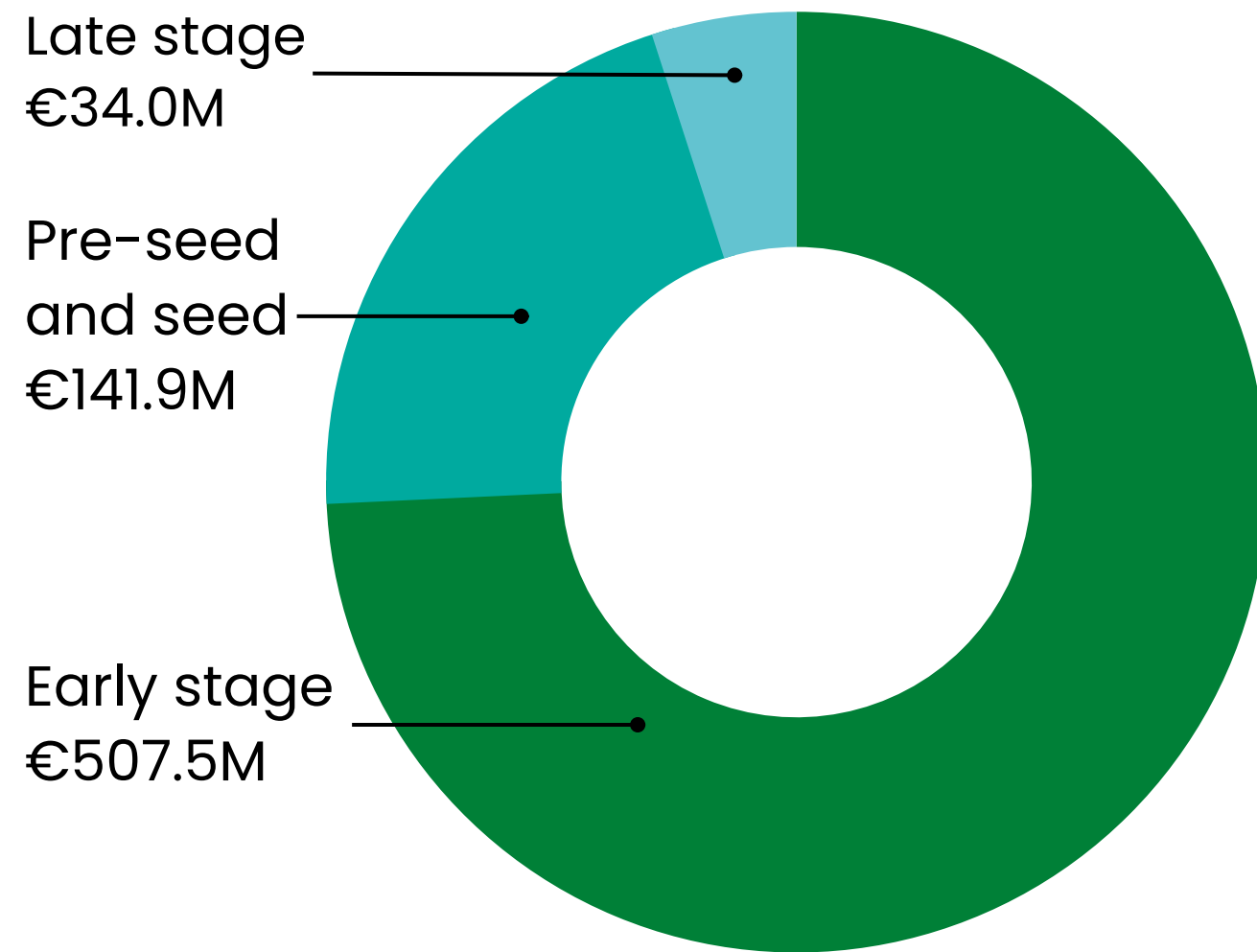


SHARE OF DEALS BY INVESTMENT TYPE

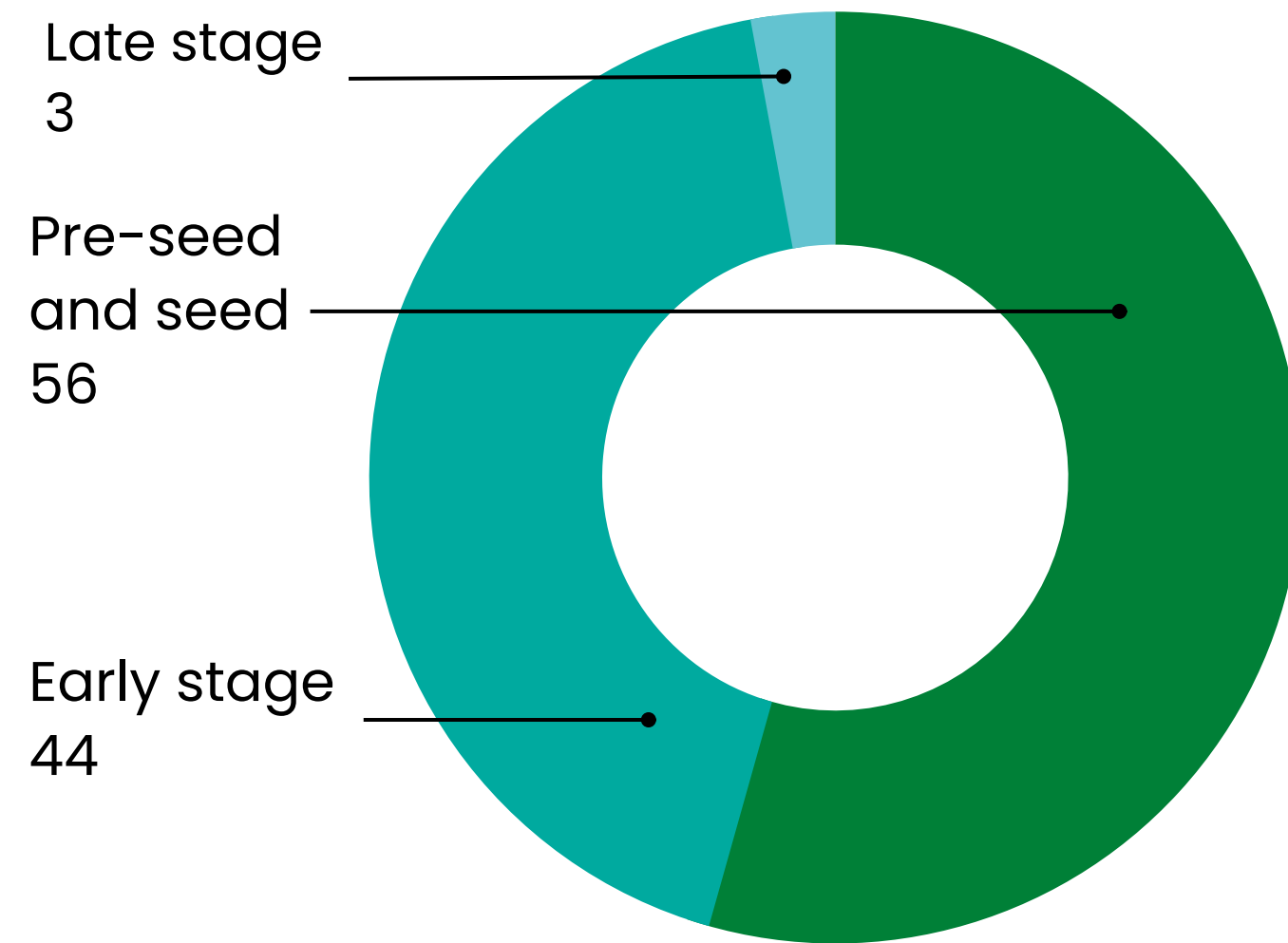


# Early Stage Equity Accounts for 74% of Funding, with Pre-Seed and Seed Leading in Number of Deals

EQUITY FUNDING BY STAGE

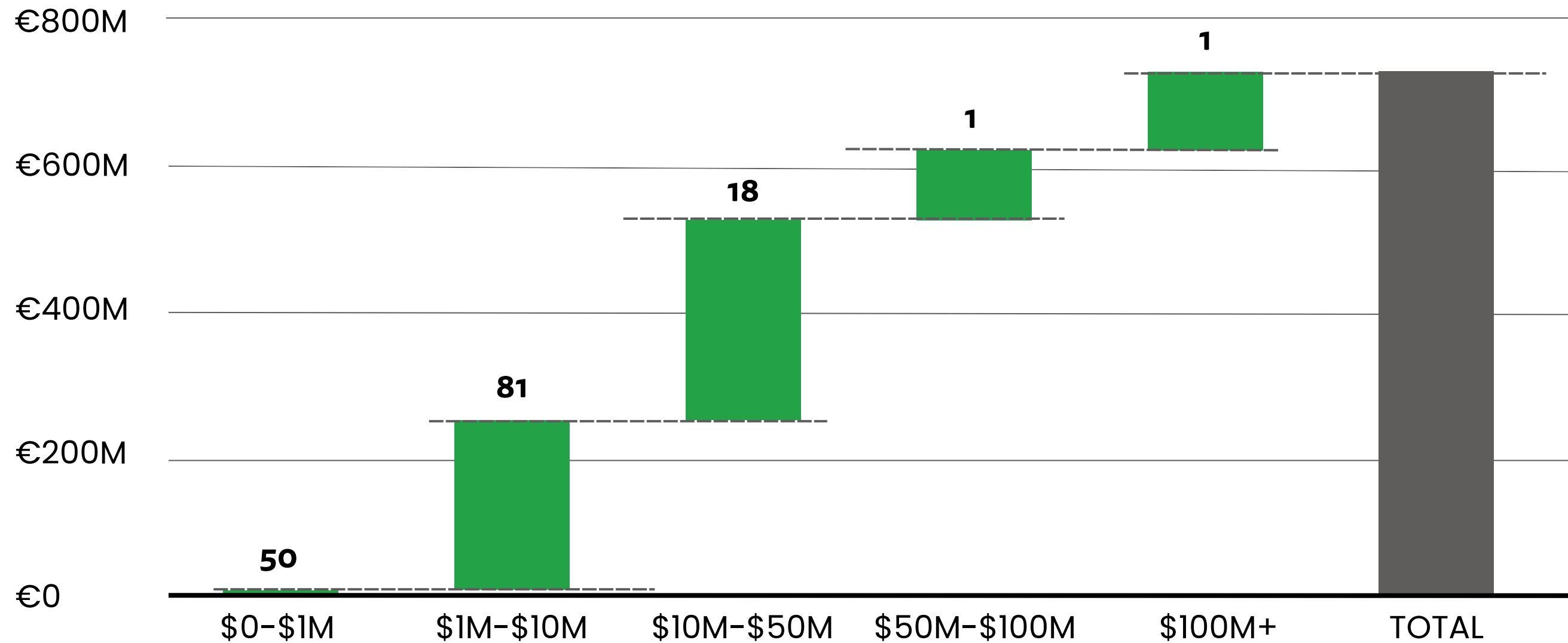


EQUITY DEALS BY STAGE



# Over 85% of Deals in Precision Fermentation are Under €10M, with Only 2 Deals Surpassing €50M

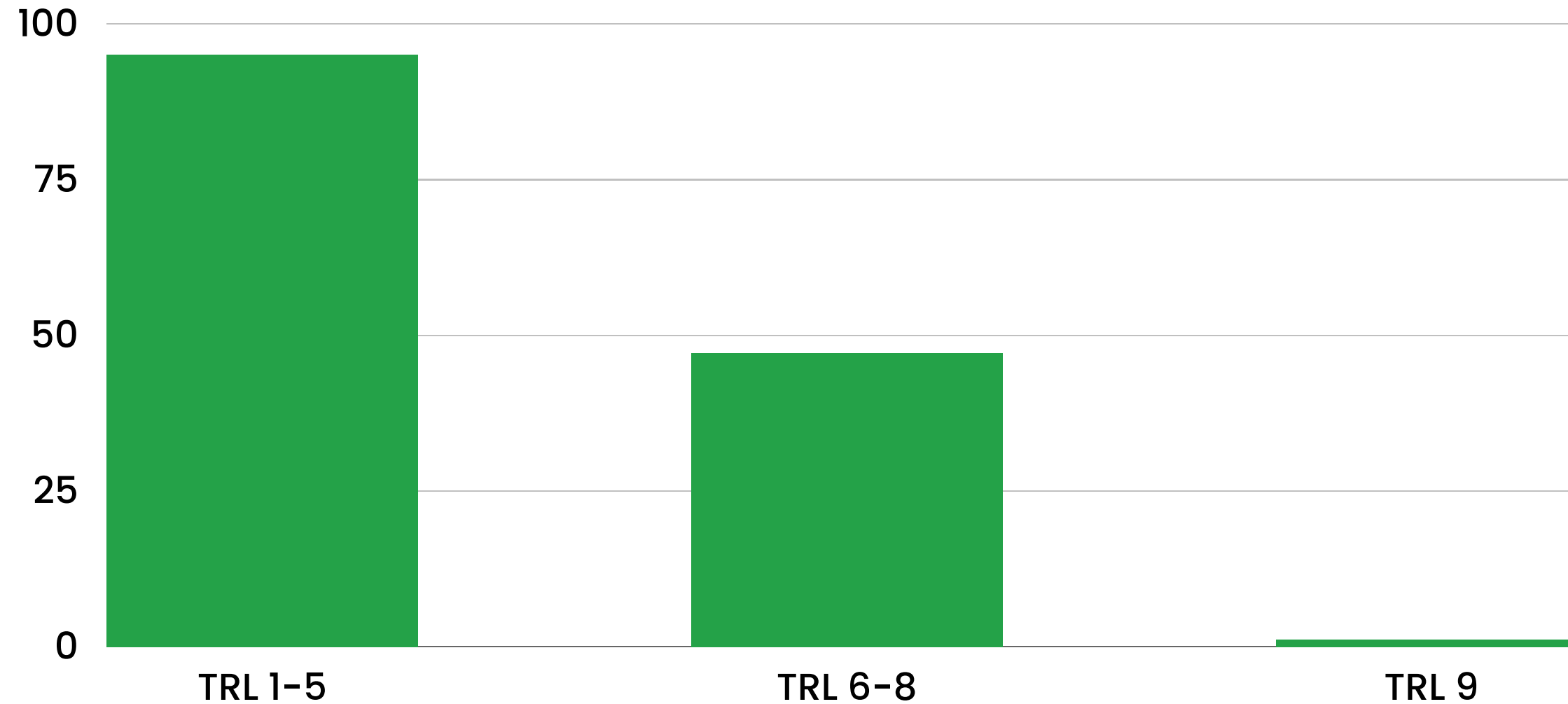
SHARE OF FUNDING BY DEAL SIZE





# Number of Deals in Technologies with Low Maturity Shows Investors' Confidence in Precision Fermentation

DEALS BY TECHNOLOGY READINESS LEVEL (TRL)



# Framework for Precision Fermentation Startups

We Classified Precision Fermentation Startups by Feedstock, Application, and Product Type

## Feedstock

- First generation sugars
- Waste
  - Agricultural waste
  - Industrial waste
  - Food waste
  - Municipal waste
- Gasses

## Application

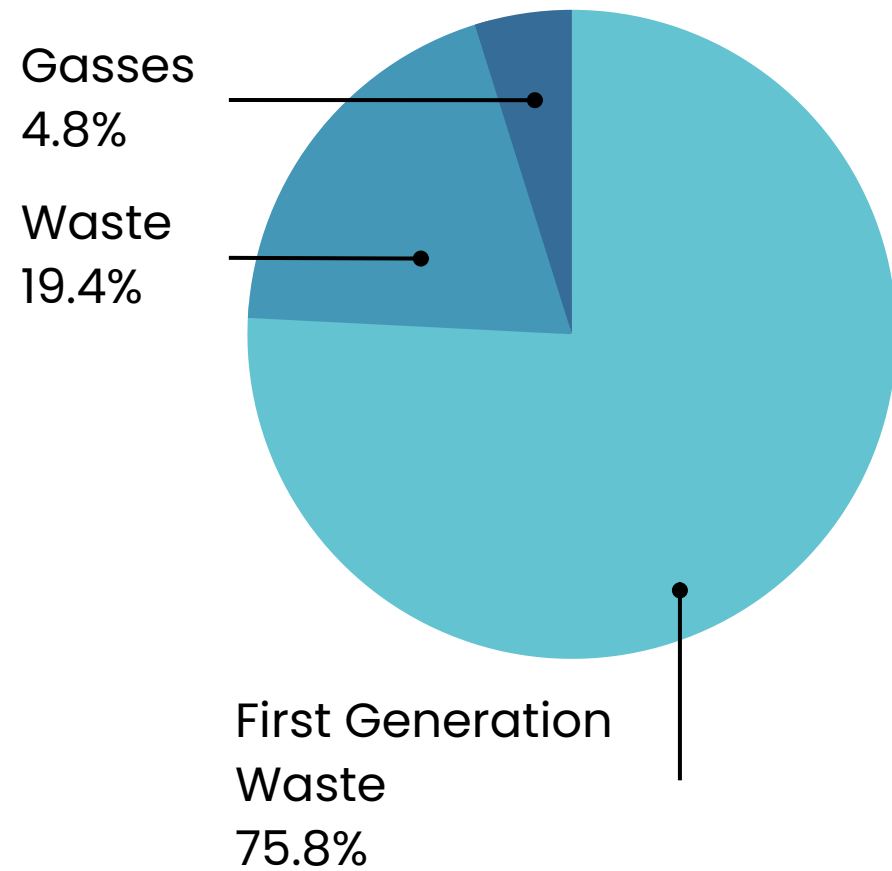
- Food & beverage
- Multi-application
- Home & personal Care
- Textiles
- Service
- Agriculture
- Packaging

## Product Type

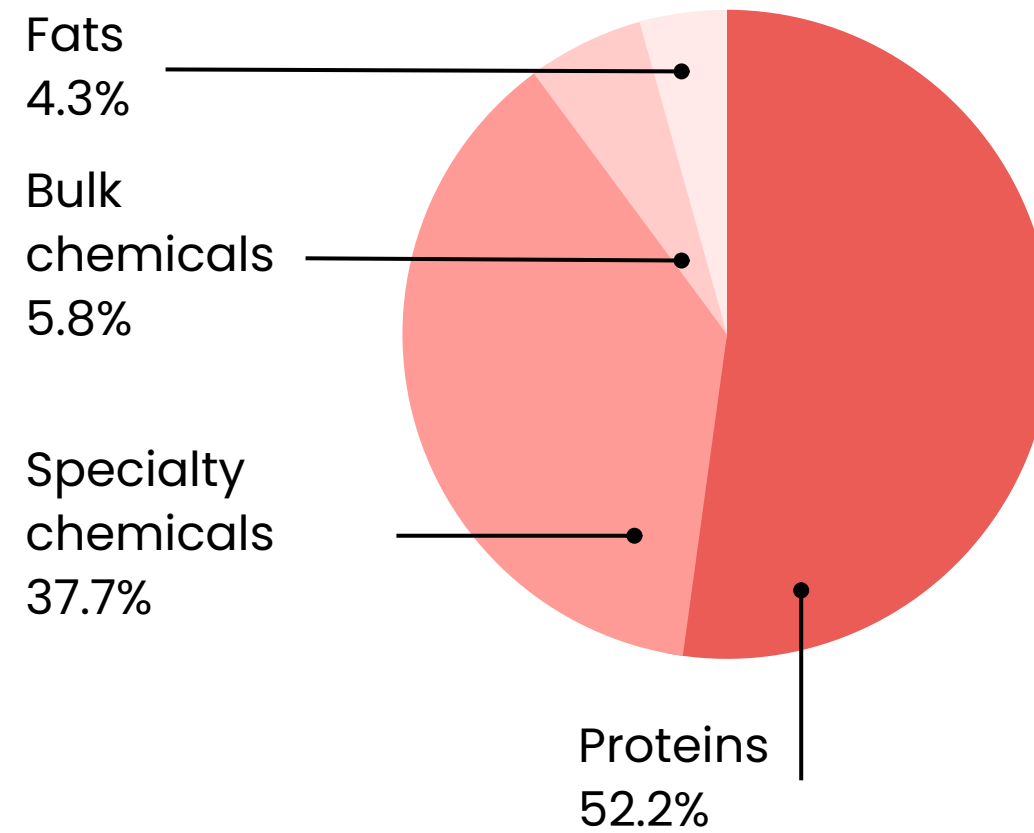
- Speciality chemicals
- Bulk chemicals
- Fats
- Proteins

# Overview of Number of Startups Categorized by Feedstock, Product Type, and Application

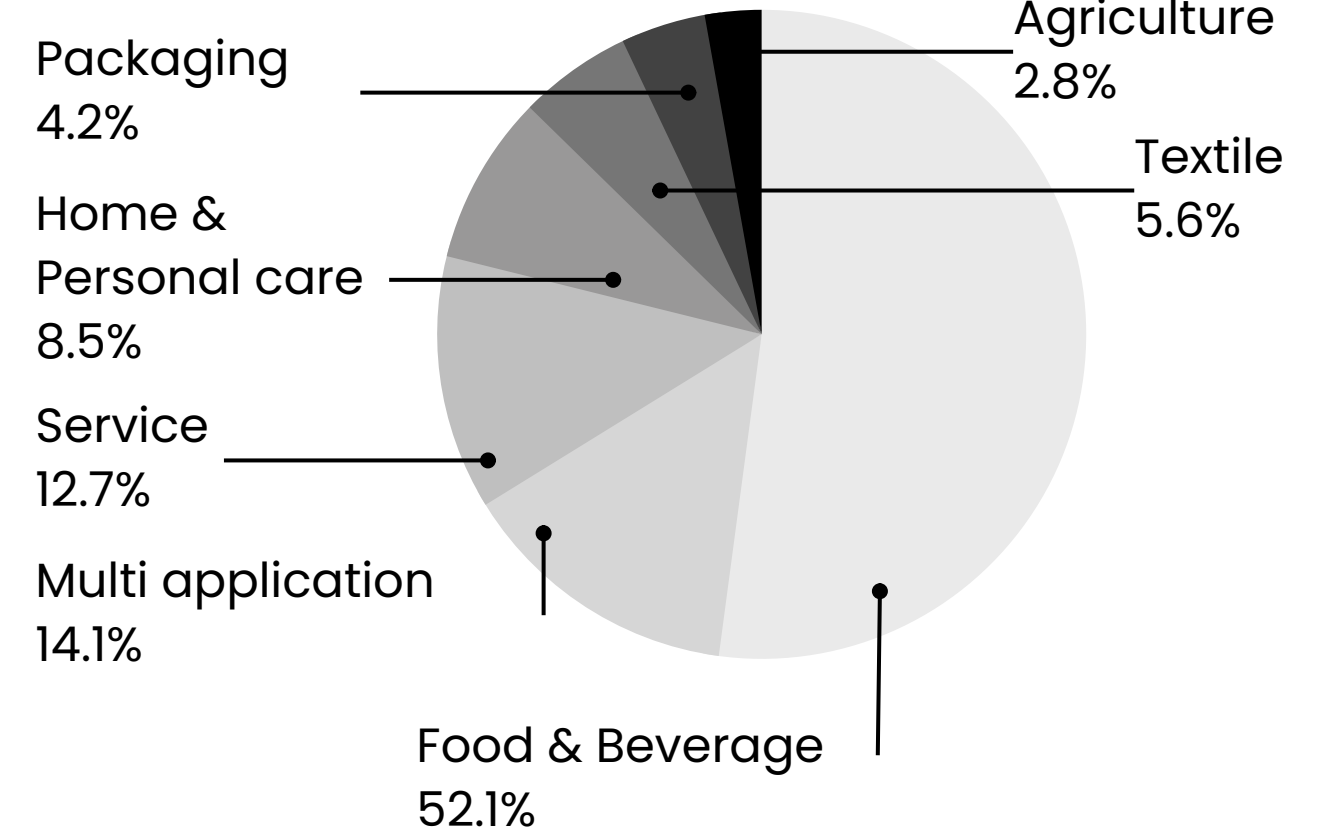
### STARTUPS BY FEEDSTOCK



### STARTUPS BY PRODUCT TYPE



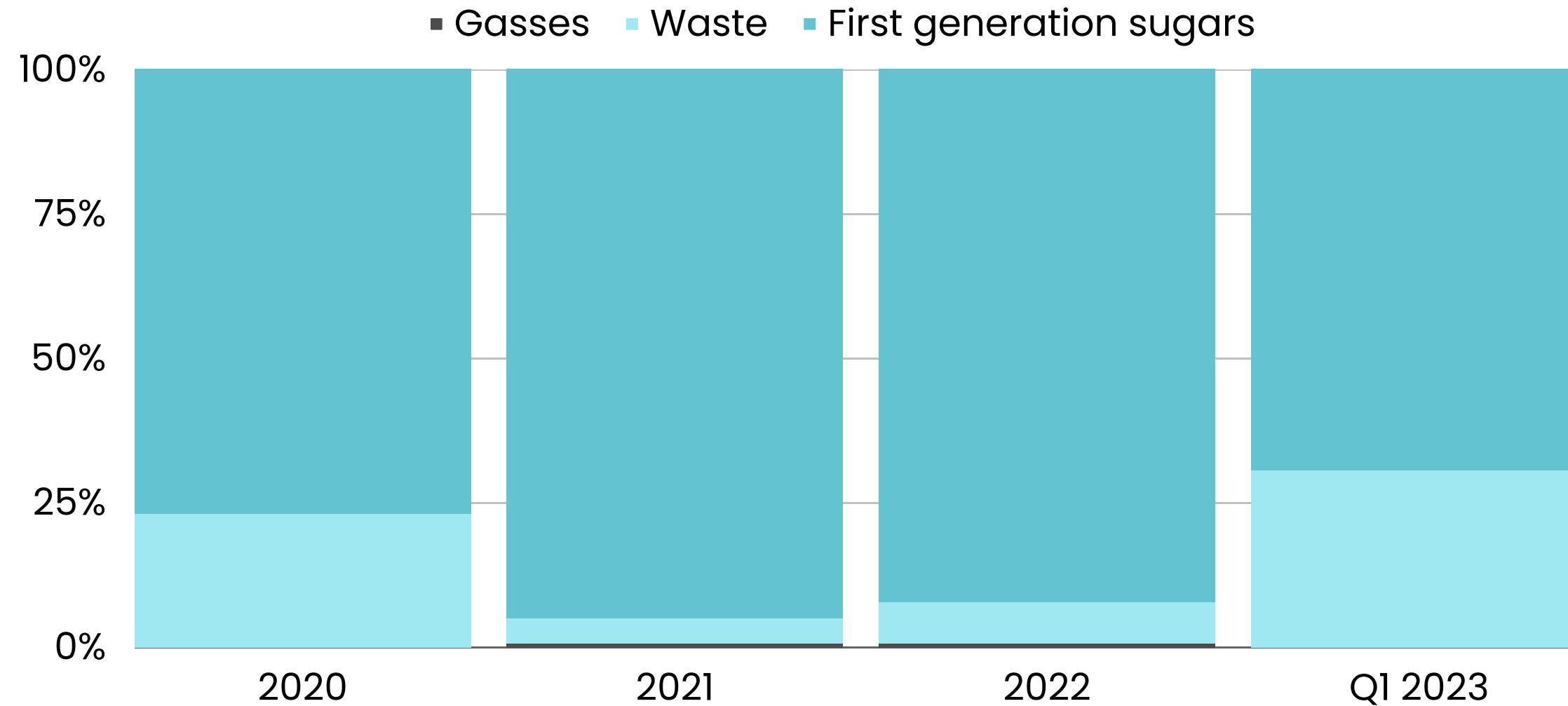
### STARTUPS BY APPLICATION



Disclaimer: Only companies with disclosed funding have been included in this analysis.

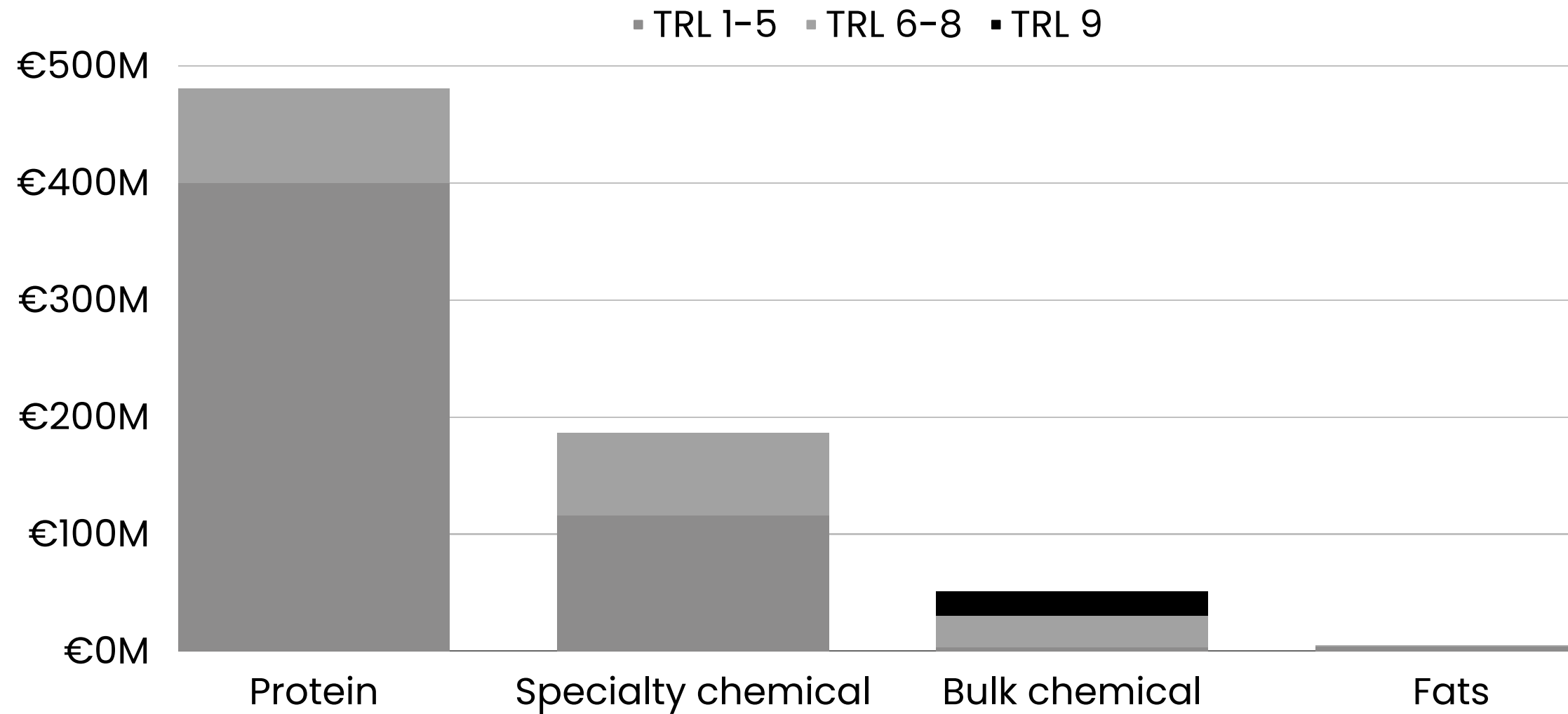
# Waste as Feedstock Starts to Gain Traction, but Majority of Funding Still Goes to First Generation Sugars

SHARE OF FUNDING BY FEEDSTOCK



# Protein Companies Get Majority of Funding, with 60% of Them Falling Within TRL 1-5

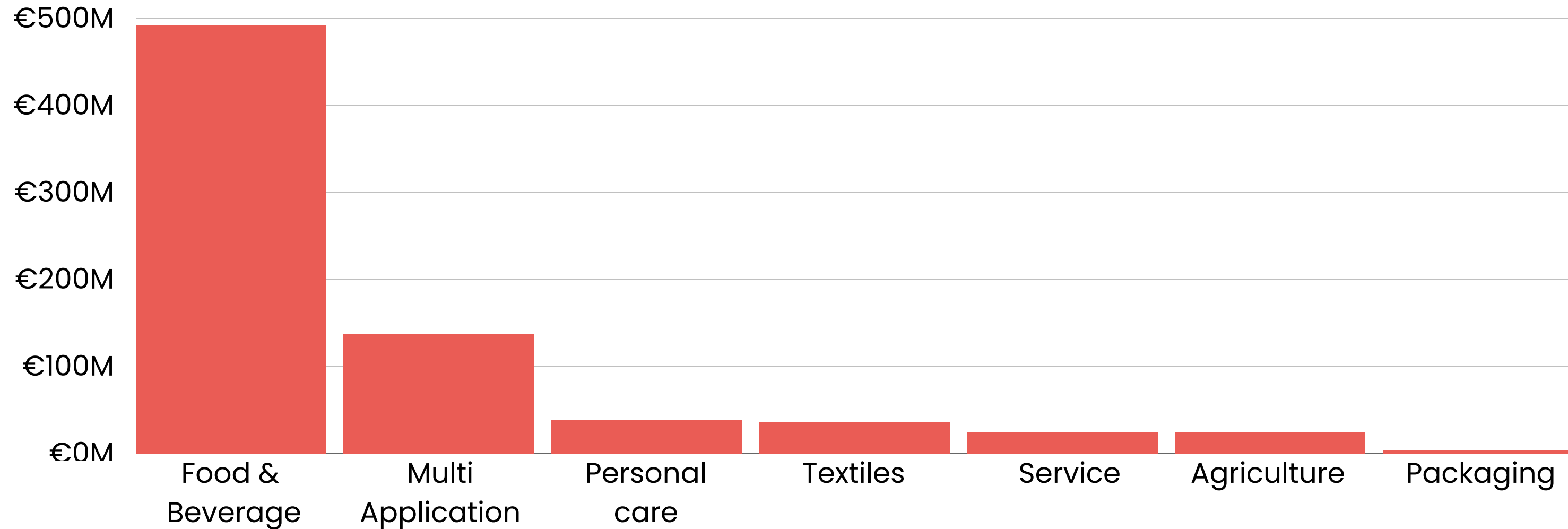
FUNDING BY PRODUCT TYPE AND TRL



Product Type

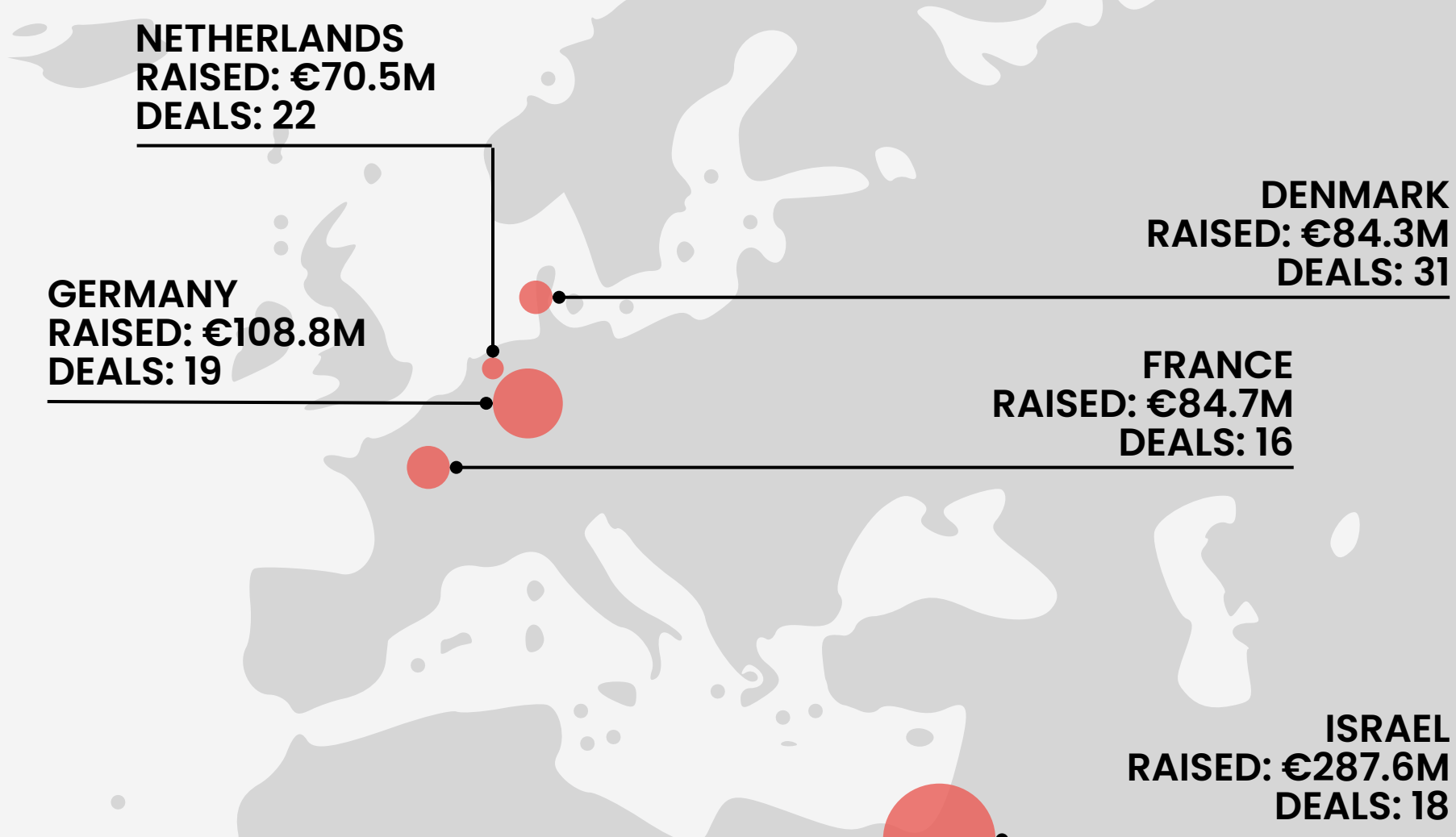
# Food & Beverage Applications Get Almost 70% of Total Precision Fermentation Funding

FUNDING BY APPLICATION



Application

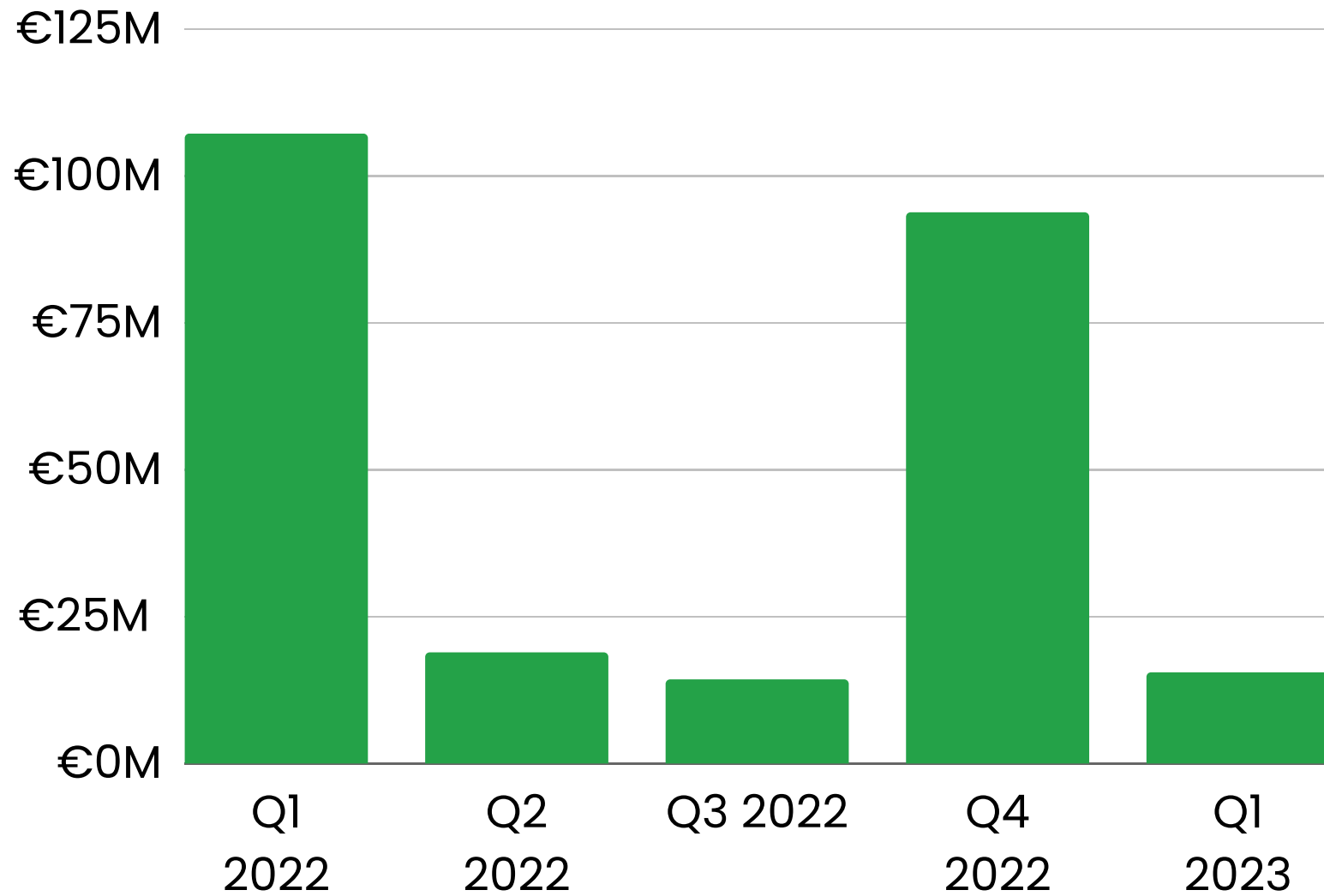
# Israel, Germany, and France Lead Funding, While Denmark Gets More Deals






City	Raised	Deals
Tel Aviv	€106.0M	1
Rehovot	€103.8M	3
Copenhagen	€56.7M	19
Berlin	€46.7M	2
Amsterdam	€36.1M	8
Paris	€29.2M	6
Ashdod	€26.8M	3
Netanya	€26.7M	5

# Israel Stands Out in Funding with Major Deals Going Towards Protein Companies

QUARTERLY FUNDING IN ISRAEL











TOP DEALS









COMPANY	AMOUNT	TYPE	DATE
	€106M	Series B	Jan 2022
	€93M	Series B	Dec 2022
	€15M	Series B	Mar 2023



# Top Pre-Seed and Seed Deals

COMPANY	AMOUNT	COUNTRY	YEAR	OUTCOME	FEEDSTOCK	
 real milk. no cows.	€14.2M	Israel	2022	Proteins	First generation sugars	
 real milk. no cows.	€11.4M	Israel	2021	Proteins	First generation sugars	
	€10.1M	Germany	2022	Bulk chemicals	Waste	
	€10M	Finland	2022	Proteins	First generation sugars	

# Top Early Stage Deals

COMPANY	AMOUNT	COUNTRY	YEAR	OUTCOME	FEEDSTOCK	
	€106M	Israel	2022	Proteins	First generation sugars	
	€93.2M	Israel	2022	Proteins	First generation sugars	
	€42.5M	Germany	2021	Proteins	First generation sugars	
	€22M	Netherlands	2020	Proteins	First generation sugars	

# Top Late Stage Deals

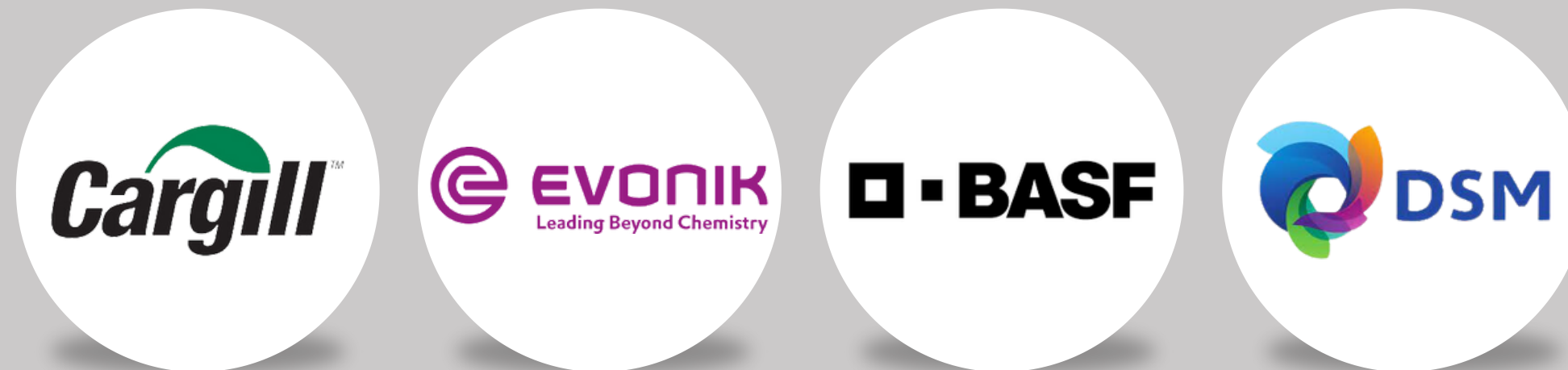
COMPANY	AMOUNT	COUNTRY	YEAR	OUTCOME	FEEDSTOCK	
	€21M	France	2019	Waste	Flavouring, chemicals	
	€11M	Netherlands	2022	Waste	Chemicals, Fats	

# Top Precision Fermentation Investors

## TOP PRECISION FERMENTATION VC INVESTORS



## TOP PRECISION FERMENTATION CORPORATE INVESTORS



# Precision Fermentation Companies that Made Exits Share Similar Feedstock, Product Type, and Application

**IPO**

Time to exit: 9 years



[Press release](#)

**Feedstock**

First Generation Sugars

**Product Type**

Specialty chemicals

**Application**

Multi application

**Partial Aquisition**

Time to exit: 11 years



Acquired by Givaudan

[Press release](#)

**Feedstock**

First Generation Sugars

**Product Type**

Protein

**Application**

Multi application

**Aquisition**

Time to exit: 18 years



Acquired by Kerry Group

[Press release](#)

**Feedstock**

First Generation Sugars

**Product Type**

Specialty chemicals

**Application**

Multi application

**Aquisition**

Time to exit: 6 years



Acquired by FMC Corporation

[Press release](#)

**Feedstock**

First Generation Sugars

**Product Type**

Specialty chemicals

**Application**

Agriculture

# Methodology & Scope

This report uses data from the Net0 Platform to analyze the precision fermentation venture space in Europe and Israel. The analysis encompasses all funding activity up until the 31st of March of 2023.

Only companies with disclosed rounds are included in the report.

With the exception of page 21, this report does not include the following funding round types: acquisition, IPO, post-IPO, merger, PIPE, secondary transaction, and SPAC.

The framework used to categorize companies is a simplified version of the classification system employed to categorize companies on the Net0 Platform.