



# FOOD OUT OF THIN AIR



VISION

# ON THE NEXT WAVE OF EVOLUTION



# FOOD PRODUCTION DEFINES OUR SOCIETIES



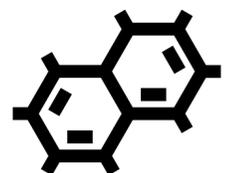
100 000-10 000 BC  
HUNTER-GATHERER  
SOCIETIES



10 000 BC-1700 AD  
AGRICULTURAL  
SOCIETIES



1700-2000  
INDUSTRIAL  
SOCIETIES



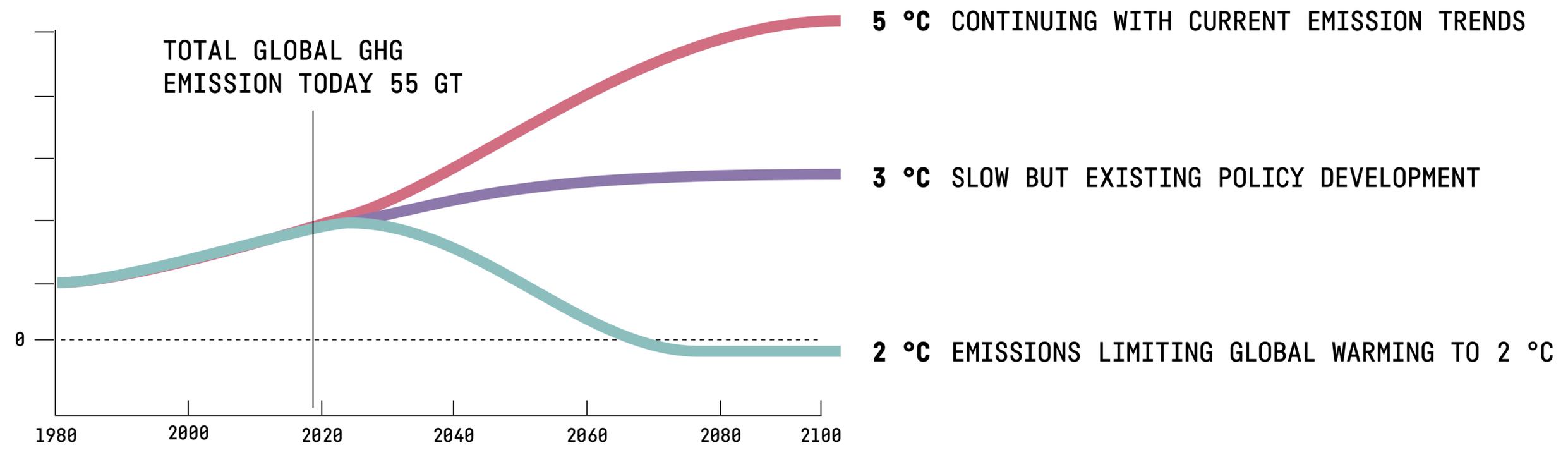
2000-  
NEW FOOD  
REVOLUTION



THE PROBLEM

# CONVENTIONAL FOOD PRODUCTION IS RUNNING OUT OF TIME

# CO<sub>2</sub> EMISSIONS MUST BE CUT FAST

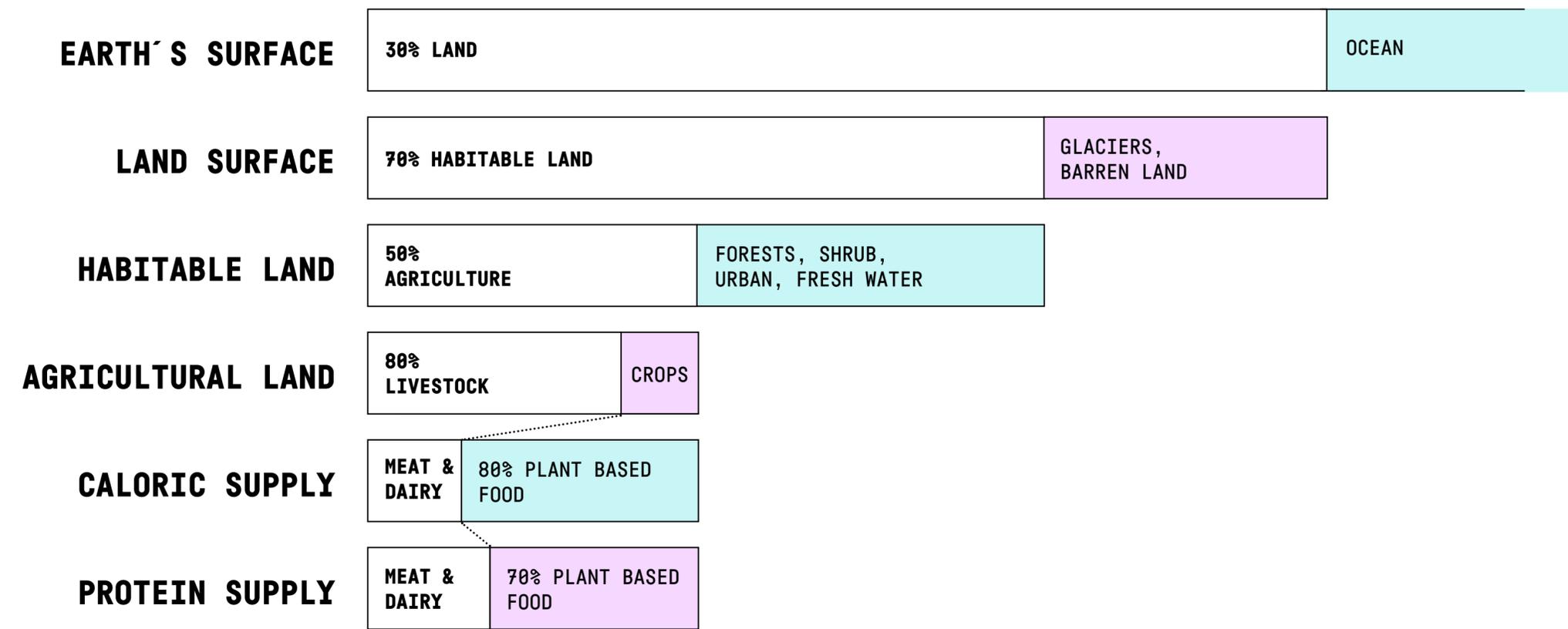


# SOURCES OF GLOBAL GREENHOUSE GAS EMISSIONS

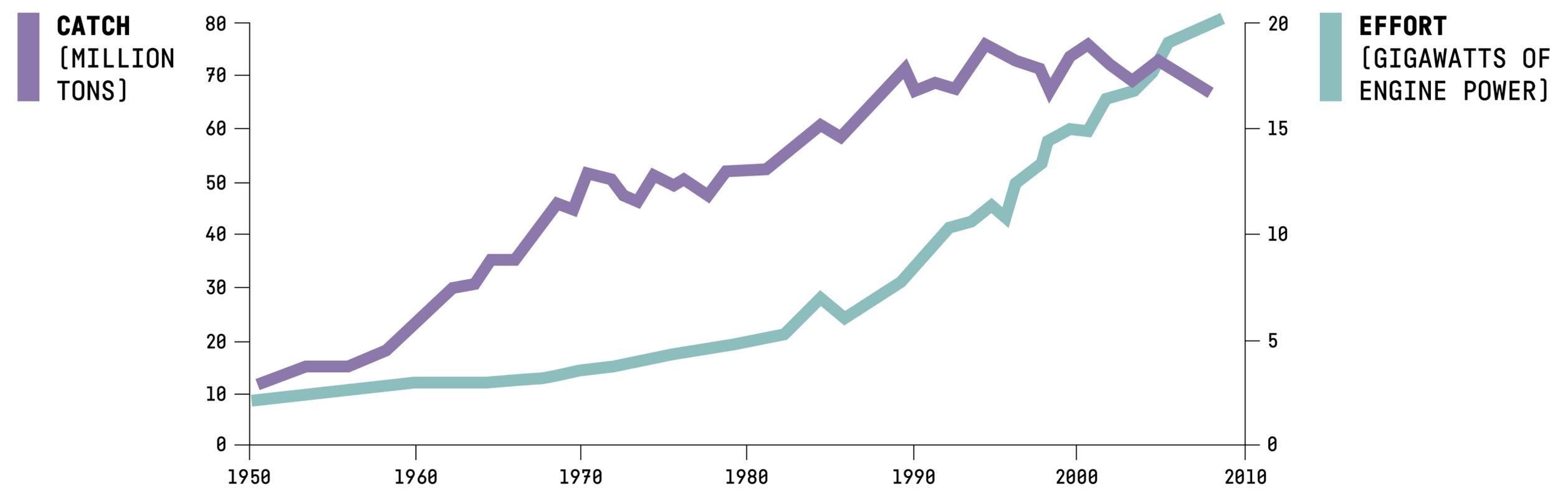
 | **70%** ENERGY

 | **30%** FOOD PRODUCTION  
AND LAND USE CHANGE

# 40% OF HABITABLE LAND CONSUMED BY LIVESTOCK



# THE GLOBAL FISH CATCH PEAKED 20 YEARS AGO

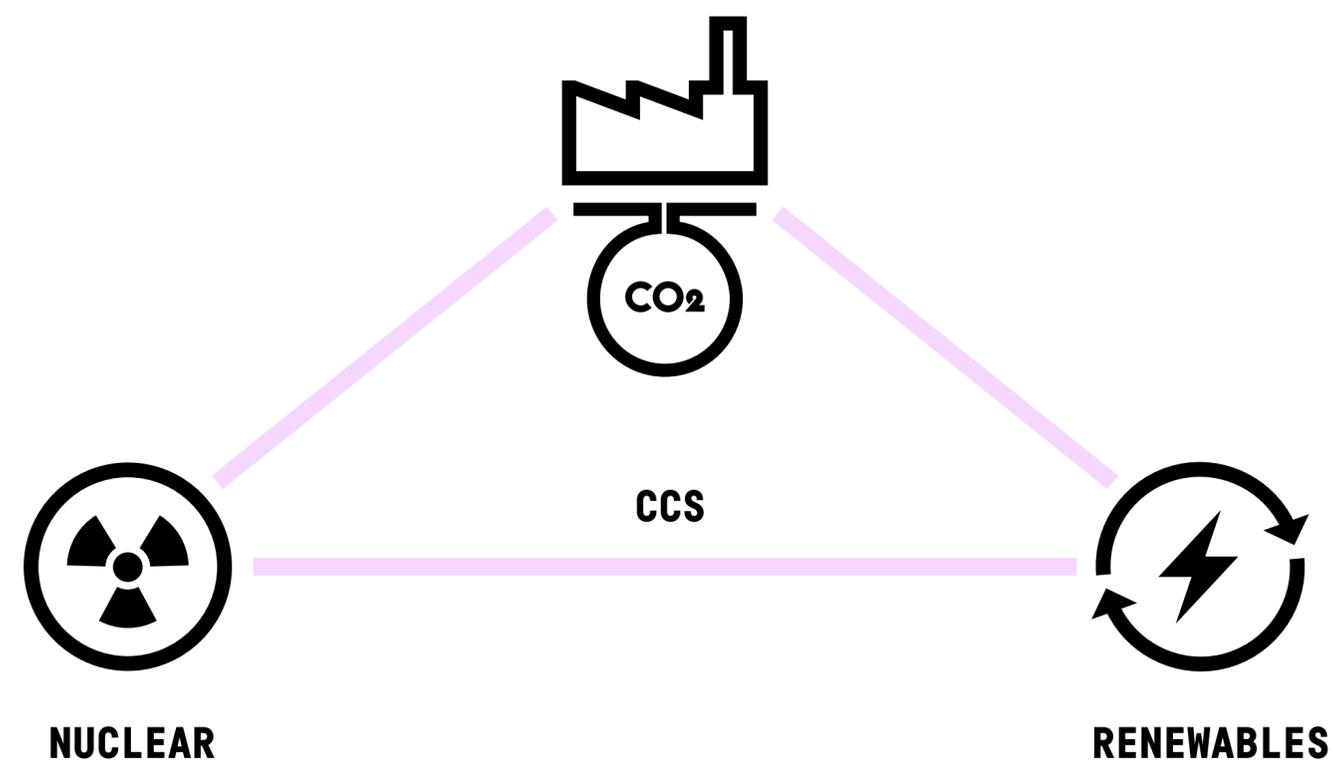




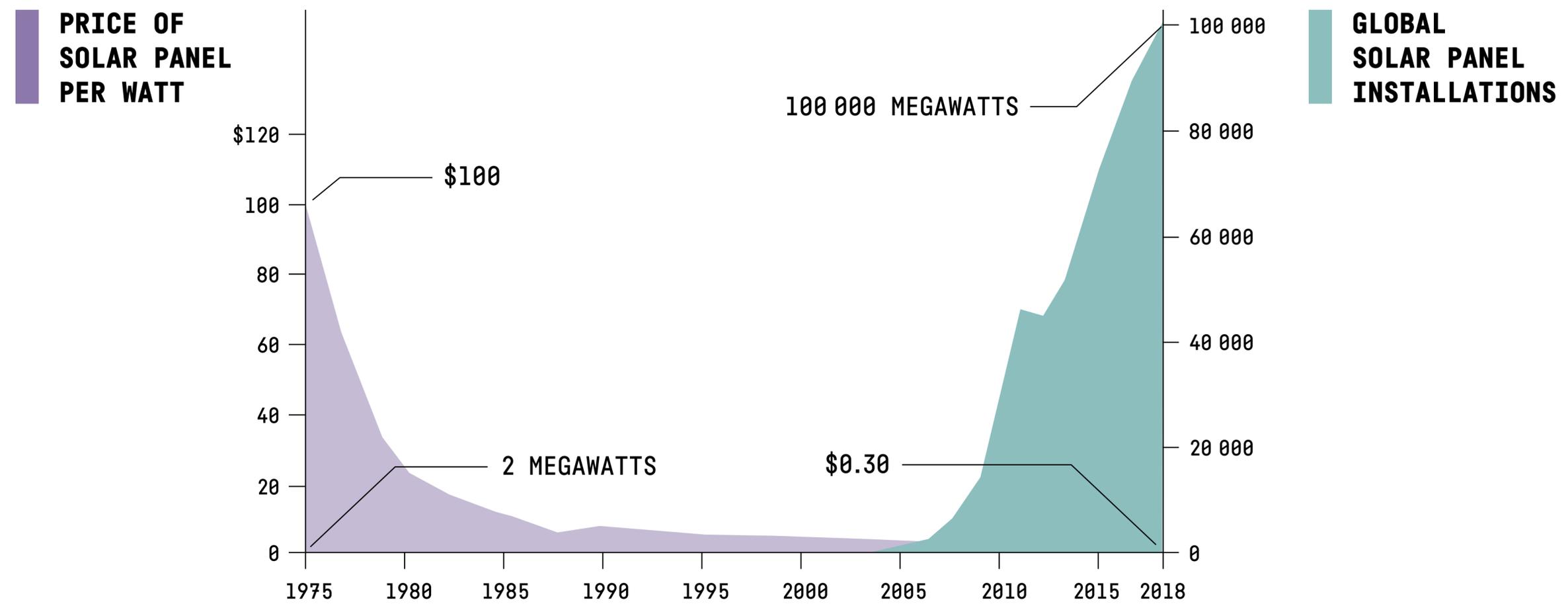
THE SOLUTION

# LIBERATED AGRICULTURE

# ELECTRICITY: THE NEW PRIMARY ENERGY

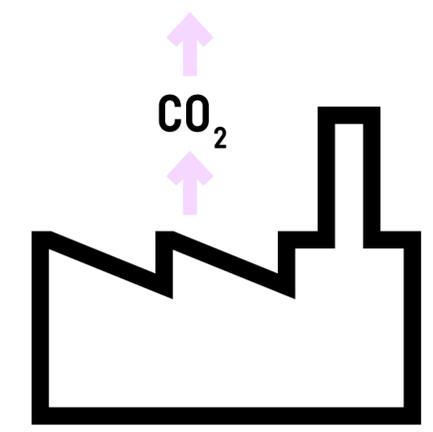


# CHEAP ELECTRICITY EQUALS RAW MATERIAL



# SWITCHING TO A CIRCULAR CARBON ECONOMY

TODAY

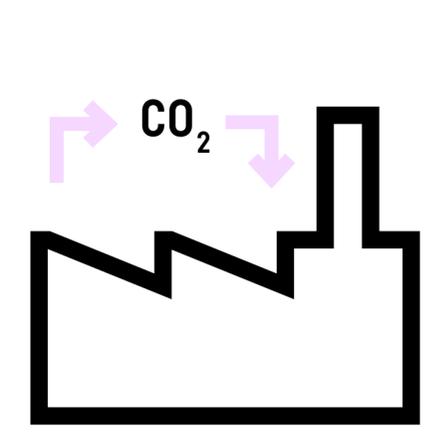


REFINING AND USE



FOSSIL CARBON

FUTURE



REFINING AND USE

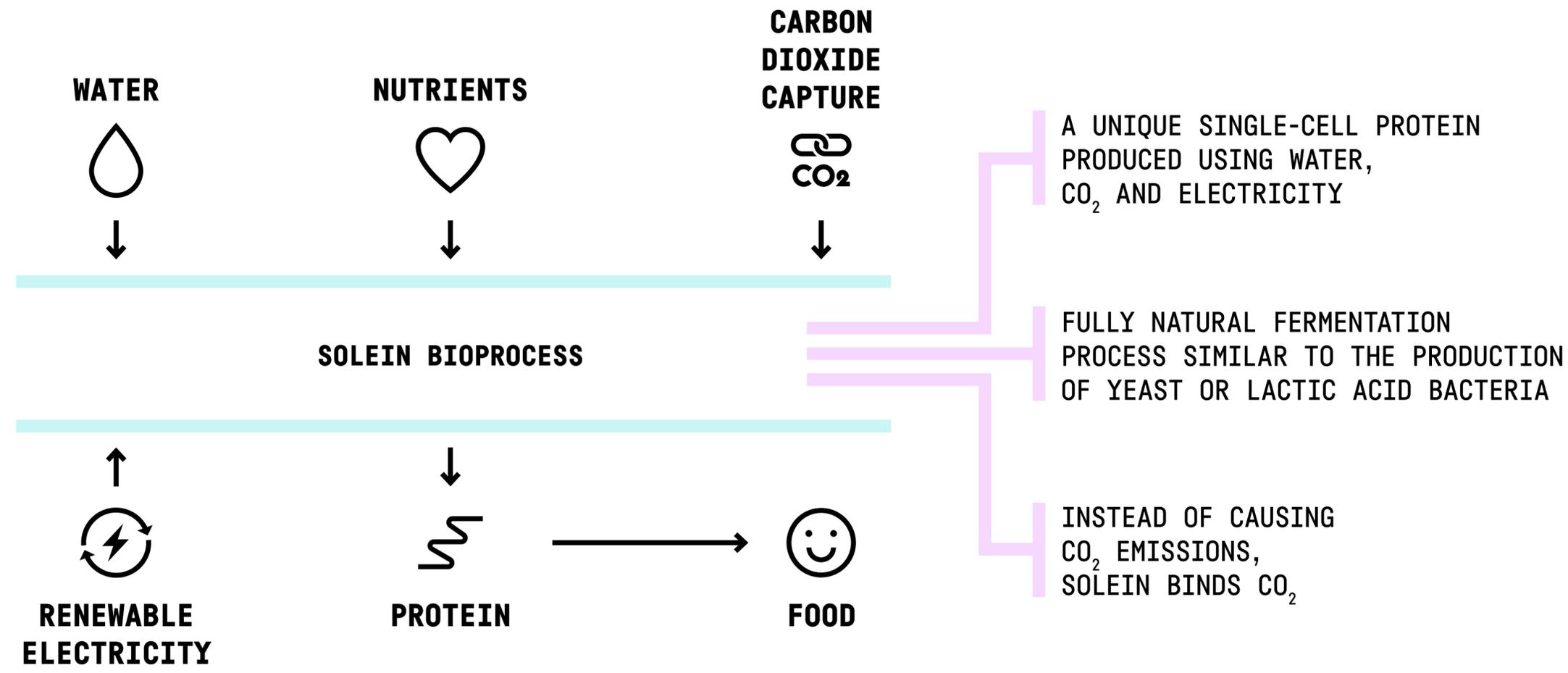
FOSSIL CARBON



INTRODUCING SOLEIN®

# PROTEIN OUT OF THIN AIR

# DESIGNED BY NATURE



FORTUM PROVIDES SOLAR FOODS 100% RENEWABLE ENERGY

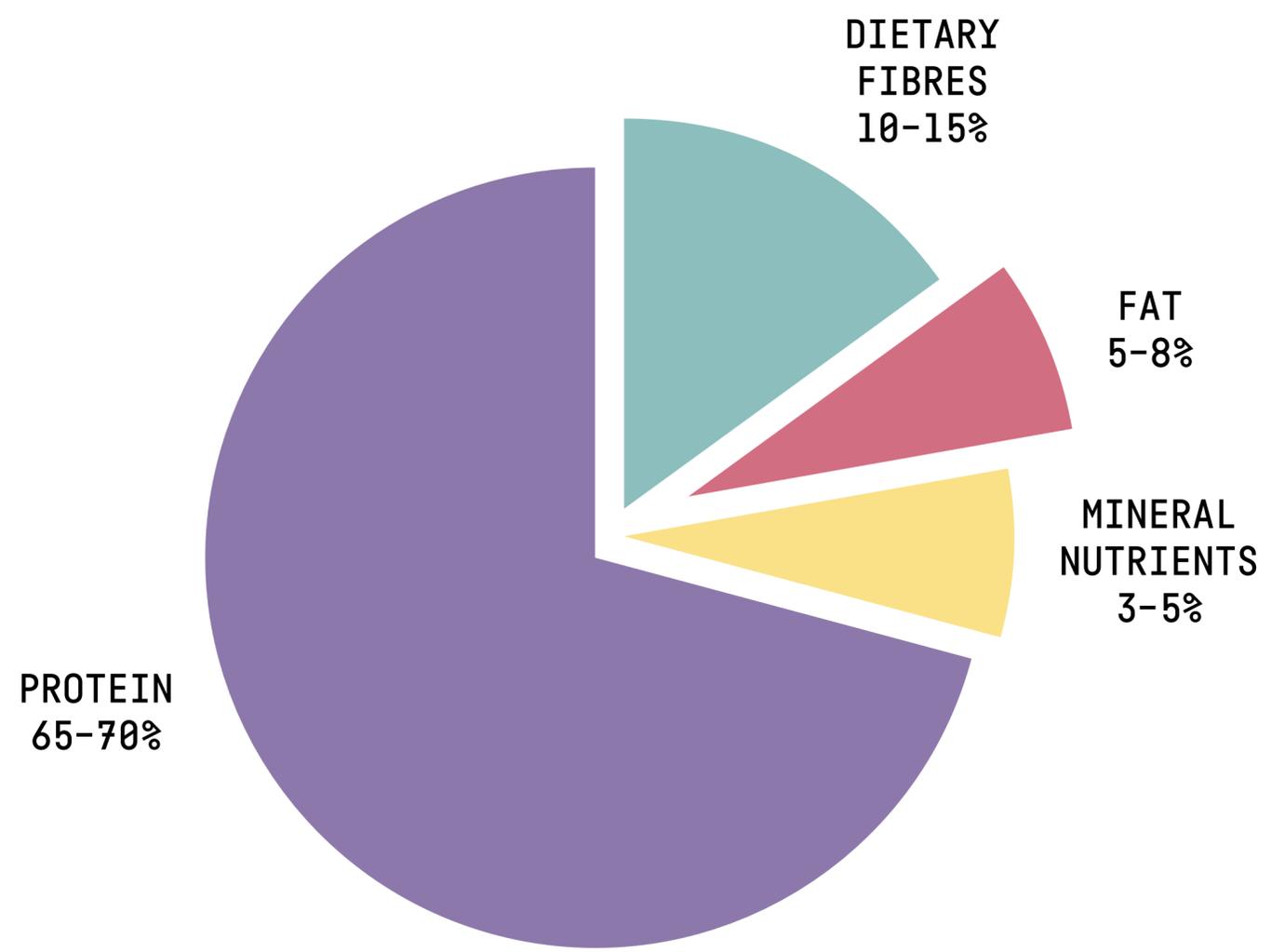


# DISCOVERED BY SCIENCE

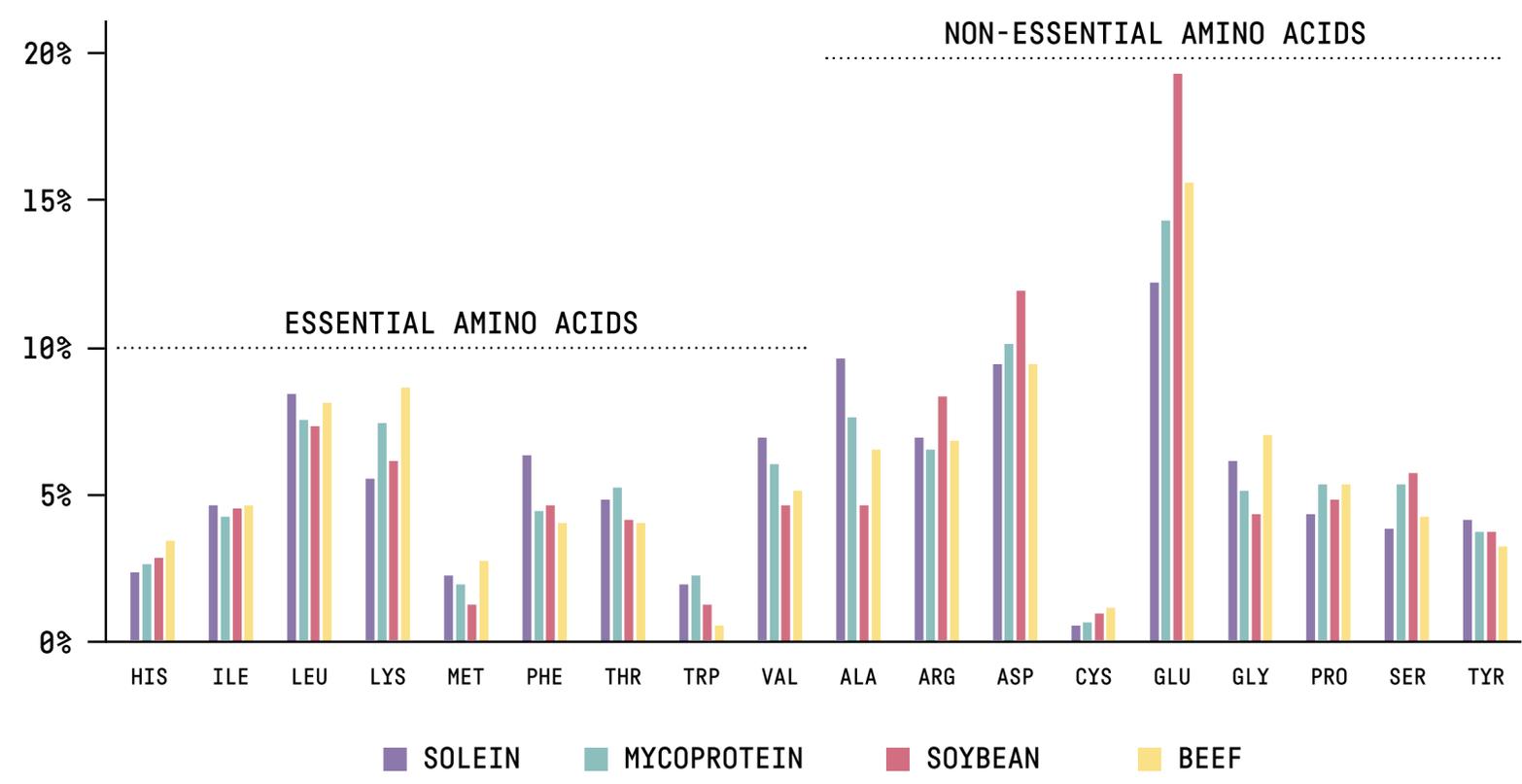
Inspired by NASA and Soviet Union space programmes and further developed by VTT Technical Research Centre of Finland Ltd and the LUT University.

Solar Foods collaborated with the European Space Agency, ESA Incubation Centre Finland, by developing a food production concept for a mission to Mars as part of the astronauts' life support system.

# SOLEIN COMPOSITION



# THE AMINO ACID COMPOSITION OF SOLEIN IS COMPARABLE TO FAMILIAR PROTEIN SOURCES

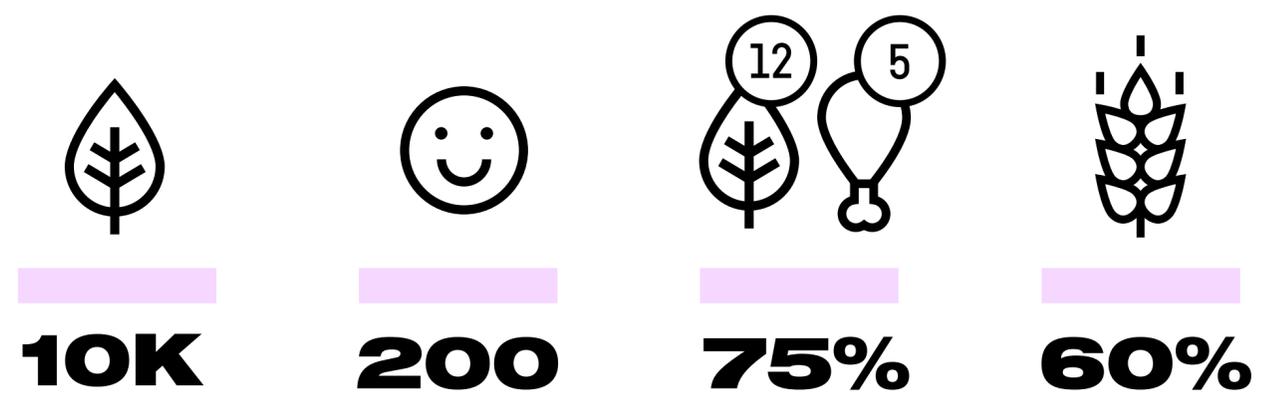




IMPACT

# AN ECO-FRIENDLY PLATFORM FOR DIVERSIFYING OUR FOOD CHAIN

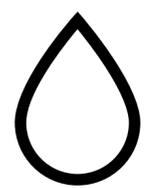
# CREATING A NEW ERA OF FOOD DIVERSITY



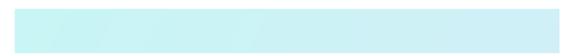
SOLEIN CAN USE THE VARIETY OF 1 000 000 000 000 SPECIES NON-EXPLORED BEFORE, DRAMATICALLY INCREASING THE DIVERSITY OF OUR FOOD CHOICES.

Of the 10 000 edible plants that humans have discovered, we consume only 200. 75% of our food comes from just 12 plants and 5 animals, and 60% of the plants are grains.

# WATERFOOTPRINT



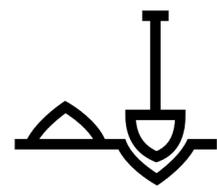
**WATER SCARCITY**  
Litres per 1 kg protein



Solein uses **100 times less** water than plant production and **up to 700 times less** than the production of beef.



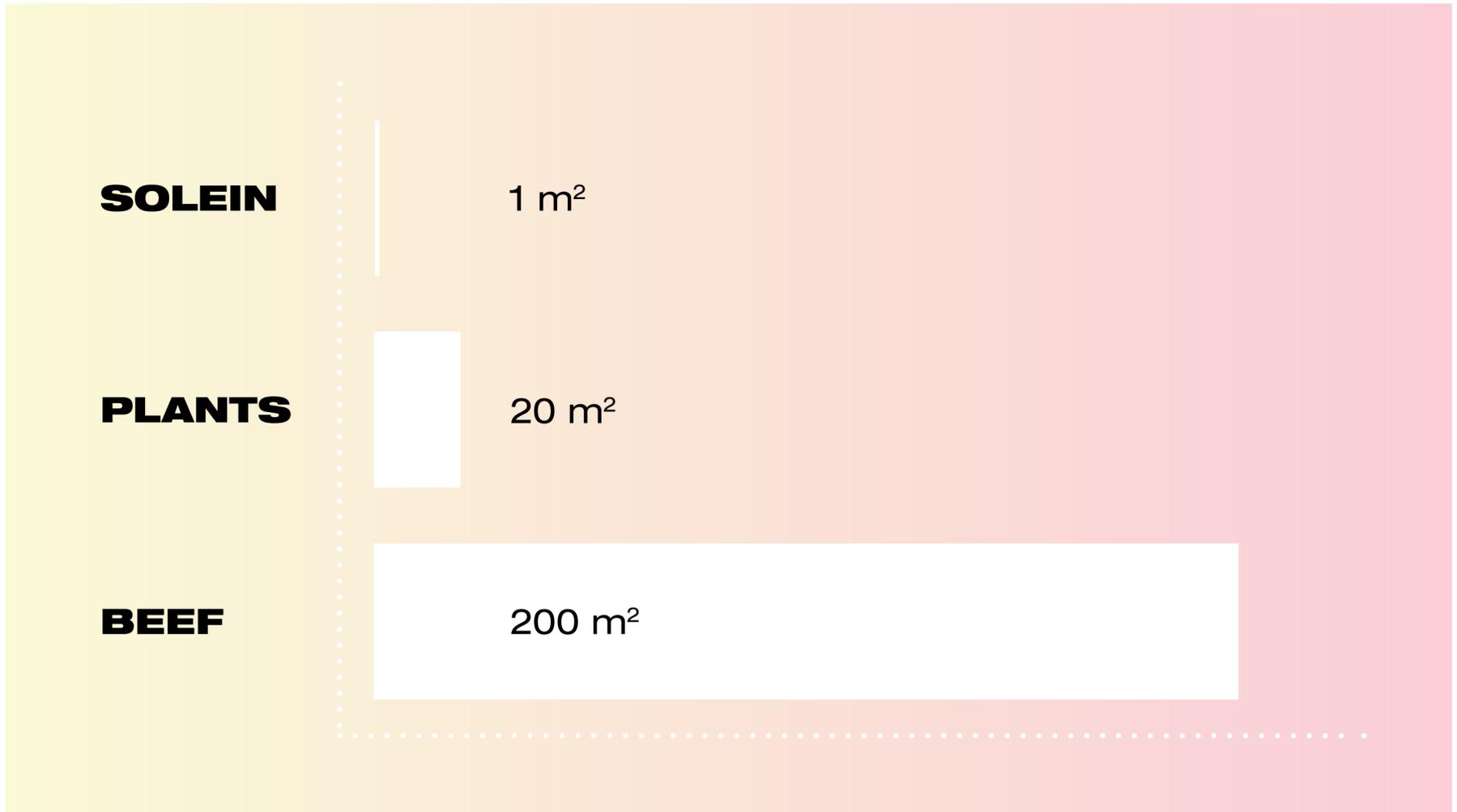
# LAND USE EFFICIENCY



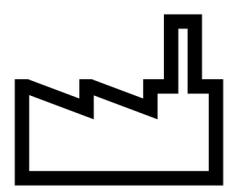
**LAND USE**  
m<sup>2</sup> per 1 kg protein



Land use for Solein is **20 times more efficient** than for plant production and **200 times more efficient** than for beef production.



# GREENHOUSE GAS EMISSIONS



## EMISSIONS

kg CO<sub>2</sub>-eq / kg protein



Solein pollutes **five times less** than plant production and **200 times less** than beef production.



# EUTROPHYING EMISSIONS

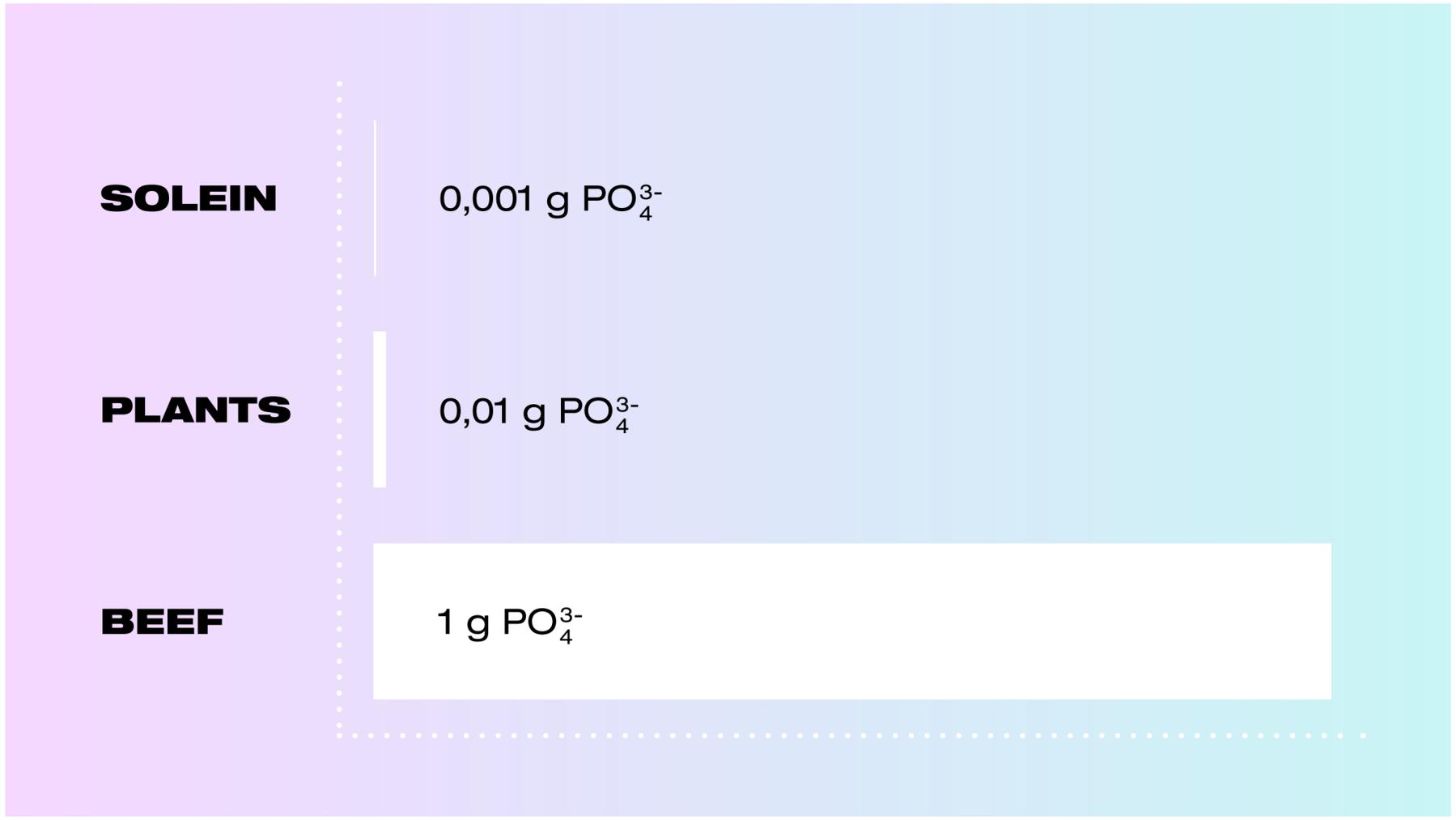


## EUTROPHYING EMISSIONS

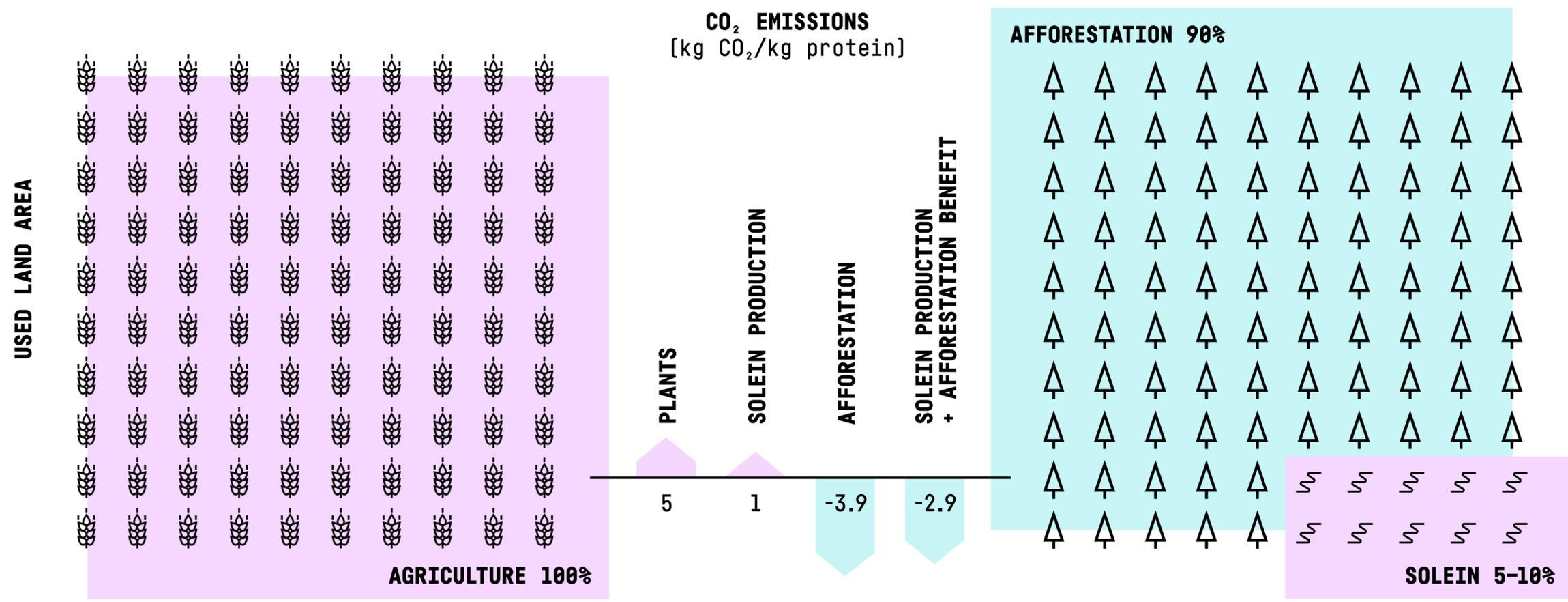
g / PO<sub>4</sub><sup>3-</sup>



Solein causes **10 times less** eutrophying emissions than plant production and up to **1 000 times less** than the production of beef.



# WHEN REPLACING ANIMAL OR PLANT BASED PROTEINS, SOLEIN IS CARBON NEGATIVE



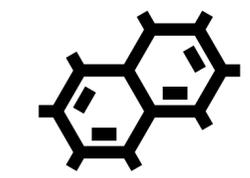
# CREATING A PLATFORM FOR MULTIPLE USES



**NUTRITIOUS  
FOOD INGREDIENT**



**PLANT-BASED  
MEAT ALTERNATIVES**



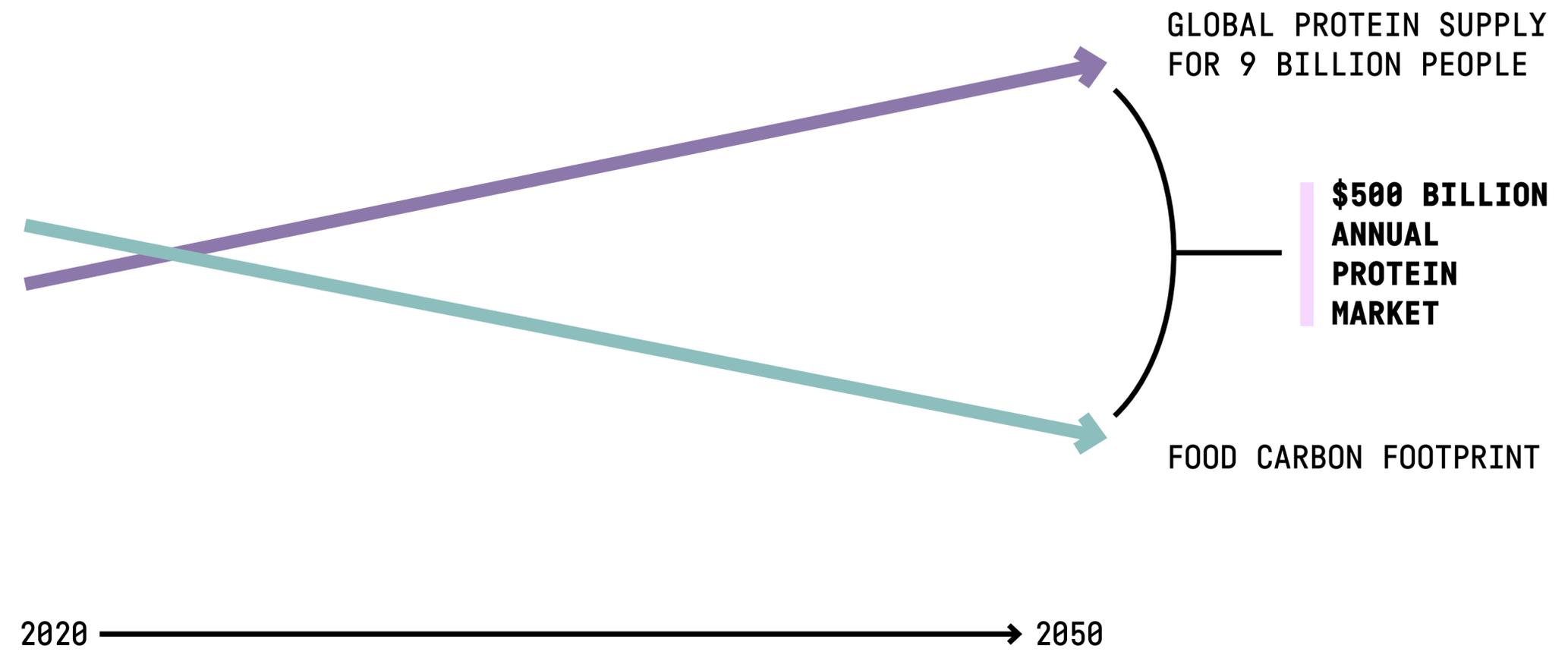
**CULTURED  
MEAT**

# IDEAL FOR EVERY MEAL, CONSUMER OR DIET



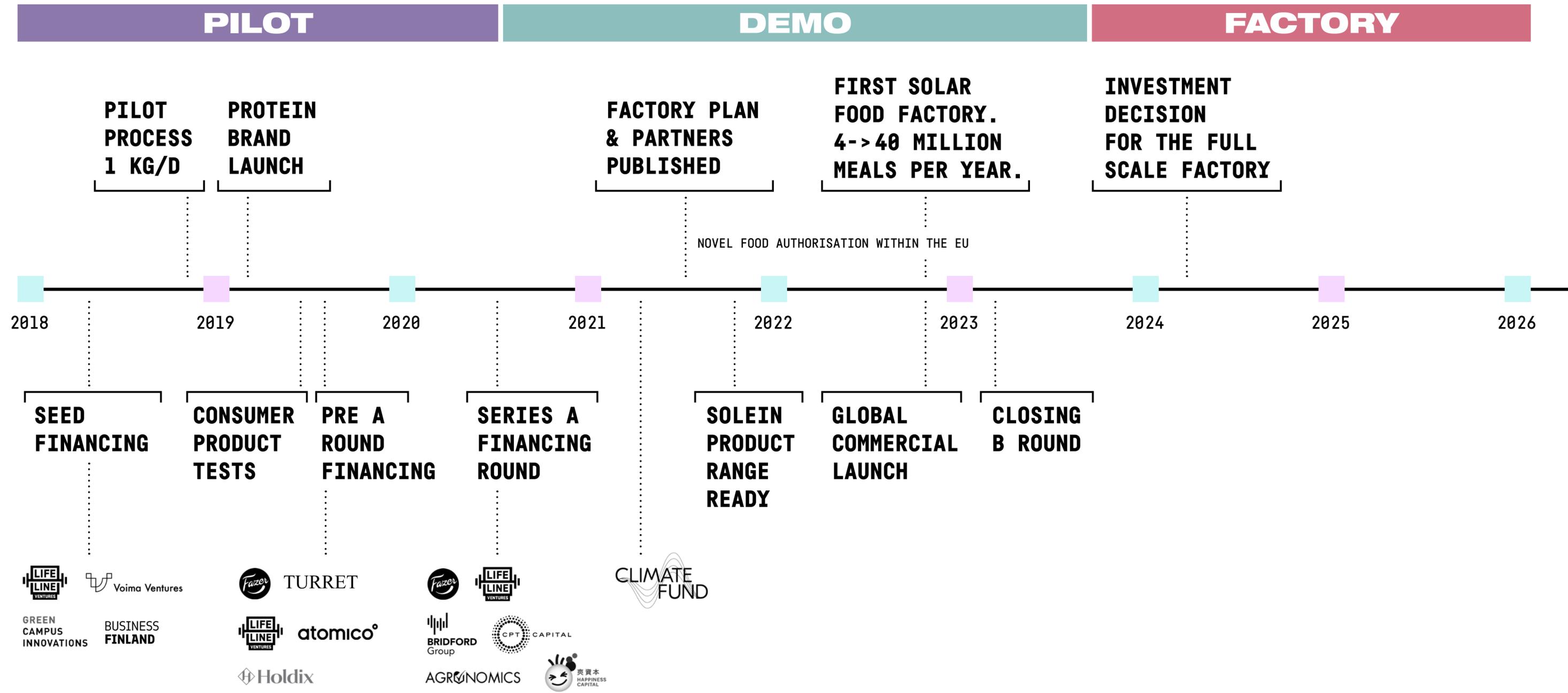


# MARKET OPPORTUNITY





# OUR ROADMAP



# SOLAR FOODS

Liberating protein production.



solarfoods.fi  
solein.com



/company/solarfoods



/SolarFoodsFi



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@Solar\_Foods