

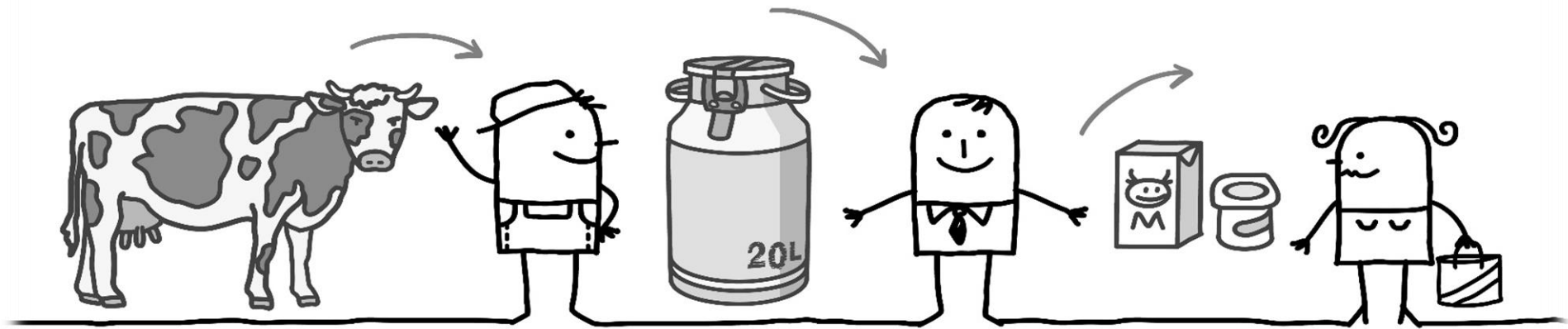


**Agriculture 4.0**  
**Technology**  
**Impact Association**



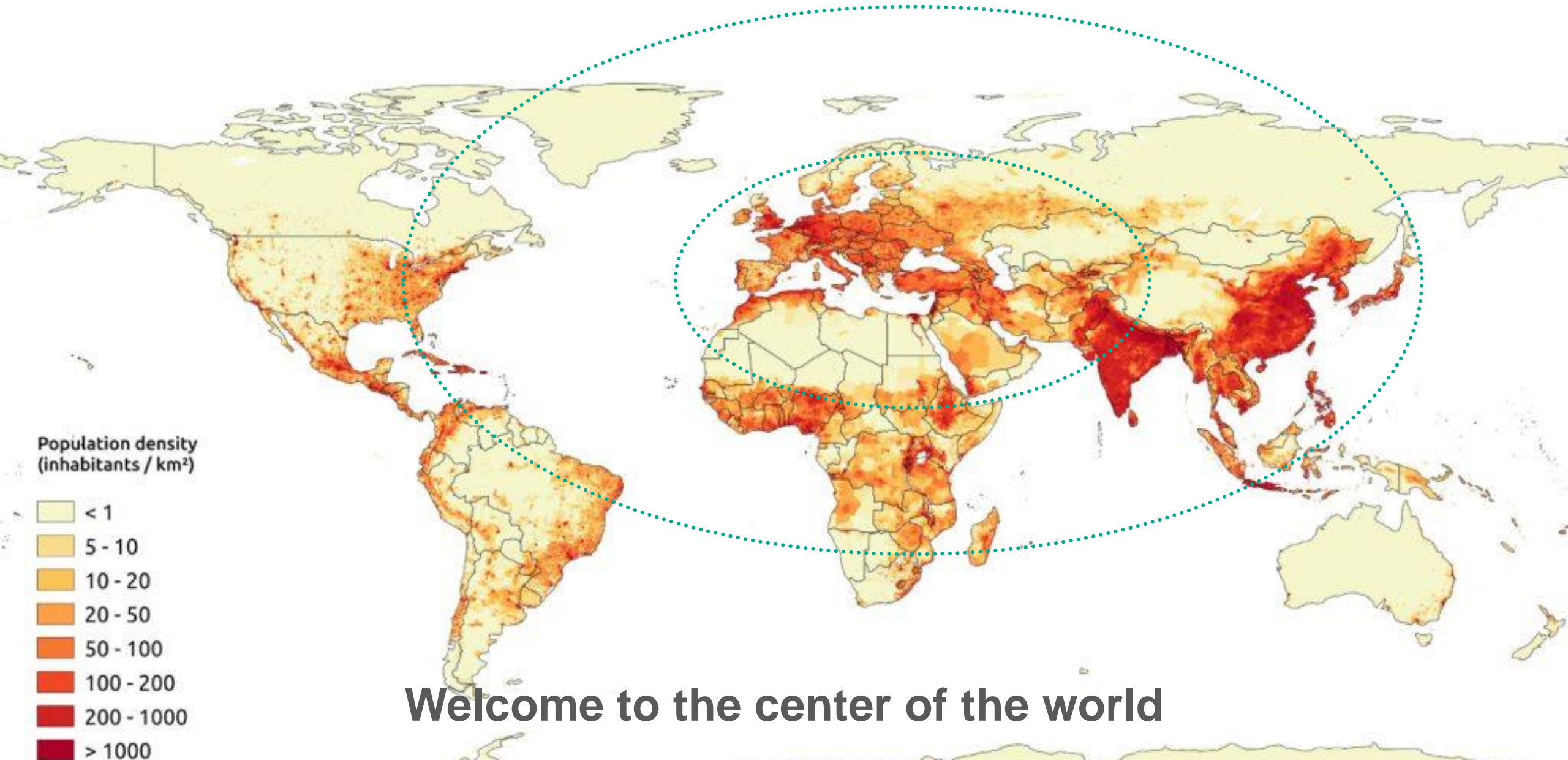
**LAKTO**  
Dairy Technologies

# The challenges in the milk value chain and how technology can help: impact for healthy food and sustainable farmers





# TÜRKİYE



**Welcome to the center of the world**



Göbeklitepe

**Mother land  
of  
agriculture,  
cow, wheat,  
olive, beer  
and wine!**

**Agricultural revolution  
was here!**



# Atatürk's revolutions were here!



‘The real producer, peasant, is the master of the nation.’

Unite! Buy machines with cooperation.

We will be an agricultural country.

This can only happen with mechanized agriculture.

**Atatürk**



Operates in the fields of information dissemination, research, development and education in all fields related to **agriculture, food, gastronomy, healthy nutrition and sustainability.**

It is a competent non-governmental organization that works on agriculture and related sectors and has the ability to accurately read the needs of agricultural production.



Environmental health

Animal and plant health



One Health



Human health

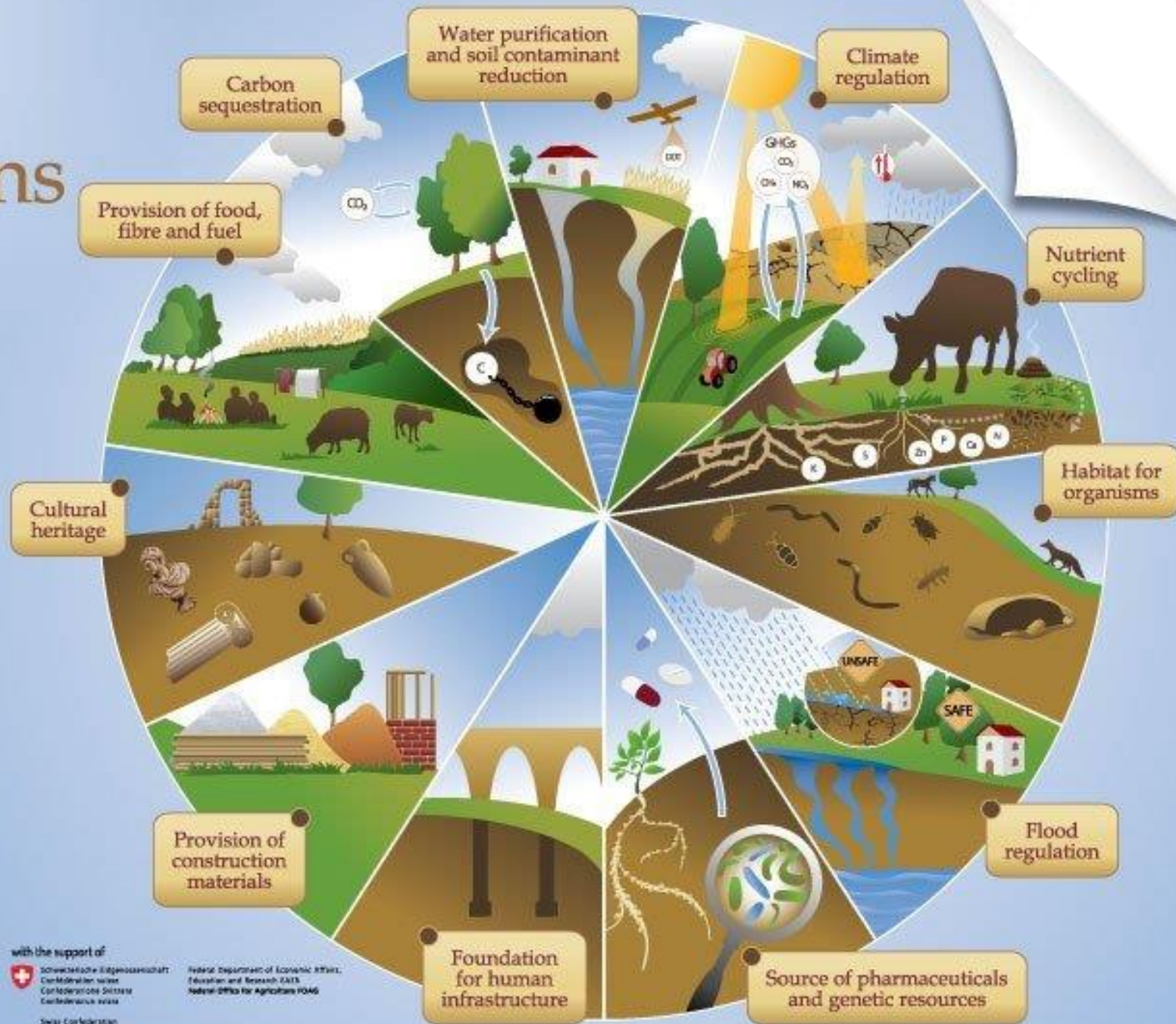
Soil health



**Agriculture 4.0**  
**Technology**  
**Impact Association**

# Soil functions

Soils deliver ecosystem services that enable life on Earth



We only know %1 of the living organisms under soil.

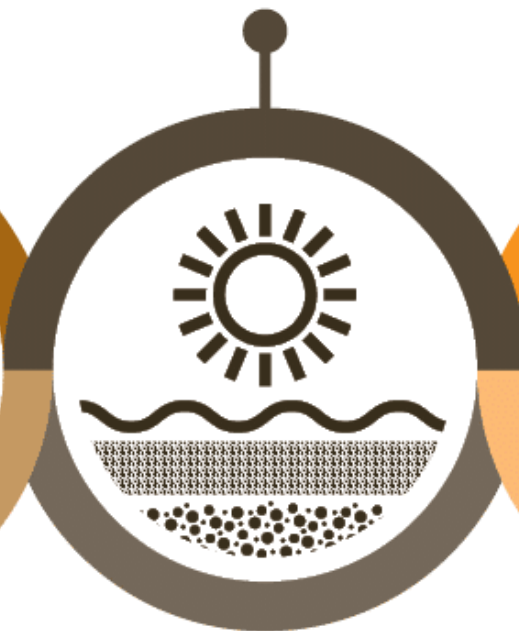
Likewise, we have not yet solved the secrets of intestines and rumen.

# 5 Core Principles of REGENERATIVE AGRICULTURE

**MINIMIZE  
SOIL DISTURBANCE**



**KEEP  
THE SOIL COVERED**



**INTEGRATE  
LIVESTOCK**

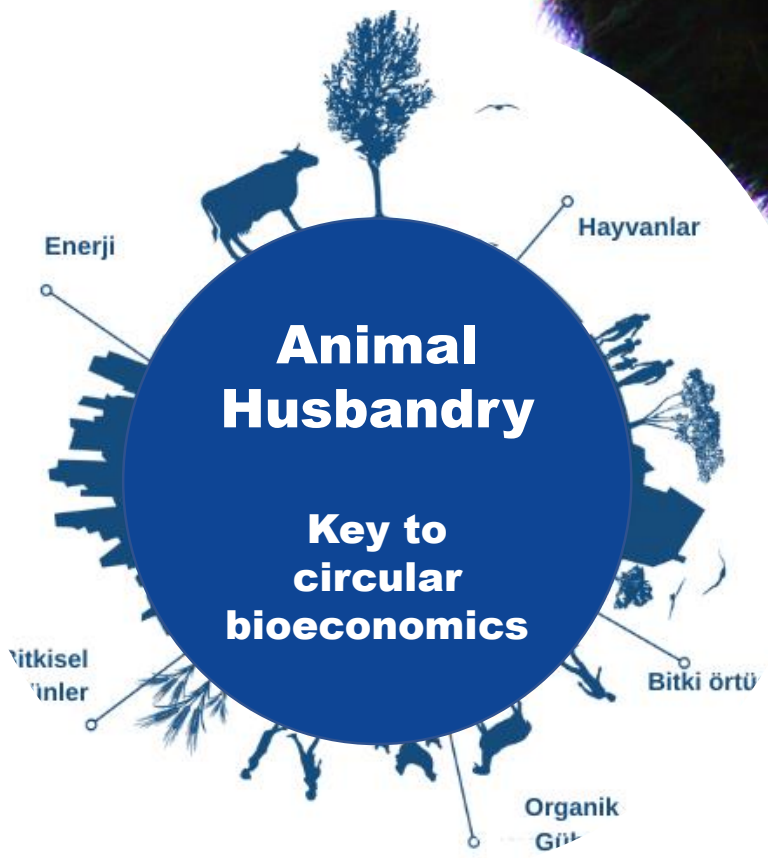


**MAXIMIZE  
CROP DIVERSITY**



**MAINTAIN  
LIVING ROOT YEAR-ROUND**

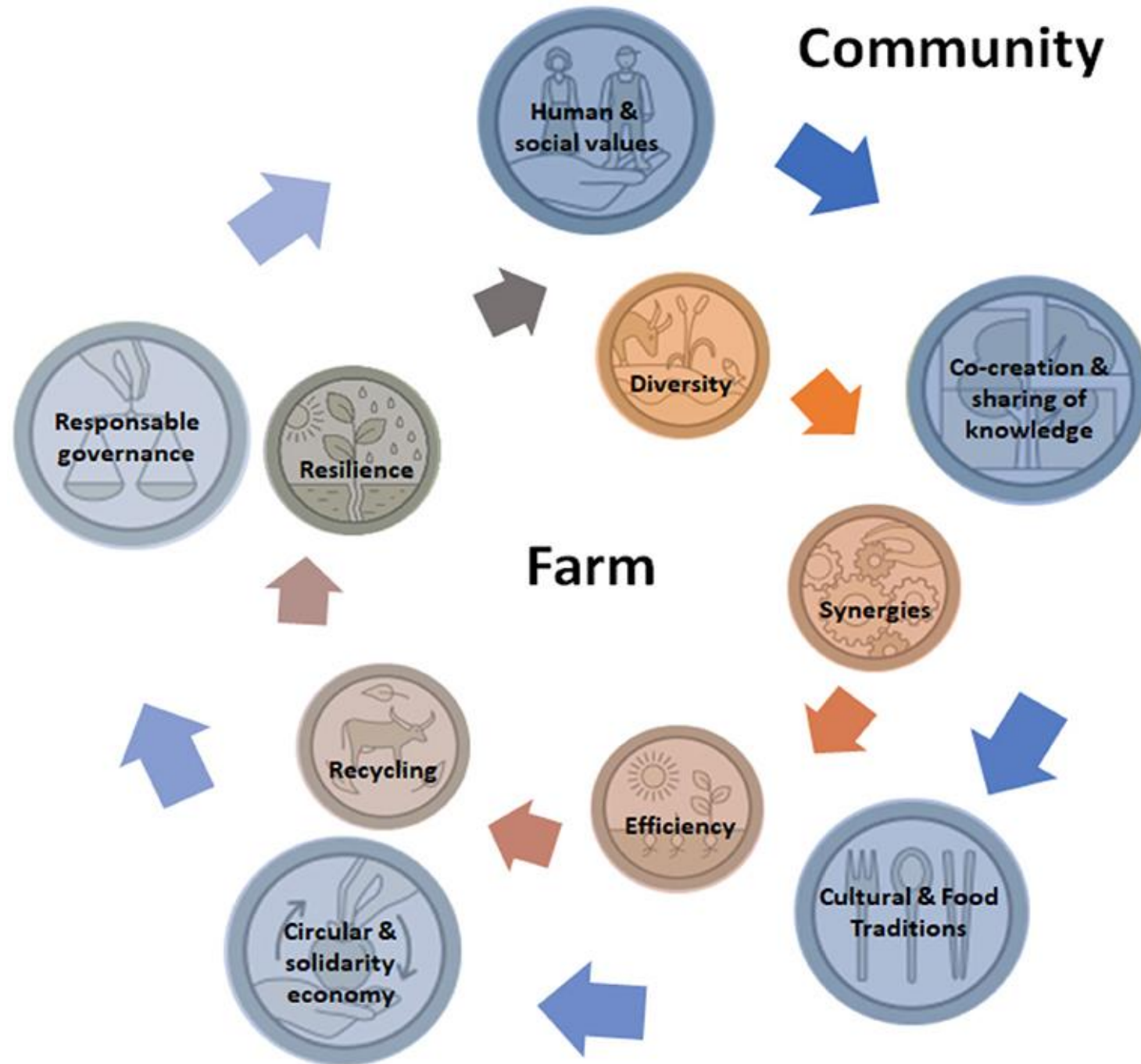




**Animal  
Husbandry**

**Key to  
circular  
bioeconomics**

# RE GE NE RA TI VE



# A Virtuous Circle for Cities



**67% of the world population will live in urban areas by 2050**

**Food Security**  
(ease of access, quality and affordability)  
will be a critical element that will affect  
quality of life and the sustainability,



A significant share of food intended for human consumption is lost or wasted from the farm to the fork

32%

of global food supply by weight

24%

of global food supply by energy content  
(calories)

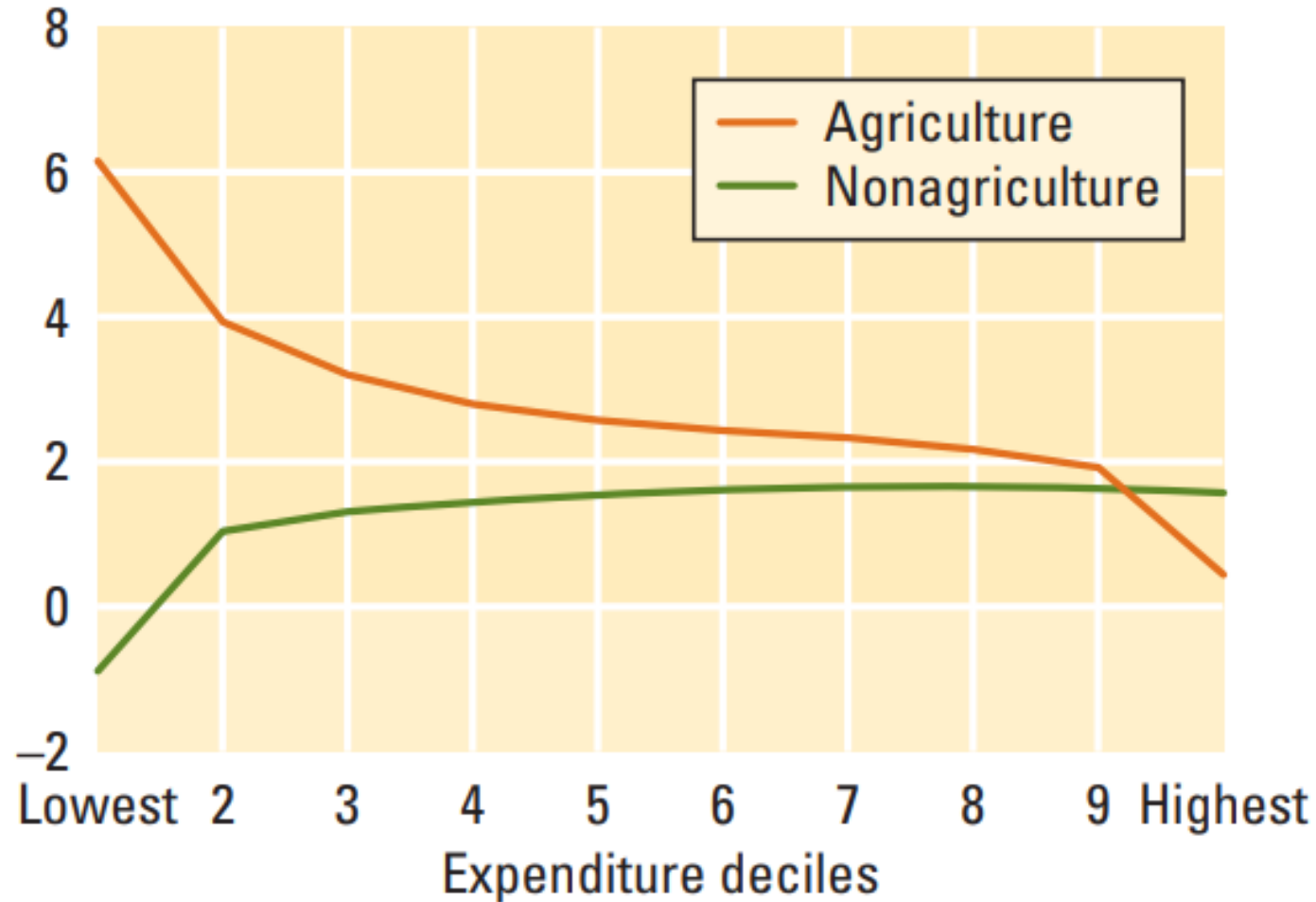
# Global consumption forecast of meat and milk products

| REGION                       | LIVESTOCK (KCAL/PERSON/DAY) |            |            | BEEF AND MUTTON (KCAL/PERSON/DAY) |           |            |
|------------------------------|-----------------------------|------------|------------|-----------------------------------|-----------|------------|
|                              | 2006                        | 2050       | % CHANGE   | 2006                              | 2050      | % CHANGE   |
| European Union               | 864                         | 925        | 7%         | 80                                | 75        | -6%        |
| Canada & USA                 | 907                         | 887        | -2%        | 117                               | 95        | -19%       |
| China                        | 561                         | 820        | 46%        | 41                                | 89        | 116%       |
| Brazil                       | 606                         | 803        | 33%        | 151                               | 173       | 15%        |
| Former Soviet Union          | 601                         | 768        | 28%        | 118                               | 156       | 32%        |
| Other OECD                   | 529                         | 674        | 27%        | 64                                | 84        | 31%        |
| Latin America (ex. Brazil)   | 475                         | 628        | 32%        | 59                                | 86        | 45%        |
| Middle East and North Africa | 303                         | 416        | 37%        | 59                                | 86        | 45%        |
| Asia (ex. China, India)      | 233                         | 400        | 72%        | 24                                | 43        | 79%        |
| India                        | 184                         | 357        | 94%        | 8                                 | 19        | 138%       |
| Sub-Saharan Africa           | 144                         | 185        | 29%        | 41                                | 51        | 26%        |
| <b>World</b>                 | <b>413</b>                  | <b>506</b> | <b>23%</b> | <b>50</b>                         | <b>65</b> | <b>30%</b> |

\* WRI: <http://ow.ly/rpfMN>

# Countries Must Invest in Agriculture

Expenditure gains induced by 1% GDP growth, %



GDP growth originating in agriculture is **twice to four times** as effective in reducing poverty as GDP growth originating outside agriculture

Worldbank, 2008

Source: Ligon and Sadoulet 2007.

# Shares of 3 companies

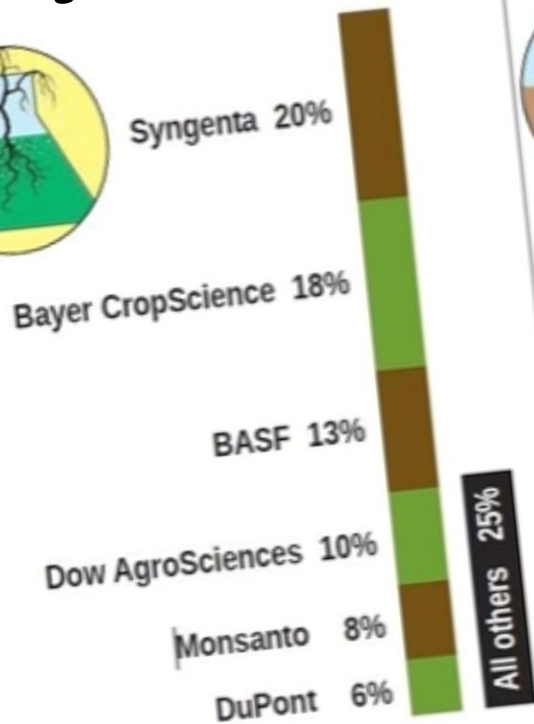
**Agri Chemical**  
3 companies = 51%

**Seeds**  
3 companies = 55%

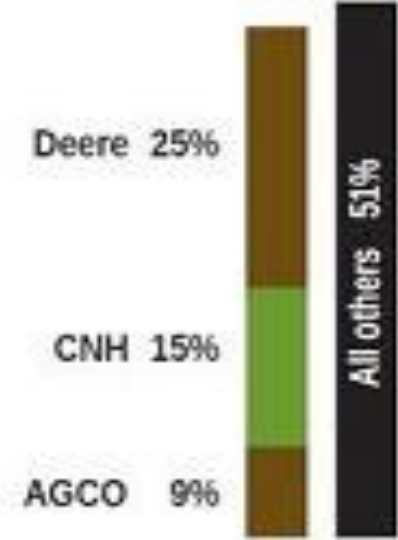
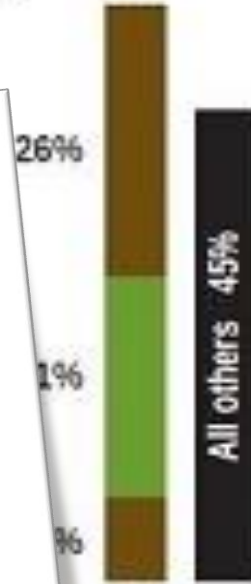
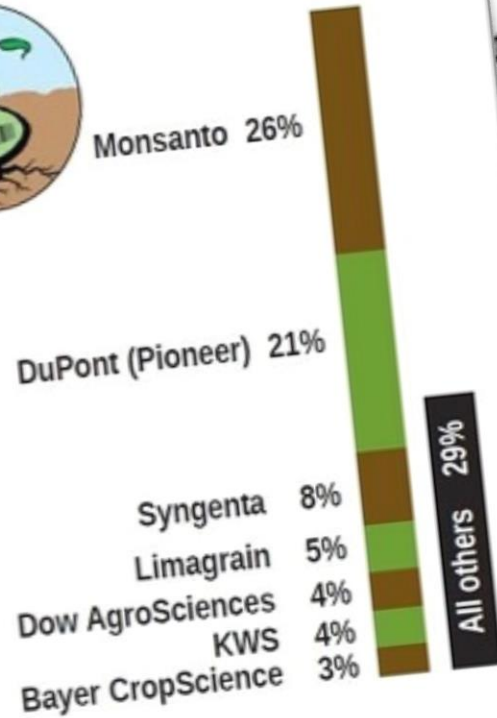
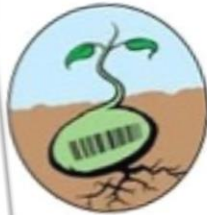
**Agri Machinery**  
3 companies = 49%

**Fertilizers**  
3 companies = 21%

6 giants control 75% of global agri chemicals



7 giants control 71% of global seed market



**MONOPOLISTIC  
WORLD**



# **FOOD SECURITY? FOOD DOMINANCE?**



**Limited competition  
Limited innovation**

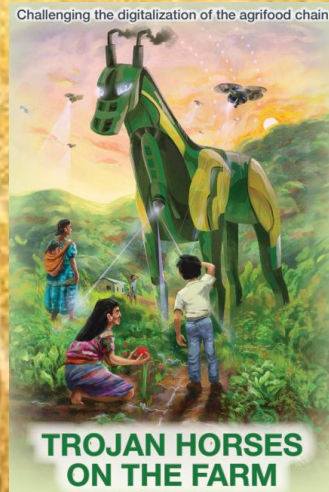
- **Packaged food:**  
**Top 10 market share 15%**  
**Largest company 3% alone**
- **Beverages:**  
**Top 10 market share 52%**  
**Top 2's market share 37%**

# TECHNOLOGY but how?

- 
- A glowing blue fingerprint is shown on a circuit board. From the fingerprint, vertical lines of light rise, each topped with a binary digit (0 or 1). The background is dark blue with a grid of small dots.
- ETHICAL
  - IMPACTFUL

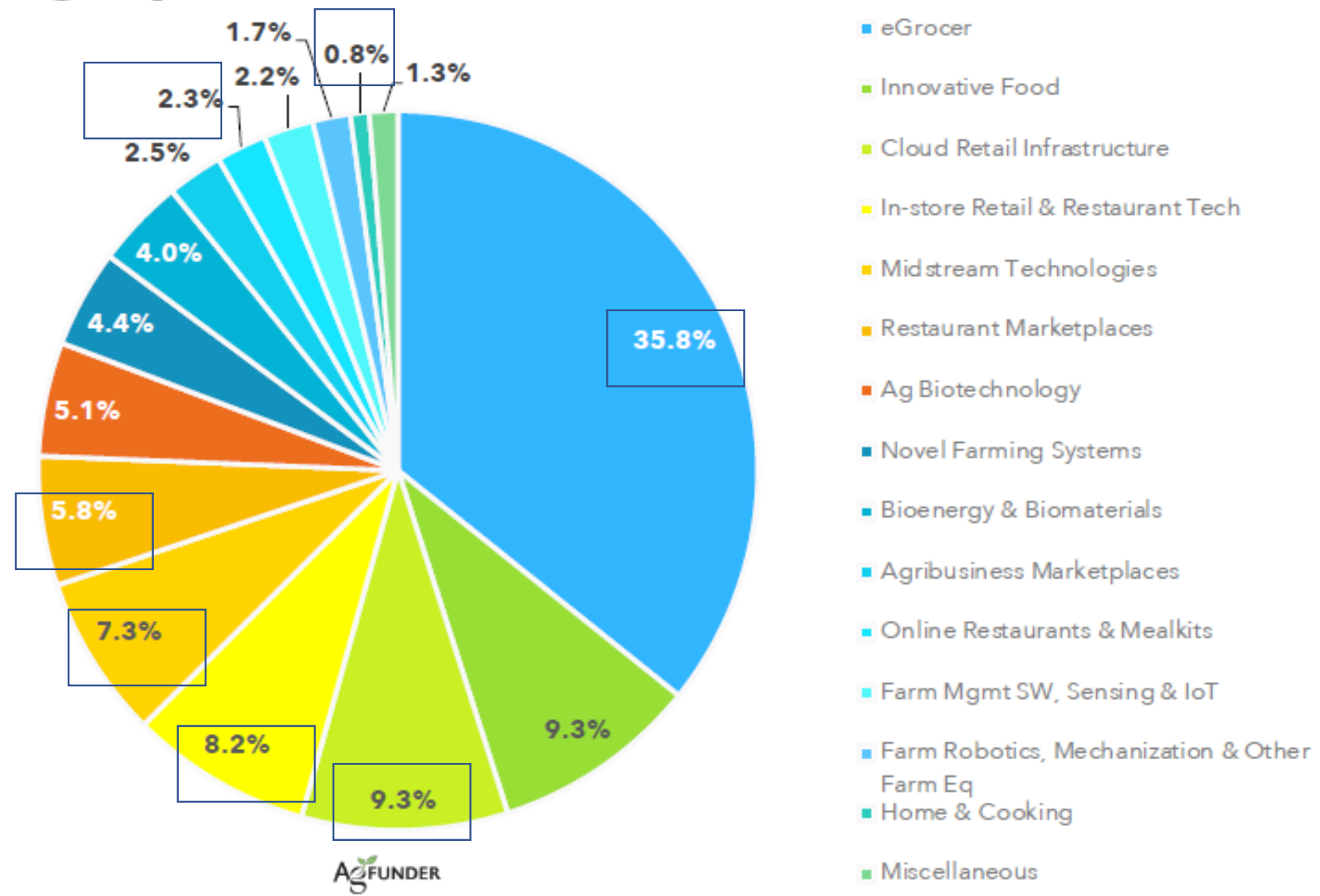
**For us  
Technology MUST protect nature,  
increase human, animal and plant  
health and welfare,  
optimize productivity,  
and serve for a better world.**

**Is it so?**

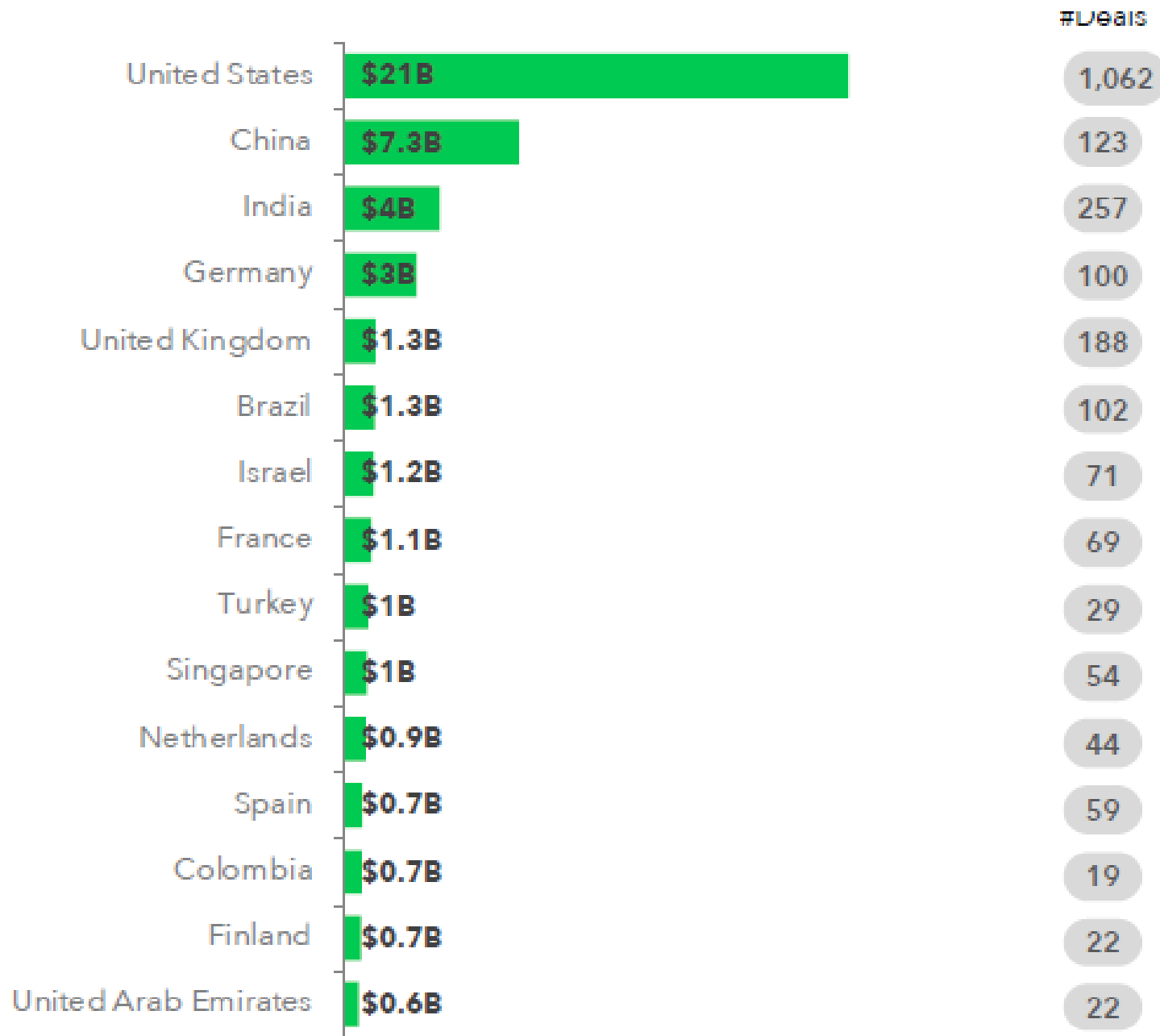


# 2021 AgriFoodTech Investment Share by Category

DEALS BY CATEGORY



**%69,5**  
on e-sales and supply



**Türkiye is  
9. in  
investments  
too**

# Know-how – Experience – Technology

since  
1989



## ► TETA and LAKTO

- **Scientific and professional solutions** in dairy farming industry
- **50+ years of professional experience** and outstanding service quality
- **More than 500 complete farms projects** locally and globally
- Extensive experience with **professional farms** and high milk yielding cows
- Vast experience in different locations
- **Innovative products**
- **Patented and award-winning products** especially on milking systems and solutions





““LAKTO Dairy Farming Technologies offers holistic solutions and innovative products for sustainable dairy farming.”

LAKTO has a solution from A to Z for dairy farming.



LAKTO is in the top Patentpreneurs Türkiye 2021-22-23 lists. It is the only agri company in the list.





# Correct Technology= Good Milking



**PATENTED**



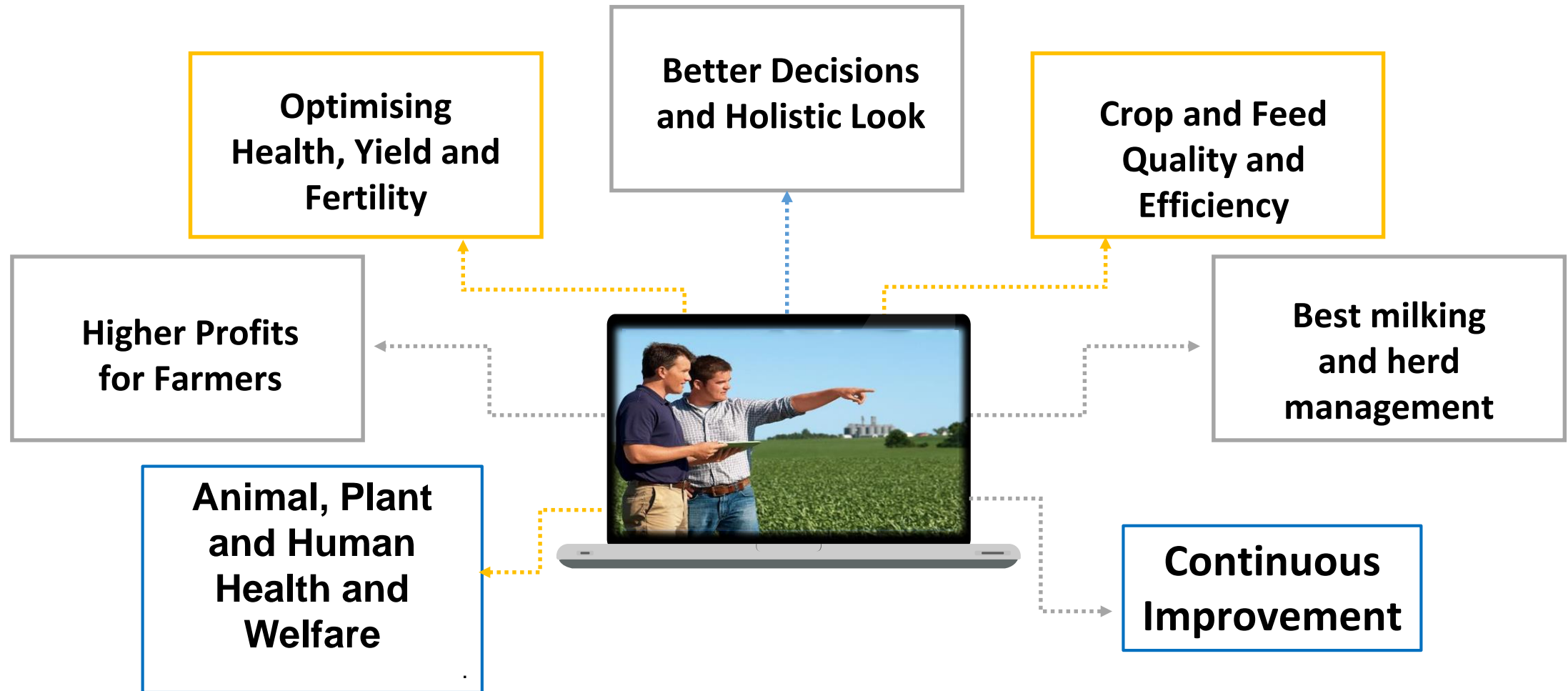
**PATENTED**



**PATENTED**



# ► Our Regenerative and Holistic Approach for Farms



# Training and R&D Farm

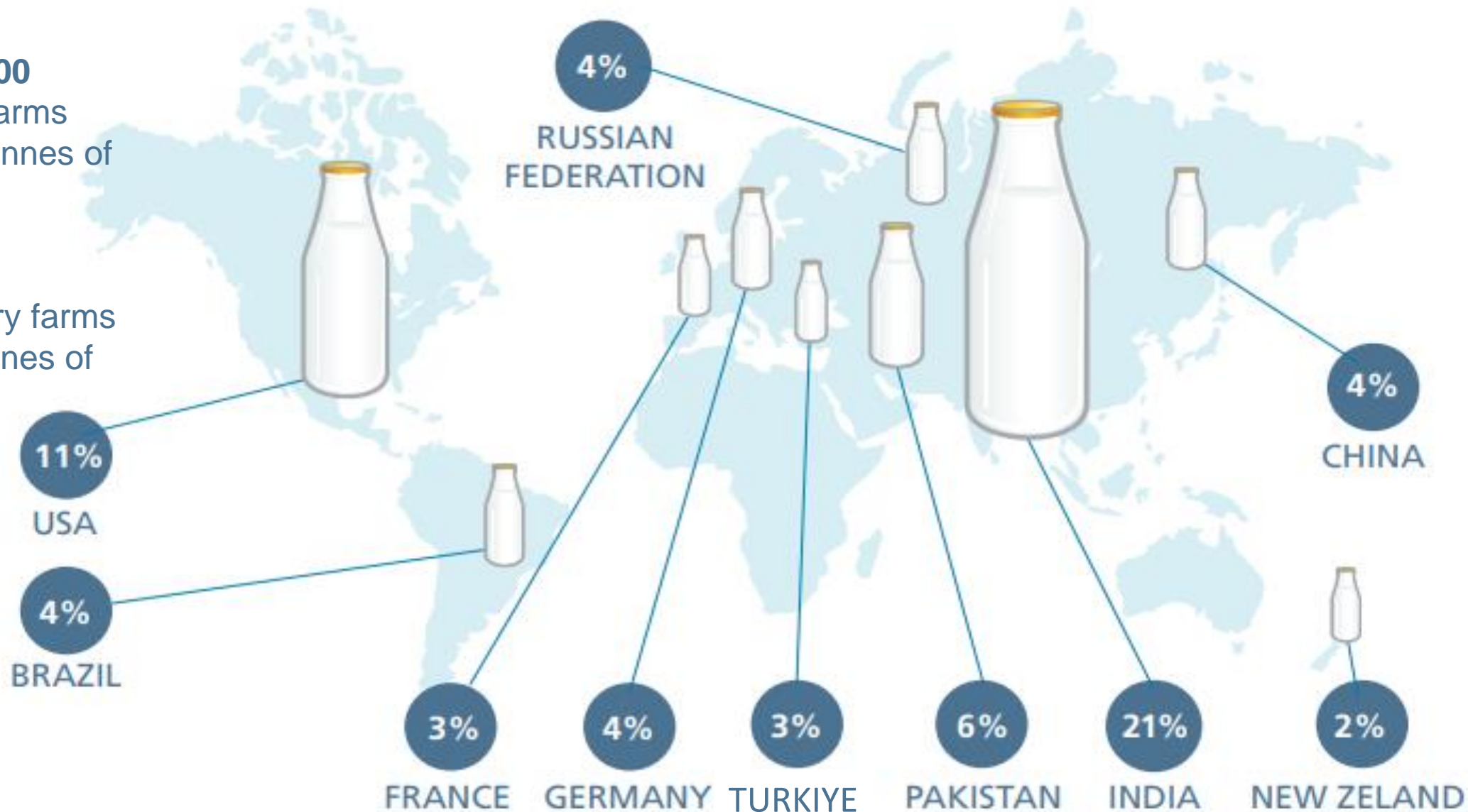


# MILK PRODUCTION

These countries produce about 62% of world production

World  
~**more than 100 million** dairy farms  
~850 million tonnes of milk

Turkiye  
~**1 million** dairy farms  
~15 million tonnes of milk



# Challenges for the Milk Sector



MILK QUALITY



FARMER WELFARE AND EARNINGS



CONSUMER SATISFACTION



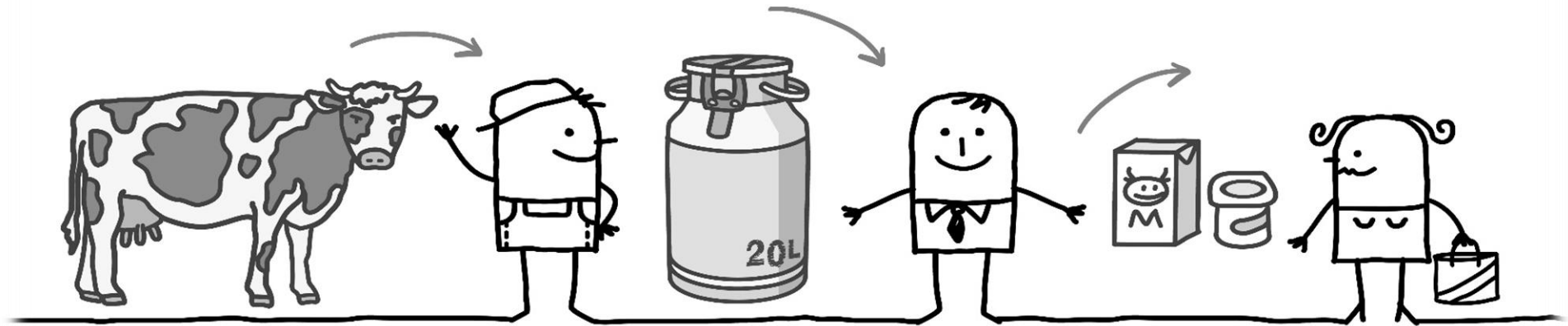
MORE PROFITS AND PRODUCTION



ENVIRONMENTAL AND SOCIAL RESPONSIBILITY



# The Future for Dairy Industry



Reliability in  
supply chain



Reliable  
relationship with  
producer and  
consumer

# Challenges at the Farm: the leaking bucket



Herd planning



Fertility



Feed



Welfare



Labor

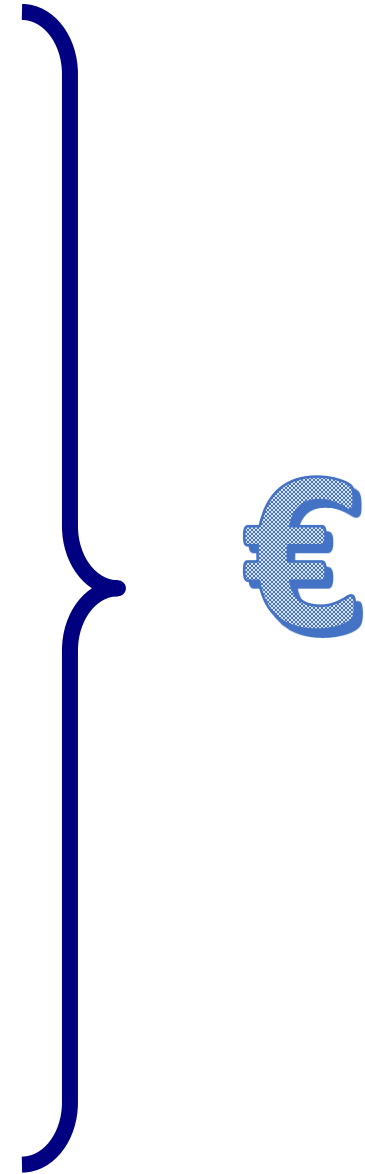


Health



# Cost related issues at the farm

- Lost milk due to mastitis and heat stress
- Thrown away (discarded) milk
- Culling and replacement
- Fertility and reproduction
- Feeding & nutrition
- Labor
- Health and medicines
- Energy



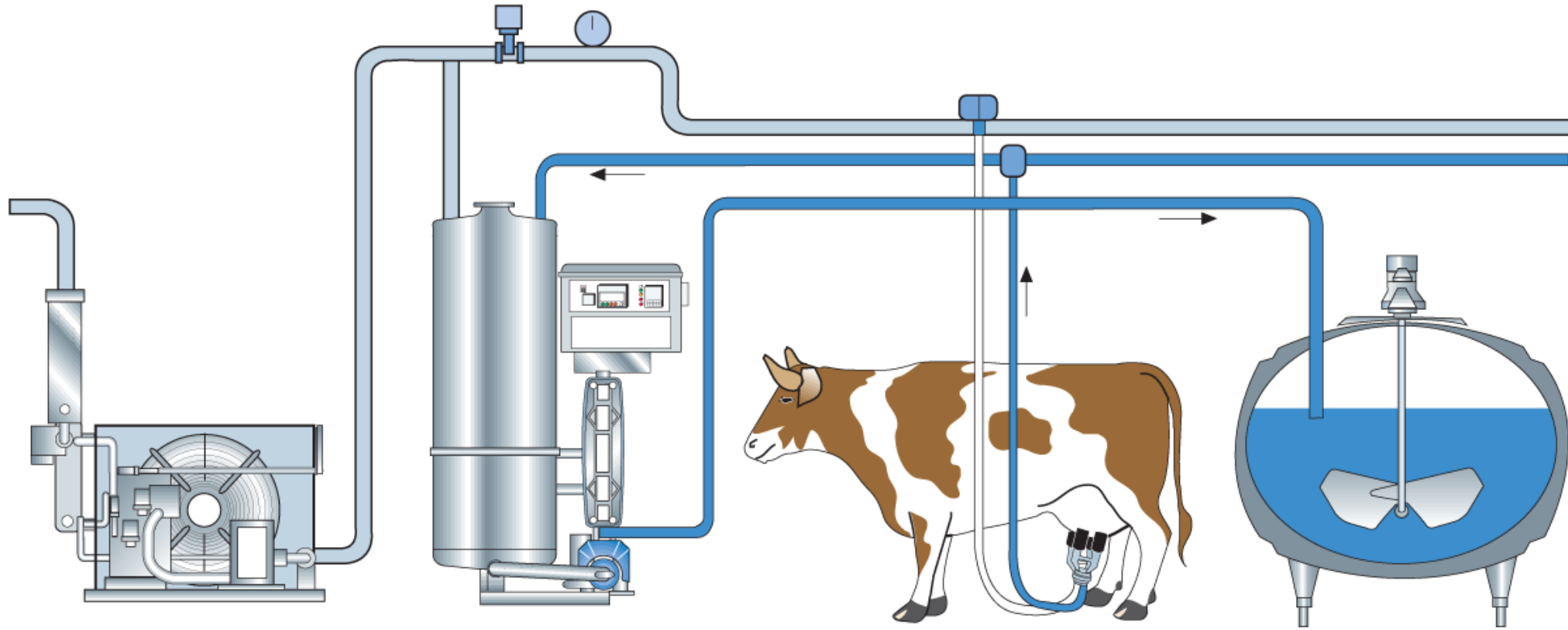
# **THE BIGGEST CAUSE OF LOW MILK QUALITY AND MASTITIS IS:**

## **IMPROPER MILKING MACHINERY**

- **Wrong pulsation**
- **Improper milking assembly set**
  - **Vacuum fluctuations**
- **Unclean milking line and machine**
- **Non-compliance with ISO, HACCP and food-security**



# What is the problem?



**Non-compliance with ISO, HACCP and food-security**

# What is the problem?



- **Unclean milking machine**
- **Poor work safety and health**

More than 85% of the milk in Türkiye and most of the world, is milked with mobile bucket milking machines. They are very difficult to wash and clean by hand so it is neglected. Additionally, thorough cleaning is not fully possible by hand



# What is the problem?

## ANIMALS



Teat Diseases  
Milk loss  
Welfare loss  
**Pain and treatment**

Shortened life by half  
and less off-springs  
**>1 bil USD /yr to  
Turkish economy**

## FARMERS



Loss due to teat  
diseases, lost milk  
and quality,  
involuntary culling  
**Up to USD  
950/cow/year**

Welfare loss,  
Low work health and  
safety

## MILK PROCESSORS



Loss of product  
conversion **by min  
14%**  
**Min 1 bil USD/year  
loss only for cheese**

Loss on extra energy  
for UHT  
Low product variety  
and quality

## CONSUMERS



Low product quality

Lack of reach to  
nutritious and more  
natural products

Overly processed milk

**Food-waste by lost  
product ☹️**

# ► Quality Milk at the Farm

MILKING



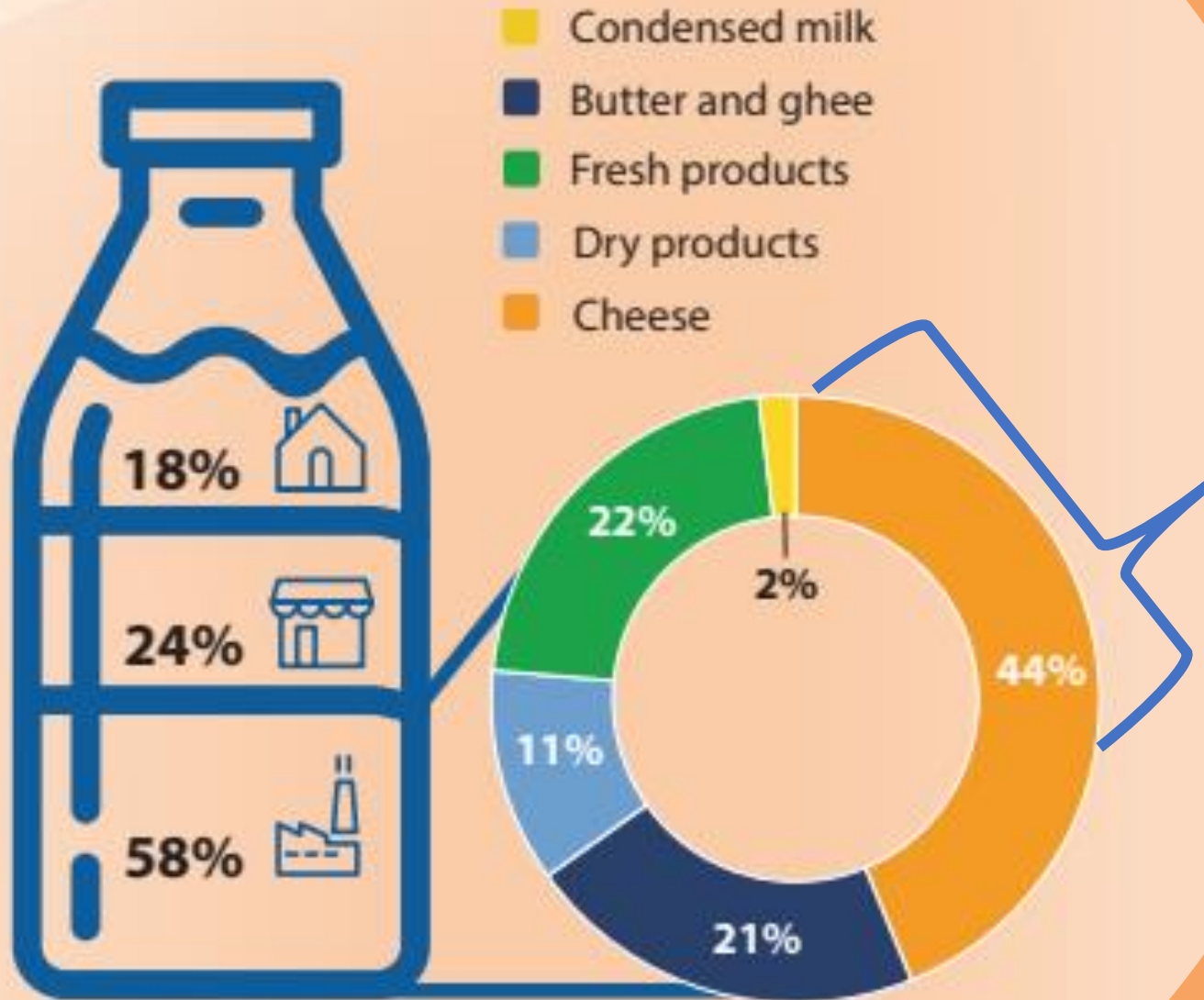
ANIMAL HEALTH

FEEDING AND REARING

Legal limits for raw milk:

- Total bacteria at 30°C <100.000 /ml
- Somatic cell count <400.000 /ml

# Milk production and processing profile

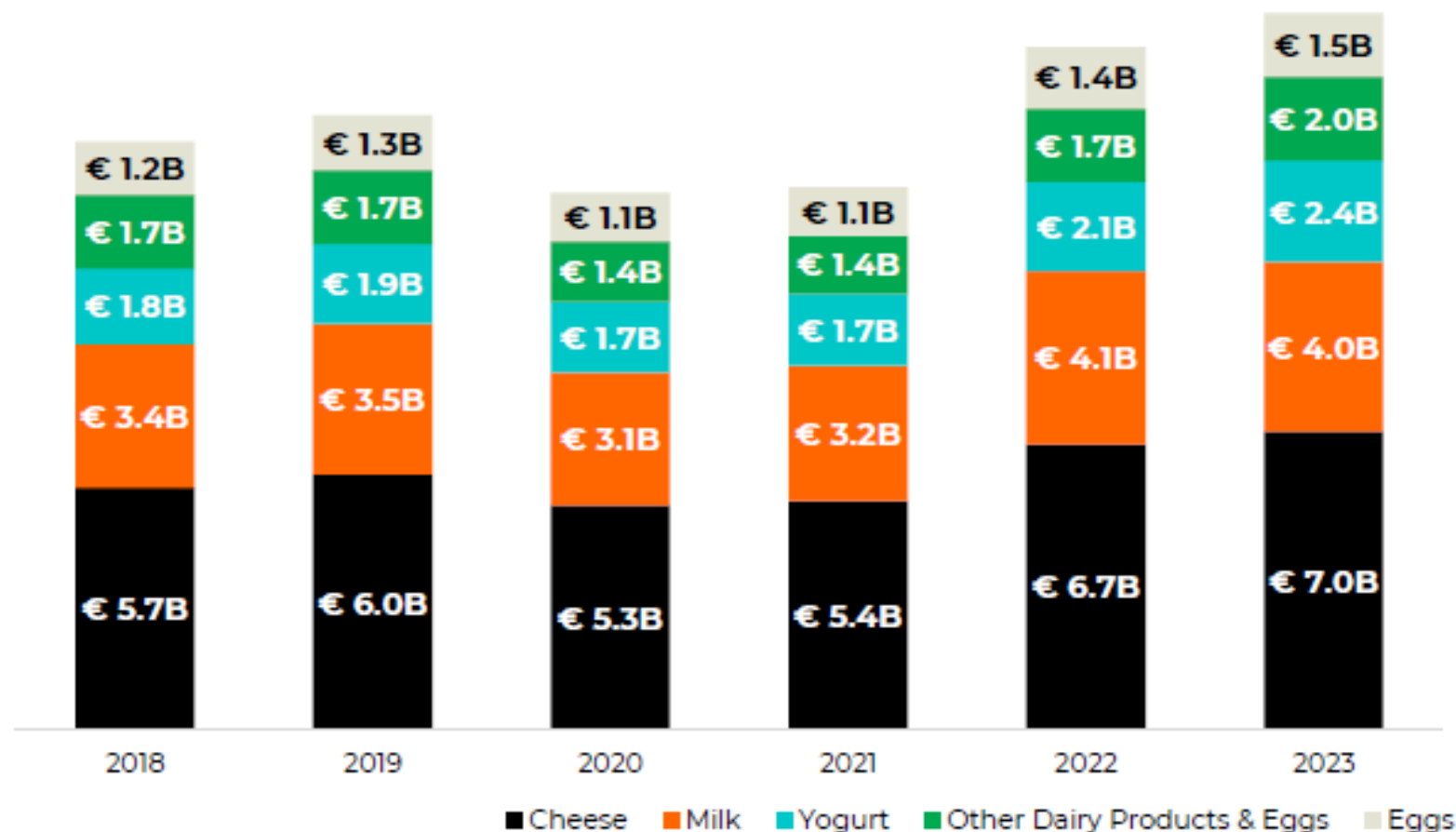


If only 60% of cheese production is realized by small farmers, the loss is

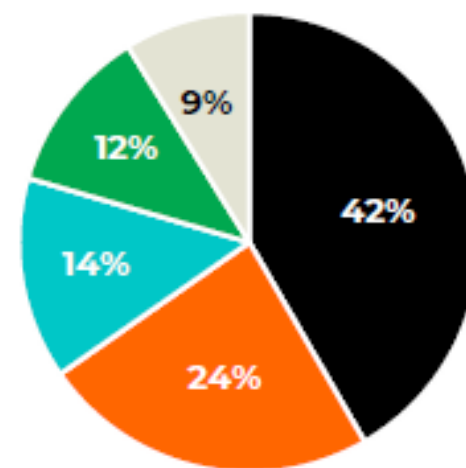
Minimum 1 billion USD/year

# Cheese makes up 42% of the sales value of dairy and eggs in Türkiye, followed by milk at 24%.

Dairy products and eggs revenue in Türkiye 2018-23  
*In billion Euros*



2023 % breakdown



# Revolution for the dairy farming milk quality



INNOVATION  
AWARD

**EuroTier**

**SILVER MEDAL**



**PATENTED**

USA – 17044756

EU - 19855056.8 (pending)

TR - 2018/07556 (pending)

# IMPACT

MILK  
PROCESSORS



FARMERS



ANIMALS



CONSUMERS



# IMPACT



950 USD  
per cow  
per year

- Decrease in health costs and milk and animal loss



5-10%

- Increase in milk production with the same cost and emissions



Farmer  
Earnings

- Very positive increase in earnings and work-health and safety



**LAKTOWASH** is the only automatic washing and cleaning machine available for mobile bucket milking machines.

# What does the farmer need?

Solutions to problems → Earnings



Correct technology  
for the correct decisions and earnings

## The Individual Animal Dilemma

Is she giving  
enough milk?



Is she sick?



Is she getting  
pregnant?



How much  
is her keep?



**The Farmer Needs Decision Making Tools and We Supply It**



# Worker



 Assignments

 Time saving

 Easy

# Manager



 Status

 Alerts

 Tasks

# Owner



 Key performance indicators

 Analysis

 Retrospective analysis

# For the Farmers

- ▼ Quality milk
- ▼ More income
- ▼ More income
- ▼ Animal and Farmer welfare
- ▼ Prestige and Trust



# For the Processors

- **More Profits**
- **Prestige and trust**
- **Less emissions per unit**

A young man with short brown hair, wearing a light blue t-shirt, is smiling broadly and holding a clear glass filled with white milk. He is looking towards the camera. The background is plain white.

# For the Consumers

- ▼ **Quality and Secure Food**
- ▼ **Prestige and Trust**
- ▼ **Building bridges**

**QUALITY MILK  
MOVEMENT**



**Agriculture 4.0**  
**Technology**  
**Impact Association**



**THANK YOU**



**LAKTO**  
Dairy Technologies