

# EXAMPLE: COMPANY APPROACH TO REDUCE THE EMISSIONS OF PIG PRODUCTION





# Vall Companys Group

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## STRATEGIC SUSTAINABILITY PLAN FOR 2030

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**PENTA**

PROGRAMME

# Sustainability Strategy of VC Group



- Different sustainability actions during the last decade
- In 2019, definition of holistic sustainability strategy
- Characteristics:
  - ✓ Whole value chain
  - ✓ Robust
  - ✓ Realistic / Achievable
  - ✓ Based on efficient parameters
- In 2020, targets for 2030 – PENTA Program
- In Nov 2021, validation by SBTi  
First Spanish Food Company



# PENTA Program



## Five key pillars for action

The strategic lines of the Penta Programme are based on five specific vectors that cover every dimension of sustainability while at the same time adapting to the particular idiosyncrasies of the Vall Company's

Group value chain.



### Pillar 1

Climate and circularity



### Pillar 2

Animal welfare



### Pillar 3

People



### Pillar 4

Quality, safety and innovation

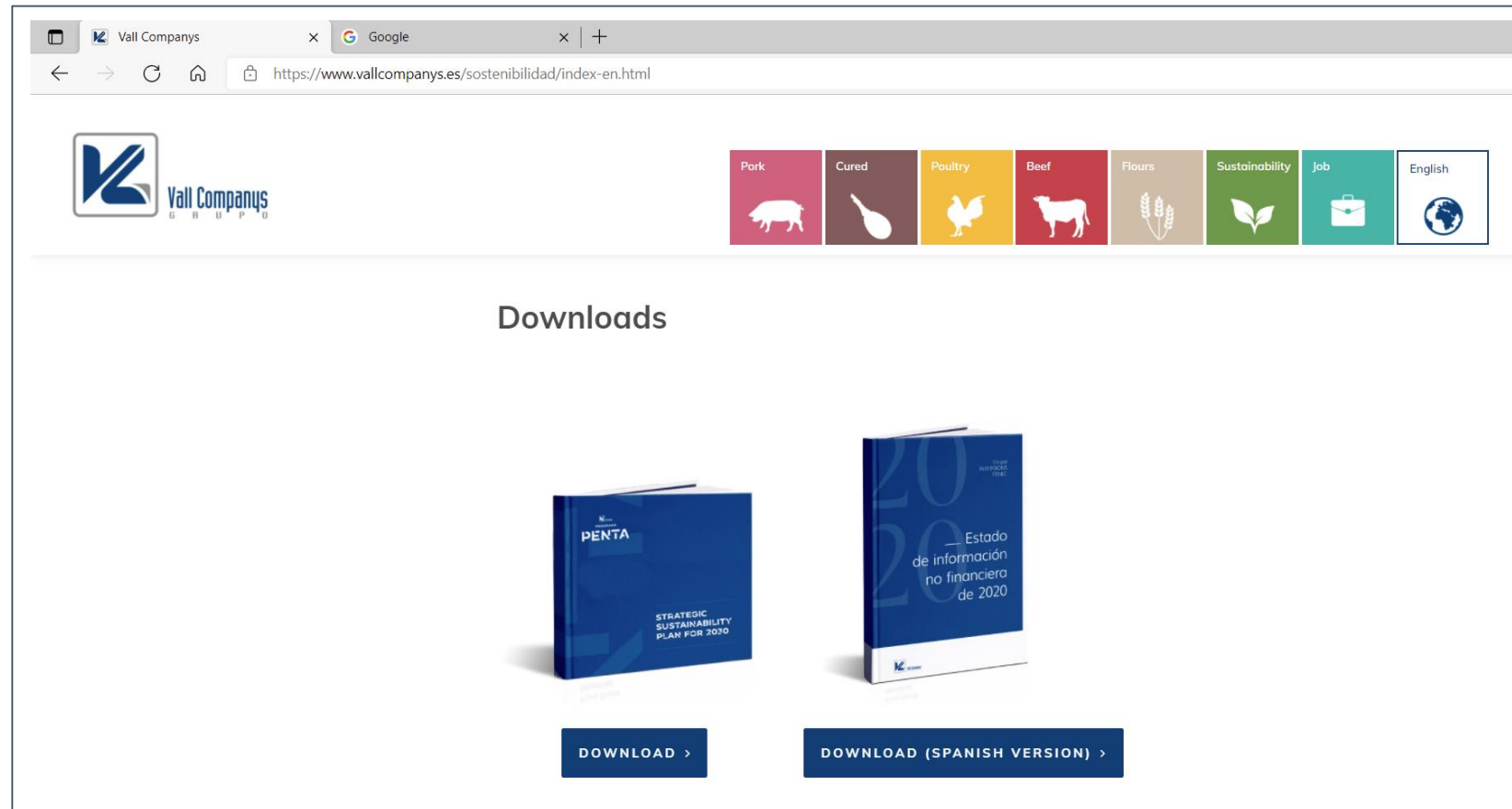


### Pillar 5

Ethical and responsible  
management

# PENTA Program

- Transparency:
  - Fully explained in our website
  - Downloadable documents



# PENTA Program



- Pillar 1: Climate and circularity
  - Reduction of GHG emissions
  - Reducing our water footprint



- Pillar 2: Animal welfare
  - Certified animal welfare
  - Reduced use of antibiotics



- Pillar 3: People
  - To maintain our status as a Top Employer
  - Integration and diversity
  - Professional stability and development



- Pillar 4: Quality, safety and innovation
  - Packaging
  - R&D&I intensity



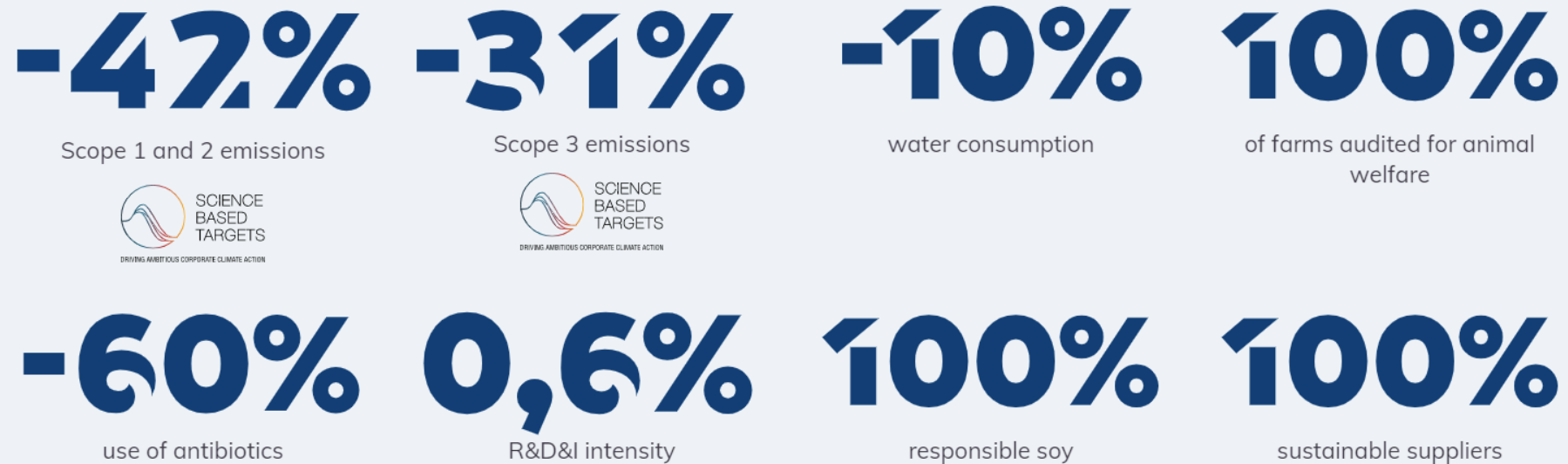
- Pillar 5: Quality, safety and innovation
  - Responsible governance and ethical self-management
  - Sustainable supply chain

# PENTA Program – 2030 Objectives



## 2030 Objectives

The Penta Programme has set eight basic, measurable objectives for 2030.



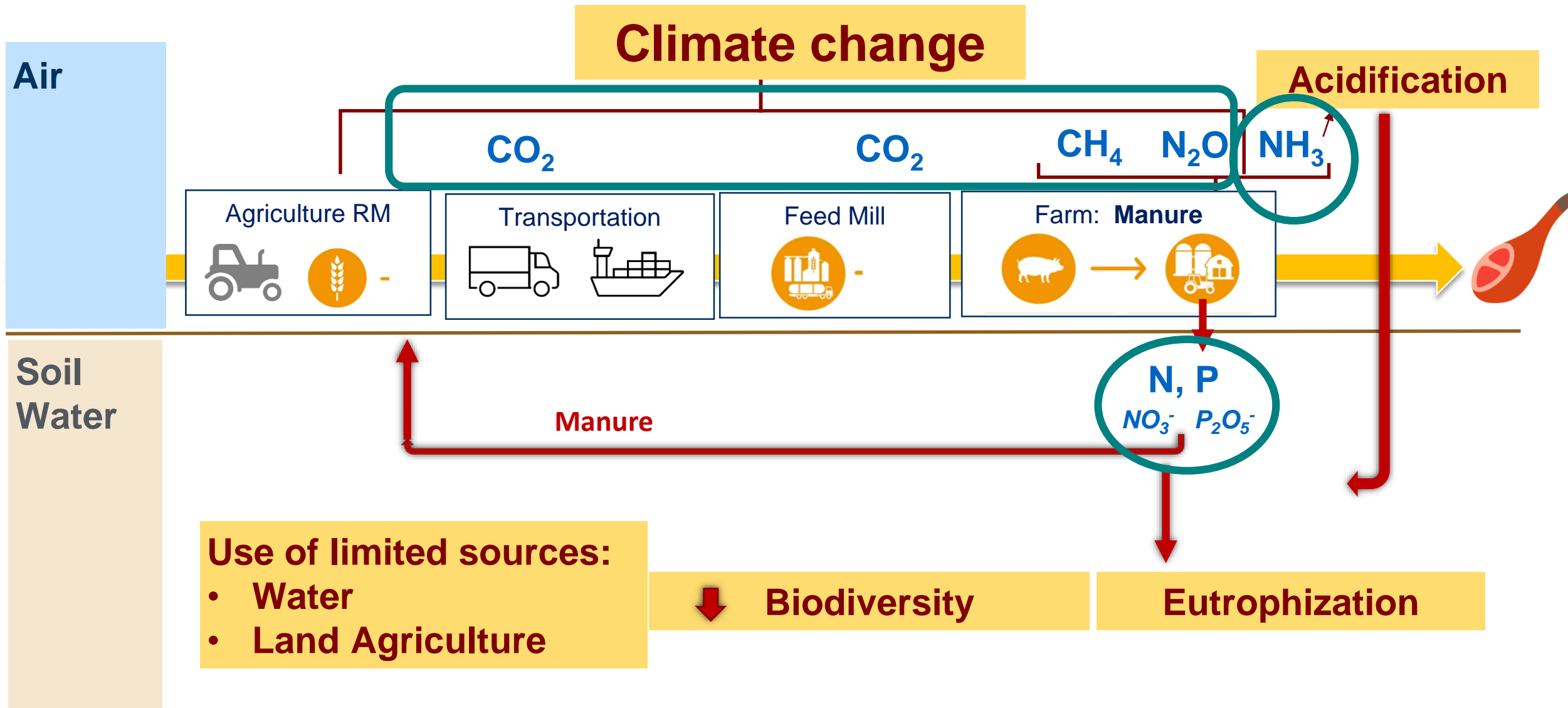
- Minimize the excretion of nutrients with a negative environmental impact ( $\text{NO}_3^-$ ,  $\text{P}_2\text{O}_5^-$ ) – **Nutrient Balance**
- Minimize the Carbon Footprint ( $\text{CO}_2$ ) of producing 1 kg of meat  
**LCA**

Effect of:

- Raw Materials
- Biogenic Emissions







# Reduction of the Excretion of N and P



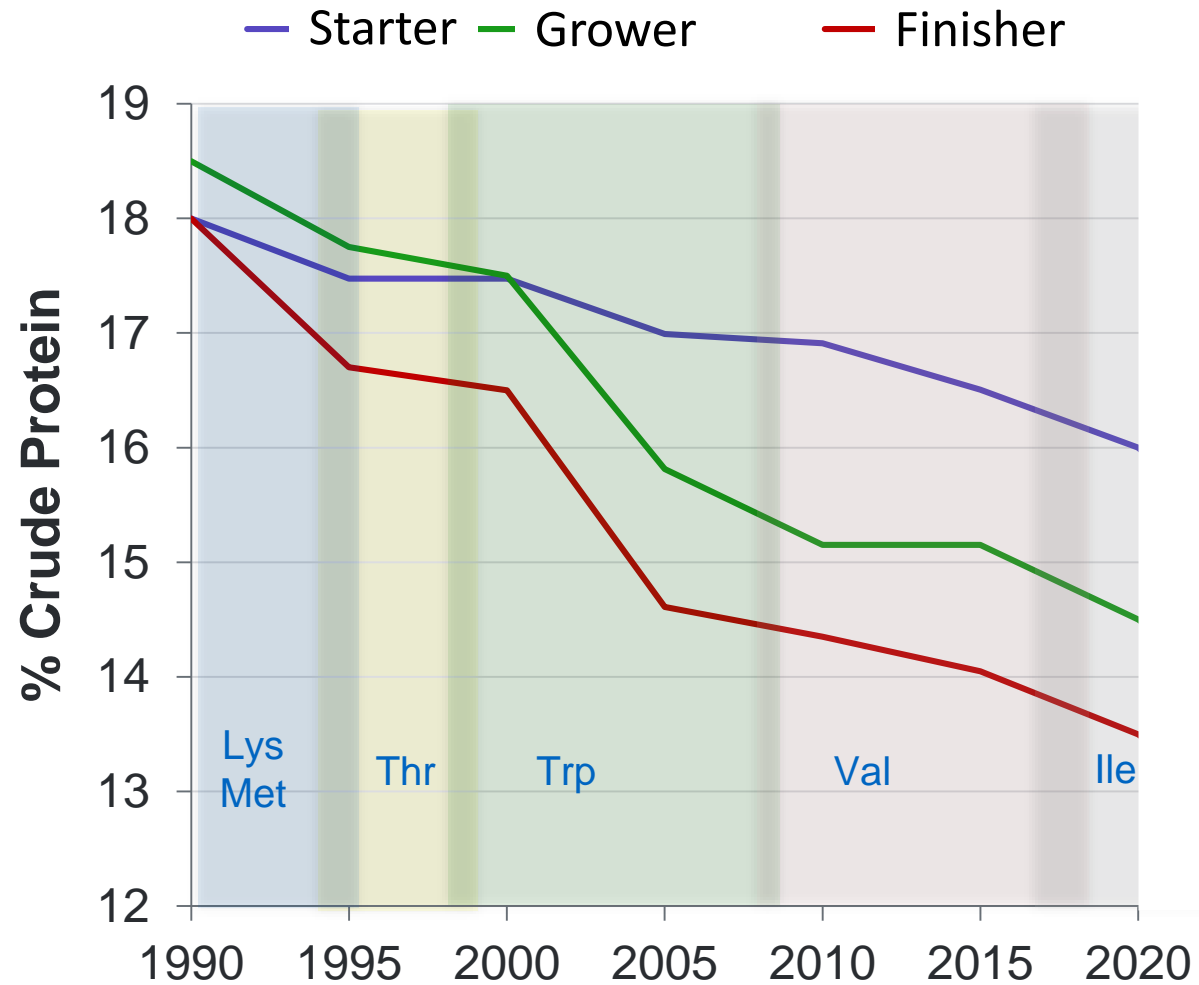
New developments in animal nutrition allow to reduce in a significant way the excretion in **manure / air**

## Best Available Techniques:

- Multi-phase feeding - Precision Feeding
- Reduction of % crude protein of the diets:
  - ✓ Digestible amino acids in feed formulation
  - ✓ Commercial availability of new synthetic amino acids
  - ✓ Enzymes to increase protein digestibility
- Reduction of % Phosphorus levels of the diet:
  - ✓ Digestible Phosphorus in feed formulation
  - ✓ Use of new phytases with a major phytic-P release.
- Reduction of the amount of feed consumed per animal (better FCR) due to improvements in genetics, housing, management and health
- Optimization of diets with environmental criteria

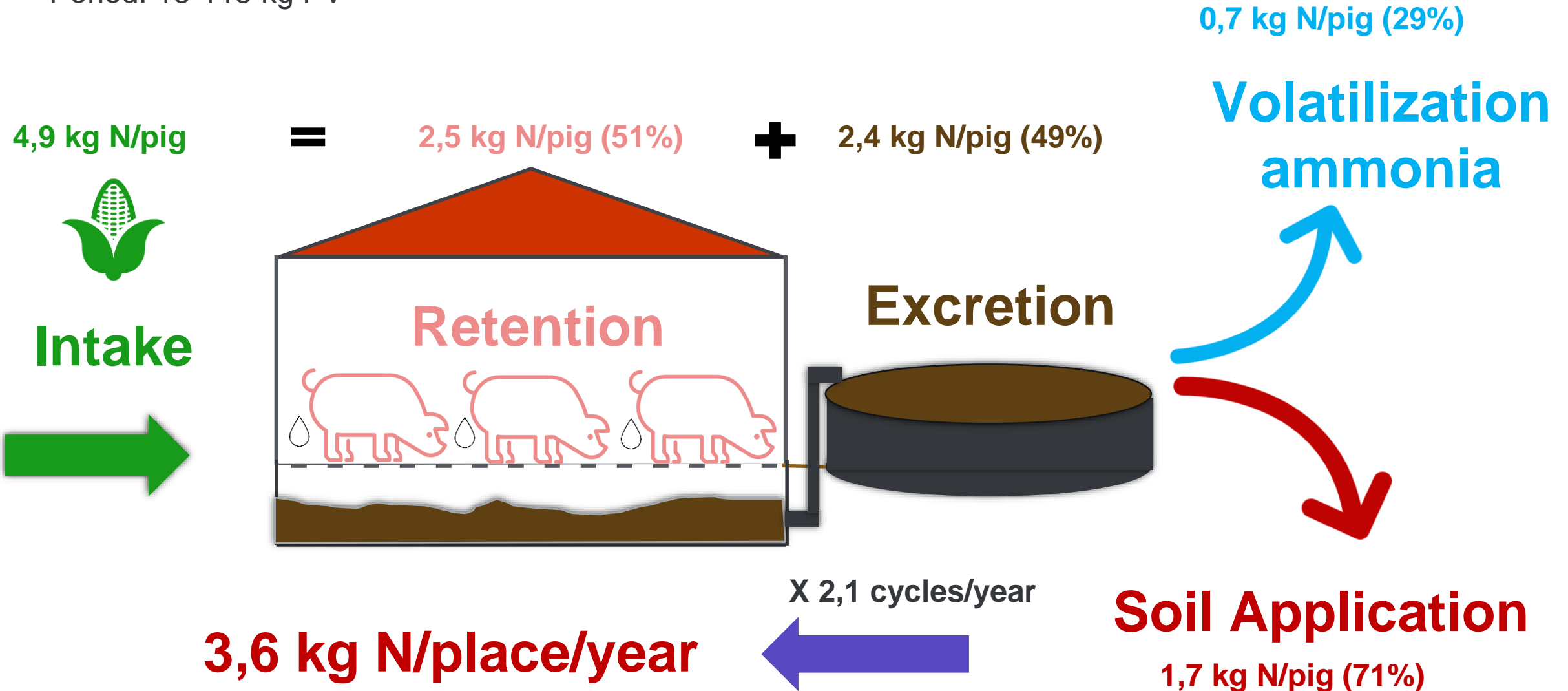
# Reduction of % Crude Protein

+ Use of synthetic aminoacids

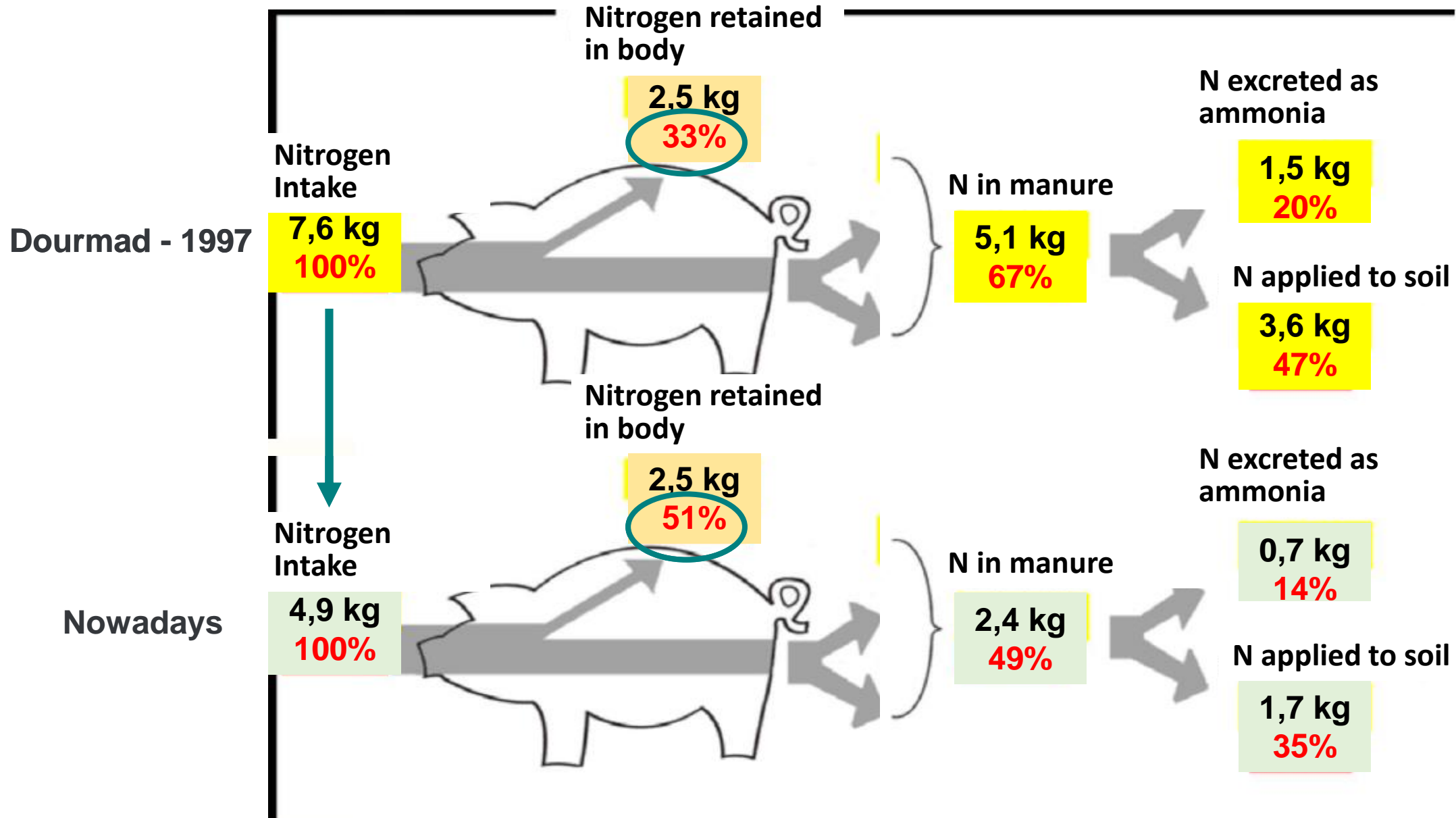


# Nitrogen Balance

Period: 18-115 kg PV



# Nitrogen Balance

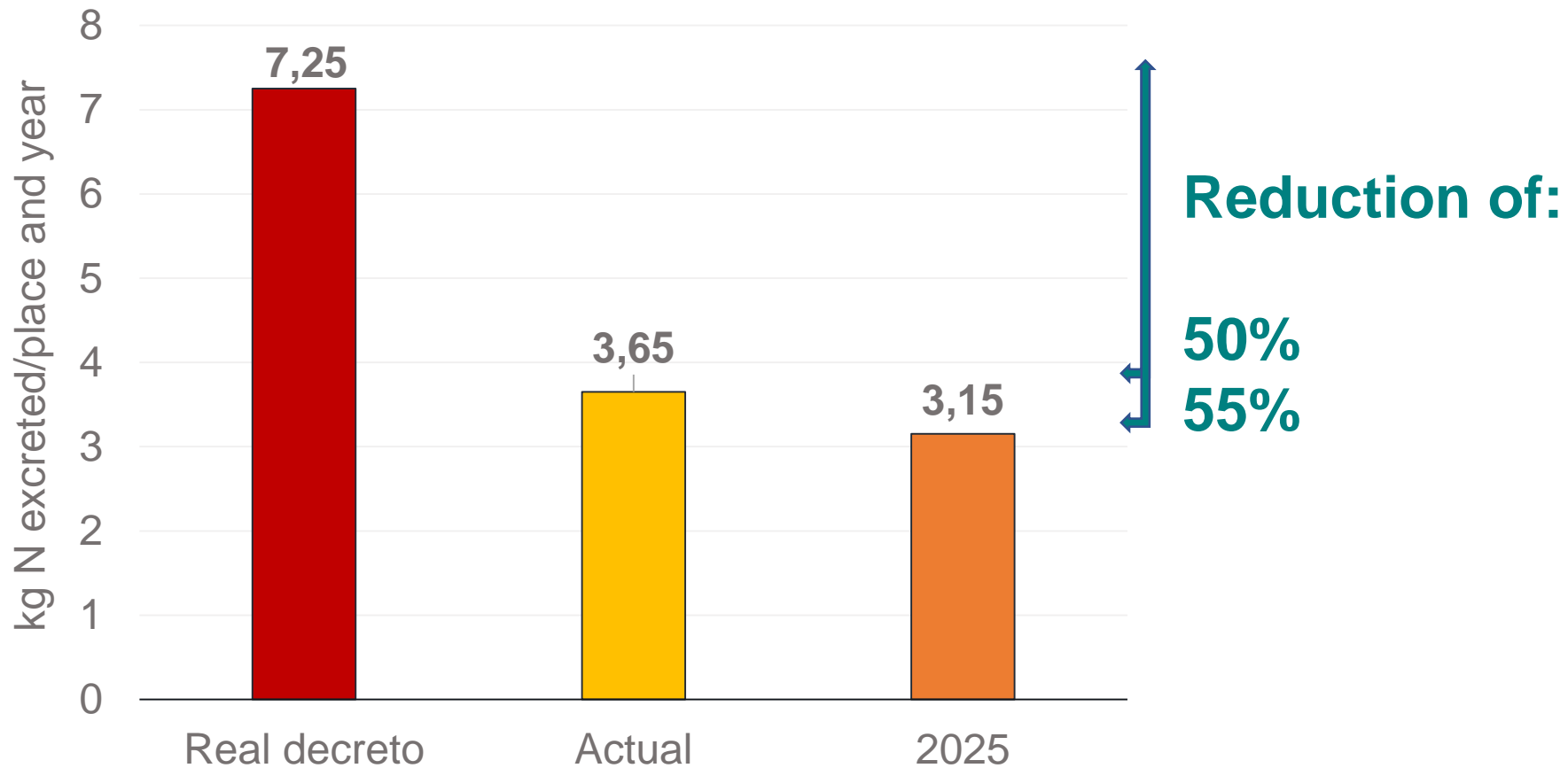


# Nitrogen Balance

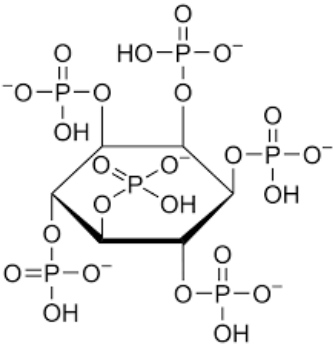
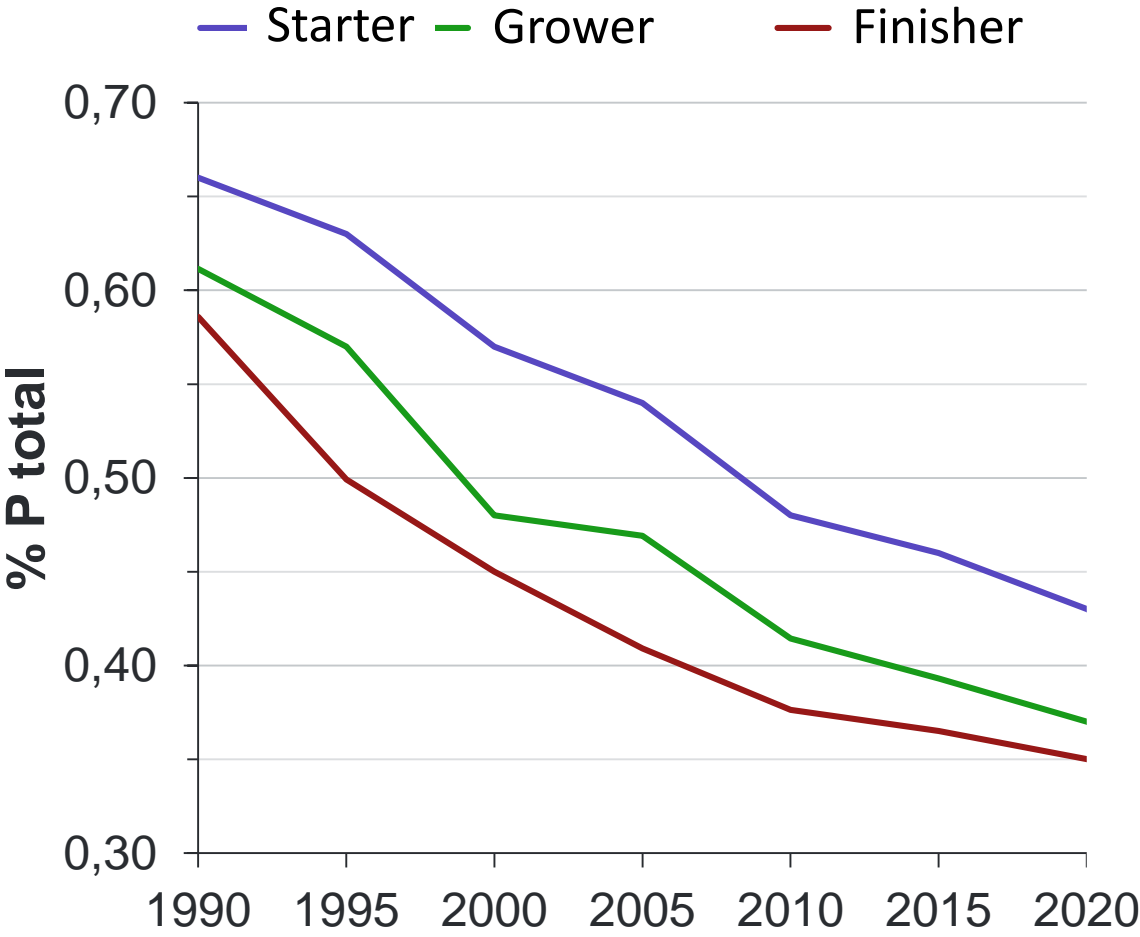


Real Decreto 324/2000

Official value for a pig 20-100 kg is **7,25 kg of N per place and year**



# Reduction of % Phosphorus



## Evolution of Phytases:

Evolution	Dose	Supply P. Dig, %
1995	Std.	0,080
2008	Std.	0,093-0,096
2014	Std.	0,110-0,126
2014	Doble	0,140-0,155
2025?	Doble	0,170-0,180

# Phosphorus Balance

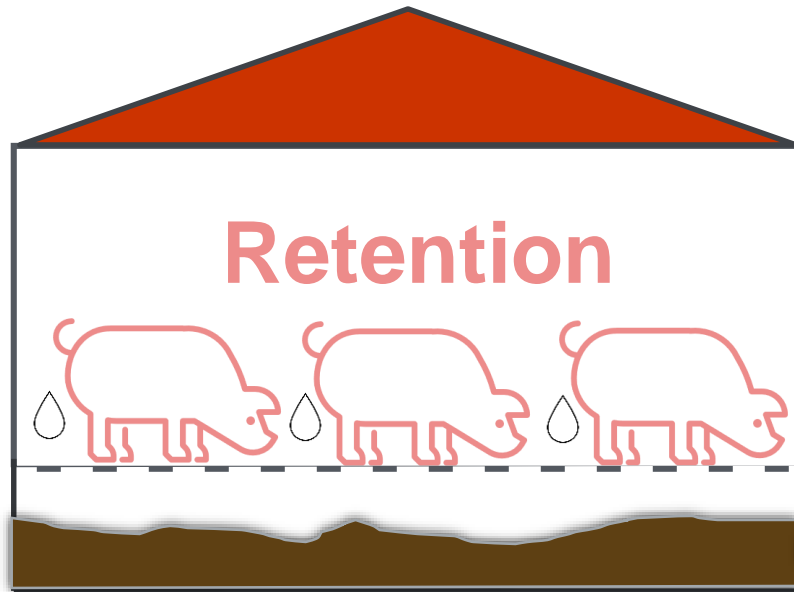


0,80 kg P/pig



Intake

= 0,48 kg P/pig (60%) + 0,32 kg P/pig (40%)



Excretion

X 2,1 cycles/year

1,54 kg  
 $P_2O_5$ /place/year



0,67 kg P/place/year

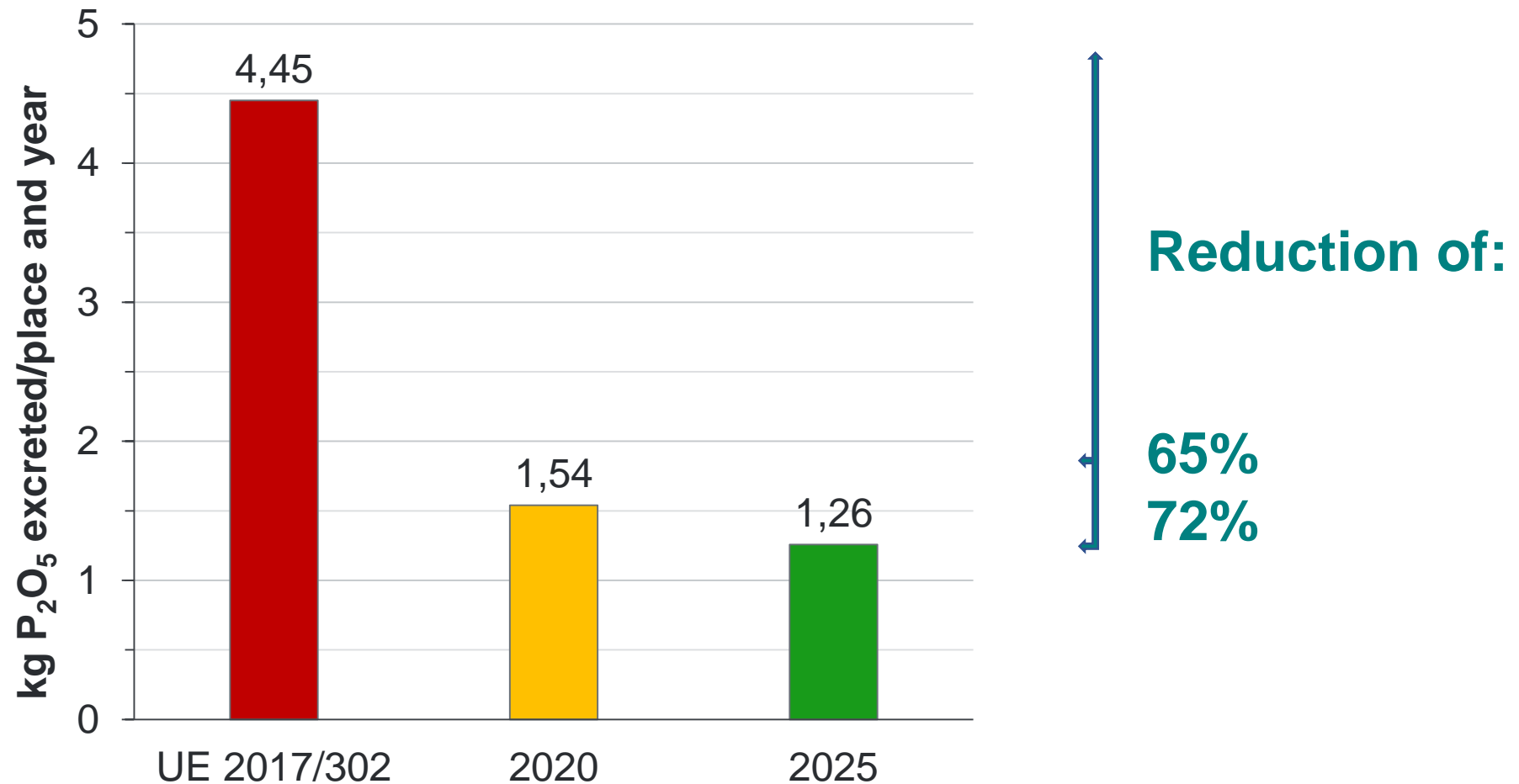


# Phosphorus Balance



Decision EU 2017/302

Official value of **3,5-5,4 kg  $P_2O_5$**  per place and year



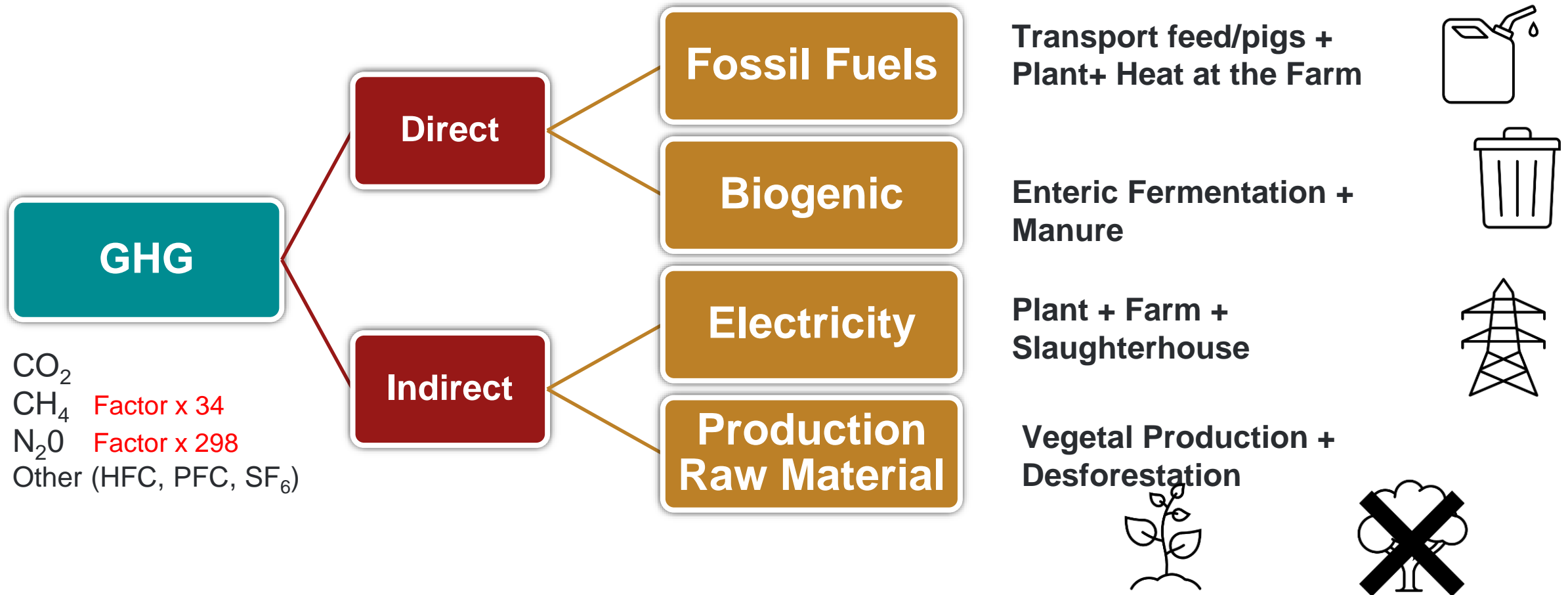
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**LCA**

Effect of:

- Raw Materials
- Biogenic Emissions

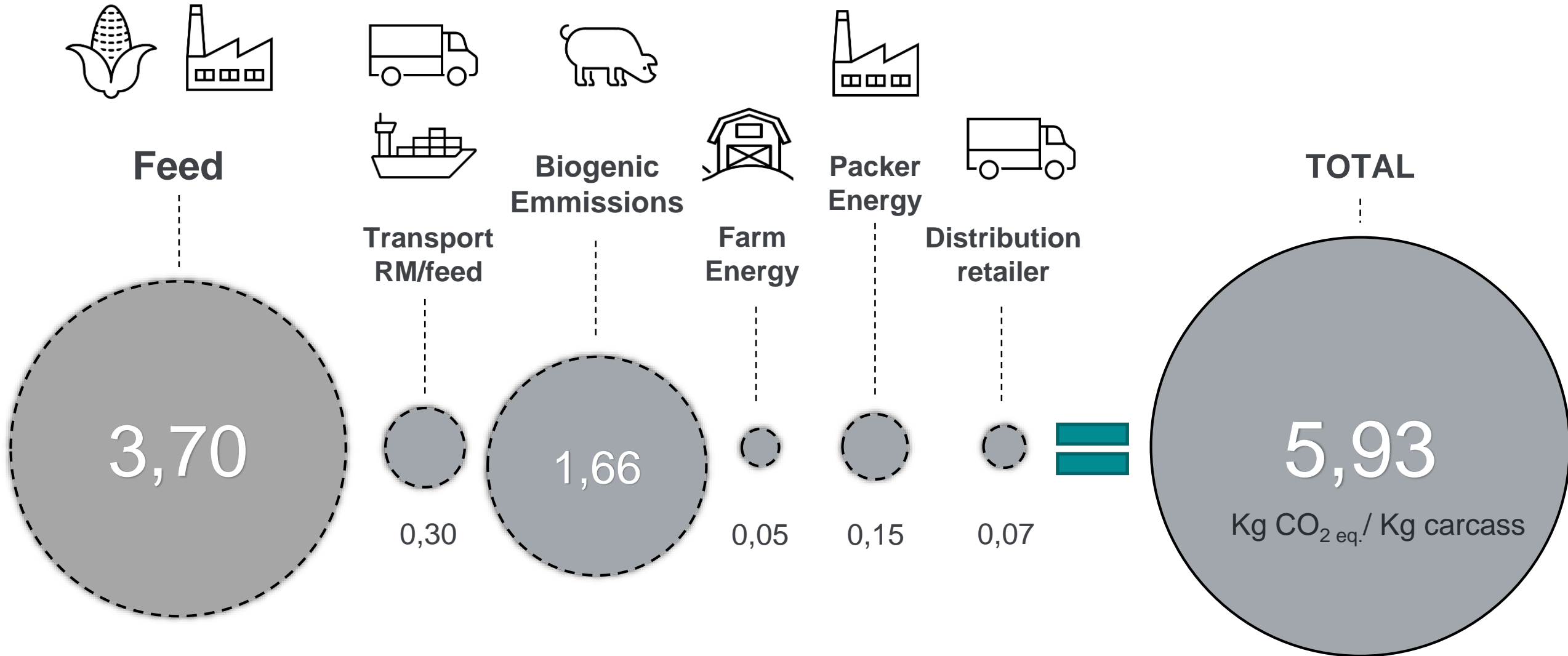


# Type of GHG Emissions

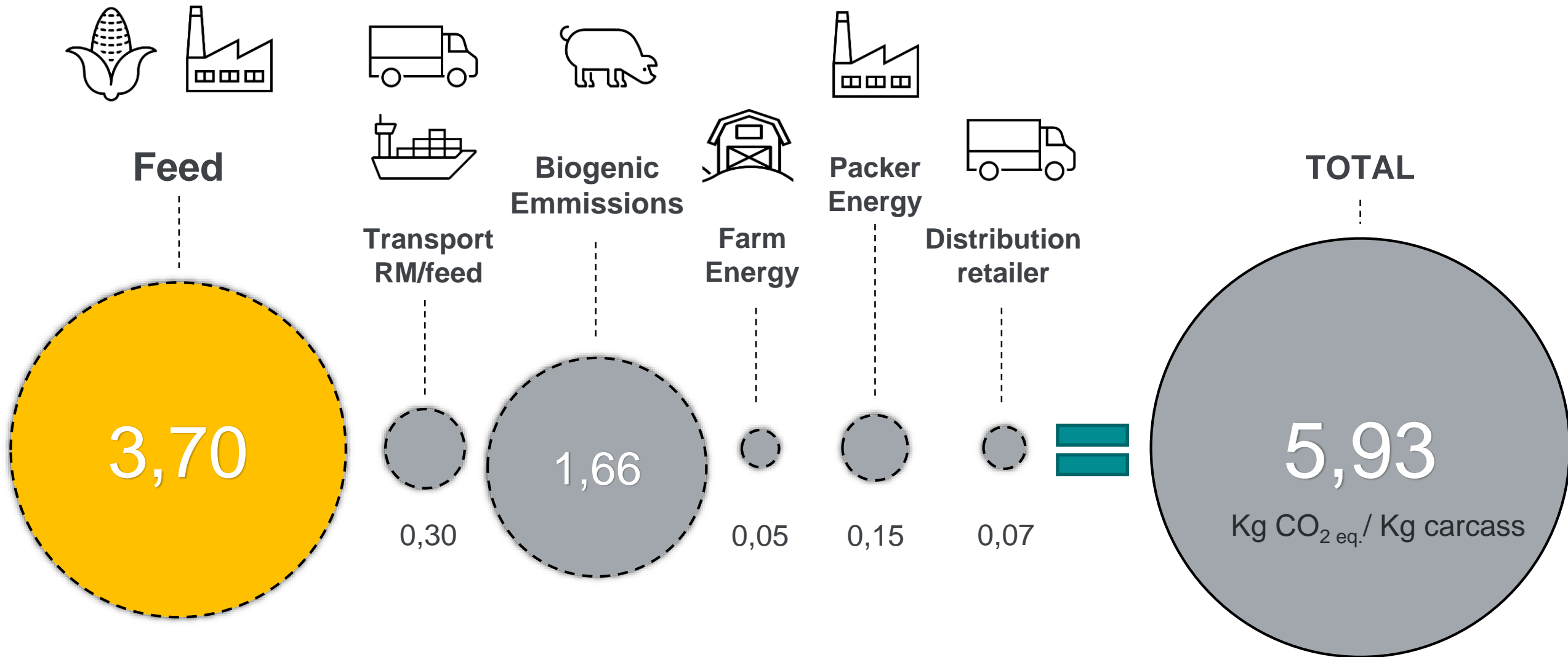


Carbon Footprint (LCA) includes direct and indirect ones

# Carbon FootPrint - kg CO<sub>2</sub> eq./ kg pork carcass



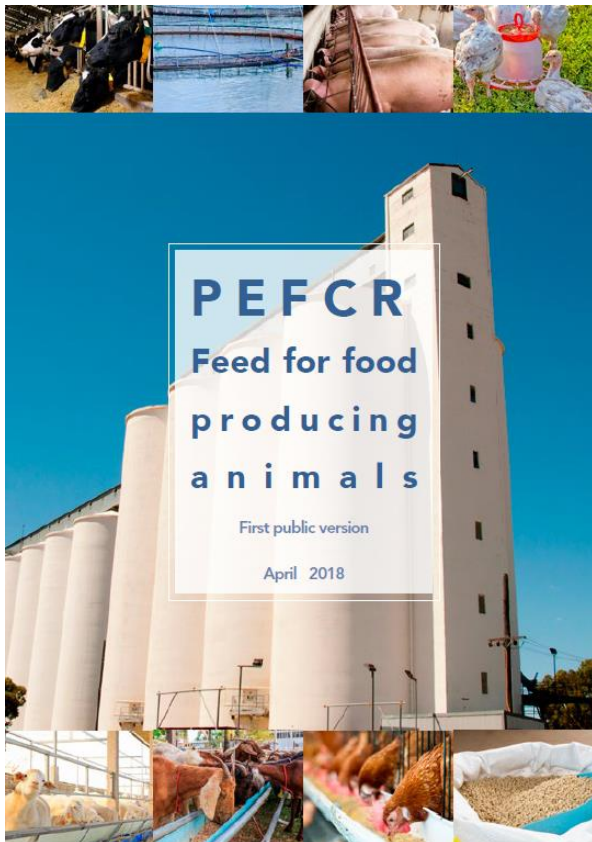
# Carbon FootPrint - $\text{kg CO}_2 \text{ eq.} / \text{kg pork carcass}$



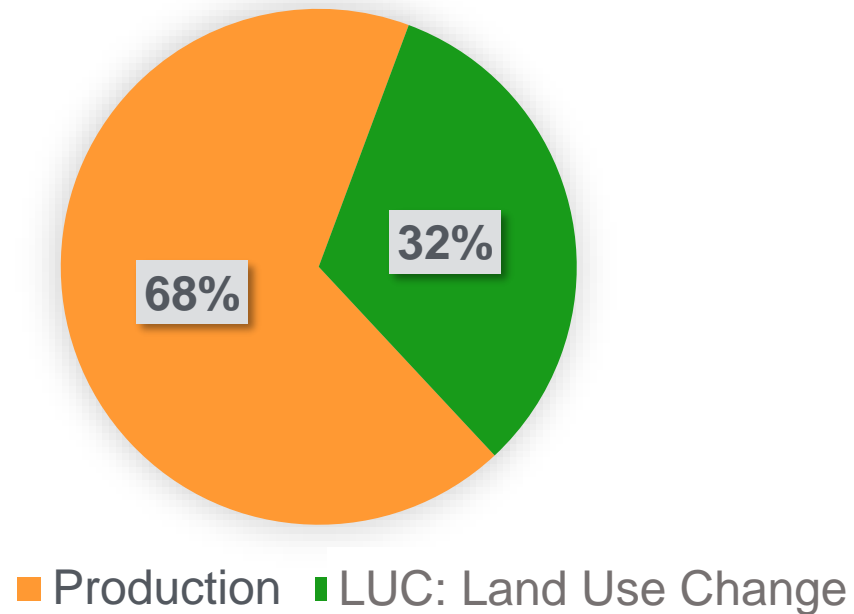
# Carbon Footprint of 1 kg Feed



## Metodology EU:



1,050 kg CO<sub>2</sub> eq./kg feed

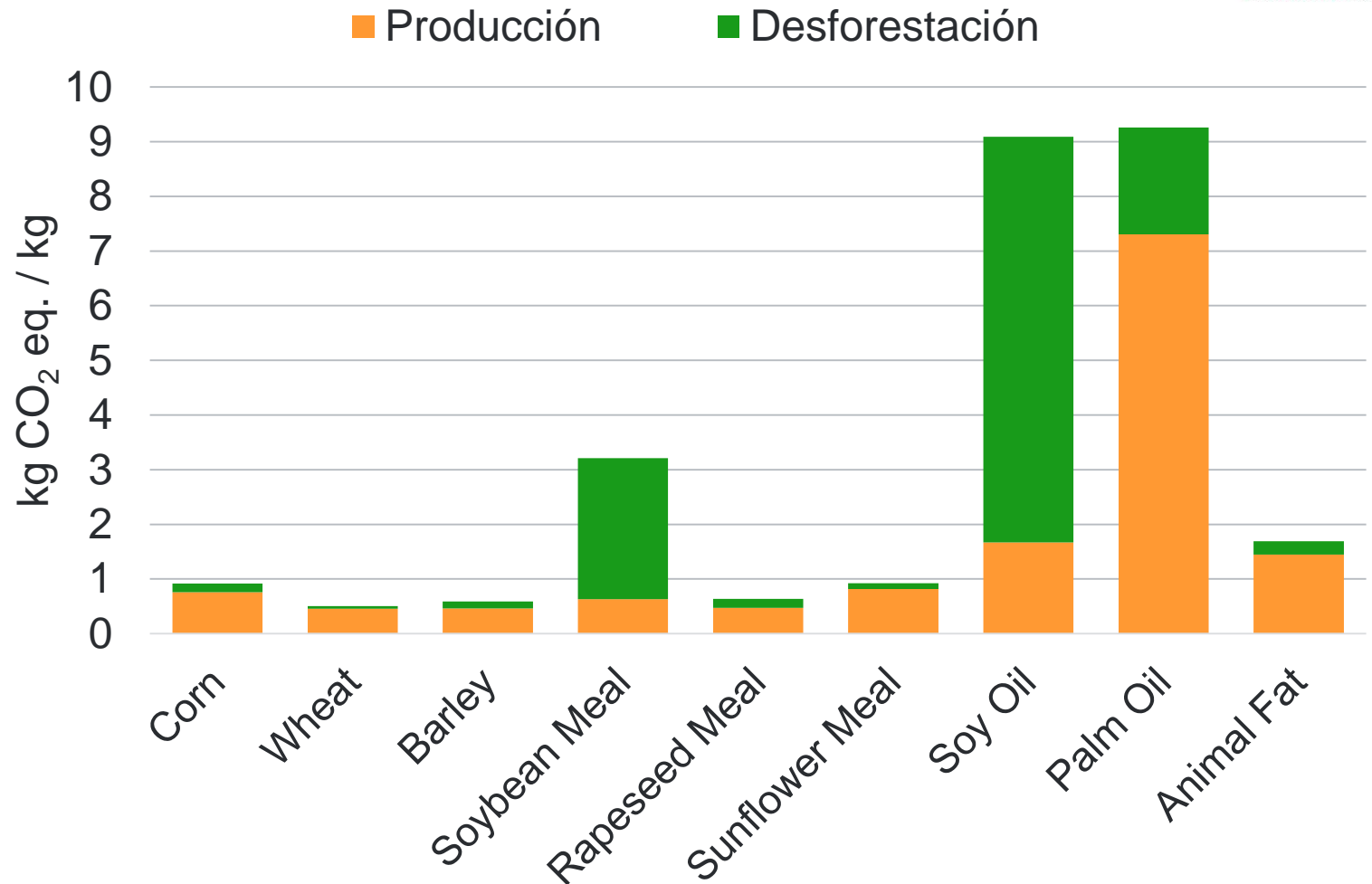
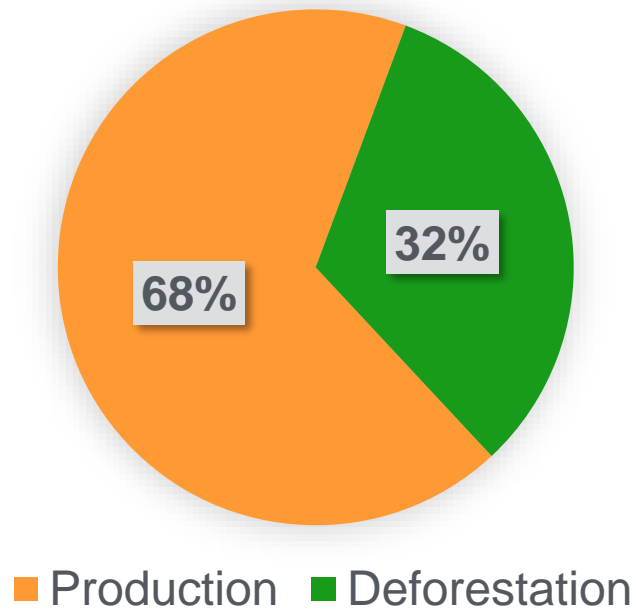


# Impact of different RM

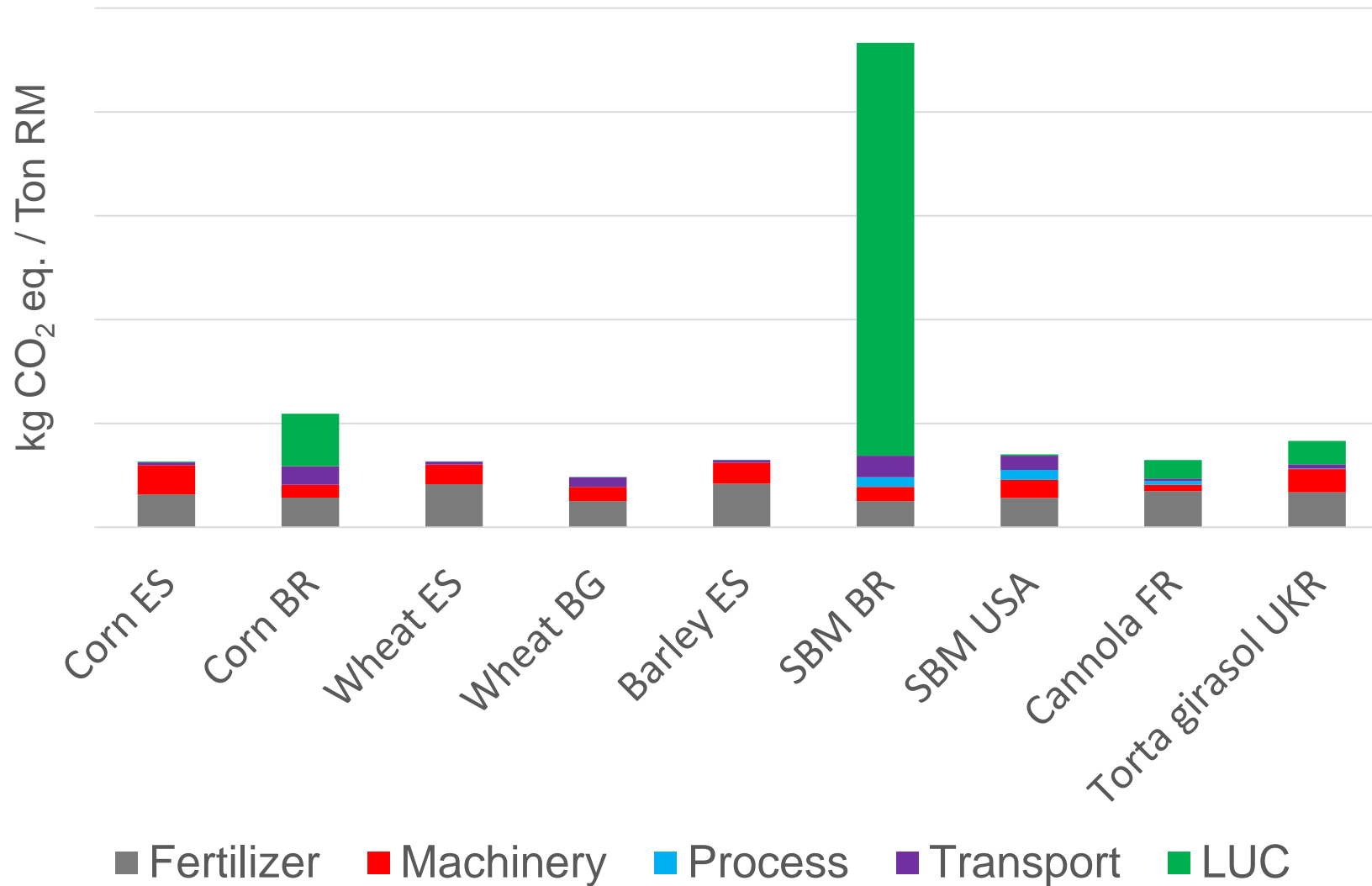


1,050 kg CO<sub>2</sub> eq./kg Feed

Average emission value CO<sub>2</sub> eq.



# Factores que afectan el Huella de Carbono de RM



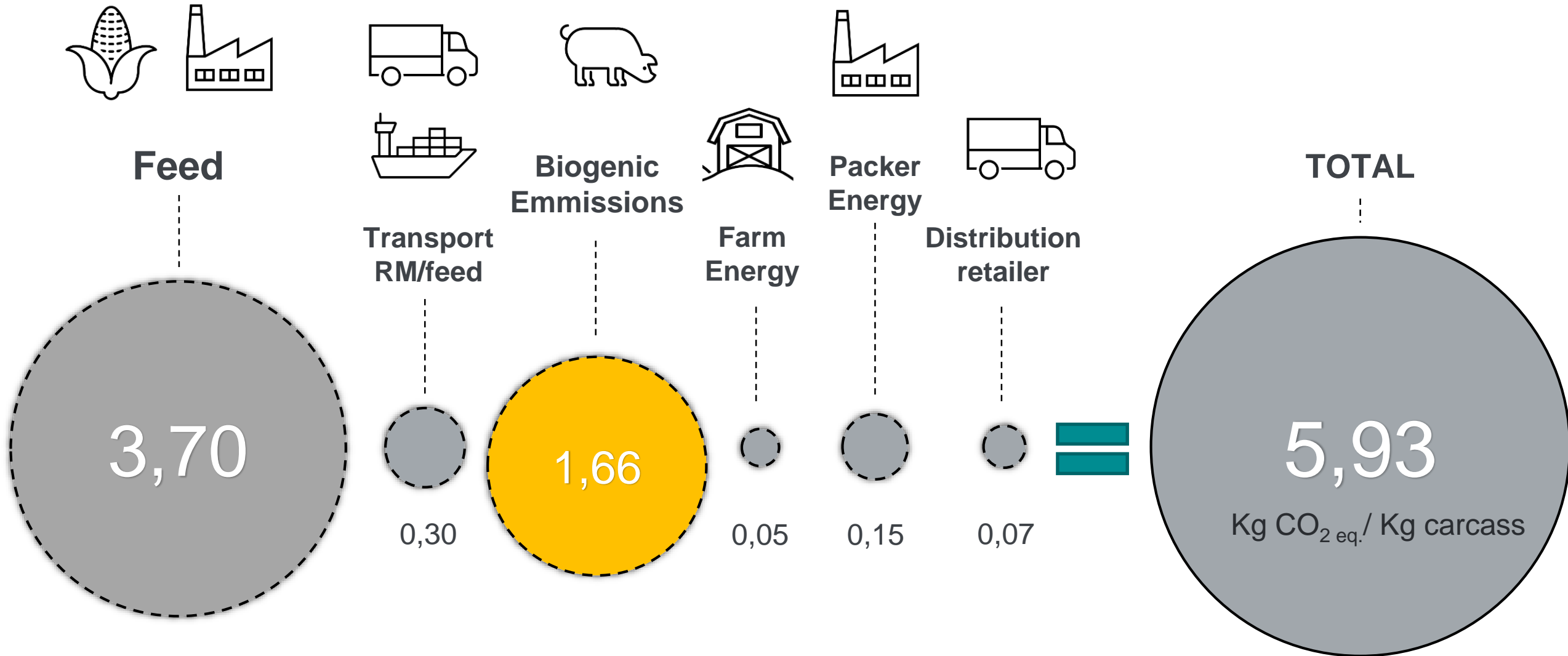
## Factores:

- Fertilizers
- Machinery: Fuel
- Harvest Yield
- Energy oil extraction
- Transportation
- LUC. 20 years





# Carbon FootPrint - kg CO<sub>2</sub> eq./ kg pork carcass



# Biogenic Emissions



## Porcino:



### Depends on:

**Indigestible Fiber**  
**Organic Matter Dig.**  
**Volatile compounds Excretion**  
**Nitrogen Balance**

### Manure management:

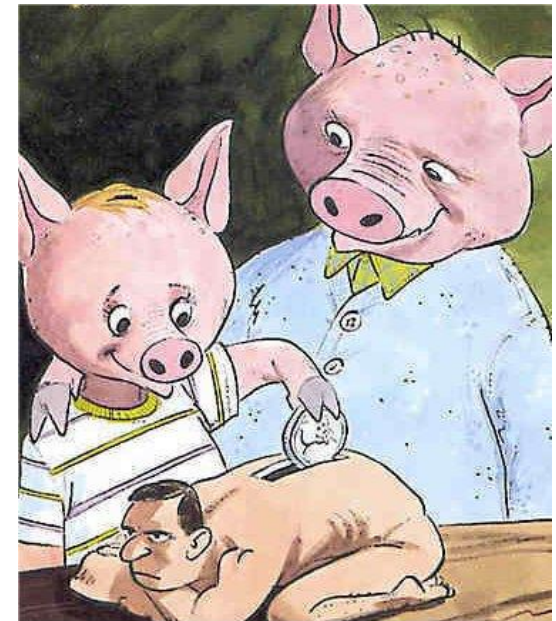
- Lagoon cover
- Empty the lagoon

# Company strategies to reduce Carbon Footprint



	Strategy	Potential
Feed	Origin of soya: no-deforestation	+++
	Origin of grain: no-deforestation	++
	Use of Cannola or Sunflower	++
	Use of PAPs	++
	Use of Animal Fat	++
	Reduction of CP of diets	++
	Increase in digestibility	+
	Origin of Synthetic AA	+
	Strategy via additives	+
Other	Good health status	+++
	Efficiency of Genetic Lines	+++
	Bio-gas plants	+++

↓ **+50%**



# Conclusions



- ✓ The industry should have a proactive attitude to the new demands on the animal protein industry.
- ✓ Excretions of N and P are significantly lower than the reference values
- ✓ Important role of animal nutrition in the carbon footprint of the meat production chain.
- ✓ There are tools to continue the reduction of emissions in a sustainable and economical way.
- ✓ Future developments in efficiency result in improvements of the environmental footprint
- ✓ Communication is a key factor





# Challenge



ENVIRONMENTAL

SUSTAINABILITY

SOCIAL

ECONOMICAL



- Find the **Equilibrium** to fulfil the reductions in the environmental impact with a sustainable increased cost of production and economical viability of the industry

**THANKS FOR YOU ATTENTION**

