

The role of feed industry in  
animal production:  
*“challenge to ensure safe and  
healthy feed for food”*

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- **About Eufetec**
- Importance of feed production
- Resource efficiency
- Ecological footprint
- Animal Health and welfare
- Safe Feed for safe Food
- Conclusions

# About EUFETEC

**EUFETEC**  
European  
Feed  
Technology  
Center

- **Official launch**

September 2008, Brussels



- **Mission**

Support feed sector-bound and sector- steered technological innovation through

- Harmonized, innovative (technical) research
- Practical guidelines and training
- Service provision

# About EUFETEC: core team

**EUFETEC**  
European  
Feed  
Technology  
Center

## Industry



## Research institutes and academic community



[www.eufetec.eu](http://www.eufetec.eu)

# About EUFETEC: focal points

- Sustainable feed & environment
  - environmentally friendly feeds
  - reduction of emissions
  - byproducts utilization, new protein / energy sources



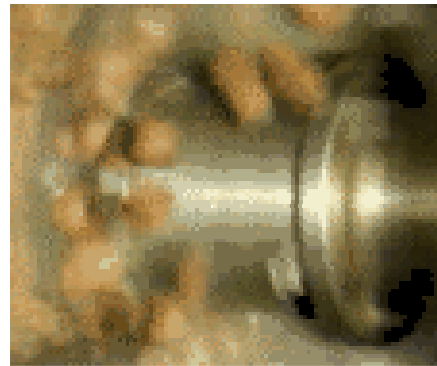
# About EUFETEC: focal points

- Feed & food quality and safety
  - transfer of contaminants to milk, meat and eggs + residues
  - analysis and sampling methods for undesirable substances
  - feed hygiene regulation (183/2005) / auto control
  - cross contamination
  - emerging contaminants



# About EUFETEC: focal points

- Production unit management
  - employee safety / occupational health
  - dust explosion
  - energy management



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# Feeding EU Livestock

- 5 Mio EU farmers
- EUR 130 billion animals for food production
- 450 Mio tons of feed yearly

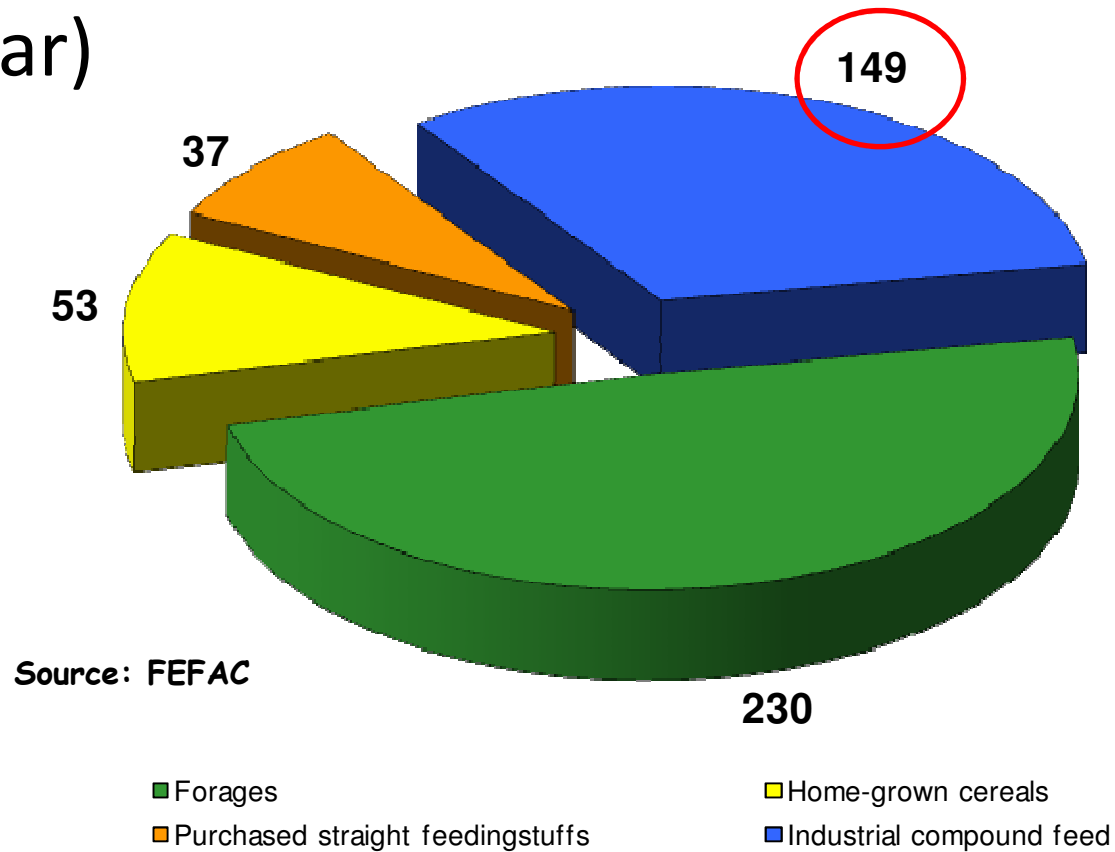
## Types of Feed :

- Feed materials
- Feed additives
- Compound feed
- Medicated feed



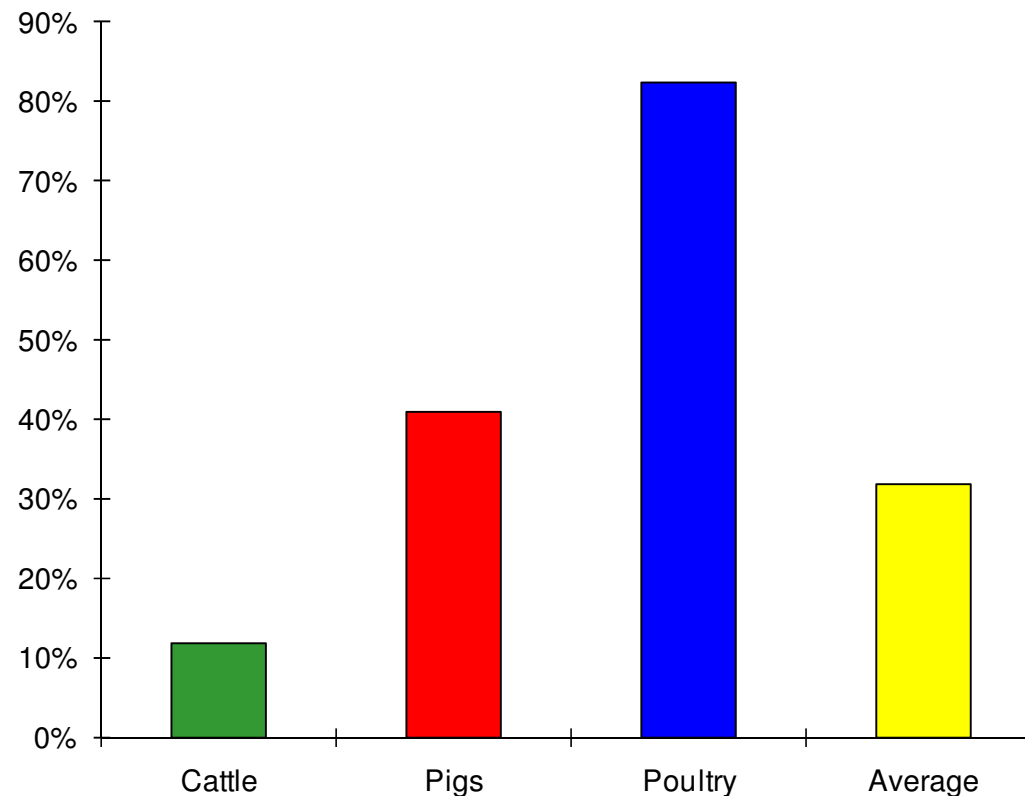
# Feeding EU livestock

- Livestock sourcing in feeding stuffs (Mio ton/year)



# Feeding EU livestock

- Value of purchased compound feed in total animal output value

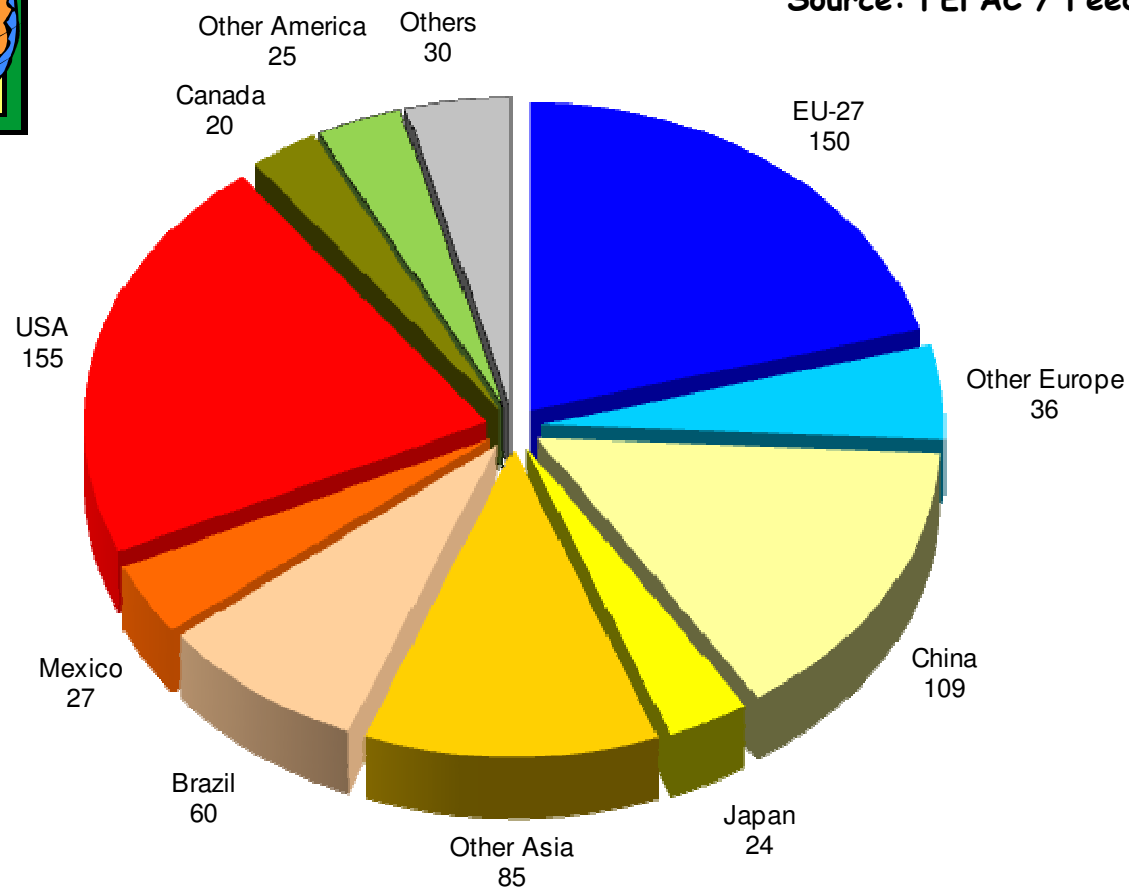


Source: FEFAC

# Global compound feed production in 2010 (mio. t)



Source: FEFAC / Feed International



# Role of feed industry

- Resource efficiency
- Ecological footprint
- Animal health and welfare
- Safety and quality through the food chain

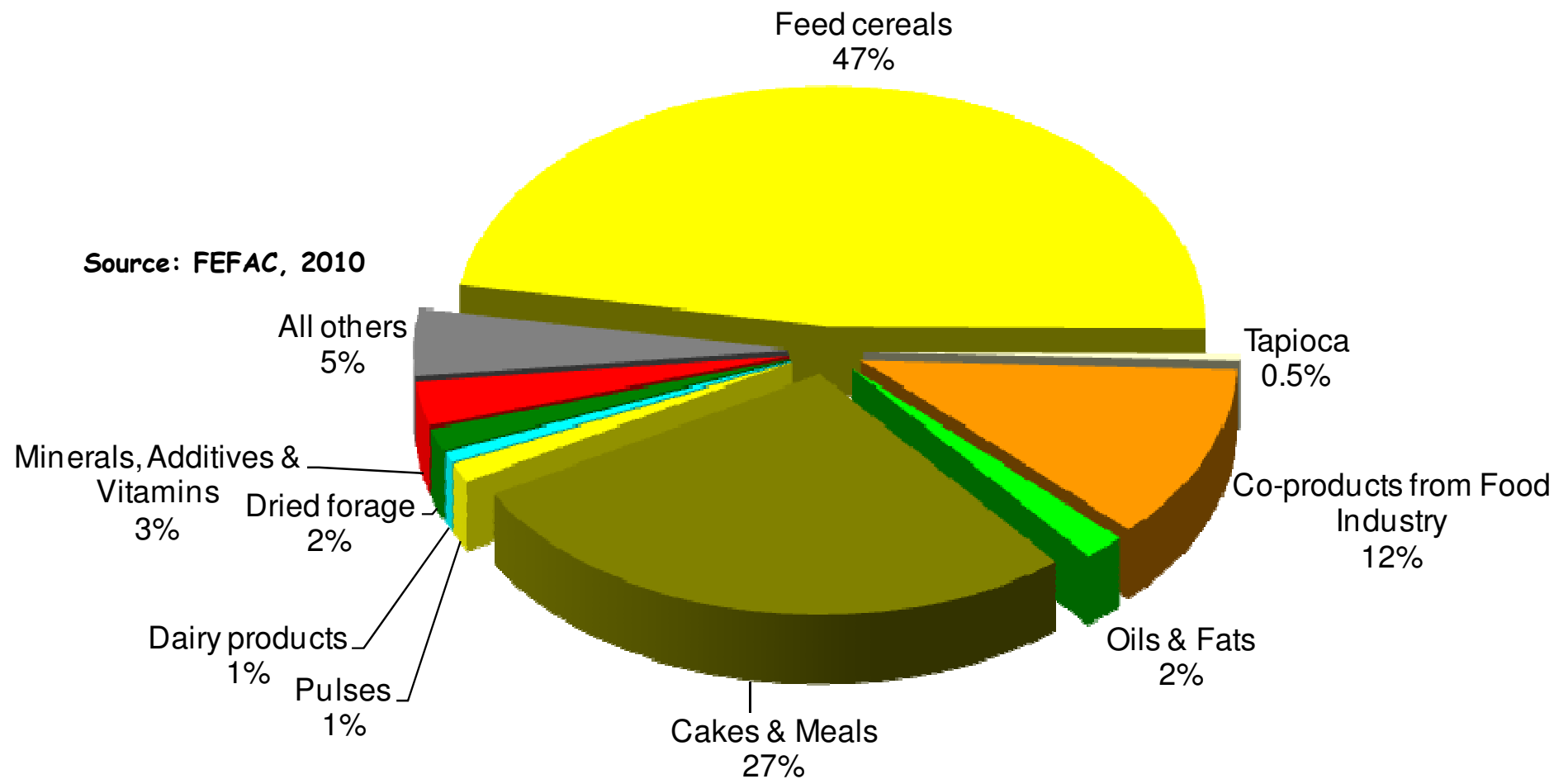
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# Resource efficiency

- Feed production:
  - Knowledge on animal nutrition, metabolism
  - Least cost formulation – constant price
- Demand for resources increases, speculations
- Prerequisite for sustainable animal production

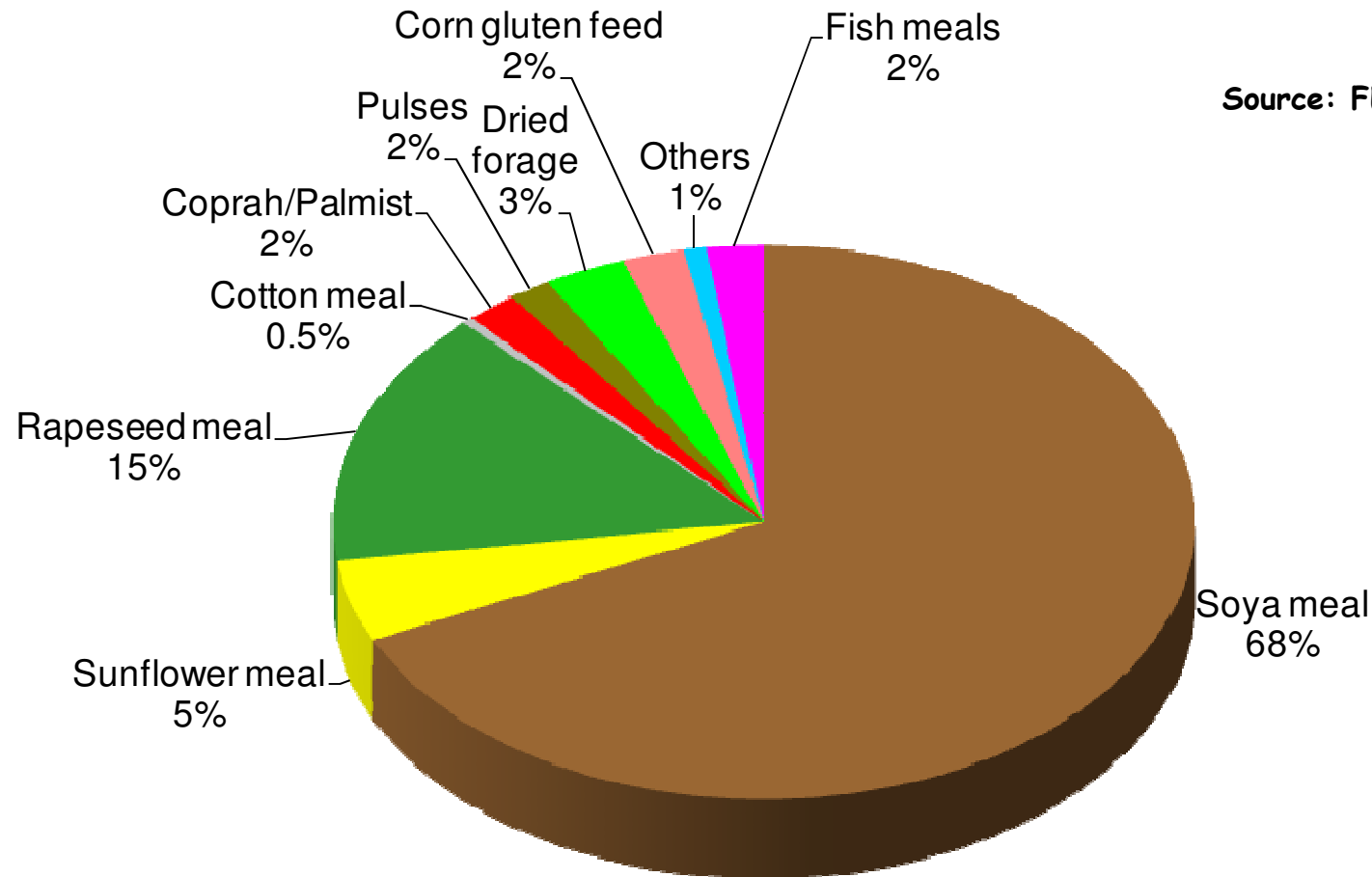


# Feed material consumption by the EU compound feed industry





# Origin of proteins used for animal feeding in the EU-27 in 2007/08



# EU-27 balance sheet for protein rich feed materials in 2007/08

Source: FEFAC / PROLEA

|                         | EU production<br>(*1,000 T) |              | EU consumption<br>(*1,000 T) |               | Self-<br>sufficiency |
|-------------------------|-----------------------------|--------------|------------------------------|---------------|----------------------|
|                         | Products                    | Proteins     | Products                     | Proteins      |                      |
| <b>Soyabean meal</b>    | 798                         | 303          | 38,220                       | 17,823        | <b>2%</b>            |
| <b>Sunflower meal</b>   | 4,932                       | 789          | 4,503                        | 1,246         | 63%                  |
| <b>Rapeseed meal</b>    | 18,358                      | 3,672        | 11,569                       | 3,932         | 93%                  |
| <b>Cottonseed meal</b>  | 564                         | 183          | 260                          | 105           | 174%                 |
| <b>Copra-Palm meal</b>  | 0                           | 0            | 2,812                        | 506           | 0%                   |
| <b>Pulses</b>           | 1,950                       | 429          | 1,875                        | 413           | 104%                 |
| <b>Dried forage</b>     | 4,458                       | 847          | 4,200                        | 798           | 106%                 |
| <b>Corn gluten feed</b> | 2,369                       | 497          | 2,910                        | 611           | 81%                  |
| <b>Miscellaneous</b>    | 410                         | 62           | 713                          | 217           | 29%                  |
| <b>Sub-Total</b>        |                             | 6,782        |                              | 25,651        | 26%                  |
| <b>Fishmeal</b>         | 445                         | 307          | 810                          | 559           | 55%                  |
| <b>Total</b>            |                             | <b>7,089</b> |                              | <b>26,210</b> | <b>27%</b>           |

# Resource efficiency

- **Soy meal**: worlds best protein : self sufficiency of EU-27 is low (2%)
  - Since 2000 (BSE) ban of **animal proteins** in EU (before: 15 mio tons) resulting in 10 % increase of soy consumption and the addition of pure amino acids → July 2011 reintroduced
  - Initiative on Responsible Soy (RTRS)



# Resource efficiency

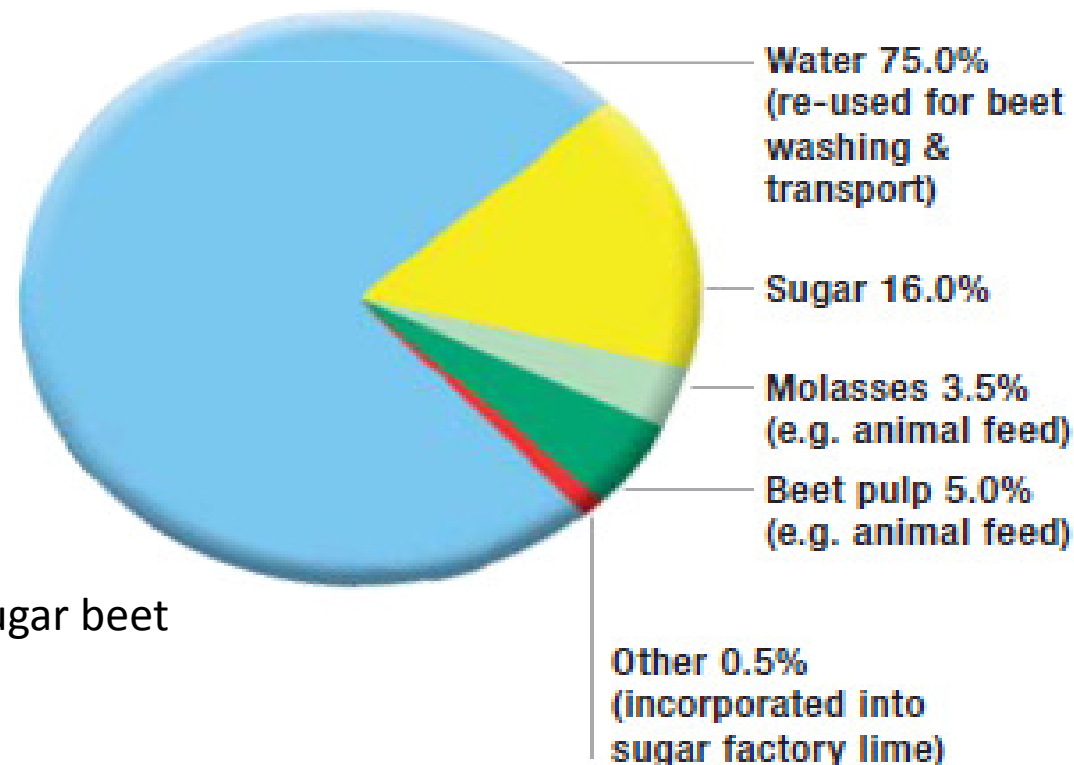
- Soy meal and corn gluten feed from US, Brazil and Argentina → non EU authorized GMO → blockage → risk for economic loss\*
- February 2011 : 0,1% Threshold for non EU approved GM events in feed imported from third countries



(\* read more in DG AGRI report on - ECONOMIC IMPACT OF UNAPPROVED GMOS ON EU FEED IMPORTS AND LIVESTOCK PRODUCTION)

# Resource efficiency

- 85 mio ton of **by-products from food and drink for animal production**
- 60 mio ton are used by EU compound feed industry



Ex. Sugar from sugar beet

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# Ecological Footprint

- CFP = total amount of CO<sub>2</sub> equivalents that are emitted during total production chain
- livestock = 10 to 18 % of total EU emission (EU report)
- Reduce CFP
  - Improve efficiency of production
  - Decrease CFP of Feed production
- Feed production chain → from crop growing to feed production – more efficient processing, more digestible feed, ...

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# Animal Health and Welfare

- Optimizing feed formula
  - Ex. cows
    - Oxidative stress leads to animal health problems and may lower the daily milk production
    - Feed can be supplemented with anti-oxidative products (Vitamin E and Se)
      - Animal health (reduce mastitis)
      - Enhance quality of animal products (Meat color and rancidity)

# Animal Health and Welfare

- Optimizing feed formula
  - Ex. poultry
    - Lameness → negative implications for both bird welfare and productivity levels
    - dietary silicon supplement for reducing lameness\*

(\*source: Short, F.J., E.J. Burton, D.J. Belton, G.E. Mann and C.C. Perry. Efficacy of a novel form of dietary silicon supplement in reducing lameness in poultry)

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# Safe feed for safe food

- **REGULATION (EC) No 1831/2003 laying down requirements for feed hygiene**
- Feed safety assurance system based on HACCP principles
- Prerequisite → Good Feed Hygiene Practices

Requirements feed facilities  
Requirements for equipment  
Cleaning and disinfection  
Pest control programme  
Handling of waste  
Personal hygiene  
Raw materials

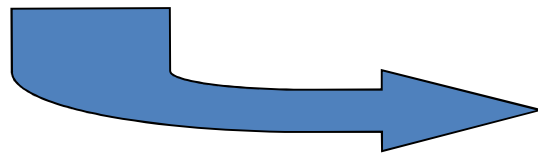
Handling of feed  
Packaging of feed  
Heat treatment  
Storage and Transport  
Traceability  
Training

- Community and national guides to good practice

# Safe feed for food: HACCP

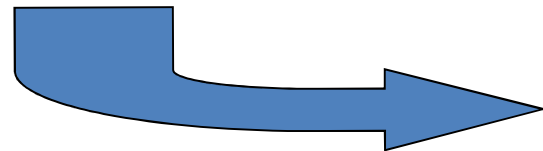
## What is HACCP?

To do



- **H**azard
- **A**nalysis

To obtain



- **C**ritical
- **C**ontrol
- **P**oint

# Safe feed for safe food: HACCP

- Hazards → Risk = Frequency x Severity

- Biological

- Salmonella

- Chemical

- Mycotoxins
- Contaminants: heavy metals, pesticides, dioxin
- Cross-contamination of veterinary medicinal products, coccidiostats
- Errors in supplementation: salt, amino acids

- Physical

- Metal parts

|   |    |    |    |    |   |
|---|----|----|----|----|---|
| 5 | 10 | 15 | 20 | 25 |   |
| 4 | 8  | 12 | 16 | 20 |   |
| 3 | 6  | 9  | 12 | 15 |   |
| 2 | 4  | 6  | 8  | 10 |   |
| 1 | 2  | 3  | 4  | 5  |   |
|   | 1  | 2  | 3  | 4  | 5 |

# Safe feed for food: HACCP

- **Critical control point (CCP)** is a point, step or procedure at which controls can be applied to prevent, eliminate or reduce to acceptable (critical) levels.
- Some examples

# Safe feed for food: HACCP

- Raw material intake
  - Ex. Mycotoxins in cereals e.o.,
    - Variety of clinical and sub-clinical symptoms
    - Nephrotoxicity, negative impact in performance of farm animals → economic implications
    - Unavoidable presence
    - Prevention:
      - Risk analysis raw material
      - Monitoring raw material storage/intake
      - Feed safety assurance system at suppliers' level





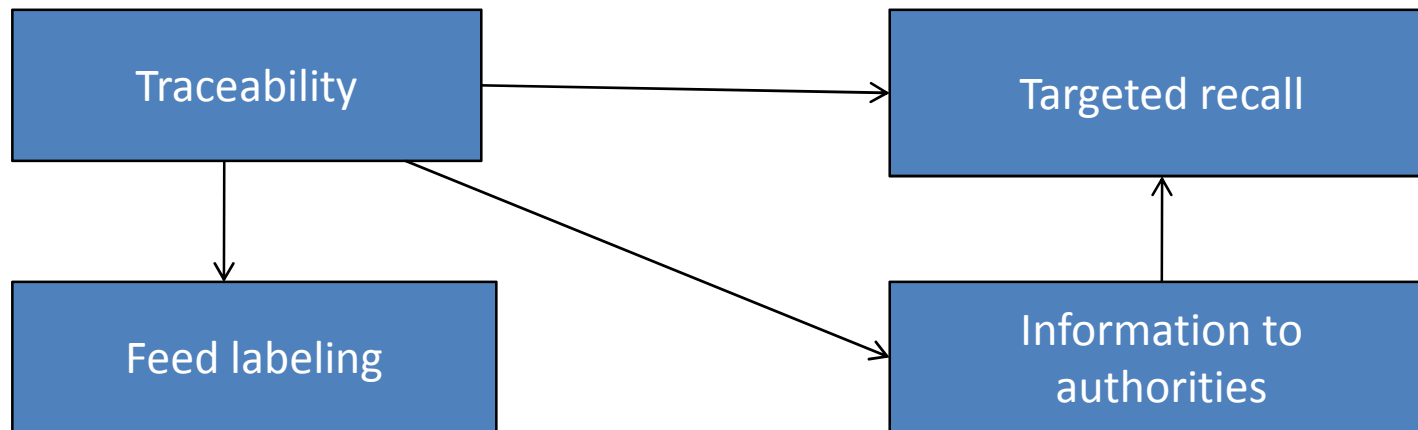
# Safe feed for food: HACCP

- Mixing step
  - Ex. coccidiostats : carry-over, cross contamination
  - Feed hygiene prerequisite :
    - dust management, cleaning of equipment
  - HACCP prevention and control measures:
    - scheduling of production (reduce),
    - Determine degree of cross contamination
    - remove coccidiostats from production line (eliminate)



# Safe feed for safe food: traceability

- Traceability (down and upstream)
  - Actions: detailed record keeping
  - Objectives :



# Conclusions

## Compound Feed Industry:

- Important key role player in animal production
- Challenges and responsibilities
  - Enhance animal health and welfare
  - Reduce environmental impact (CFP)
  - Feed Security and Profitability through resource management
  - Feed/food Quality and Safety



Thank you for your attention