MINISTERIO
DE MEDIO AMBIENTE
Y MEDIO RURAL Y MARINO

60th Annual EAAP Meeting Barcelona,
24-28 August 2009

Influence of soya bean meal and synthetics amino acids prices in the cost of nutritional Best Availables Techniques in Spain

Influence of soya bean meal and synthetics amino acids prices in the cost of nutritional Best Available Techniques in Spain

Carlos Piñeiro[1], G. Montalvo[2], M. A. García[2] and M. Bigeriego[3]

[1]PigCHAMP Pro Europa: [2]Tragsega;

[3]Spanish Ministry of the Environment and Rural and Marine Affairs

60th Annual EAAP Meeting

Barcelona, 24-28 August 2009

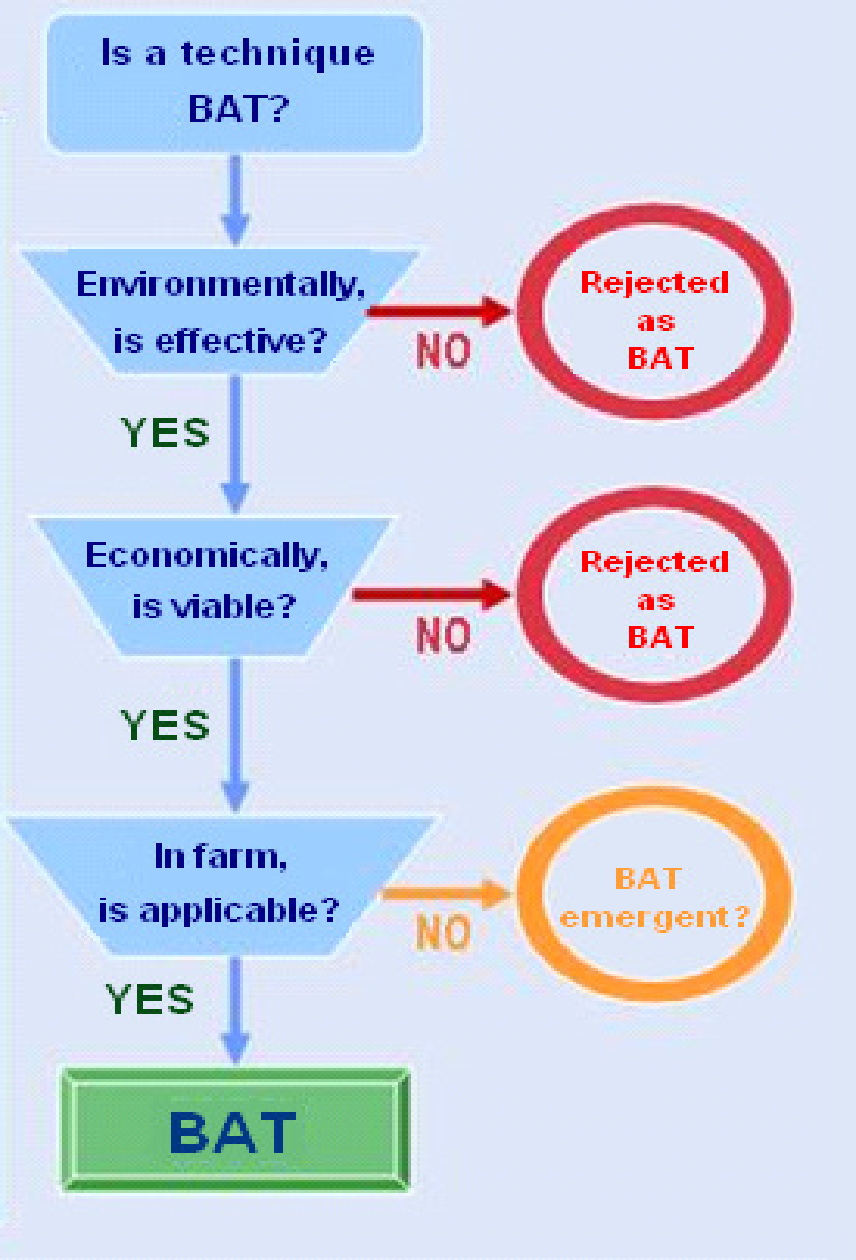
Introduction

Council Directive 96/61/EC

✓ **Best Available Techniques** (**BAT**) proposed in the BREF (2003):

- ***Techniques*** *shall include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.*
- ***Available*** *[…] under* ***economically*** *and technically viable conditions,* ***taking into consideration the costs*** *and advantages.*
- ***Best*** *shall mean most effective in achieving a high general level of protection of the environment as a whole*."

Introduction



Therefore, **it is necessary to have a common methodology to calculate cost of abatement techniques** to decide if a technique is BAT or not.

Objective

Spanish Ministry of the Environment and Rural and Marine Affairs developed a calculation on cost of every BAT, because define the most cost-effective methods for reducing ammonia emissions from Spanish farms.

Methodology

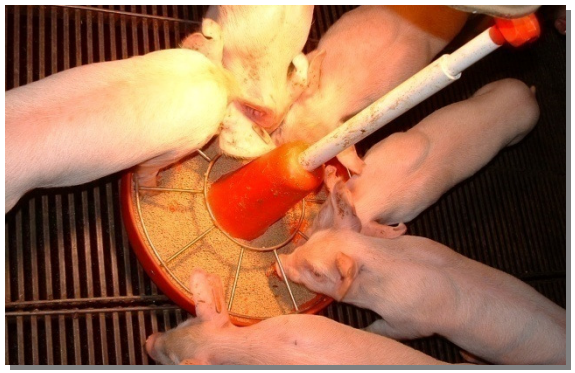
The calculation have been carried out according to the **methodology set out in the IPPC Reference Document** on Best Available Techniques for intensive Rearing of Poultry and Pigs

- ✓ Current costs should be used for all calculations
- ✓ Capital expenditure should be annualised over the economic life of the investment (deducting any grants).
- ✓ Annual running costs should be added to the annualised cost of capital.
- ✓ Changes in performance should be taken into account
- ✓ The calculations are based on an amortisation rate of 5% (current rate of interest commonly incurred by farmers).

Categories of techniques

Techniques may be described by one of the following categories:

1. Feed



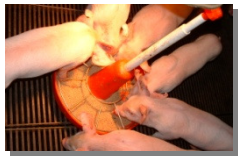
2. Housing

3. Manure or slurry storage

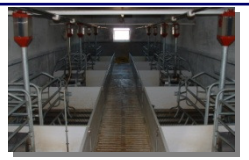
4. Application of manure or slurry to land

Units used for assessing cost

Units proposed and included in the BREF (2003)

Category	Units
 **Feed**	€ per place per year
 **Housing**	
 **Manure or slurry storage**	€ per m^3 or tonnes per year
 **Manure or slurry land application**	

Units used for assessing cost

Category	Units	
 **Feed**	€ per place per year	€ per tonnes pig produced
 **Housing**		
 **Manure or slurry storage**	€ per m^3 or tonnes per year	
 **Manure or slurry land application**		

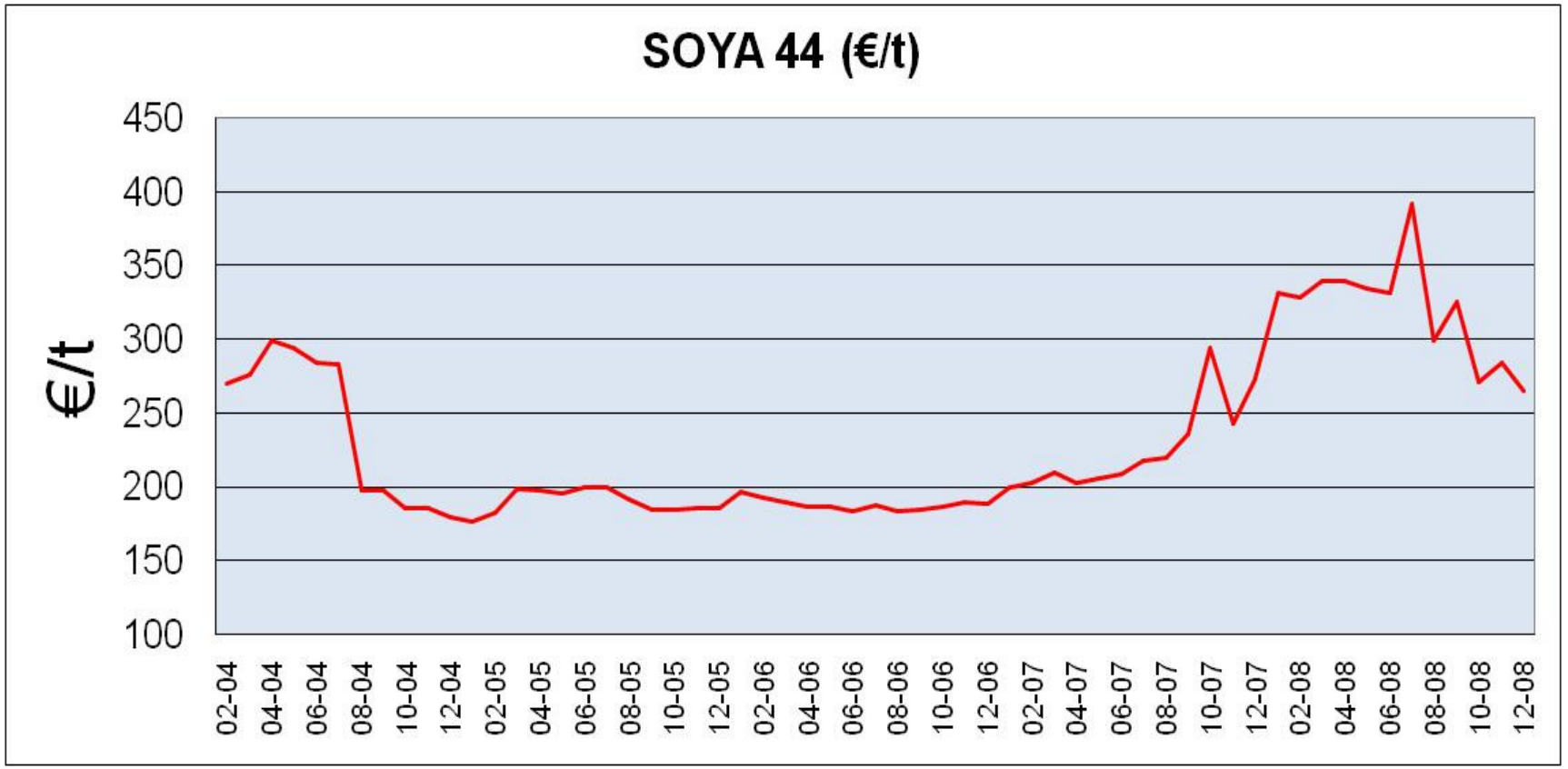
Unit proposed to be included in the new BREF

Units used for assessing cost

- ✓ Strong requirement from the Spanish producing sector.
- ✓ But also, it is very logical.
- ✓ Cost are also expressed as € per tonnes pig produced
- ✓ Assumptions for the calculations:
  - Equivalences:
    - 1 productive sow produces 20.00 pigs marketed/year
    - 1 gestating place produces 26.60 pigs marketed/year
    - 1 lactating place produces 80.00 pigs marketed/year
    - 1 nursery place produces 5.79 pigs marketed/year
    - 1 grower place produces 2.94 pigs marketed/year
    - 1 marketed pig produces 1.25 m^3 of slurry
  - Pig marketed = 100 kg body weight

Prices evolution

Soya bean meal. Price evolution 2004-2008

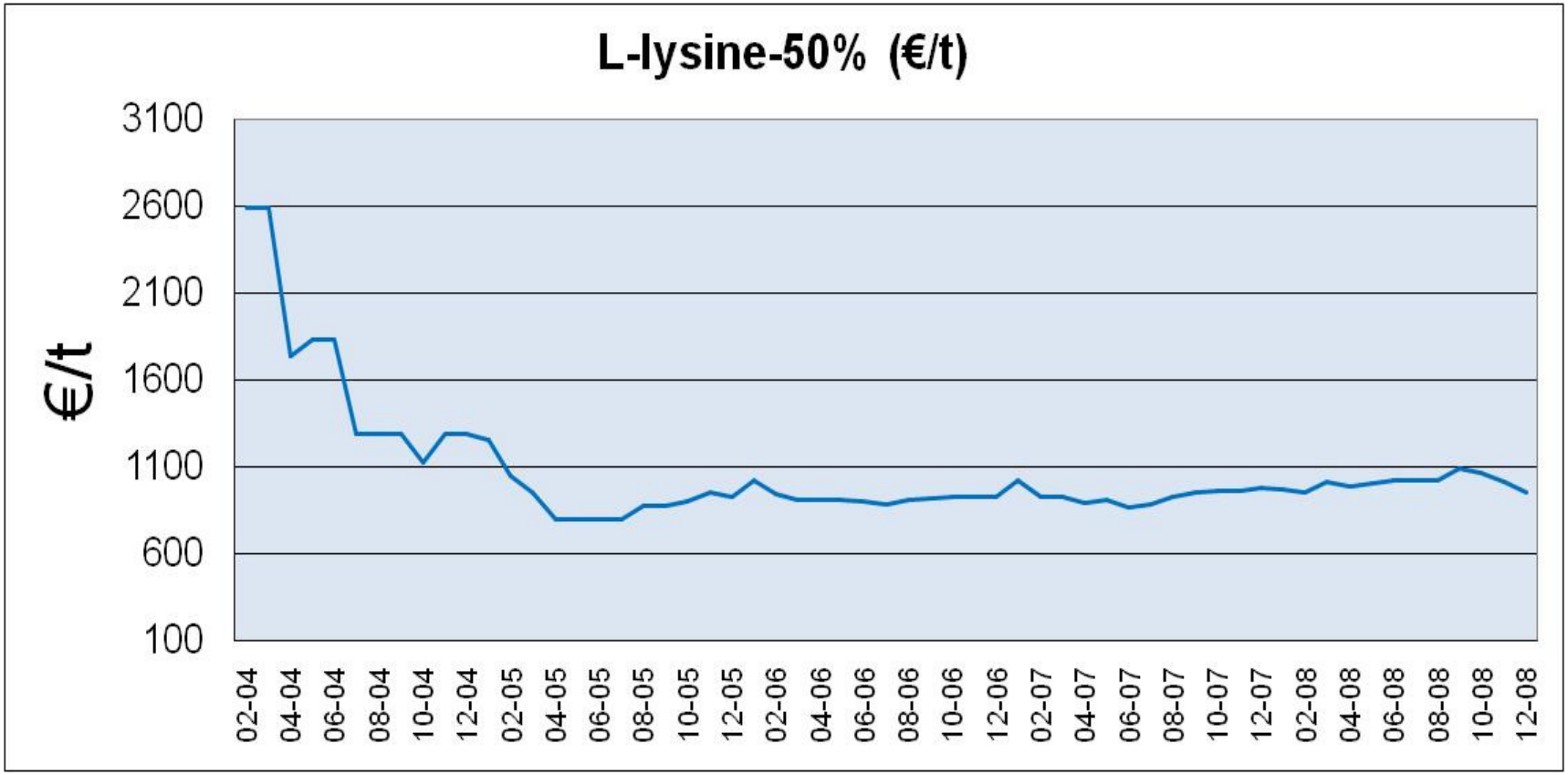


Data: Several sources

Prices evolution

Results

L-lysine-50%. Price evolution 2004-2008

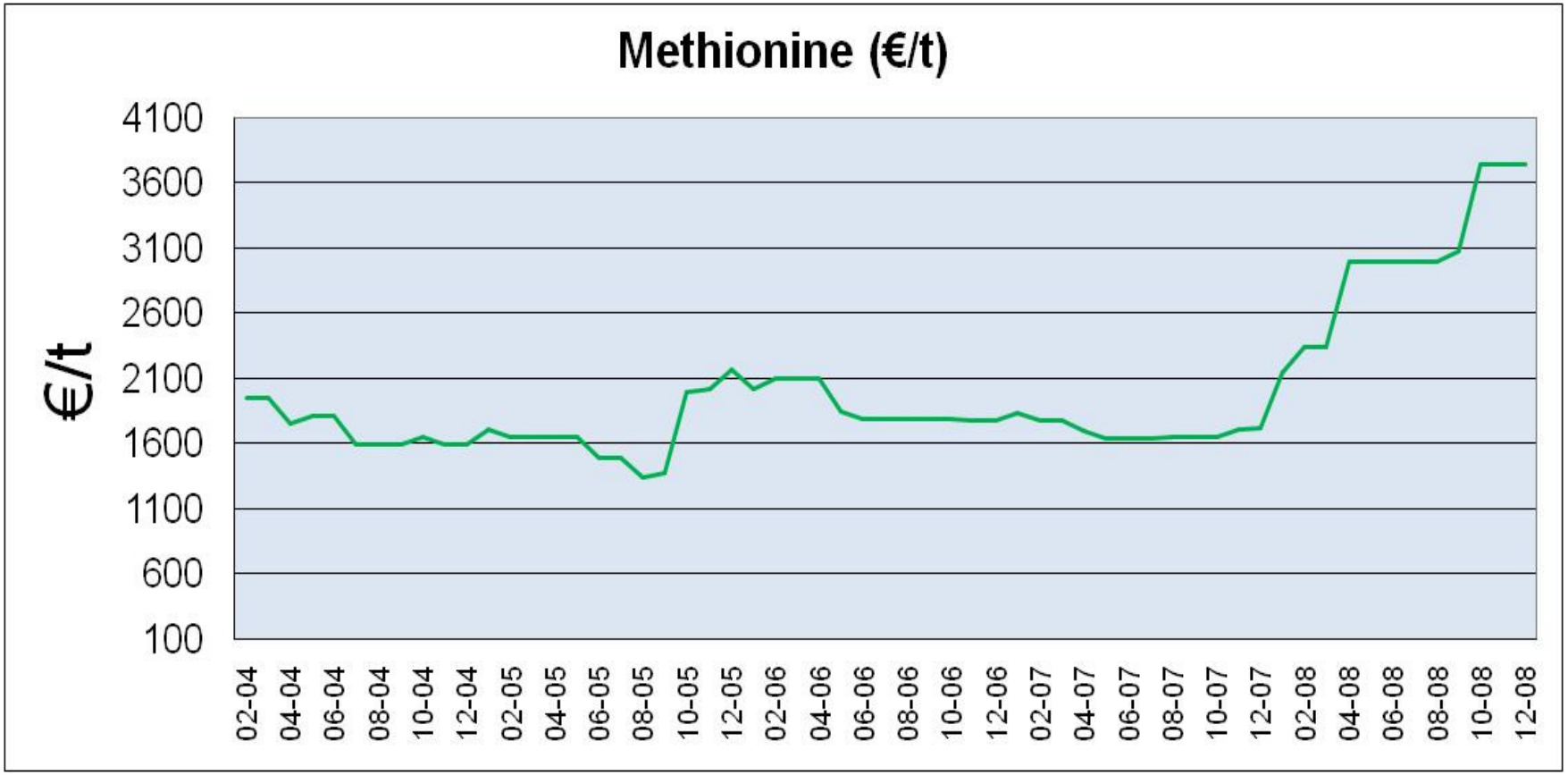


Data: Several sources

Results

Prices evolution

DL Methionine. Price evolution 2004-2008

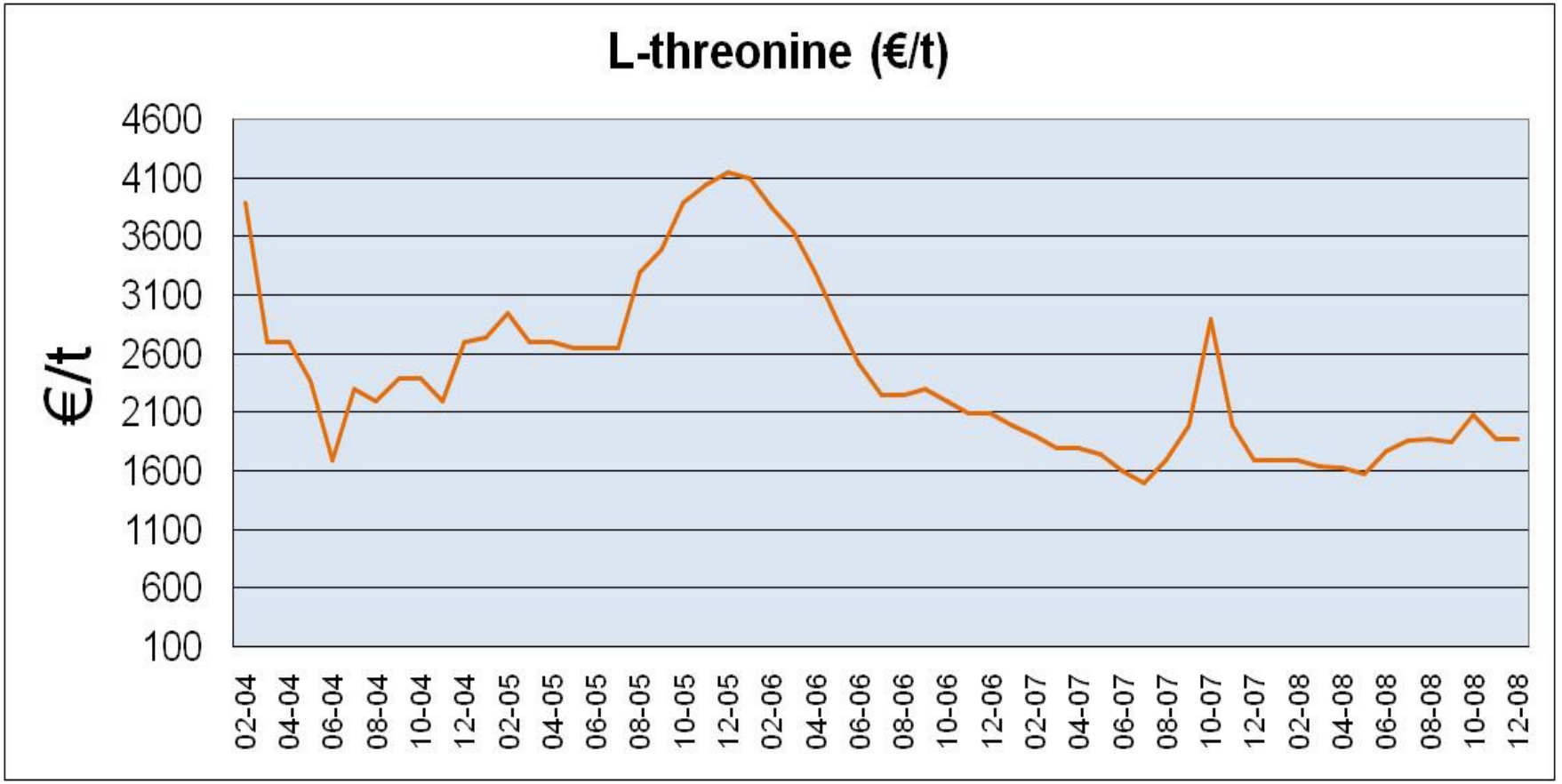


Data: Several sources

Results

Prices evolution

DL Threonine. Price evolution 2004-2008



Data: Several sources

Diet formulation

Diet formulation in the example for calculations
Reference system (RS) vs low protein diet (LPD)

- ✓ Reference system:
  - 19.0% CP for pigs between 20-60 kg
  - 16.0% CP for pigs between 60-100 kg
- ✓ Low protein diet:
  - 16.5% CP for pigs between 20-60 kg
  - 13.5% CP for pigs between 60-100 kg

Assumptions for the calculations

Results

- ✓ Technical description:
  - Building capacity: 720 places
- ✓ Assumptions for the calculations:
  - Feed consume 20-60 kg: 1.4 kg/pig and day
  - Feed consume 60-100 kg: 2.2 kg/pig and day
  - 20-60 kg: 55 days
  - 60-100 kg: 45 days
  - Ratio occupation building: 85%
  - Cleaning and disinfections: 10 days

Assumptions for the calculations

- ✓ Equivalences:
  - Occupation days (20 – 100 kg) = 124 days
  - Nº de rotations per year: 365/124 = 2,94 rotations per place per year
  - Marketed pig = 100 kg body weight
  - Production per place: 294 kg pig per place per year

Diet formulation

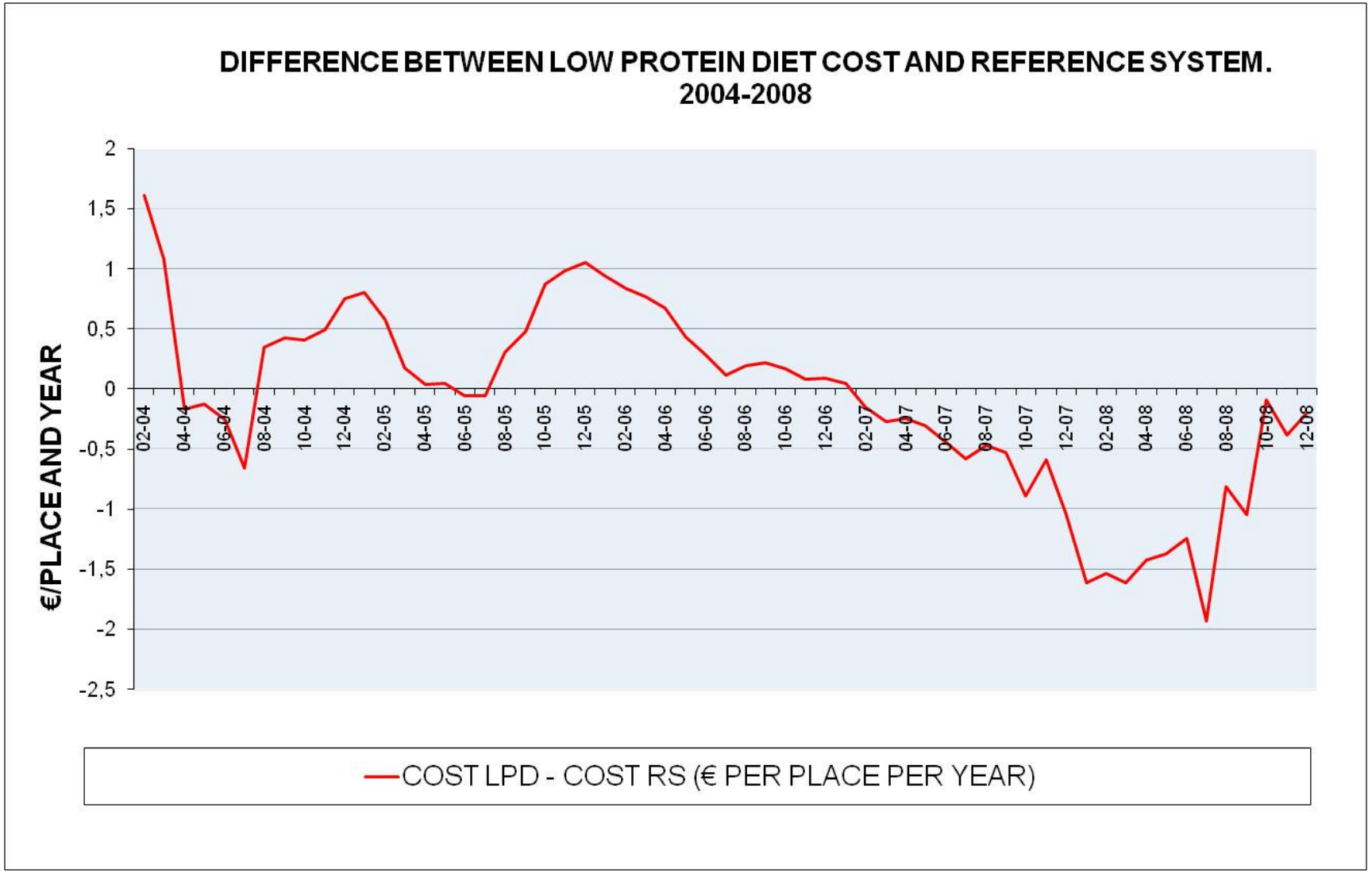
Diet formulation in the example for calculations

Reference system (RS) vs low protein diet (LPD)

Diet formulation: kg per tonne				
	RS GROWTH FEED	LPD GROWTH FEED	RS FINISH FEED	LPD FINISH FEED
SOYA	161.0	120.5	141.0	83.1
LYSINE	4.2	8.5	3.1	7.4
METHIONINE	0.1	1.4	0.0	1.5
THREONINE	0.0	1.6	0.0	1.5

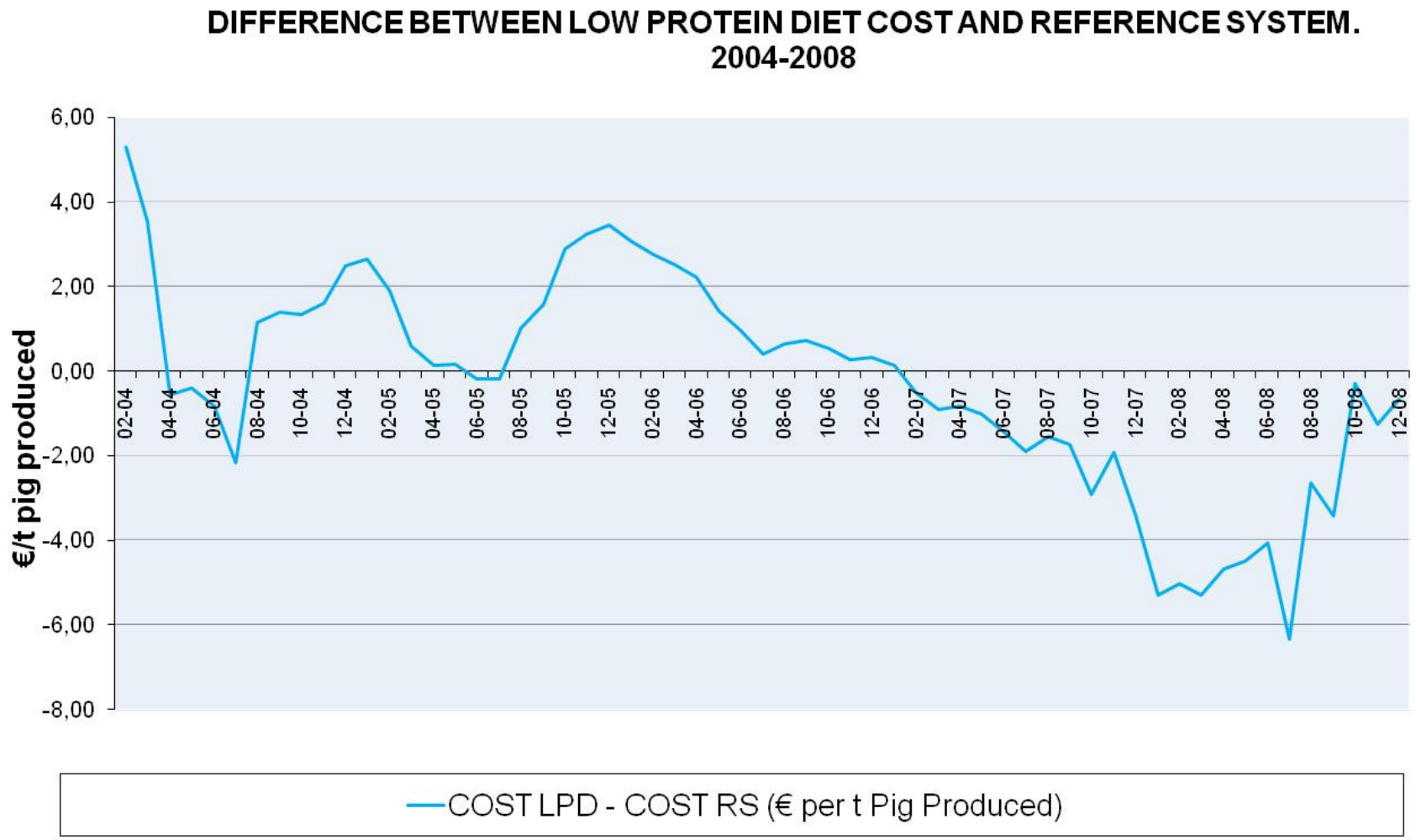
Results

Extra cost for LPD



Extra cost for LPD

Results



Conclusions

- ✓ In the period 2004-2006 soya average price was 200 €/ tonne and this affected the formulation cost of low protein diets.
- ✓ Since being protein more expensive (up 280 €/tonne in 2007-2008 period) the use of low protein diets supposed an average saving of about 0.77 € per place and year.
- ✓ Therefore, when soya price decreased, low protein diets technique could be not so economically favorable.
- ✓ Considering low protein diet as BAT will depend on soya bean meal and synthetics amino acids prices.

Implications

- ✓ We don't know what is '*Available under economically viable conditions*', but we think that it necessary to know the extra-cost of BAT application.
- ✓ In the case of low-protein diets, the cost for its application highly depends on the market conditions.
- ✓ Therefore, we propose this BAT can not became established compulsory for the farmer in the new BREF.
- ✓ The rest of BAT are currently being economically analysed in the same way.


Thank you for
your attention