Overview of pig production in the European Union

Introduction

- Pig meat is produced and consumed throughout the EU
- Considerable variations between and within member states
- Pig farming is a changing sector

1. Pig food chains
   - Production, consumption, import-export
   - Food chain organization (production, slaughter, distribution)

2. Pig farming systems
   - Pig farming systems across UE
   - Building, work, feed, sows and pigs management
   - Costs in pig production
   - Example of alternative systems

EU and world pig production

Livestock (millions heads, 2010)

- France
- Morocco
- Others 19%
- USA + Canada 8%
- Brazil 4%
- Russia + Ukraine 3%
- Japan + South Korea 1%

World distribution (millions heads, 2010)

- China 49%
- EU 27 51%

EU 2nd in livestock and in production
Geographic concentration of pig livestock in EU

Concentration of heads in few countries

- Major production basin
- 30% EU
- Denmark, Netherlands, Belgium

Cataluña
Murcia
Central Poland
Bretagne

Source: IFIP 2012

Pig production in EU

Thousands of heads

Denmark, France, Spain, Italy, Belgium, UK, Germany, Poland, Denmark, France, Belgium, UK, Germany, Poland, Portugal, Greece, etc.

Source: IFIP 2012

Geographic concentration of pig livestock in EU

Concentration of heads in few countries

- Major production basin
- 30% EU
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Cataluña
Murcia
Central Poland
Bretagne

Source: IFIP 2012

Pig production in EU (2011)

France 3rd producer in EU
(EU total of 23 millions T eq. carcass)

Source: IFIP 2012

Pig production in France

% of total in France
(tonnes carcasses produced)

Principally in « Grand-Ouest »

Source: IFIP

Pork meat consumption in EU and France

Consumption 2010 (kg/inhabitant/yr)

Evolution of meat consumption in France

Index (basis 100 in 1990)

Source: IFIP 2012
**Pork meat auto-supplying in 2011**

In EU-countries (%)

<table>
<thead>
<tr>
<th>Country</th>
<th>Net importation</th>
<th>Net exportation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pork meat auto-supplying (%)**

Evolution of production and consumption in France

**Scheme of the intra-EU exchanges (2008)**

Net exchanges of young pigs

Net exchanges of pigs for slaughtering

**Pig meat and pork products exchanges between EU and extra-EU countries (data 2009)**

- 2011-2012: -6% for importations, +3% for exportations
- Increase of exportations to China, Japan, decrease to Korea and Russia

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**Current tendencies for production and exchanges in EU in 2012**

Livestock and production

- Reduction of livestock in EU (-1% for total, -4% for sows)
- Production depending of country
  - Reduction (2 to 6.5%) in Germany, France, Poland, Belgium, Netherlands, Denmark
  - Increase in Spain, UK (2 to 6%)
- Linked to feed price, reorganisation (welfare standard, ...)

Exchanges

- 2011-2012: -6% for importations, +3% for exportations
- Increase of exports to China, Japan, decrease to Korea and Russia

Source: France Agrimer 2012
Pig food chains - organisation

Feed
Genetic
Importation/Exportation
Live animal
Meat processing (and cutting)
Slaughter (and carving)
Fresh and freeze meat
Pork products and fat
Commercial distribution
Consumer

Horizontal association
Ex. groupement de producteurs « (France)

Vertical integration/organisation
Spain: 2/3 production (85% Cataluña)
Ex Guissona (private group)

Denmark: Danish Crown (90%), cooperative

Feed industry in EU and France
Feed production (2011)

EU 27
150 976 000 T

France
21 311 000 T (14.1% of EU)

Feed production (Glon group)
3.6 millions tonnes
1.1 millions tonnes

Organisation of genetic and pig selection in France « pyramid »

Ex of Pig Breeding Organisations
Ex of AIC

Swine Artificial Insemination Centres

Pig Breeding Organisations
approved to produce pure-bred or hybrid animals and/or maintain herd books or zootechnical registers

Swine Artificial Insemination Centres
approved to collect, condition, store and distribute semen from boars of different approved genetic types

Distribution of pigs farms by type of pig rearing
4 types based on the numbers of sows and other pigs

Own consumption
Especially in new member states (BG, RO,…)

>30% production in 10 countries (BE, DK, DE, ES, IT, …)

Distribution of pigs farms by type of pig rearing - diversity across UE


Pig farm structure in France (data 2007)

Main characteristics of pig production in France

- 22,300 pig farms (7,900 with sows)
- 14 millions of pigs (620 pigs/farm)
- 1.1 millions of sows (141 sows/farm)

Family farming
- Medium-sized system
  - 62% of farms (61% of sows) => 50 – 300 sows
  - 4% of farms (19% of sows) => > 500 sows

Dominant system: breeder fattener
- 62% of pigs, 83% of sows

Mixed production farm
- 65% ⇒ 30-100 ha
- 51% ⇒ specialized systems

90% of the production ⇒ farmers association

Concentration of slaughter in few groups

<table>
<thead>
<tr>
<th>Company</th>
<th>Pigs</th>
<th>Percent of Total Slaughtering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danish Crown</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Vion</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>Westfleisch-Kalt</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Cooper Arcatlantique</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Rigard</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>GAD</td>
<td>19%</td>
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IFIP, 2008

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IFIP, 2011

Carass and meat quality

\[
\text{Lean Meat Proportion} = 62.19 - 0.729 \times \text{Girth} + 0.144 \times \text{Muscle} \\
\text{RMSEP} = 2.03
\]

Measurement of the thickness of fat and muscle using the Capter Gras Maigre (CGM)

\[
\text{Lean Meat Proportion} = \frac{\text{Grid E.U. O.P.} \times \text{Lean Meat Proportion}}{\text{C.G.M. equation}}
\]

Processing – Dependant of the culinary tradition of each country

Ex Italy

| Source: cours P. Bosi, IP sustainable pig |

Pork meat and product sale: mainly in super and hypermarkets

<table>
<thead>
<tr>
<th>Channel</th>
<th>Fresh pork</th>
<th>Ham</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butchers</td>
<td>10.2%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Hard discounters</td>
<td>13.9%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Supermarkets</td>
<td>28.5%</td>
<td>20.4%</td>
</tr>
<tr>
<td>Hypermarkets</td>
<td>45.0%</td>
<td>45.6%</td>
</tr>
<tr>
<td>Online sales</td>
<td>0.9%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Others (marché, direct sales)</td>
<td>5.2%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

Main European groups for super and hypermarkets

Main European groups for hard discount

Marché des Lices, Rennes
Decomposition of the price of fresh ham bought by a consumer (France)

On average 2009-11, when a consumer spend 10 € to buy cooked ham:
- 2.93 € is for the producer (to cover production costs: feed...)
- 0.70 € is for the slaughter plant
- 1.58 € is for the processing plant (butchery)
- 4.28 € is for the distributor/saler
- 0.52 € is for the state VAT

Source FranceAgriMer

Pig food chains in France - complements

Research and extension

Organisms for regulation and control

Decomposition of the price of fresh ham bought by a consumer (France) Source FranceAgriMer

Different pig food chains

Conventional chain: predominant - long chain
Alternative production and chain: a lot of quality labels but concern a small amount of pork product (to be nuanced depending of the country) - short chain

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Characteristics of the « average » pig farm in France

Mix breeder and fatterer (data GTE GTTT 2011)

In door system
199 sows (3 to 21 batches)
2.0 UTH (human unit of work)
Weaning 21 or 28 days (7.2 kg LW)
BW at slaughter 116 kg
losses and saizures 5.8 %
Land surface 50-60 ha

Data GTE GTTT 09 et Agreste
Buildings - Examples in France

Outdoor systems

Buildings - Examples in France

Outdoor systems

Buildings - Examples in France

Outdoor systems

Pig farmers and working conditions

Feed and feeding strategies

Mean composition (%) of composite french pig diets

Valorisation of on-farm grown cereals

Buildings - Examples in France

Outdoor systems

Buildings - Examples in France

Outdoor systems

Pig farmers and working conditions

Feed and feeding strategies

Mean composition (%) of composite french pig diets

Valorisation of on-farm grown cereals

Component | Grower diet | Finisher diet
--- | --- | ---
Cereals (maize, wheat,...) | 70 | 74
Cereals co-products | 6 | 8
Soybean meal | 0.2 | 0.4
Rapeseed, sunflower meals | 16 | 10
Pea | 2 | 3
Molasses | 1.5 | 1.5
Vegetal fat and oil | 1 | 3
Oilseeds | 0 | 0
Minerals and vitamins (amino-acids, salt, Phytase, Phosphate, ... | 3 | 3

Mean of 2012 data. Source : IFP 2012

Component | Feed price (€/ton) | Feed cost (€ / kg dwt)
--- | --- | ---
Austria | 214 | 71
Belgium | 220 | 83
Britain | 206 | 85
Denmark | 207 | 76
France | 217 | 78
Germany | 248 | 88
Netherlands | 228 | 77
Sweden | 180 | 66
Brazil | 210 | 77

Mean of 2012 data. Source : IFP 2012

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Mean of 2012 data. Source : IFP 2012
Protein sources in EU for pigs diets

- Oilseed by-product (rapeseed meal, sunflower meal, lin meal,...)
- Pulses (peas, faba beans,...)
- Cereals by-product (gluten feed from corn or wheat,...)
- Milk products (whey, skim milk powder)
- Animal product (fishmeal, plasma protein,...)

The use of alternative to soybean meal can be limited by constraints:
- Nutritional quality (AA balance, fibre contents,...)
- Anti-nutritional properties (limits of incorporation)
- Availability and price
- Processing
- Consumer demand

Large amount of protein is imported

EU-27 balance of materials rich in protein for feed in 2009-10

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Sows managment – mating and gestating sows

SCEA Kerghyl, France, Réussir Porc 2008

Gestating sows in group after 2013

Sows performances

Main characteristics of sows in France (2011)

- Productivity (weaned piglets/productive sows/yr) 28.3
- Per litter in nb piglets: live-born 13.2, dead-born 1, weaned 11.4
- 5.2 litters/sow
- Weaning to conception interval: 8.3 d, Farrowing interval: 147 d
- Nb weaned piglets/productive sows/yr
- Weaning to conception interval (d)

Sows performances

Comparison between countries (EU and Brazil)

Piglets weaned/sow/yr and carcass meat production/sow/yr

Number of piglets

Comparison between countries (EU and Brazil)

Piglets born alive and piglets weaned/sow/yr (2009)

Pigs born alive

Pigs weaned

Piglets managment

No castration (FT, SP, others EU countries in the future?)

-整个阉割

Pros

- Animal welfare
- Sustainability: higher feed efficiency
- Higher meat content
- Fat quality: more unsaturated fat
- Cost: lower tariff
- Fat content: lower
- Carcass composition: heavy fore parts
- Animal welfare: skin damages

Castration

- with anesthesia (local, global)
- Immunovaccination: Improvac (Pfizer)

Chirurgical castration

Photo: www.ilvo.vlaanderen.be

Management of pig health after the weaning

Weaning age: 21 or 28 days

- No growth factors antibiotics (in feed) since 2000 (90th Sweden)
- Alternative substances to antibiotics feed additive or medicamentous feed
- A need: the decrease of the use of antibiotic in farm (problem of bacterial resistance)
- Importance of dietary factor (protein level)
- Importance of environment (T°, hygiene)
Piglets performances
Comparison between countries (EU and Brazil)
Post-weaning mortality (2009)

Fattening pigs management
Pourriez, Romain; Mennesson, Philippe; Boule, Christelle

Fattening pigs performances
France (breeder fattener)

Source Interpig

Fattening pigs performances
Comparison between countries (EU and Brazil)
Feed conversion ratio observed and standardised (30-120kg) (2009)

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Organic farming in the EU-1

European regulation (N°834/2007), application on 1st January 2009

Objectives
- Establish a sustainable management system for agriculture that:
  - Respects nature systems and cycles
  - Contributes to the biological diversity
  - Makes responsible use of energy and natural resources
  - Respects animal welfare and species-specific needs
- Producing products of high quality
- Producing a high variety of foods and other products by the way of processes that do not harm the environment, human health, plant health or animal health and welfare

Overall principles
- Appropriate design and management of biological processes
- Restriction of external inputs
- Strict limitation of chemically synthesised inputs
- GMOs and products produced from or by GMOs shall not be used

Organic farming in France

Not really developed compared with some other countries (Denmark, Germany, Austria) and compared with other animal production (milk), but increase

Agence Bio

28/11/2012

Ludovic BROSSARD - INRA, France
The production of pig for dry-cured ham PDO (Parma) in Italy

- North Italy
- Large White and Italian Landrace breeds or L.LW, RL + Italian Duroc
- Heavy pigs
- Slaughter weight 165 kg
- >9 months
- List of permitted feedstuffs and their proportion in the diet fixed by the consortium
- Typical seasoning
- High quality product

Thanks to P. Bosi (Bologna Univ) and the IT-students IP sustainable pig EU !

“Montanheira” system in Portugal

- Extensive systems
- “Alentejano” race pigs
- Weaning - 8 weeks weighing 12 kg
- Fattening (September/February - Montanheira)
- Natural Resources (acorn and pasture) + Cereals
- Finishing weight = 130-160 kg (min weight = 90 kg)
- High quality product (PDO)

Thanks to the PT-students IP sustainable pig EU !

Conclusions – Strengths and limitations of pig production in EU

**Strengths**
- Economic development in productive basin (agriculture, industry)
- Interaction with the territory (land use, social dimension, ...)
- Diversity of pork products
- Food chain organisation in some countries (ID)
- Advising structure in some countries (ex IFIP-France)
- Taking into account environmental problems and responses (rules) to limit them

**Limitations/weakness**
- Few alternative systems (consumer concern)
- Competition between UE countries
- High production costs (competitiveness)
- Food chain organisation in some countries (France)
- Environmental problems in the main basin (ex Bretagne - Marées vertes)
- ...

Ludovic BROSSARD - INRA, France