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Overview of pig production in the European Union

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UMR PEGASE
Physiologie, Environnement et Génétique pour l'Animal et les Systèmes d'Élevage

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Presentation of INRA and UMR PEGASE

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Introduction

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



H. Flageul UMR PEGASE

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- 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

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EU and world pig production

Livestock (millions heads, 2010)

France	EU 27	Monde	Brazil
14.5	152.6	964.9	38.9 millions heads

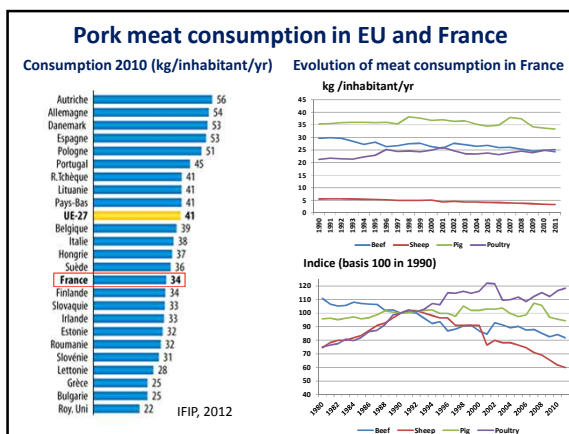
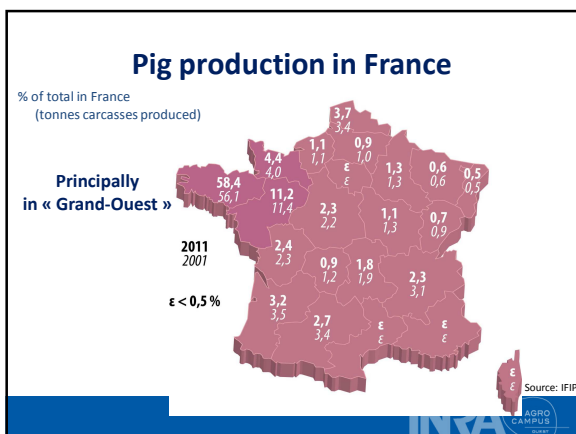
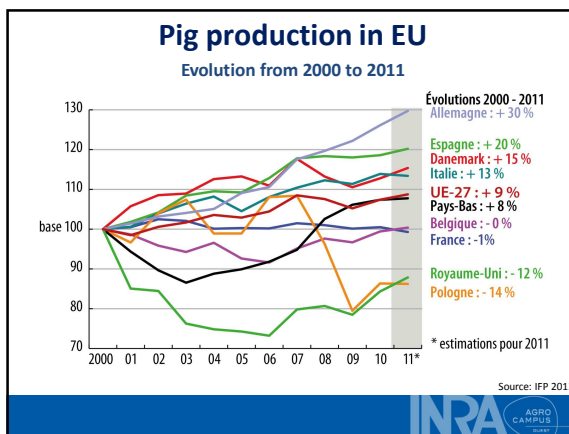
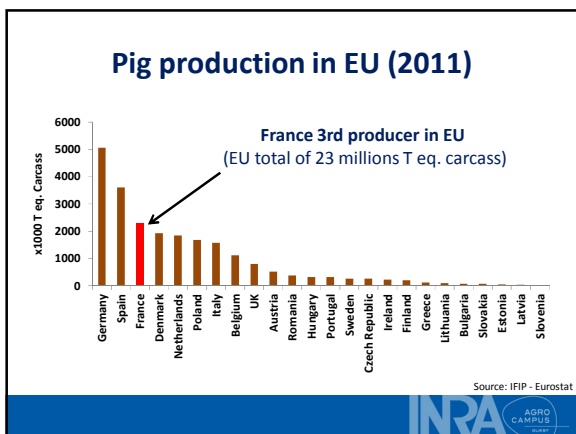
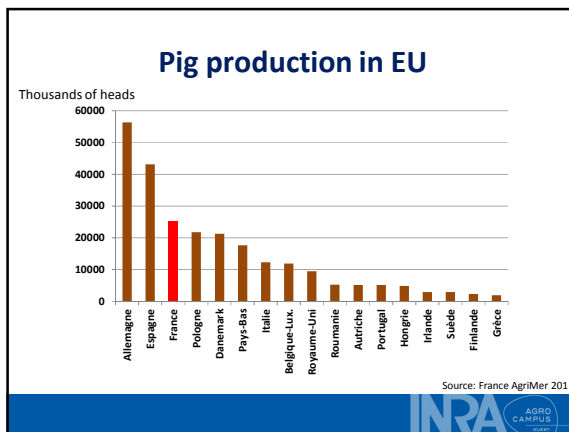
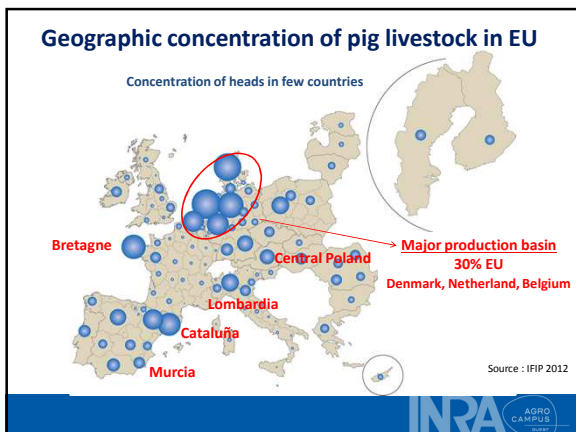
World distribution (millions heads, 2010)

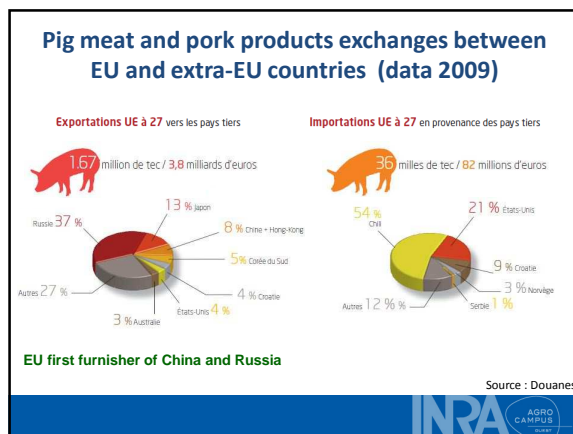
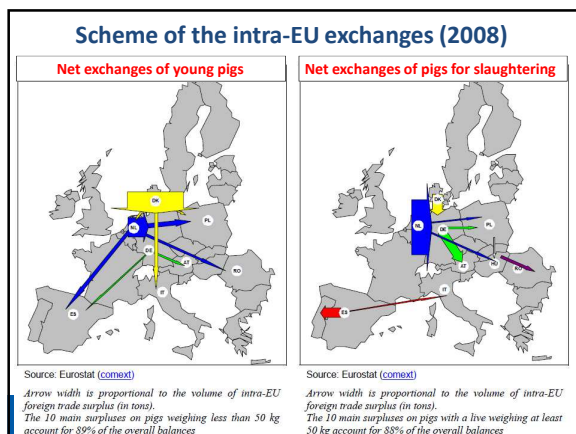
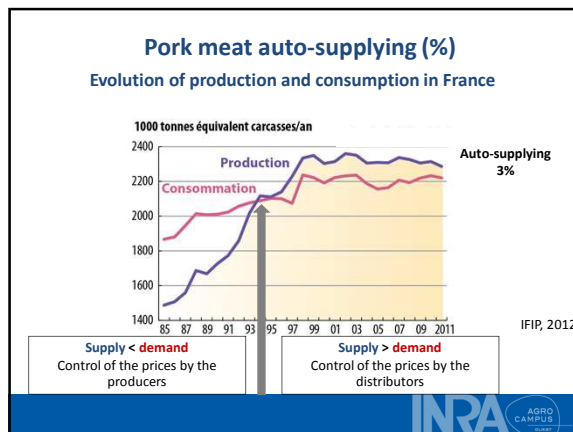
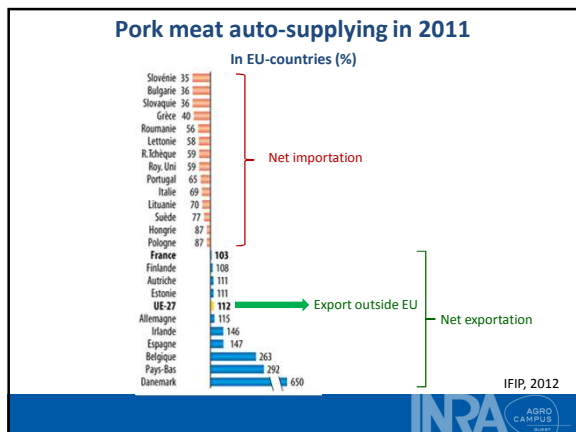
China	EU-27	Others	USA + Canada	Brazil	Russia + Ukraine	Japan + South Korea
49%	16%	19%	8%	4%	3%	1%

EU 2nd in livestock and in production

Source: FAO

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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, ...)

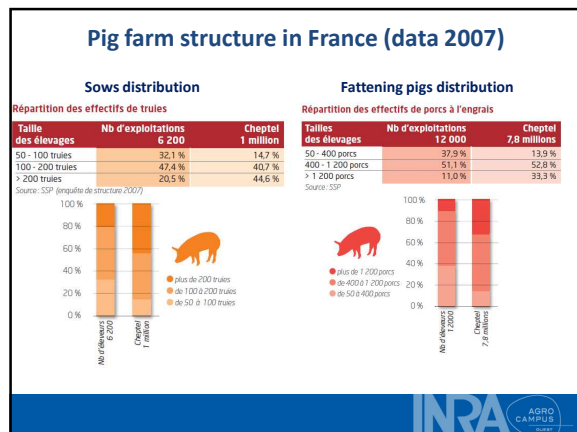
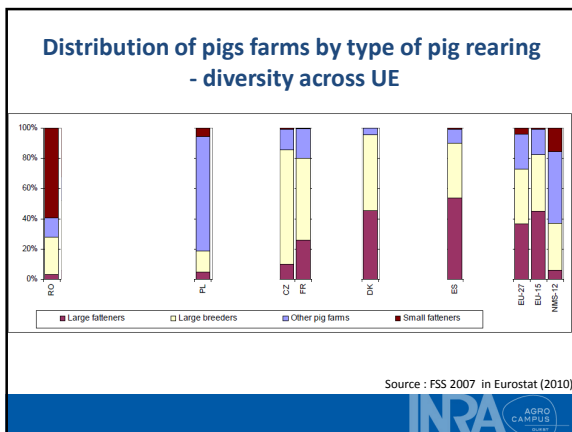
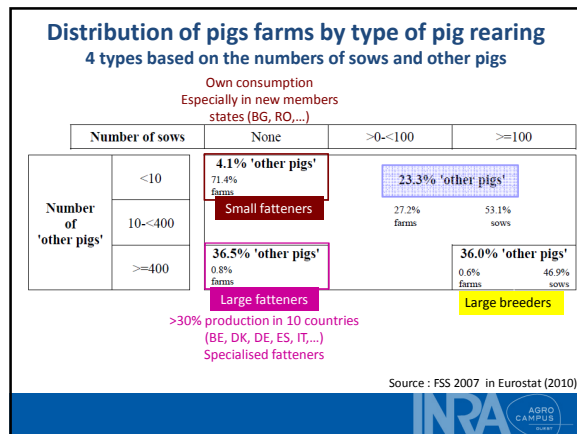
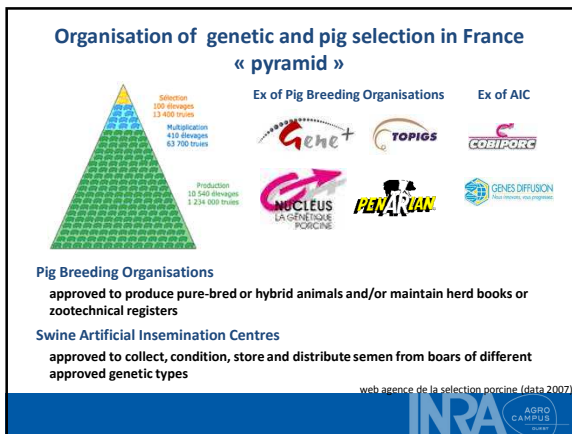
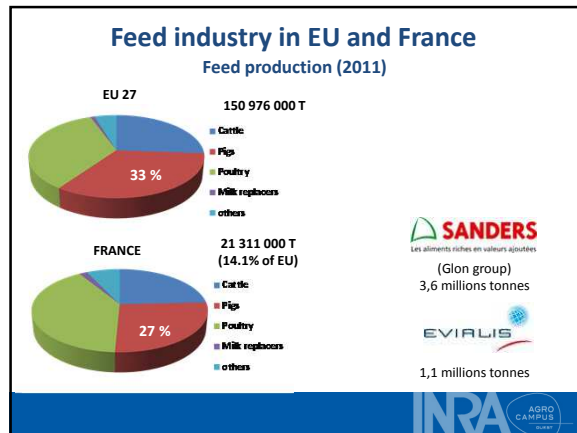
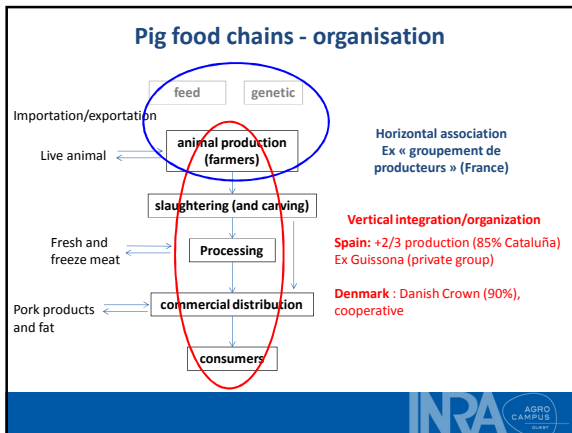
Exchanges

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

Source : France Agrimer 2012

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Main characteristics of pig production in France

- 22 300 pig farms (7 900 with sows) Tendency
- 14 millions of pigs (620 pigs/farm) ↘ livestock
- 1.1 millions of sows (141 sows/farm)
- Family farming ↗ farm size
- 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 ↗ nb of specialised farm
- 90% of the production => farmers association ↘ nb association and ↗ size

« Groupements de producteurs » : farmers associations

Aims

- Improve the weight of farmer during the trade with the other actors of the chain (feed industry, pig commercialisation)
- Advice/service/farmers formation and information (genetic, health, building,...)
- Supply (feed, pigs,...)

% of the production supervised by the « groupements »

IFIP, 2012

Concentration of slaughter in few groups

en millions de têtes

Groupes	Pays	Porcs abattus
Danish Crown	Danemark (+ PL et RU)	20,0
VIQON	Pays-Bas + Allemagne (+ RU)	19,3
Tönnies Fleisch	Allemagne (+ DK)	12,0
Westfleisch / Barfu	Allemagne (+ DK)	6,0
Cooperl Arcatlantique	France	5,9
Bigard / Cocopa	France	5,1
D&S Fleisch	Allemagne (+ DK)	3,3
GAD/Europig	France	2,5
Abattoir Bernard JF	France	2,0
ElPozo	Espagne	2,0

IFIP, 2008

Cooperl Arcatlantique	20 % of total slaughtering
Bigard	19 %
GAD	10 %

Carcass and meat quality

Grid E U R O P Lean Meat Proportion

Danish Crown slaughter plant

In France

Measurement of the thickness of fat and muscle using the *Capter Gras Maigre* : CGM

CGM equation

Taux de Muscle des Pièces

$$TMP = 62,19 - 0,729 G2 + 0,144 M2$$

RMSEP = 2.03

G Daumas, Ifip

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

	Fresh pork	Ham	% of quantity sold to home consumers (2011) <small>(Source Kantar FranceAgriMer)</small>
Butchers	10.2 %	3.8 %	
Hard discounters	11.0 %	18.1 %	
Supermarkets	28.5 %	29.4 %	
Hypermarkets	45.0 %	45.6 %	
Online sale	0.1 %	0.6 %	
Others (marché, direct sales)	5.2 %	2.5 %	

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)

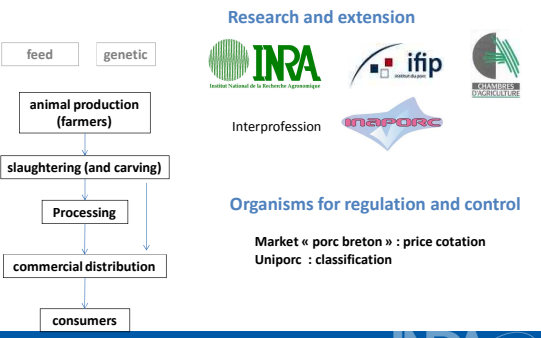
On average 2009-11, when a consumer spend 10 € to buy cooked ham:

- 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: INRA, ifip, CHAMBRES D'AGRICULTEUR



Interprofession: interporc

Organisms for regulation and control: Market « porc breton », price cotation Uniporc, classification



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

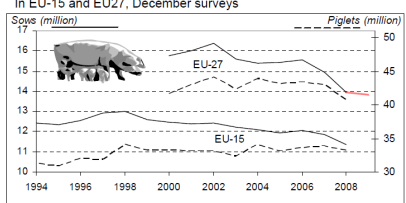
Conclusion part 1

The Western European market is characterized by:


- Change from production oriented to market oriented
- Critical consumers with wishes concerning way of production
- Large market consisting of consumers with a relatively high income
- High production costs compared to other areas.

➔ Concentration, Abandonment, Restructuring

Change in the number of sows and piglets in EU-15 and EU27, December surveys




Source: Eurostat (agro_mt_hspn)



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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)
22.4 slaughter pigs/sow/year

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

Building for fatter pigs (UMR PEGASE)

Outdoor systems

Rare in France
Increase in some countries (welfare aspects) UK
A key element for some alternative farming systems

Shelter for lactating sows (Netherlands)

"Montanheira" system in Portugal

Hungary

Source : PT students IP sustainable pig 2010
www.depts.ttu.edu

Pig farmers and working conditions

France family farm still predominant
1 UTH / 110-120 sows
employee in 57% of the farms - difficult to find

Spain 1 UTH / 250 sows

Work (h/sow/yr) in France

Source : IFIP, GTE- Tableau de Bord

Great difference (quantity and organisation) between farms
- size
- buildings organisation
- nb of batch (5-7 - 21)

12 to 23% of the production cost

Feed and feeding strategies

Feed management and cost in France

Diets
2 for sows (lactating and gestating)
2 for weaner pigs (starter and weaning diets)
2 for fatteners (biphase) can be 3
or multiphases feeding systems

Feed cost in various countries, 2009

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

Source: Aliment IFIP, version 2009

First rank of the production cost (68% for fatteners)

Sources: Interpig, GTE

Mean composition (%) of composite french pig diets

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
Molasse	1.5	1.5
Vegetal fat and oil	1	1
Oilseeds	0	0
Minerals and vitamins (amino-acids, salt, Phytase, Phosphate, ...)	3	3

Mean of 2012 data ; Source : IFIP 2012

Valorisation of on-farm grown cereals Home farm mixing

Important in some countries (DK)
Increasing in some others (Fr)

Cereals storage

Photo C Calvar CA (Brittany)

Others ingredients storage (protein sources, minerals and vitamins, AA,...)

Grinding and mixing feedstuffs and all diets ingredients

Transfer by screw and mix of the diet with water « soup maker »

Large amount of protein is imported

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

Material	Consumption (1000 ton)	Production (1000 ton)	Covering rate % (production/consumption)
miscellaneous	45		
corn gluten feed	87		
dehydrated forrages	105		
pea, faba-bean, lupin	110		
lin seed and meal	21		
sunflower seed and meal	69		
rapeseed and meal	92		
soybean seed and meal		2	

Sources: UNIP with Oil world and CIDE

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

Sows management – lactating sows

Today

The future farrowing pen in Dk ?

Photo Dk students IP sustainable pig in the EU

Sows management – 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

Sows performances

Comparison between countries (EU and Brazil)

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

Piglets management

No castration (PT, SP, others EU countries in the future?)
→ entire male

Pros Animal welfare
Sustainability-higher feed efficiency
Higher meat content
Fat quality/more unsaturated fat

Cons Boar taint
Low fat content
Fat quality-soft
Carcass composition-heavy fore parts
Animal welfare/skin damages

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

Chirurgical castration
Photo: www.livo.vlaanderen.be

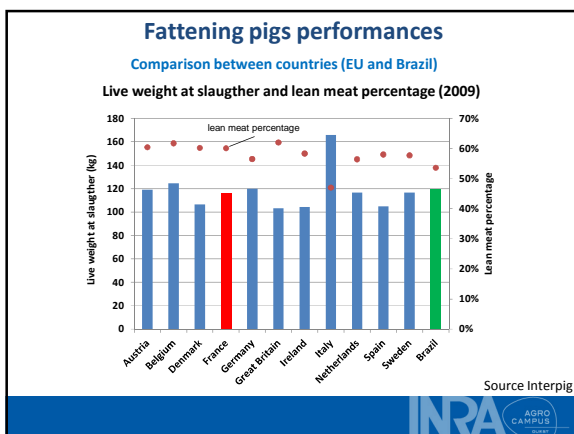
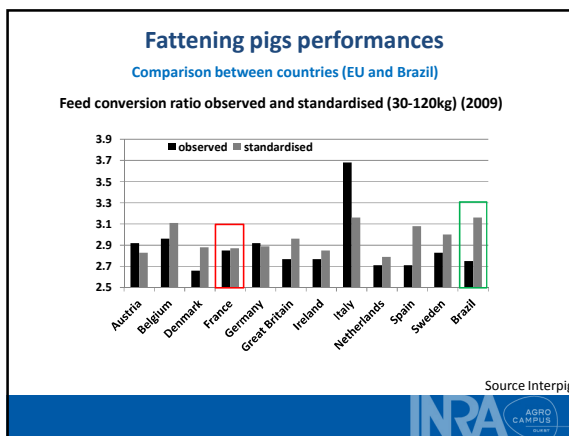
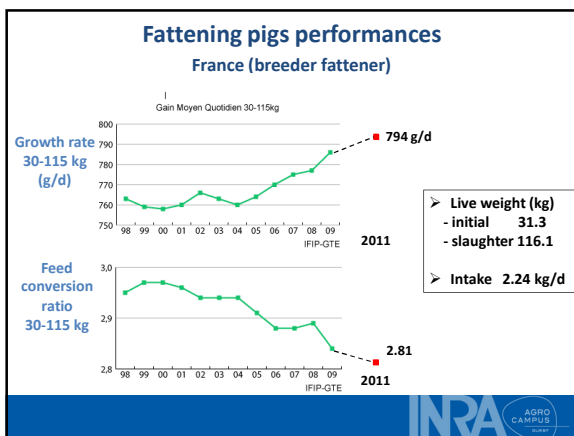
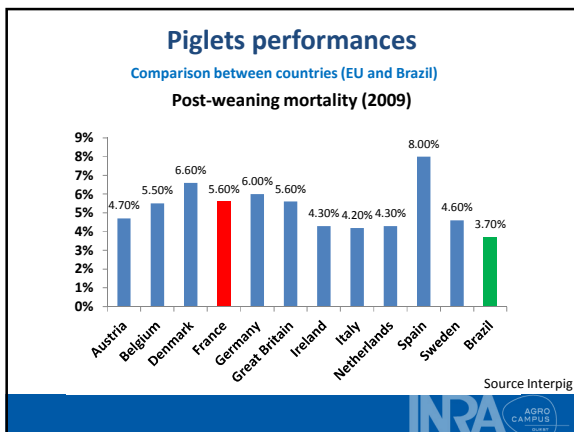
General anesthesia (CO₂)- Nth
Photo: C Gourmelin, Ifip

Management of pig health after the weaning

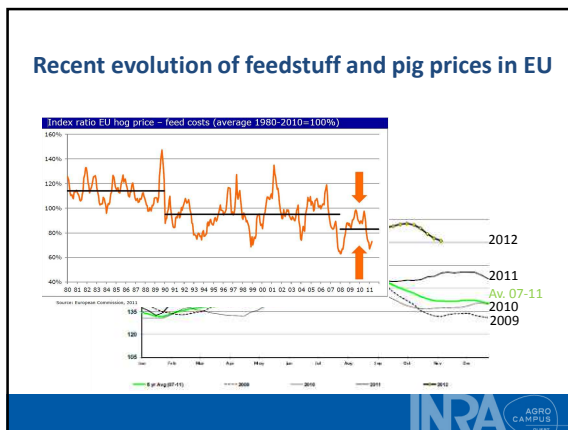
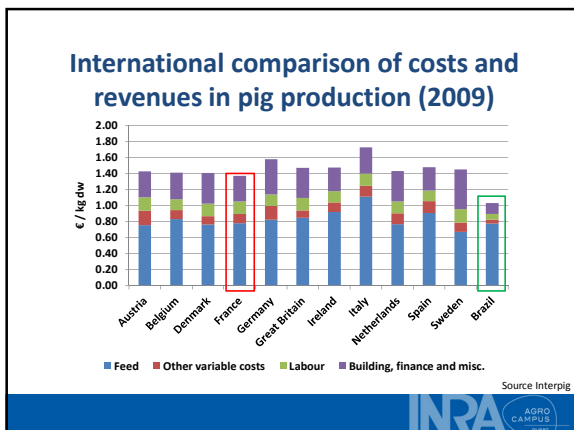
Weaning age 21 or 28 days

- 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)



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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 the EU-2

Breeding

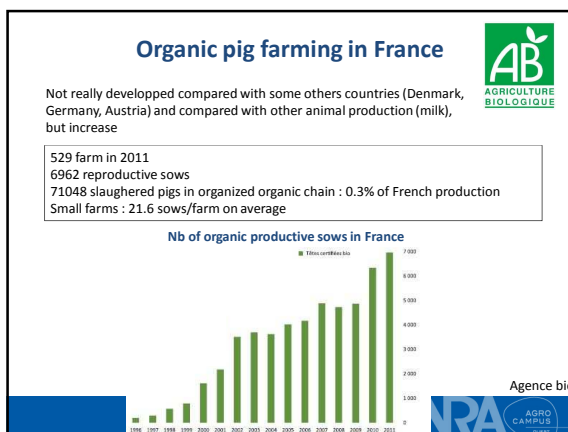
- Artificial insemination is allowed
- No use of hormonal or similar substances for induction of reproduction
- Cloning and embryo transfers are banned
- Appropriate breeds

Feed

- Organic feed
- Primarily from the holding where the animals are kept or from the region
- Meets the animal's nutritional requirements
- Permanent access to pasture or roughage
- No growth promoters or synthetic amino acids
- Suckling mammals shall be fed with preferably maternal milk

Disease prevention and veterinary treatment

- Prevention by : adapted breeds and strains husbandry management practices high quality feed, appropriate density and high hygienic conditions
- Disease treated immediately (use of allopathic medicinal products only when necessary and under strict conditions)



The production of pig for dry-cured ham PDO (Parma) in Italy

- North Italy
- Large White and Italian Landrace breeds or It.LW, It.L x 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 weighting 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 (DK)
- 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 organization in some countries (France)
- Environmental problems in the main basin (ex Bretagne – Marées vertes)
-

