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**STUDY ON THE SOCIO-ECONOMIC IMPLICATIONS OF DIFFERENT ASPECTS OF  
FARMING WEANERS AND PIGS KEPT FOR FATTENING**

**Executive summary**

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*October 2006*

## ***1. Objectives of the study, scope and tasks***

The study aims at evaluating the socio-economic impacts linked to the possible introduction of new standards on animal welfare (with regard to space allowances and different floor types) in EU pig-farms as amendment to the current provisions on the matter contained in the Directive 91/630/EEC (as amended and integrated by Directive 2001/88/EC). The study is focused on the changes in production costs for the producers in the EU; as far as the international competitiveness of EU pig production is concerned, the situation in selected third countries representing the main trading partners is also evaluated.

For this purpose, the following tasks are carried out:

1. An analysis of the current situation, regarding structure of the pig sector, production systems currently used and production costs, both for the EU and for some important third countries producing and exporting pigmeat to EU (USA, Australia, Chile, China, Canada, Brazil).
2. Definition and analysis of scenarios aimed at evaluating the relevance of the impacts on the different aspects under point 1:
  - introduction of new standards on animal welfare in EU pig-farms (in relation to the change in the requirements on space allowances and floor types);
  - effect of other factors;and identification of possible solutions to minimize any negative impacts.

In order to carry out the tasks under point 2, the study requires the creation of 6 reference scenarios based on the experiences acquired on alternative farming systems.

Such scenarios are identified through different combinations between requirements on space allowances and requirements on floor types and are used to evaluate the comparative impact of:

- a) The introduction of new standards on animal welfare in EU pig-farms, and
  - b) The effect of other relevant factors,
- on the different aspects of the EU pig sector under point 1.

Ways to minimise possible negative implications for the farm income (in particular the potential influence of quality assurance systems in promoting a premium product) are explored. Furthermore, the effect of different transitional periods for potential legislative measures is evaluated.

## ***2. Analysis of the current situation***

### ***2.1 Analysis of the current situation in the EU***

In table 1 is described the current situation of the pigmeat sector in the EU Member States.

Concerning the structure of pig holdings, within the European Union there are many differences in the number: Poland (603.790), Hungary (425.280), Lithuania (148.130), Italy (122.630) and Spain (111.670) are the nations with the highest amount; Malta (150), Luxembourg (200) and Cyprus (860) the lowest.

**Table 1: Description of the current situation**

EU Member States	Number of pigs	Number of holdings	Average dimension	Pigmeat production	Degree of self-sufficiency	Pigmeat consumption	Consumption processed pigmeat	Production costs (2004)			Rearing system typologies (distribution %)			Producer price	QAS
								fully slatted	partly slatted	strow flow	fully slatted	partly slatted	strow flow		
	head	farms	pigs/farm	tons	%	kg/head	%	cent/kg/CW	cent/kg/CW	cent/kg/CW	%	%	%	Euro/100kg/CW	
Belgium	4.135.380	8.230	502	1.054.010		:	75				65	31	4	135,06	<i>Code Of Practice</i> "; "UK Pigs"; "Antonius"; "Fritland A/S"
Czech Republic	1.984.270	16.860	118	425.502	93	43	75							145,81	
Denmark	7.527.750	10.900	691	1.809.495	455	74	55	144,00	134,98	148,30	57	35	8	120,69	
Germany	17.056.780	95.650	178	4.307.948	90	45	65	155,72	146,16	158,96	30	60	10	145,48	
Estonia	198.920	5.300	38		100	27	:							143,83	
Greece	508.810	29.230	17	136.671	44	28	75				40	60		159,19	
Spain	12.338.500	111.670	110	3.190.999	119	:	70	137,60	138,47	148,87	50	50		139,05	
France	8.465.930	49.440	171	2.312.261	105	36	:	141,73	132,74	147,34	80	11	9	131,30	
Ireland	1.011.600	1.100	920	207.500		:	65	142,53	135,29	147,78	60	35	5	133,13	
Italy	6.141.840	122.630	50	1.589.891	67	40	75	199,92	197,80	213,22	25	60	15	155,06	
Cyprus	237.730	860	276	55.215		:	:							160,70	
Latvia	266.930	41.490	6	36.800	64	25	:							144,99	
Lithuania	721.610	148.130	5	97.119	92	32	:							155,16	
Luxembourg	45.890	200	229	11.451		:	:							145,97	
Hungary	3.295.140	425.280	8	482.832	129	48	75				40	60		142,86	
Malta	48.220	150	321	8.470		:	:							161,19	
Netherlands	5.500.810	10.520	523	1.287.242	227	42	65	148,50	139,54	150,86	15	83	2	131,41	
Austria	2.089.470	59.830	35	515.532	104	57	70	165,47	156,36	172,70				143,06	
Poland	10.193.550	603.790	17	1.923.484	114	49	:	110,00			15	29	56	143,97	
Portugal	1.181.270	87.470	14	315.142	67	43	:				30	55	15	141,63	
Slovenia	347.820	38.430	9	160.900		:	:							142,87	
Slovakia	889.180	44.410	20	34.622	90	32	:							142,19	
Finland	746.000	3.480	214	198.109	113	33	:							127,73	
Sweden	1.131.350	3.310	342	294.498	90	36	:	150,13	138,25	151,58				129,58	
United Kingdom	3.074.720	8.940	344	720.036	72	16	77	164,61	156,48	174,98	31	29	40	151,23	
EU	89.139.470	1.927.300	46	21.175.729		:	:								

According to 2004 Eurostat data, the European Union has a pig population, excluding breeding sows over 50kg and piglets under 20 kg, of 89.139.470 heads. As to its distribution, Germany ranks first (17.056.780), followed by Spain (12.338.500), Poland (10.193.550), France (8.465.930) and Denmark (7.527.750).

Regarding the average dimension of the holdings (number of pigs) it can be noted that in Ireland, Denmark, Netherland and Belgium there are the ones with the highest number of pigs (respectively 920,691,523,502) whereas in Lithuania, Latvia, Hungary and Slovenia the holdings have the lowest average dimension (rispectively 5, 6, 8, 9 pigs/farm).

From 1995 to 2004, the EU pig meat production slightly increased even if the situation of the single countries are quite different. Infact pig meat production increased in some Member States like Spain and Denmark but in other countries like France, Belgium, the United Kingdom and the Netherlands it remained the same or it even decreased. In EU the nations with the highest pigmeat production are Germany (4.307.948 tons), Spain (3.190.999) and France (2.312.261).

Concerning pigmeat consumption over 90% of the total EU production is for internal consumption. Pig meat ranks first in the European consumer preferences mainly due to the variety of products that can be obtained from it. There are, however, great differences between the single Member States. Infact pigmeat consumption is very high in Spain, Denmark and Germany (respectively 67,8kg, 58,2kg, 54,1kg for head) whereas it is much lower in Greece and in the United States (amounts to about 25-28kg for head).

As regards the distribution of consumption between fresh and processed pigmeat, no homogeneous official data were found: nevertheless, the research team collected useful indications through independent experts and selected stakeholders in a number of Member Sates. On the basis of such indications data can be summed that in the majority of the EU countries consumption of processed pigmeat is about 70-75% while for the fresh meat is about 25-30%, except Denmark and Portugal where the consumption is noticeably higher (respectively 45% and 65%).

The analysis of the QAS bibliography in the EU reveals the presence of a a very high number and variety of such schemes. Same schemes also deal with rearing techniques, including the use of practices that can safeguard animal welfare. This type of schemes are especially common in Scandinavian countries, above all in Sweden, Finland and Denmark, whereas they are much less spread Western European countries and Mediterranean countries<sup>1</sup>.

Distribution of rearing system typologies for fattening pigs shows that more intensive systems (partly and fully slatted systems) are the most representative RST in the majority of studied Member States, with the exceptions of Great

<sup>1</sup> Although in some countries significant attention is being focused on animal rearing practices linked to animal welfare issues, the actual importance of these schemes in the market is still quite limited as we can see in the following table showing the market share of quality assured pigmeat in Denmark

Quality assurance schemes	Pigmeat market share
UK-pigs	5,0%
Mail pigs	1,0%
Antonius	0,1%

Britain and Poland. In the UK, in particular, a notable decrease in the number of fully and partly slatted systems has occurred, equal to, respectively, -26% and -20%, in the 1999 - 2005 period, while the housing systems with straw (straw based and deep litter) have risen (respectively +25,00% and +17,00%).

Concerning production costs in the main relevant rearing system typologies it can be noted that the least-cost RST is partly slatted system, with the fully-slatted system closely following. The straw based system features the highest production costs. Indeed the countries with the highest production costs are Italy, United Kingdom and Austria whereas those with the lowest costs are Poland, Spain and France.

## 2.2 Analysis of the current situation in the relevant third countries (RTC)

Same main aspects of the pig meat sector must be highlighted in the RTC:

1) The trend towards a more concentrated structure of the pig sector emerges in all the six RTC: marked differences are however present among these countries as far as the present degree of concentration is concerned. The structure of the Chinese sector, in particular, is still extremely fragmented.

2) Marked differences concern both production technology and marketing organisation in the pig meat supply chain. Canada, USA and Australia boast advanced logistics and have specialised in the production of high quality, lean pig meat. Brazil and Chile see the prevalence of large, vertically integrated firms, but still suffer from weaknesses in logistics and from inferior – compared with western standards– meat quality; in China these drawbacks are even more evident, and are not counterbalanced by the gains in efficiency stemming from vertical integration.

3) The cost competitiveness of the six RTC also varies greatly, according to the varying influence exerted by both technology and the level of unit prices/costs for the critical factors, feed and labour above all.

Production costs are higher in Australia and USA whereas Chile and Brazil have the lowest costs.

**Table 2: Comparison among total pig production costs in the relevant third countries (Euros)**

Country	2000	2001	2002	2003
Canada - production costs (farrow-to-finish) for 100 Kg cwt	n.a.	n.a.	109,01	n.a
USA - production costs (farrow-to-finish) for 100 Kg cwt gain	120,67	127,96	123,73	105,29
Australia - production costs (farrow-to-finish) for 100 Kg cwt	n.a	n.a	n.a	129,47
Brazil- production costs (farrow-to-finish <sup>9</sup> for 100 Kg cwt	53,04	n.a	n.a	n.a
Chile- producer price for live animals (Euros for 100 Kg cwt	64,6	59,61	56,45	53,44

Regarding the pig meat retail prices (Euros per Kg) we can see that Australia have the highest prices whereas China is the country with the lowest price.

In conclusion, the six relevant RTC can be clustered in two groups, according to the different fundamentals and characteristics of their competitive potential:

- a) Canada, USA, Australia: “western” pigmeat exporters, with good cost competitiveness, advanced logistics and focus on high quality products and high-income export markets;
- b) Brazil, Chile, China: “emerging” pigmeat exporters, whose competitiveness mainly stands on low production costs; they are thus focused on low-income export markets, which are less demanding in terms of both logistics and product quality.

The following table shows a comparison among EU, USA and Canadian frozen pig meat exports in three of the main export markets, namely Japan, South Korea and Russia, for the year 2004.

**Table 3 - Comparison among EU, US and Canadian frozen pigmeat exports (HS-020329) in three of the main export markets, 2004**

Export markets	Base Data (reference currency)		Reference conversion currency / euro rate (1)		Value of export (euros)	USA and Canadian export as % of EU exports
to <b>JAPAN</b> from:						
EU	985.515.506	Euros			985.515.506	
United Staes	324.851.618	US \$	1,0000	1,2439	261.155.734	26,5%
Canada	358.490.460	US \$	1,2439		288.198.778	29,2%
to <b>SOUTH KOREA</b> from:						
EU	168.985.337	Euros			168.985.337	
United States	31.303.921	US \$	1,0000	1,2439	25.165.947	14,9%
Canada	24.921.704	US \$	1,2439		20.035.135	11,9%
to <b>RUSSIA</b> from:						
EU	101.388.031	Euros			101.388.031	
United States	21.357.235	US \$	1,0000	1,2439	17.169.576	16,9%
Canada	8.788.505	US \$	1,2439		7.065.283	7,0%

(1): average annual bilateral exchange rate (US \$ per Euro) for 2004;

EU exports are substantially higher than USA and Canadian ones in all the three countries. As far as Russia is concerned, however, it must be noted that the competition by Brazilian pig meat exports has become very strong in recent years.

Table 3 below summarises the main export markets in value for frozen pig meat for the EU, Canada, USA, Brazil and China.

**Table 4 - Comparison among the main export markets in value for pigmeat for the EU, Canada, USA (Frozen pigmeat, HS-020329), Brazil and China (pig meat)**

Pos.	Export markets EU	Avg. Share 2000-2004	Export markets Canada	Avg. Share 2000-2004	Export markets United States	Avg. Share 2000-2004	Export markets Brazil	Avg. Share 2000-2004	Export markets China	Avg. Share 2000-2004
1	JAPAN	57,0%	JAPAN	53,3%	JAPAN	61,3%	RUSSIA	60,5%	HONG KONG	37,5%
2	USA	10,3%	USA	20,8%	MEXICO	8,4%	HONG KONG	10,1%	RUSSIA	24,3%
3	SOUTH KOREA	8,3%	AUSTRALIA	10,1%	CANADA	6,4%	ARGENTINA	6,8%	KOREA NORTH	8,6%
4	RUSSIA	7,2%	SOUTH KOREA	3,1%	TAIWAN	5,5%	UKRAINE	3,9%	SINGAPORE	7,3%
5	AUSTRALIA	3,2%	NEW ZELAND	2,2%	SOUTH KOREA	5,1%	SINGAPORE	3,7%	JAPAN	7,2%
6	ROMANIA	2,4%	RUSSIA	2,0%	RUSSIA	3,3%	NETHERLANDS	2,8%	MALAYSIA	5,0%
7	CROATIA	1,7%	MEXICO	1,7%	HONG KONG	2,3%	SOUTH AFRICA	2,0%	PHILIPPINES	3,4%
8	SINGAPORE	1,1%	TAIWAN	1,5%	CHINA	1,9%	URUGUAY	1,7%	MACAU	1,5%
9	HONG KONG	0,9%	CHINA	0,9%	GERMANY	0,5%	ALBANIA	1,0%	ALBANIA	0,8%
10	CANADA	0,8%	CUBA	0,8%	COLOMBIA	0,5%	BULGARIA	0,9%	INDONESIA	0,8%
<b>TOP TEN</b>	<b>MARKETS</b>	<b>92,9%</b>		<b>96,5%</b>		<b>95,1%</b>		<b>93,4%</b>		<b>96,3%</b>



The focal points of competition for EU frozen pig meat exports - which constitute by far and large the most important component in the product mix of EU pig meat exports - are to be found especially:

- in Japan, where competition from American and Canadian exports is significant;
- in the USA, where the competition comes mainly from Canadian exports;
- in Russia, where Brazilian exports (and also Chinese ones, albeit to a lesser extent) have gained a substantial share in recent years.

Japan market is crucial for the EU exporters. Exports to Japan are essential to create value to EU exporters of frozen pig meat, as it is an high-income country. The main competitors on the Japanese market for frozen pig meat are the USA and Canada, i.e. exporting countries which combine cost competitiveness with efficient logistics and a good quality of meat. Analogous considerations can be made for the American market.

The case of Russia is quite different, as it is a low-income country. The main competitors there are Brazil and China, i.e. exporting countries which more than offset their inefficiency in logistics and the relatively poor quality of their meat with an extremely aggressive cost competitiveness: on low-income export markets, underselling competitors is a successful strategy.

EU exports of pigmeat to third countries are mostly made of frozen pigmeat and, for a lesser part, frozen offal. The main destination market of EU frozen pigmeat, in value, are Japan, United States, South Korea and Russia; more tha 65% of such exports originates in Denmark. The main competitors of the EU as regards frozen pigmeat exports are: Canada and USA in Japan; Canada in the USA; Brasil and China in Russia. The competition in the first two market is based on quality and service, beside price, while in the Russian export market the importance of low prices is paramount.

### 3. Assessment of the impacts resulting from different scenarios

In this paragraph we analyze six scenarios (see table 5), resulting from different combinations of space allowance and floor types. We evaluate the impact of increased animal welfare requirements on production cost and the consequences of production cost variation at different levels of the supply chain<sup>2</sup>.

Within the six scenarios, three main kind of strategies can be identified driving the implementation of animal welfare standards in the pig sector.

#### ***The adaptive strategy***

Mainly based on the modification of space allowance of the most diffused rearing system typology (fully slatted), which can also be associated with the lowest degree of animal welfare. This strategy is articulated in 3 scenarios (scenario 1, scenario 2 and scenario 3), based on a gradual increase in space allowance

#### ***The evolutionary strategy***

Farms adopting fully slatted rearing systems are forced to change to partly slatted ones. This strategy is articulated in 2 different scenarios, featuring respectively: the shift from fully to basic partly slatted (scenario 4); the shift of typology together with enhanced space allowance (scenario 5). This is in fact an adaptive/evolutionary strategy. Compared to the former strategy, it marks one step ahead in the improvement of animal welfare standards.

#### ***The radical strategy***

A change is forced from fully and partly slatted rearing systems towards the straw based one, which can be deemed as better as far as animal welfare standards are concerned.

All the scenarios are described in the next table (tab. 7).

The adaptive scenarios (scenarios 1, 2 and 3) do not necessarily need farm investments to comply with enhanced animal welfare requirements. In fact, the improvement of space allowance, within a given rearing system typology, can be obtained by reducing the number of reared pigs<sup>3</sup>. Evolutionary and radical scenarios (scenario 4, 5 and 6), require investments anyway, because the shift from one to another rearing system implies a modification of the rearing system itself (even if space allowance does not change). Particularly it's the scenario 6 that needs the highest investments because rearing system must be started from

<sup>2</sup> The table below shows the different levels of analysis taken into considerations.

<b>Level of analysis</b>	<b>Impact on:</b>
Farm	- production cost - gross margin
Sector	- production structure - employment - pigmeat supply
Market	- EU pigmeat market equilibrium - competitiveness of EU pigmeat in World Market

<sup>3</sup> This consideration can be considered valid only in the short term. In the long term also this kind of scenario would require investments to allow scale economies.

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the beginning whereas scenarios 4 and 5 just need a simple modification of those typologies.

**Table 5: Simulation scenarios**

Strategy	Scenario	Basic elements of the scenario	Global result of the scenario
adaptive	1	Increase of space allowance in the fully slatted rearing system	Farms adopting fully slatted rearing system change space allowance from the current standard (0,65 m <sup>2</sup> /head) to 0,75 m <sup>2</sup> / head. The other existing rearing system typologies do not change.
	2	Increase of space allowance in the fully slatted rearing system	Farms adopting fully slatted rearing system change space allowance from the current standard (0,65 m <sup>2</sup> /head) to 0,80 m <sup>2</sup> / head. The other existing rearing system typologies do not change.
	3	Increase of space allowance in the fully slatted rearing system	Farms adopting fully slatted rearing system change space allowance from the current standard (0,65 m <sup>2</sup> /head) to 1,00 m <sup>2</sup> / head. The other existing rearing system typologies do not change.
evolutionary	4	Fully slatted rearing system shift towards partly slatted ones	Farms adopting basic fully slatted rearing system standards (0,65 m <sup>2</sup> /head) change into basic partly slatted typologies (0,75 m <sup>2</sup> / head). The other existing rearing system typologies do not change.
	5	Fully slatted and partly slatted rearing system shift towards improved partly slatted ones.	Farms adopting basic fully slatted (0,65 m <sup>2</sup> /head) and basic partly slatted (0,75 m <sup>2</sup> /head) rearing system shift toward partly slatted with enhanced space allowance (0,80 m <sup>2</sup> /head). The other existing rearing system typologies do not change.
radical	6	Fully slatted and partly slatted rearing systems shift towards straw based rearing system.	Farms adopting basic fully slatted (0,65 m <sup>2</sup> /head) and basic partly slatted (0,75 m <sup>2</sup> /head) rearing system shift toward the basic straw based rearing system (1m <sup>2</sup> /head).

#### **4. Impact at farm, sector and domestic market level**

##### **Scenario 0 (current trend)**

As regards the scenario 0, it is characterised by the following phenomena, with varying intensity in the different Member States:

- Increase in production costs;
- Increase in the average size of pig farms;
- Decrease in the number of working units in pig farms.

##### **Scenario 1**

In the short period, scenario 1 results in an increase of unit cost (between 0,76 and 4,19% according to the country). The decrease of the number of reared pigs leads to a loss of gross farm margin between 2,00 and 10,67%, (due to the reduction of output and to an increase of fixed cost per unit). At sector level, production might fall slightly, with no relevant consequences on the domestic market equilibrium. In the new market equilibrium situation, the re-establishment of the gross margin level would push farmers to increase holding dimensions in a measure that is now appreciable (2 to 12%). By this way they will re-establish the gross margin of the scenario 0, but not all farmers will be able to do that, even if investment may be considered marginal in relation to the dimension of the holding. Structural dynamic will accelerate to maintain the global level of the offer. The number of holdings would decrease consequently, assuming a stable/slightly decreasing supply in the long term.

The different diffusion of fully slatted rearing system within EU contributes to enhance the scenario's impacts in some countries (Denmark, France and Ireland) and to attenuate them in others (The Netherlands).

##### **Scenario 2**

In the short period, unit cost increases by 1,13-6,29% in this scenario, with a significant loss of gross margin between -2,81 and -15,00%. At sector level, production may fall meaningfully. In the new equilibrium, the re-establishment of the gross margin level is obtained at the cost of restructuration stronger than in scenario 1, with a structural push between 3,5 and 18,5%. Consequently, the number of workers may fall by -2 to -15%. After the structural adjustment, sector pig meat supply would be slightly lower anyway. Together with the increase of production cost, this will lead to a loss of competitiveness.

##### **Scenario 3**

The results of this scenario follow the trend of scenario 1 and 2, with much greater effects on all the impact indicators (production cost, gross margin, etc.).

##### **Scenario 4**

This scenario results in a decrease of the production cost up to 5% and a consequent rise of the gross margin up to 4%. This can be obtained at the cost of relevant investments to shift from fully and basic partly slatted to improved partly slatted rearing system. The access to investment is the critical factor of this scenario, that will favour the holdings with a greater economic gross margin, which are usually the largest ones. The structural trend is submitted to a relevant push that will reduce the number of people working in the sector. Supply would not change/slightly decrease, thanks to the structural adjustment, in the long run.

### ***Scenario 5***

Cost of production in this scenario varies among Member States, marking a significant reduction in Ireland, Denmark and France (from -1,6 to -3,3%), versus an increase in Germany (+1,93%). The gross margin decreases from -3,0 to -5,4%. The same forces we encountered in the former scenario also play in this case, but with a major effect on gross margin. This negative situation adds to the critical factor of the access to the investment, that still remains and reinforces its influence. This turns in a stronger structural push, in comparison with scenario 3, with stronger effects on employment, on one side, and sector supply, on the other one. Supply may fall in the long run due to the strong economic selection.

### ***Scenario 6***

Scenario 6 requires pig farmers to shift from fully and partly slatted system directly to straw based rearing system. Production cost increase is between 8,68 and 15,78%. Gross margin also falls substantially, especially because of the lower feed conversion rate.

At sector level, the structural trend would be reverted. Larger holdings must apply stronger scale economies to improve work productivity (but this is possible if also technological innovation is available, which is a critical point, as straw based system is quite marginal at EU level); on the other side economic flexibility would favour family (smaller) holdings. The number of holdings would decrease and a change in the structural trend would appear (smaller holdings would increase or decrease less rapidly than in scenario 0; larger holdings would suffer from a strong structural push, that is an acceleration of the exit rate).

At sector level, the employment would decrease, and the pig meat production would fall substantially. In an open market, selling price would not rise significantly, but the competitive position of the EU pig meat on the world market could worsen substantially.

### ***EU pigmeat competitiveness***

Concerning pigmeat supply and competitiveness it can be noticed that Scenario 1 has a modest effect on production cost, that hardly affect pigmeat supply. In fact, a marginal increase of the structural dynamics could restore the former level of supply. The global effect on competitiveness would be modest as well, and would simply rely on the variation of the production cost.

Scenarios 2 and 3 reveal the same trend but with enhanced effects.

Scenarios 4 and 5 show, in the long term, a limited reduction of the production costs. The need for investment in these scenarios would create an economic selection among the pig farms, with some effect on the global pigmeat supply, that could slightly fall, and with it pigmeat exports.

Scenario 6 has a very hard effect on production costs, that combines with a strong reduction of the supply. This scenario would not simply result in a lower degree of competitiveness but even in the need to import pig meat from third countries to satisfy the EU demand (which is a reversal of the export trend in comparison with the scenario 0).

**Table 6: Simulation scenarios**

Scenario	Effects on:		
	production cost	domestic supply	competitiveness
1 adaptive	++	v /-	-
2 adaptive	+++ geografical differentiation	-	--
3 adaptive	++++ geografical differentiation	--	---
4 evolutionary	-	v /-	v /-
5 evolutionary	-/v geographical differentiation	-	--
6 radical	++++++	-----	trend reversal

+ increase

- decrease

v stable/not relevant

### ***5. Basic elements for policy strategies related to the scenario's impacts***

In general, all of the scenarios (but particularly adaptive and evolutionary ones) share two critical problems, that are:

- a) *The access to investment*, to adapt the holding to the new requirements of the animal welfare and, eventually, to apply consistent scale economies in view of re-establishing the economic sustainability of the activity.
- b) *The level of competitiveness in the world market*, due to the production cost effect or to the supply effect, depending on the scenarios.

Problems are linked each other and the political answer should take into account all the levels of the supply chain, considering at the same time a socio-economic targeting and a consistent time horizon, with a view at minimizing the overall impacts.

The attenuation of the socio-economic impacts may come from an adequate assistance to the farmers during the structural adjustment of the sector. The assistance should be aimed at mitigate the additional pressure (in terms of production cost) that policy innovation puts on farmers in critical situation. On the other side, it should also be considered the possibility to sustain farmers operating in specific rural areas and that fall into economic marginality due to the application of the new standards, at the condition that the possibility does exist to couple increased animal welfare standards (even very high standards) with local specificities that are relevant for the local development.

As for the time horizon, several evaluations lead to quantify the transitional period in *at least* 3 to 4 years for the scenarios that mainly require an increase of the space allowance (more time is needed for greater space allowance requirements); and at least 6 to 8 years for scenarios that also impose a change of

floor type (specially for scenario 6). These evaluations take into account the increased structural pressure that scenarios put on the farm and on the sector, the economic and financial behaviour of the farmers in the face of the need of the new investments required by the scenarios.

This said, the next table puts the different kinds of strategies in the context of the scenarios and of the intervention levels. the table focuses specifically on the measures aimed at mitigating the additional negative impact of each scenario in relation to the actual situation of the sector.

*a. Adaptive scenarios*

The risk of economic loss for the farmers grows from scenario 1 to 3, due to the production cost increase. The intensity of the measures to be applied grows consistently: the indemnities (for the out goers) and the means to facilitate the access to investment (for the fence sitters) become crucial, including the selection criteria for an adequate targeting of the measures. The measures to be applied at the supply chain level and at the consumer level go in the same sense. As far as geographical differentiation of the impact is relevant, a geographical differentiation of the targeting should be considered. Beside this, a rural development approach might be relevant at local level.

*b. Evolutionary scenario*

The risk of economic loss in this case is low. Access to investment becomes crucial to facilitate the shift among types of floor. If this action is effective and well managed, the sector should not suffer because of the structural adjustment. The measures on the demand side are not crucial in this case, as demand should not suffer from the application of policy innovation (final price should not rise). The same for the international competition.

*c. Radical scenario*

Economic loss at farm level is dramatic in this case. Policy strategies and related measures require a radical change of objectives, means and targeting. The re-allocation of human and material resources and the radical loss of competitiveness are the main problems to deal with. All of the measures described in the table 5 would not mitigate or even resolve these problems. A decline of the sector should be accepted as a consequence of this scenario.

Scenarios 4 and 5, previewing an adequate transition period, seem to represent the most opportune strategic choice from many points of view:

- They are coherent with the recommendation of the EFSA
- They have a low social and economic impact to level of companies and level of field
- They have a low impact to level of International competitiveness;
- They demand beginning investments rather important but in a long term they could above all lead to a strengthening of the competitive position of the UE based on quality and services;



*Executive summary*

- They are coherent with one politic made to split the market of the pigmeat through the promotion of quality assurance scheme having for object the animal welfare

**Table 7: Policy strategies**

	<b>Scenarios</b>		
<b>Intervention levels</b>	<b>Adaptive (1, 2, 3)</b>	<b>Evolutionary (4, 5)</b>	<b>Radical (6)</b>
<b>Farm</b>	<ul style="list-style-type: none"> <li>- Indemnity (regressive farmers)</li> <li>- Join rural development schemes (regressive farmers and fence sitters in specific areas)</li> <li>- Selected access to investment (fence sitters)</li> </ul>	<ul style="list-style-type: none"> <li>- Selected access to investment (fence sitters)</li> </ul>	<ul style="list-style-type: none"> <li>- Join rural development schemes (regressive farmers and fence sitters in specific areas)</li> <li>- Financial assistance to out goers</li> <li>- Provide means of re-allocation of human and material resources</li> <li>- Focus on regional problems (e.g. former exporting countries; new importing countries)</li> </ul>
<b>Supply chain</b>	<ul style="list-style-type: none"> <li>- Support supply chain organization under animal welfare compliance</li> <li>- Support quality schemes along the chain under animal welfare compliance</li> </ul>	<ul style="list-style-type: none"> <li>- Support supply chain organization targeted at improve animal welfare standards</li> </ul>	<ul style="list-style-type: none"> <li>- Sustain the radical re-shaping of the supply chain</li> <li>- Support supply chain organization targeted at improve animal welfare standards</li> <li>- Support quality schemes along the chain targeted at improve animal welfare standards</li> </ul>
<b>Consumer</b>	<ul style="list-style-type: none"> <li>- Promote animal welfare</li> <li>- Improve sensitization and communication, according to geographical specificity</li> </ul>	<ul style="list-style-type: none"> <li>- Not relevant</li> </ul>	<ul style="list-style-type: none"> <li>- Promote animal welfare</li> <li>- Improve heightening of social awareness and communication, according to geographical specificity</li> </ul>
<b>Competitiveness</b>	<ul style="list-style-type: none"> <li>- Sustain EU quality schemes in leading export markets</li> </ul>	<ul style="list-style-type: none"> <li>- Not relevant</li> </ul>	<ul style="list-style-type: none"> <li>- Quality barriers for import, based on animal welfare</li> </ul>

## Annex

Table 1: Impact assessment – scenario 1

Level of analysis	Impact on	Reference scenario – scenario 0		Scenario 1	
		Trend	Present situation	Short period	New equilibrium
Farm	Costs	Increase in costs (from 0 to 15% depending on the country, from 2000 to 2004)	From 139 to 164 Euro/100 kg dead weight depending on the country	Increase in production average unit costs (from +0,76% to +4,19% depending on the country)	
	Gross margin			Reduction in gross margin (from -2% to -10,67% depending on the country)	Recovery of the initial gross margin by an increase in the average farm size
Sector	Production structure	Increase in the average farm size (from +40 to +160% heads per holding, depending on the country)	From 17 to 690 pigs per holding depending on the country		Increase in the average farm size aimed at recovering the initial gross margin (from +2,31% to +12,31%).
	Employment	Reduction in the number of workers employed			Reduction in the number of workers employed following the increase in productivity achieved through the increase in the average farm size (from -2% to -12% depending on the country).
	Pigmeat supply	Increase in supply, with the exception of the Netherlands and the UK	18 million tons in the first 10 countries	Slight reduction in supply	General stability of supply/slight reduction in supply
Market	EU pigmeat market equilibrium	Progressive reduction in pigmeat prices (see table n. 21)	From 110 to 150 Euros per 100 kg		General stability of pigmeat prices
	Competitiveness of EU pigmeat in the World markets	Slight increase in exports over the last 5 years (+ 2,8%)	2 billions Euros	Slight decrease in exports	Slight decrease in export

The impacts of scenario 1 would be particularly marked in Denmark, France and Ireland due to the high presence of fully slatted systems. The Netherlands would be the least affected country, because of the high presence of partly slatted systems (see the annex 2 to chapter B3 showing the indicators by country).

**Table 2: Impact assessment – scenario 2**

Level of analysis	Impact on	Reference scenario – scenario 0		Scenario 2	
		Trend	Present situation	Short period	New equilibrium
Farm	Costs	Increase in costs (from 0 to 15% depending on the country, from 2000 to 2004)	From 139 to 164 Euro/100 kg dead weight depending on the country	Increase in production average unit costs (from +1,13% to +6,29% depending on the country)	
	Gross margin			Reduction in gross margin (from -2,81% to -15,00% depending on the country)	Recovery of the initial gross margin by an increase in the average farm size
Sector	Production structure	Increase in the average farm size (from +40 to +160% heads per holding, depending on the country)	From 17 to 690 pigs per holding depending on the country		Increase in the average farm size aimed at recovering the initial gross margin (from +3,5% to +18,5%).
	Employment	Reduction in the number of workers employed			Reduction in the number of workers employed following the increase in productivity achieved through the increase in the average farm size (from -2% to -15% depending on the country).
	Pigmeat supply	Increase in supply, with the exception of the Netherlands and the UK	18 million tons in the first 10 countries	Reduction in supply	Slight reduction in supply
Market	EU pigmeat market equilibrium	Progressive reduction in pigmeat prices (see table n.21)	From 110 to 150 Euros per 100 kg		General stability of pigmeat prices
	Competitiveness of EU pigmeat in the World markets	Slight increase in exports over the last 5 years (+2,8%)	2 billions Euros	Decrease in exports	Decrease in export

The impacts of scenario 2 would be particularly marked in Denmark, France and Ireland due to the high presence of fully slatted systems. The Netherlands would be the least affected country, because of the high presence of partly slatted systems (see the annex 2 to chapter B3 showing the indicators by country).

**Table 3: Impact assessment – scenario 3**

Level of analysis	Impact on	Reference scenario – scenario 0		Scenario 3	
		Trend	Present situation	Short period	New equilibrium
<b>Farm</b>	Costs	Increase in costs (from 0 to 15% depending on the country, from 2000 to 2004)	From 139 to 164 Euro/100 kg dead weight depending on the country	Increase in production average unit costs (from +2,64% to +14,67% depending on the country)	
	Gross margin			Reduction in gross margin (from -5,25% to -28% depending on the country)	Recovery of the initial gross margin by an increase in the average farm size
<b>Sector</b>	Production structure	Increase in the average farm size (from +40 to +160% heads per holding, depending on the country)	From 17 to 690 pigs per holding depending on the country		Increase in the average farm size aimed at recovering the initial gross margin (from +8,08% to +43,08%).
	Employment	Reduction in the number of workers employed			Reduction in the number of workers employed following the increase in productivity achieved through the increase in the average farm size (from -5% to -28% depending on the country).
	Pigmeat supply	Increase in supply, with the exception of the Netherlands and the UK	18 million tons in the first 10 countries	Relevant reduction in supply	Reduction in supply
<b>Market</b>	EU pigmeat market equilibrium	Progressive reduction in pigmeat prices (see table n.21)	From 110 to 150 Euros per 100 kg		General stability of pigmeat prices
	Competitiveness of EU pigmeat in the World markets	Slight increase in exports over the last 5 years (+2,8%)	2 billions Euros	Strong decrease in exports	Relevant decrease in export

The impacts of scenario 3 would be particularly marked in Denmark, France and Ireland due to the high presence of fully slatted systems. The Netherlands would be the least affected country, because of the high presence of partly slatted systems (see the annex 2 to chapter B3 showing the indicators by country).

**Table 4: Impact assessment – scenario 4**

Level of analysis	Impact on	Reference scenario – scenario 0		Scenario 4	
		Trend	Present situation	Short period	New equilibrium
<b>Farm</b>	Costs	Increase in costs (from 0 to 15% depending on the country, from 2000 to 2004)	From 139 to 164 Euro/100 kg dead weight depending on the country		- Decrease in the average unit cost of production (from -0.13 to -5.07%, depending on the country) - Need to make investments to restructure the farms and to replace fully slatted floors with partly slatted ones
	Gross margin				Increase in gross margin (from +0.8% to +4.0% depending on the country)
<b>Sector</b>	Production structure	Increase in the average farm size (from +40 to +160% heads per holding, depending on the country)	From 17 to 690 pigs per holding depending on the country		- Increase in the average farm size: the investments needed to adapt the farms to the scenario will result in a selection process among farms - In principle, farms with the greatest investment capacity (generally the biggest ones) will remain in operation, while farms with less investment capacity will cease production
	Employment	Reduction in the number of workers employed			Reduction in the number of workers employed
	Pigmeat supply	Increase in supply, with the exception of the Netherlands and the UK	18 million tons in the first 10 countries		General stability of supply/slight decrease in supply
<b>Market</b>	EU pigmeat market equilibrium	Progressive reduction in pigmeat prices (see table n.21)	From 110 to 150 Euros per 100 kg		General stability of pigmeat prices
	Competitiveness of EU pigmeat in the World markets	Slight increase in exports over the last 5 years (+2,8%)	2 billions Euros		Slight decrease in export
<p>The impacts of scenario 4 would be particularly marked in Denmark, France and Ireland due to the high presence of fully slatted systems. The Netherlands would be the least affected country, because of the high presence of partly slatted systems (see the annex 2 to chapter B3 showing the indicators by country).</p>					

**Table 5: Impact assessment – scenario 5**

Level of analysis	Impact on	Reference scenario – scenario 0		Scenario 5	
		Trend	Present situation	Short period	New equilibrium
<b>Farm</b>	Costs	Increase in costs (from 0 to 15% depending on the country, from 2000 to 2004)	From 139 to 164 Euro/100 kg dead weight depending on the country		- Variation of the average unit cost of production (from -1,86 to +3,34% depending on the country); - Need to make investments to restructure the farms and to replace fully slatted floors with partly slatted ones
	Gross margin				Decrease in gross margin (from -3,08% to -5,38% depending on the country)
<b>Sector</b>	Production structure	Increase in the average farm size (from +40 to +160% heads per holding, depending on the country)	From 17 to 690 pigs per holding depending on the country		- Increase in the average farm size: the investments needed to adapt the farms to the scenario will result in a selection process among farms - In principle, farms with the greatest investment capacity (generally the biggest ones) will remain in operation, while farms with less investment capacity will cease production
	Employment	Reduction in the number of workers employed			Reduction in the number of workers employed
	Pigmeat supply	Increase in supply, with the exception of the Netherlands and the UK	18 million tons in the first 10 countries		Slight decrease/decrease in supply
<b>Market</b>	EU pigmeat market equilibrium	Progressive reduction in pigmeat prices (see table n.21)	From 110 to 150 Euros per 100 kg		General stability of pigmeat prices/increase
	Competitiveness of EU pigmeat in the World markets	Slight increase in exports over the last 5 years (+2,8%)	2 billions Euros		Decrease in exports

The impacts of scenario 5 would be particularly marked in Denmark, France and Ireland due to the high presence of fully slatted systems. The Netherlands would be the least affected country, because of the high presence of partly slatted systems (see the annex 2 to chapter B3 showing the indicators by country).

Table 6: Impact assessment – scenario 6

Level of analysis	Impact on	Reference scenario – scenario 0		Scenario 6	
		Trend	Present situation	Short period	New equilibrium
Farm	Costs	Increase in costs (from 0 to 15% depending on the country, from 2000 to 2004)	From 139 to 164 Euro/100 kg dead weight depending on the country		- Increase in the average unit cost of production (from +8,68% to +15,78% depending on the country) - Need to make investments to restructure the farms
	Gross margin				- Decrease in gross margin (from -22,55% to -30,75% depending on the country) as a consequence of the increase in variable costs (feed costs and litter costs in particular) - Increase in the use of labour and increase of the related costs - Gross margin unable to cover labour costs fully (labour cost coverage levels vary between 50 and 70%)
Sector	Production structure	Increase in the average farm size (from +40 to +160% heads per holding, depending on the country)	From 17 to 690 pigs per holding depending on the country		- High reduction in the number of holdings, - Production structure becomes bi-polarized
	Employment	Reduction in the number of workers employed			Marked reduction in the number of workers employed
	Pigmeat supply	Increase in supply, with the exception of the Netherlands and the UK	18 million tons in the first 10 countries		Strong decrease in supply
Market	EU pigmeat market equilibrium	Progressive reduction in pigmeat prices (see table n.21)	From 110 to 150 Euros per 100 kg		Increase in pigmeat prices
	Competitiveness of EU pigmeat in the World markets	Slight increase in exports over the last 5 years (+2,8%)	2 billions Euros		Very strong decrease in exports
The impacts of scenario 6 would be slightly very strong in all Member States (see the annex 2 to chapter B3 showing the indicators by country).					



**Table 7: Scenario 1 (per country)**

	Costs	Gross margin	Structural push	Employment	Pigmeat supply	Competitiveness
	cent/kg/CW	%	%	%		
Denmark	151,28	-7,6	8,8	-9	v / -	-
Germany	163,94	-4	4,6	-5		
Spain	142,35	-6,67	7,7	-8		
France	149,16	-10,67	12,3	-12		
Ireland	148,25	-8		-9		
Italy	209,01	-8				
Netherlands	155,99	-2	2,3	-2		
Austria	173,94					
Sweden	159,52					
United Kingdom	171,58	-5,07	5,9	-6		

**Table 8: Scenario 2**

	Costs	Gross margin	Structural push	Employment	Pigmeat supply	Competitiveness
	cent/kg/CW	%	%	%		
Denmark	154,92	-10,69%	13,2	-11	-	--
Germany	168,05	-5,62	6,9	-6		
Spain	144,73	-9,37	11,5			
France	152,87	-15	18,5	-15		
Ireland	151,11	-11,25		-12		
Italy	213,56	-11,25				
Netherlands	159,72	-2,81	3,5	-11		
Austria	178,18					
Sweden	164,21					
United Kingdom	175,07	-7,13	8,8	-8		

**Table 9: Scenario 3**

	Costs	Gross margin	Structural push	Employment	Pigmeat supply	Competitiveness
	cent/kg/CW	%	%	%		
Denmark	169,47	-19,95	30,7	-20	--	---
Germany	184,47	-10,5	16,2	-11		
Spain	154,22	-17,5	26,9			
France	167,73	-28	43,1	-28		
Ireland	162,55	-21		-21		
Italy	231,75	-21				
Netherlands	174,67	-5,25	8,1	-20		
Austria	195,15					
Sweden	182,99					
United Kingdom	189,02	-13,3	20,5	-14		

Table 10: Scenario 4

	Costs	Gross margin	Structural push	Employment	Pigmeat supply	Competitiveness
	cent/kg/CW	%	%	%		
Denmark	134,98	2,6	-2,5	2	v / -	v / -
Germany	155,05	0,8	-0,8	0		
Spain	138,47	-12,9	17,4	-17		
France	132,75	2	-2	0		
Ireland	135,28	4		4		
Italy	197,78	-29,2				
Netherlands	139,56	0,6	-0,5	1		
Austria	156,37					
Sweden	138,25					
United Kingdom	156,49	1,7	-1,6	2		

Table 11: Scenario 5

	Costs	Gross margin	Structural push	Employment	Pigmeat supply	Competitiveness
	cent/kg/CW	%	%	%		
Denmark	137,6	-3,34	3,5	-4	-	--
Germany	158,61	-4,89	5,2	-5		
Spain	140,2	-18,36	25,3	-25		
France	135,42	-3,81	4	-4		
Ireland	137,35	-21,6		-2		
Italy	201,03	-32,7				
Netherlands	142,24	-5,61	6	-6		
Austria	159,48					
Sweden	141,59					
United Kingdom	159,06	-3,08	3,3	-3		

Table 12: Scenario 6

	Costs	Gross margin	Structural push	Employment	Pigmeat supply	Competitiveness
	cent/kg/CW	%	%	%		
Denmark	164,59	-28,7	42,4		-----	trend reversal
Germany	177,81	-25,5	36,2			
Spain	160,11	-30	43,6			
France	164,16	-30,75	46,7			
Ireland	160,88	-29,75				
Italy	232,71	-27,25				
Netherlands		-26	35,7			
Austria	193,52					
Sweden	171,68					
United Kingdom	192,22	-22,55	32,8			