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A comparison between pig farming in the European Union and North America



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SUMMARY

Aim of this study was to evaluate structural developments in the sector structure for the EU as well as for the US and to draw a picture of their consequences. The study was carried out as a joint project of the Research Institute for Pig Husbandry and the ABN AMRO BANK NV. The number of pigs in Denmark, France, Ireland and the Netherlands increased in 1996 compared with 1995. In the other EU countries there was a decrease in pigs, the largest of which was in Portugal and Germany. France has surpassed the Netherlands as to numbers of pigs. The past few years France and Denmark particularly have increased production. Denmark has the highest self-supporting rate and therefore depends on export the most, after which the Netherlands and Belgium/Luxembourg follow. In recent years France has developed itself from a net importer towards a net exporter. Production and total consumption are highest in Germany. Denmark, Spain and Germany see the highest per capita consumption with over 55 kg per capita. Greece and the United Kingdom consume not even half this amount with almost 25 kg per capita. Besides slaughtered pigs, the Netherlands also exports many live pigs. In 1996 this export involved 6.5 m piglets and fattening pigs. Denmark is the largest exporter in the world with over 1.1 m tons of export in 1996. Furthermore, Ireland, France and Spain have a self-supporting rate of over 100%. Over 1 million farms had fewer than 10 pigs and over 160,000 farms more than 100 pigs per farm. As these data concern 1993, the latest EU member states Finland, Austria and Sweden are excluded. Contrary to the Netherlands and Germany, the Danish slaughter structure is characterized by a strong integration and high capacity utilization. In 1996 the 5 largest slaughterhouses accounted for 96% of the total number of slaughterings. The sale of meat and meat products takes place more and more through supermarket chains, at the expense of the butcher. The average cost prices in the three most important countries the Netherlands, Den-

mark and France do not differ much. The cost price in Brittany, however, is considerably lower. In Germany this is clearly higher. The countries with the lowest output prices are the Netherlands, France, Denmark and Germany. Output prices are the highest in Belgium. The cost price, however, is also higher in Belgium. Cost prices in Italy, Portugal and Spain are relatively high. Production in the US and Canada involved over 9 m tons of pork in 1996 from a pig population of approximately 70 m pigs. The greater part is for the internal market. The US is, with over 400,000 tons of pork in 1996, the second pork exporter in the world after the EU. From 1990 to 1996 the pig population in the US increased by 8%. Per capita consumption in the US is relatively little compared with Europe. In the US there is a higher poultry and beef consumption. In the 1960s pigs in the US were mainly kept outside, on mixed farms. In 1970 there were over 870,000 pig farms that together produced 87 m slaughter pigs. In 1995 this number had decreased to 149,000. Together they produced almost 96 m slaughter pigs. The 66 largest farms (a yearly production of on average 244,000 (!) slaughter pigs per farm) accounted for 17% of the production in 1995. There is still a production shift going on from the traditional Corn Belt states to the southern states, among which North Carolina, Kansas and Oklahoma. This shift has particularly been caused by the fact that in these "new" states environmental regulation used to be less strict and land and labour relatively cheap until recently. Particularly in the states near Iowa the number of pig farms that goes out of business is large. For 1997 it was estimated that 33% of the slaughtered pigs in the US had been kept on a contract basis. Contract production takes particularly place in the "new" pig states, among which North Carolina, Oklahoma and Kansas. As a counterpart to contract production in the "new" pig states, in the traditional "Corn Belt states", networks have been established. Networks play an important part in the pig sector in Minnesota. The five largest slaughter chains together

have a market share of more than 53%. The overall cost price in the US is considerably lower than in the EU, despite more unfavourable technical results, and is almost \$ 1 per kilogram of liveweight, which comes down to approximately \$ 1.25 per kg of slaughterweight. In a comparison of the US and the EU the dollar exchange rate is therefore important. Besides a low cost price, the US also has low output prices. The average output price in the past 6 years was approximately \$ 1.05 per kg of liveweight.

Both the EU and the US show a tendency towards increase in scale. Moreover, pig farming is more and more concentrated in some important production areas, which results in environmental problems in these areas. There is also an increasing concentration of slaughterhouses/processing industry in both areas. In the US this process has proceeded further than in the EU.

Pig farming in the US is more landbound. The EU is more advanced in environmentally investments. The US has only recently started to solve environmental problems, which are mainly problems with respect to stench. Contrary to the EU, animal welfare is hardly an issue in the US.

The technical results in the US lag behind compared with the EU. Because of the availability of cheap materials there is less attention for result improvement. Despite worse technical output, cost price in the US is structurally lower. The US production chain is characterized by a strong vertical integration, while the EU structure is relatively fragmented. The chain position of the primary

producer is relatively weak in the US. The "market power" in the chain is with the slaughterhouses. There are also differences in sales. US sales focus more on bulk products with a low cost price, whereas the EU produces relatively more for market segments, such as bacon in the UK and Parma ham in Italy.

The following conclusions can be drawn.

The competitive power of the US on the world market is currently stronger than that of the EU.

Cost price differences between the US and the EU will become less the coming years.

Initiated by GATT/WTO agreements and an increasing pork consumption in particularly Asia world trade will increase.

US export will remain to be aimed at cheaper bulk products, which can be produced at a structurally lower price. For the EU there are opportunities for the so-called value added. To take advantage of these opportunities a far-reaching chain integration is necessary, in which different chain stages cooperate closely.

By increasing world pork consumption and a relatively strong competitive power of pig farming in the EU as well as in the US, pig farming in both areas can increase in the future.

The Netherlands should focus more on products with a higher value added in a chain-oriented organization. All this cannot prevent a decrease in the number of pigs as well as farms in the Netherlands in the years to come.

1 INTRODUCTION

As far as world production of pigmeat is concerned, China proves to be the largest producer with 36.4 m tons of pork. In the European Union (EU) and the US production was 16 and 7.8 m tons respectively in 1996. World population of pigs is approximately 750 m pigs, accounting for 73 m tons of pork. Consumption per head of the world population is approximately 28 kg of pork. The past few years this consumption has increased by only about 1% per year while total world consumption has increased by 2-3%.

Despite its high production, China exports only an extremely limited part. The two most important actors on the world market are the EU with an export of approximately 850,000 tons and the US with a 400,000-ton export. Total world trade is about 2.8 m tons, which makes these two areas account for about 45%.

The US part in world trade has rapidly increased recently. This was also clear in 1997, since there was a lower meat supply in the EU, particularly due to the Classical Swine Fever outbreak in the Netherlands. That is why it is interesting to compare these two "pig areas" of the EU and US.

In the EU as well as in North America (US and Canada), pork production is increasingly taking place in a limited number of areas with a high pig density. In North America, a development towards an industrialized pig sector is becoming apparent by the building of 'megafirms'. Also in the EU an increase in scale in pig farming can be seen. The number of pigs is increasing while the number of firms is decreasing.

Besides the above-mentioned developments in the sector structure, economic relations change by, for example, liberalization of world trade (GATT/WTO). In the coming years this may lead to new competitive positions on existing markets. To what extent GATT/WTO agreements lead to changing import/export relationships between the EU and North America partly depends on structure developments in pig farming in these areas and relative prices of materials that can be expected et cetera.

Aim of this study was to evaluate these developments for the EU as well as for the US and to draw a picture of their consequences. The study was carried out as a joint project of the Research Institute for Pig Husbandry and the ABN AMRO BANK NV. The sector structures in both the EU and North America were considered, while for North America emphasis was placed on the US. For both areas the strong and weak points have been evaluated. Factors such as production conditions, cost price, consumption and environmental factors play an important role in this. Moreover, structure of the processing industry and market are of utmost importance.

Chapter 2 considers the structure and general developments in pig farming in the EU, after which chapter 3 discusses North American pig farming. Chapter 4 first deals with the strong and weak points for both areas, and then provides the conclusions and recommendations for pig farming in the EU. The final chapter describes the consequences and desired direction of development for Dutch pig farming.

2 PIG FARMING IN THE EUROPEAN UNION

This chapter considers the pig farming structure in the European Union (EU). In 1996 production was over 16 m tons of pork, nearly 850,000 tons of which were exported.

First a few general parameters are given, then trade and export, sector structure, output prices and cost price are considered. Lastly, a few other developments are described.

2.1 Production and consumption

Table 2.1 shows the number of pigs, production, number of slaughterings, import, export and per capita consumption in the EU for a number of years. From 1990 to 1996 consumption only slightly increased. By way of illustration, increase in world consumption per capita was over 5% per year in the same period to approximately 28 kg in 1996. From 1990 to 1996 EU production increased by 2% per year, so that the self-supporting rate increased. Therefore, pig farming in the EU has become more dependent on export to third countries, of which Denmark accounts for the greater part.

For 1997 an increase in the pig population was expected for almost all countries in the EU due to positive profitability expectations. However, due to Classical Swine Fever in several countries, particularly in the Netherlands, eventual production will be lower.

Table 2.2 presents the number of pigs in different EU countries for 1995 and 1996. From this can be seen that the number of pigs in Denmark, France, Ireland and the Nether-

lands increased if compared with 1995. In the other countries there was a decrease in pigs, the largest of which was in Portugal and Germany. From the table can be concluded that Germany, Spain, France and the Netherlands have the largest numbers of pigs. It also becomes clear that France has surpassed the Netherlands as to numbers of pigs. The past few years France and Denmark particularly have increased production.

Table 2.3 presents production, consumption, per capita consumption and the self-supporting rate for different EU countries. From this table becomes clear that Denmark has the highest self-supporting rate and therefore depends on export the most, after which the Netherlands and Belgium/Luxembourg follow. In recent years France has developed itself from a net importer towards a net exporter. Production and total consumption are highest in Germany.

From table 2.3 can be seen that there are great differences in pork consumption per head of the population. Denmark, Spain and Germany see the highest per capita consumption with over 55 kg per capita. Greece and the United Kingdom consume not even half this amount with almost 25 kg per capita.

2.2 Trade and export

Table 2.3 has already shown that Denmark, the Netherlands and, to a lesser extent Belgium/ Luxembourg, are the most important exporters. France's export has grown the past

Table 2.1: Parameters pork production in the EU (EU-1 5)

	1990'	1995	1996
Pigs (million)	114.0	117.6	115.6
Production (x 1,000 tons)	14,424	16,014	16,157
Slaughterings (millions)	173.6	188.3	188.9
Import (x 1,000 tons)	67	24	36
Export (x 1,000 tons)	752	850	839
Per capita consumption (kg)	40,3	40,8	41,1

Source: Product Boards for Meat, Meat Products and Eggs, 1997

¹ EU-12

few years. The greater part of this export, about 80%, concerns intra-EU trade, and is particularly aimed at Germany, Italy and the United Kingdom. In table 2.4 the most important export destinations for the Netherlands, Denmark and France are presented.

The sales for Denmark and the Netherlands show striking differences. Dutch export

chiefly aims at EU countries, Germany and Italy in particular. Sales to countries outside the EU have started only in recent years, but part of these markets has been lost due to Classical Swine Fever outbreaks. Besides slaughtered pigs, the Netherlands also exports many live pigs. In 1996 this export involved 6.5m piglets and fattening pigs. Denmark is the largest exporter in the world

Table 2.2: Number of pigs in different European countries in 1995 and 1996

	Number of pigs (x 1,000)		% change 1996 compared with 1995
	1995	1996 ¹	
Belgium/Luxembourg	6,933	6,807	- 1.8%
Denmark	10,864	11,190	+ 3.0%
Germany	24,698	24,134	- 2.3%
Spain	18,400	18,000	- 2.2%
France	14,593	14,773	+ 1.2%
Ireland	1,498	1,508	+ 0.7%
Italy	8,000	7,900	- 1.3%
The Netherlands ²	14,397	14,418	+ 0.1%
Austria	3,729	3,803	- 2.0%
Portugal	2,416	2,228	- 7.8%
United Kingdom	7,879	7,870	- 0.1%

Source: USDA, Livestock and Poultry, World Markets and Trade, 1995

¹ provisional

² CBS, census in May, 1996

Table 2.3: Production (x 1,000 tons), consumption (x 1,000 tons), per capita consumption (kg) and self-supporting rate of pork in different EU countries in 1996

	Production	Consumption	Per capita consumption	Self-supporting rate	
				1996	(1990)
Germany	3,636	4,471	55.2	81%	(86%)
France	2,172	2,079	35.1	104%	(86%)
Italy	1,410	1,970	34.3	72%	(67%)
The Netherlands	1,624	690	44.5	235%	(279%)
Belgium/Luxembourg	1,061	519	49.1	204%	(172%)
Denmark	1,457	328	62.7	444%	(366%)
United Kingdom	998	1,412	24.1	71%	(69%)
Ireland	215	129	36.0	166%	(129%)
Greece	142	258	24.7	55%	(69%)
Spain	2,180	2,115	56.0	103%	(97%)

Source: Product Boards for Meat, Meat Products and Eggs, 1996

with over 1.1 m tons of export in 1996. From the beginning Danish export has been geographically distributed through sales to Japan, Canada and US. Within the EU export is mainly to Germany, Italy, France and the United Kingdom. Distribution has increased further through new markets such as Poland, Russia and South Korea. Live export is smaller compared with the Netherlands and is concentrated on Germany. Belgian export is as far as size is concerned smaller and particularly aimed at the EU. Furthermore, Ireland, France and Spain have a self-supporting rate of over 100%. As for volume this export is limited, however.

2.3 Sector structure in the European Union

This section provides a survey of the structures in the primary sector, slaughterhouses/processing industry and retail. Besides some general data, the structures in the most important countries are discussed.

2.3.1 Primary farm business

Within pig farming in the EU there is a growing tendency to increase scale. Table 2.5 presents the number of pig farms in 1993 classified by size and related numbers of pigs. Over 1 million farms had fewer than 10 pigs and over 160,000 farms more than 100 pigs per farm. As these data concern 1993, the latest EU member states Finland, Austria and Sweden are excluded.

The Netherlands

In the Netherlands the number of farms has decreased relatively slightly in recent years, compared with other EU member states. In total only 3% of the sow farms in the EU can be found in the Netherlands. However, the Netherlands has the largest number of sows per farm. The fattening pig farms, on the other hand, are less large. The Dutch pig sector is highly specialized. Only 4,000 farms of the approximately 21,000 farms in 1996 had both fattening pigs and sows. Only a limited number of these farms were completely closed. Due to a relative surplus of sows, the Netherlands has a surplus of 2.5 to 3 million piglets, which are marketed in the other countries in the EU. Dutch pig farms usually have little land at their disposal and are therefore rather intensive farms. Most pig farms can be found in North-Brabant, Gelderland, Overijssel and Limburg. The number of pigs per farm in the Netherlands is 680 on average.

Denmark

The Danish pig population is, contrary to the Netherlands and France, equally distributed across the country. Within Denmark a shift of the pig population from the isles towards Jutland can be seen. Danish farms are often land-bound and closed. Many farmers combine pig farming with arable farming. By this, a large part of pig feed is homegrown and manure can largely be applied to the farmers' own land. The number of pig farms in

Table 2.4: Most important export destinations (excluding bacon) for the Netherlands, Denmark and France in 1996 (x 1,000 tons)

	The Netherlands	Denmark	France
Germany	280.0	211.5	39.4
Italy	198.8	94.1	128.8
France	76.0	89.5	n.v.t.
United Kingdom	26.1	76.5	43.1
Greece	54.1	17.5	20.0
Belgium/Luxembourg	42.5	3.2	12.8
Spain	10.5	3.8	14.0
Japan	27.0	160.8	6.3
Russia	6.1	46.4	6.3
South Korea	5.4	29.7	---
United States	0.2	24.4	

Source: Product Boards for Meat, Meat Products and Eggs, 1997

Denmark has decreased the past few years. Because the number of pigs has increased, an increase in average farm size has become apparent. The past 10 years the average size has more than doubled, to on average 478 pigs per farm. Just like the Netherlands, Denmark has a piglet surplus, although it is smaller.

Belgium

Pig farming in Belgium is mainly concentrated in West-Flanders. Particularly in the 1980s production strongly increased. The fattening pig sector has been developed better than the sow sector. Many sows are kept on farms with fewer than 50 sows. The Belgian pig sector is not organized cooperatively. A large part of the pigs are kept on a contract basis.

France

The French pig sector has expanded the past few years, particularly in Brittany. This has resulted in France having been a net exporter of pork since 1995. Just like in the Netherlands, also in France there are concentration areas, one area of which is Brittany, where no fewer than 54% of the pigs are kept on 40% of the farms. In areas outside Brittany, production is therefore on a smaller scale. By far the greatest part of French pigs is kept on closed farms. In Brittany, for example, this concerns 83% of

the pigs. The average farm size of over 800 pigs is comparable to North-Brabant.

Spain

In Spain most farms are small-scaled farms, except some large ones in Catalonia. Pig farming is mainly concentrated in Catalonia, Castilla-Leon, Galicia and Aragon. It is generally expected that small farms cease production in the years to come. A large part of the production is taking place through integrations, mostly under the control of large feed companies. Besides production on a contract basis, these integrations comprise feed companies, breeding farms, fattening farms and sometimes slaughterhouses. The Spanish pig sector is not much organized cooperatively.

United Kingdom

The EU countries that are not self-supporting prove to have considerably fewer animals per farm than exporting countries. In importing countries, therefore, structure is usually on a smaller scale. One exception to this is the United Kingdom that has on average 470 pigs per farm. Due to an increasing interest in animal welfare, expansion of pig farming particularly takes place in the so-called "outdoor" systems. Within the United Kingdom England is the most important producer, with almost 85% of the pigs. The United Kingdom is a net importer of pork. To pre-

Table 2.5: Pig farms (x 1,000) in the EU classified by size and related numbers of pigs (x 1,000) in 1993

Size	Number of farms	Number of pigs	Fattening pigs		sows	
			Number of farms	Number of pigs	Number of farms	Number of pigs
1 - 9	1,048.2	2,529	714.1	1,582	210.8	645
10-49	153.0	3,658	111.4	2,179	90.2	1,990
50 - 99	51.7	3,649	26.6	1,832	31.4	2,179
100 - 199	46.9	6,712	29.1	4,028	32.2 (> 100)	7,720
200 - 399	43.4	12,333	30.6	8,330		
400 - 999	49.2	30,353	22.1	12,109		
> 1,000	25.0	53,532	5.8	10,761		
Total EU 12	1,417.4	112,766	939.7	40,821	364.6	12,534

Source: Eurostat. 1996

vent introduction of diseases, import of live animals hardly takes place.

Germany

Germany has a small-scale production structure. Farms have on average only 100 pigs. In the eastern states the number of pigs has decreased relatively sharply the past few years. In the western states particularly small farms go out of business. Lower-Saxony and North-Rhine Westfalia are the most important production areas. Due to the fact that many sow farms have gone out of business, Germany has developed itself towards a piglet importer.

Italy

Pork production in Italy mainly takes place in the Po Valley. Here 75% of the Italian pig population can be found. A large part of the fattening pigs can be found on large industrialized farms with their own supply and processing units. Contrary to other European countries, this group of large firms hardly expands, due to environmental regulations. Current production is mostly land-bound and often linked to dairy farming. Besides a small group of large firms, there are many small farms.

2.3.2 Slaughterhouses, processing industry and retail

Slaughterhouses

The slaughter sector in the EU is characterized by a fragmented structure. Table 2.6 presents the number of slaughterings per

country per year and the market share of the five largest slaughterhouses.

In 1996 the Netherlands had 25 slaughterhouses for pigs with a production of more than 25,000 slaughterings per year. The 5 largest slaughterhouses have a share of approximately 63% in the total number of slaughterings in the Netherlands. There is an overcapacity of slaughter hooks. That is why in the past few years slaughterhouses have regularly been "in a battle" for securing supply of fattening pigs. Partly due to the forming of market leader Dumeco (market share of over 35%) this situation has improved. The overcapacity has partly been caused by an export of live fattening pigs. The pig trade plays an important role in this. Also in Germany there is an overcapacity in the slaughter sector, which has been caused by new slaughterhouses and modernization of old ones. Moreover, supply of fattening pigs in Germany has decreased. Due to this structural overcapacity, Germany imports many slaughter pigs. In 1994 import increased to 1.3m pigs, the Netherlands being the most important supplier, followed by Denmark.

France has just seen reorganization in the slaughter sector, through which the number of slaughterhouses has sharply decreased. Especially small inland slaughterhouses have had to close down, due to modernization and stiff competition. Of the 14 slaughterhouses with a production of 30,000 tons or more, 9 are situated in Brittany. The capa-

Table 2.6: Number of pig slaughterings in different EU countries in 1996

	Number of slaughterings (millions)	Market share 5 largest slaughterhouses (%)
Germany	39.6	34%
Spain	27.8	18%
France	25.2	43%
Denmark	19.8	96%
The Netherlands	18.4	63%
United Kingdom	13.7	53%
Italy	12.2	14%
Belgium	11.7	27%

Source: Product Boards for Meat, Meat Products and Eggs, 1997

city utilization of the slaughterhouses is higher than in the Netherlands.

Contrary to the Netherlands and Germany, the Danish slaughter structure is characterized by a strong integration and high capacity utilization. The Danish pig slaughter sector has the highest concentration rate in the EU. In 1996 the 5 largest slaughterhouses accounted for 96% of the total number of slaughterings. In 1995 there were 22 slaughterhouses, all of which were cooperatives. There is relatively little competition among slaughterhouses.

Processing industry and retail

Also in the processing industry increase in scale takes place. The sale of meat and meat products takes place more and more through supermarket chains, at the expense of the butcher. In France in 1980, for example, 41.8% of meat was sold through butchers, while this had been reduced to 17% in 1994. In Denmark only 6% of meat is sold through butchers.

The Danish processing industry is strongly associated with the slaughterhouses and is greatly international in scope with branches in North America, United Kingdom and Germany. In most countries retail is strongly concentrated. Only a few organizations have control of more than half the market. In France the 5 largest retail chains have control of two-thirds of the total market. To be able to offset this, increase in scale in the processing industry seems necessary.

The large supermarket organizations in particularly North Europe pay increasingly more attention to animal welfare. From January 1998 supermarket chain Tesco in England sells only pork that comes from producers who practise group housing for sows.

2.4 Cost price and output prices

General

Within the EU there is a free market for pork. Pork falls under a light market regulation, which means that, in principal, there will not be any price support by means of an intervention. Yet for export, restitution is offered and for import, levies are imposed, mainly to compensate for the differences in feed prices between the EU and the rest of the

world. In the EU these feed prices are higher, due to EU grain policy, which makes these grain prices "artificially" high. The restitution and levies have decreased over the past few years. On the one hand, this is a result of the changed EU grain policy; on the other the GATT/WTO agreements play an important role.

The changed EU grain policy has resulted in, among other things, a replacement of price support with subsidies in agriculture, which are generally land-bound. Especially the Danish, French and German pig farms have been able to make use of these subsidies, thanks to their land-bound situation. For pig farms in the Netherlands, Belgium and Spain this was not so, due to the fact that they do not have much land. Besides export restitution, various EU countries support business development (and succession) by means of guarantees for business financing. One example in the Netherlands is the Security Fund Foundation for Agriculture.

Technical results

Table 2.7 shows some data on the technical results of a few important EU producers. From the table can be seen that the differences in technical results are not great. It seems, however, that the results of the exporting countries (the Netherlands, Denmark and France) are, on average, better, which may be due to a somewhat larger farm structure.

Cost price

As far as cost price is concerned, feed, housing and other costs are important, next to technical results. In the Netherlands, France and Denmark, feed costs do not greatly differ. The Netherlands used to have low feed costs due to the use of grain substitutes. Because of the changed EU grain policy this advantage has been lost to a large extent. The past few years the feed costs have decreased especially in countries that process grain into pig feed, such as Germany, France and Spain. In France, feed price reduction was twice as large as in the Netherlands between 1990 and 1995. Housing costs are the highest in Germany. Also in the Netherlands and Denmark they

are high, due to higher establishing costs per animal place. Other costs are the highest in the Netherlands, particularly caused by higher levies on manure and environmental regulations.

To summarize, we can say that the average cost prices in the three most important countries the Netherlands, Denmark and France do not differ much. The cost price in Brittany, however, is considerably lower. In Germany, the most important export market within the EU, this is clearly higher. This is caused by a poor sector structure.

Output prices

Output prices in meat-exporting countries are on average lower than in importing countries, which is logical, since first transportation costs should be compensated for. Moreover, price always plays a role in export, since there is competition with other providers. The countries with the lowest output prices are the Netherlands, France, Denmark and Germany. The first three are exporting countries; Germany's prices follow prices in the three other countries to a large extent, because these countries can compete on this market easily, considering the location of Germany.

Output prices are the highest in Belgium, which is caused by pig type and differentiation in market channels. The cost price, however, is also higher in Belgium. Cost prices in Italy, Portugal and Spain are relatively high. In France the minimum meat price is determined by the "groupements de producteurs" (producer group) in agreement with the slaughterhouses, prior to the auction

"Marche du Porc Breton" (Breton pork Auction). The "groupements" are usually the link between primary producers and slaughterhouses.

In Denmark output price is determined weekly, which holds for all slaughterhouses. Pig farmers do not have much influence on these output prices. Possible differences in payment among slaughterhouses are made up for by supplementary payments, which are generally small.

In the Netherlands there are different slaughterhouse schemes, on the basis of which payment is done. Moreover, there is significant competition with pig trade (live export), which has a price scheme of its own (Exchange price Vleuten).

2.5 Other developments

Environment

The disadvantages of areas with a high pig density in the EU receive increasingly more attention by society. In nearly all high-densely populated areas in the EU there are problems with respect to mineral surpluses, stench, risk of disease and ground water pollution.

In several EU member states measures are taken to protect the environment. These measures include restrictions on storage and spreading of manure, ammonia emission, more land-bound pig farming et cetera. The most important areas for which measures have been taken are the Netherlands, France (particularly Brittany), Belgium and Denmark.

French environment policy is especially

Table 2.7: Average technical results of various EU countries (1995)

	NL	DK	FR	GER	UK
<i>Sows</i>					
Weaned piglets/sow/year	21.59	21.80	21.80	18.60	21.32
<i>Fattening pigs</i>					
Growth/animal/day (grams)	729	744	728	641	586
Feed conversion	2.79	2.80	2.90	3.01	2.58
Starting weight (kg)	26	30	31	30	7
End weight (kg, live)	113	97	108	112	83

Source: Research Institute for Pig Husbandry (NL = the Netherlands; DK = Denmark; FR = France; GER = Germany; UK = United Kingdom)

aimed at reducing nitrate surplus. Societal pressure is increased, since Breton water companies publish nitrate content monthly. Environmental costs to pig farms in Denmark are considerably lower than in the Netherlands. This is caused by the fact that the Danish government has strongly stimulated land-bound pig farms. Also in Germany the development in pig husbandry is curbed by the government by keeping pig farming more or less land-bound.

Welfare and animal health

Besides the environment, also welfare and animal health play an increasingly important role. As already indicated in section 2.3.2, retailers pay more attention to the way in which pigs are kept, induced by consumers (organizations). This will lead to more "animal friendly" housing systems in the future like group housing for sows. Denmark in particular leads the way in this. The Netherlands and Belgium are lagging behind with respect to animal health, particularly as to Aujeszky's disease. Both countries will have to catch up in order to be able to remain competitive.

Expansion of the EU

The coming years the EU will be expanded with some East-European countries.

Considering the large agricultural area and therefore these countries' enormous potential for agriculture, joining is only possible after a radical reform of the EU agricultural policy.

After 1990, since the collapse of communism, agrarian production, and therefore also pork production, has decreased enormously in these areas, which made them net importers. The past few years production has improved such that they have become net exporters again, albeit in a limited way. Export is mainly aimed at the former Soviet Union, where the pig population is still decreasing. Presently the East-European countries are mainly producing for their own internal markets. In the long term these countries face good future prospects, due to sufficient (cheap) feed, relatively low wages

and the absence of strict environmental regulations. These countries can play an important role in the somewhat cheaper (bulk) segment. It is expected that in these areas pig farming may become of a somewhat more land-bound character. As yet there has still been a huge lack of knowledge, logistic possibilities and capital.

Introduction of the Euro

By signing the Treaty of Maastricht in February 1992, the EU countries have made a first step towards a European and Monetary Union (EMU). In this treaty the EU countries agreed on starting a Monetary Union on January 1999 with a common currency, the Euro. The most important economic goal is to structurally contribute to economic growth, employment and prosperity in the countries taking part. By introduction of this currency the EU must become a stronger trade bloc next to, for example, the US and Japan.

According to current views the intended date of 1 January 1999 can still be made and in first instance, all EU countries, except Denmark, Greece, the UK and Sweden, will take part. From that date the giro euro will be introduced. July 1 2002 at the latest the introduction must have finished, including coins and bank notes.

One consequence of introduction is that for a large part of the intra-EU trade, the costs caused by currency exchange and covering currency risks will lapse.

Intra-EU trade comprises approximately 80% of total pork export. Introduction of the Euro is an advantage to exporting countries with much intra-EU trade, that is the Netherlands, Belgium and France. Denmark, which sells the greater part outside the EU, will probably not take part in the EMU, for political reasons.

To summarize, introduction of the Euro will be an advantage to pig farmers in the countries taking part, particularly to exporting countries. Output prices in exporting and importing countries will come closer to each other.

3 PIG FARMING IN NORTH AMERICA

This chapter deals with the structure of pig farming in North America, and the US in particular. Production in the US and Canada involved over 9m tons of pork in 1996 from a pig population of approximately 70m pigs. The greater part is for the internal market. The US is, with over 400,000 tons of pork in 1996, the second pork exporter in the world after the EU.

First some general parameters are presented, after which trade and export, sector structure and output and cost prices are considered. Lastly, some other developments are discussed.

3.1 Production and consumption

Table 3.1 presents some parameters for pig farming in the US. From this can be seen

that from 1990 to 1996 the pig population increased by 8%. In this period there was about 4 times as much export, while per capita consumption remained approximately the same. Furthermore, the table proves that per capita consumption in the US is relatively little compared with Europe. In the US there is a higher poultry and beef consumption.

Production is expected to be approximately the same for 1997. June 1 1997 the number of pigs was 58.2 m, equal to the number in 1996. For 1998 the US Ministry of Agriculture expects an increase in production of 8% on the basis of an increase in the number of inseminated sows in the latter half of 1997.

Table 3.2 presents the number of pigs, production and consumption of pork in Canada.

Table 3.1: Parameters pork production in the US

	1990	1996
Pigs (x m head)	53.8	58.2
Production (x 1,000 tons)	6,955	7,755
Slaughterings (x m head)	85.1	92.5
Import (x 1,000 tons)	408	280
Export (x 1,000 tons)	109	416
Per capita consumption (kg)	29.0	28.7

Source: Product Boards for Meat, Meat Products and Eggs, 1997

Table 3.2: Parameters pork production in Canada

	1990	1995	% change
Pigs (x 1,000 head)	10,116	11,761	+ 16%
Production (x 1,000 tons)	1,129	1,255	+ 11%
Per capita consumption (kg)	32.4	27.8	- 17%
Number of pigs per province:			
Quebec	2,926	3,275	+ 12%
Ontario	2,961	3,245	+ 10%
Manitoba	1,186	1,761	+ 48%
Saskatchewan	742	892	+ 20%
Alberta	1,726	2,043	+ 18%
Other	575	545	- 5%

Sources: Statistics Canada and Post Forecast; Product Boards for Meat, Meat Products and Eggs

This table shows a large increase in the number of pigs in Manitoba from 1990 to 1995. Per capita consumption decreased by 17% in the same period, in favour of poultry consumption.

In 1996 pig population in Canada increased to almost 12.2m pigs. A relatively limited increase of 1% is expected for 1997.

3.2 Trade and export

Since 1995 the US has been net exporter of pork. Due to low feed prices and a low dollar exchange rate the US gained the Asian markets. In 1996 export further increased to 416,000 tons. For the years to come a further increase in export is expected. The pig sector in the US expects much from the GATT/WTO agreements and expects to considerably increase export. In table 3.3 the most important export destinations for the US are shown.

The most important export destination is Japan with a share of approximately 43% of total export in 1996. Besides Japan, US export is mainly to Canada, Russia and Mexico. Also South Korea, Hong Kong and Taiwan are destinations. By exporting chilled instead of frozen pork, the US poses a serious threat to the Danish export position.

Canadian export is particularly aimed at exporting live pigs to the US, which has considerably increased in recent years. In 1996 no fewer than 2.8 m fattening pigs were exported to the US. A large part of the slaughtered pigs (over 40,000 tons in 1996)

Table 3.3: Most important US export destinations in 1996 (x 1,000 tons)

Export destination	volume
Japan	178.8
Canada	29.7
Russia	26.5
Mexico	22.5
Hong Kong	12.2
South Korea	8.7
Taiwan	9.8
EU	1.9

Source: Product Boards for Meat, Meat Products and Eggs, 1997

returns, especially as material for the processing industry.

3.3 Sector structure in North America

3.3.1 Primary farm business

Pig farming in the US is characterized by a trend towards larger farms. In the 1960s pigs were mainly kept outside, on mixed farms. In 1970 there were over 870,000 pig farms that together produced 87m slaughter pigs. In 1995 this number had decreased to "only" 149,000. Together they produced almost 96m slaughter pigs, that is 644 slaughter pigs per farm on average. Pig farming in the US is concentrated on a decreasing number, but larger farms. The largest farms are mostly substantial megafirms. Table 3.4 shows the distribution of the number of farms according to number of pigs produced per year. The increase in scale

Table 3.4: Pig farms in the US according to related production (1995)

Pigs produced	Number of farms	%	Total production of pigs (x 1,000)	%
< 1,000	120,433	81	16,600	17
1,000 - 3,000	21,379	14	28,400	29
3,000 - 10,000	6,014	4	22,600	24
10,000 - 50,000	1,108	1	12,000	13
> 50,000	66	0.04	16,100	17
Total	149,000		95,700	

Source: University of Missouri, NPPC, Pork 1996

has only just started. Over 80% of the pig farms still produce fewer than 1,000 slaughter pigs per year (Dutch pig farms produce on average 1,074 slaughter pigs per year). The 66 largest farms (a yearly production of on average 244,000 (!) slaughter pigs per farm) accounted for 17% of the production in 1995.

Pig farming is mainly concentrated in the states near the Great Lakes of the US, the so-called Corn Belt states. This is the area where traditionally much grain is grown, so that pig farming is close to feed production. Table 3.5 shows that there is still a production shift going on from the traditional Corn Belt states to the southern states, among which North Carolina, Kansas and Oklahoma. This shift has particularly been caused by the fact that in these "new" states environmental regulation used to be less strict and land and labour relatively cheap until recently. Especially investments in southwest US have good prospects: cheap labour in desert-like areas, so that there is little nuisance. Particularly in the states near Iowa the number of pig farms that goes out of business is large. In the states of Nebraska,

Ohio and South Dakota it is mostly small family farms that go out of business.

The developments that took place in poultry farming during the 1960s are currently taking place in pig farming. The sector is becoming an industry. By large investments and favourable supply contracts with meat processors megafarms can make higher returns on investments than smaller producers. Relatively high feed costs and low pig prices often force the smaller producers to go out of business. The increase in scale is expected to proceed in the years to come.

"Multi-site production"

"Multi-site production" is a way of producing pigs in North America that is applied on especially megafarms. On these farms there are 2,400 sows on one location. After 15 to 18 days the piglets are taken to the rearing location. Distance between these locations is at least 1 kilometre. Weekly 1,000 piglets are produced. The week groups are kept separately from each other. Transmission of diseases from sows to piglets is largely prevented with this system, which makes fewer veterinarian treatments necessary. Sows on

Table 3.5: Number of pigs present in 1996 compared with 1995

State	Number of pigs in 1996 (x million)	Change (%) compared with 1995
Iowa	12.2	- 9.0%
North Carolina	9.0	+ 13.4%
Minnesota	4.85	- 2.0%
Illinois	4.4	- 8.3%
Indiana	3.75	- 6.3%
Nebraska	3.6	- 11.1%
Missouri	3.5	- 1.4%
Ohio	1.5	- 16.7%
Kansas	1.45	+ 17.9%
Oklahoma	1.32	+ 32.0%
South Dakota	1.2	- 17.2%
Michigan	1.0	- 9.1%
Other states	8,101	- 7.3%

Source: Product Boards for Meat, Meat Products and Eggs, 1997

"multi-site production" farms produce on average almost 23 piglets a year. The 5 largest sow farms are presented in table 3.6.

Contract production

In the US many pigs are produced under contract. For 1997 it was estimated that 33% of the slaughtered pigs had been kept on a contract basis. Contract production takes particularly place in the "new" pig states, among which North Carolina, Oklahoma and Kansas. Here the percentage of contract production is considerably larger. The contract providers are often processing firms, which conclude contracts with three parties: sow farms, rearing and fattening farms. They take care of the feed, animals, medical necessities, management training and administration systems. The contract takers take care of labour, barns, land and technical tools. For contract takers this contract production is a way of covering price risks. The contract provider remains the owner of the pig until it goes to the slaughterhouse. For starting producers contract production is often the only way to borrow money from the bank.

Networks

As a counterpart to contract production in the "new" pig states, in the traditional "Corn Belt states", networks have been established. Networking is way of cooperation between individual pig farmers. Networks, which started in 1992, play, for example, an important part in the pig sector in Minnesota. In 1995 at least 30 networks were operative here. Approximately 450 farms are associated with these networks, which represent 9% of the total pig population in Minnesota (12,000 farms in total). Networks are consi-

dered tools for small- and medium-sized farms to get more information, technology, capital and new markets.

The agreements that are made within networks vary from informal to far-reaching agreements. The informal agreements are often small-scaled, that is between producers and often concern price agreements. Networks with far-reaching agreements, however, are often of a larger scale, for example, a group of producers that have a rearing location together, which is run by hired management. The benefits of networks to pig farmers are mainly advantages of scale at selling and purchase. By means of networks the meat processing industry can be provided with products in a more efficient way. Delivering uniform and sufficiently large groups of pigs is becoming increasingly important in selling.

There are, however, also some disadvantages. A network's success is dependent on the commitment of the members. Moreover, complicated legal agreements are required, in which rights and duties are laid down.

Canada

As has been indicated in table 3.2 the number of pigs in Canada increased by 16% from 1990 to 1995. Pig farming in Canada is mainly concentrated in the provinces of Ontario and Quebec, the farms being mainly mixed farms. Also in Canada increase in scale is taking place. In the west of Canada the number of pigs is increasing relatively rapidly. Particularly in Manitoba the pig population has increased sharply in recent years. In the west of Canada, in Alberta, Saskatchewan and Manitoba, there are mainly specialized farms.

Table 3.6: The 5 largest pig farms, according to number of sows (1995)

Name farm	Number of sows	State
Murphy Family Farms	200,000	North Carolina
Carroll's Foods	110,000	North Carolina
Tyson Foods	97,000	Arkansas
Premium Standard Farms	97,000	Missouri
Prestage Farms	95,000	North Carolina

Source: Agricultural Council, 1995

Most farms in Canada use homegrown feed; the pigs are housed in wooden barns. Feed and housing costs are therefore considerably lower than in the Netherlands.

3.3.2 Slaughterhouses and processing industry

The US slaughterhouses have an important position in the chain. In slaughterhouses and the processing industry two developments are going on at the moment. First there is a strong concentration tendency, which is underlined by table 3.7. This table shows that the five largest slaughter chains together have a market share of more than 53%. Besides concentration there is also strong integration in the chain.

Most farms that are presented in table 3.7 have been active in the pork industry only since 1981. As a comparison, in 1996 Dumeco slaughtered over 120,000 pigs per week. Different industrial firms offer long-term contracts. Payments are on the basis of current market prices or market price risk is shared with the producer.

The largest contract providers in the US are Murphy Farms, Tyson Foods, Carroll's Farms and Cargill. The greater part of contract production (75%) is in the southern states. The benefits to the contract providers are that they are provided with high-quality pigs which can be given a trademark of their own. The contract providers pay bonuses for pigs of superior quality. The risks that are taken over from the pig farmers can be covered on the futures market. Buying and selling of futures contracts, called "hedging",

is a protection against price risks that are too great. Outside the "Corn Belt states" there is another motive for contract production; they want their slaughterhouses and processing industry to survive.

Contracts can be seen as a way of finishing the vertical integration process for firms that do not want to produce pigs themselves.

The second development in the US is the integration process. More and more farms have control of the entire production process. Particularly the large farms have their own rearing farms, slaughterhouses and packing factories. This process of vertical integration is expected to become more important in the future to reduce the slaughterhouses' risks as to quality and quantity.

Canada

The slaughtering structure in Canada is on a fairly small scale. Each province in Canada has a Hog Marketing Board. This organization organizes the central purchase and selling of pigs. Pig farmers are obliged to trade their pigs through this Hog Marketing Board. A considerable part of the pigs produced (1996: 2.8m) is exported to slaughterhouses in the US.

3.4 Cost price and output prices

Subsidy policy in the US is aimed at grain production in particular. Subsidies are only granted for the grain storage. Since this storage is mainly controlled by pig farming, these subsidies go for a large part to the pig sector.

Table 3.7: Production capacity of the 5 largest slaughtering chains in the US in 1995

Slaughterhouse	Capacity per day (number of slaughterings x 1,000)	Market share (%)
1. IBP	70.9	17%
2. Smithfield	43.3	11%
3. Montfort (Conagra)	38.5	9%
4. Hormel	37.0	9%
5. Morell (Chiquita)	30.5	7%

Source: NationalPork Producers Council, Pork Industry Economic Review, 1996

Cost price

Just like in the EU, cost price in the US is mainly determined by feed and housing costs, apart from technical results. In the US technical results are worse than in the EU, for both sows and fattening pigs.

The establishing costs per pig place are considerably lower than in the EU, depending on the region. Investment costs are \$ 170 to \$200 per pig place. The yearly housing costs are about the same as in the EU, however. The "cheaper" barns require more maintenance and are depreciated over a much shorter period.

As has already been indicated, feed costs in the US are considerably lower than in the EU, due to their own production of corn and grain. Grain price in the US is, contrary to the EU, more in line with world market grain prices. This has been an advantage to the US the past few years, because world market prices were relatively low, especially if compared with EU grain prices (see section 2.4). In 1996 world market grain prices were high, which is why feed costs in the US increased relatively sharply. Competitive power of the US is therefore in the long term dependent on, among other things, the development of the grain prices (see section 3.5).

The overall cost price in the US is considerably lower than in the EU, despite more unfavourable technical results, and is almost \$ 1 per kilogram of liveweight, which comes down to approximately \$ 1.25 per kg of slaughterweight. In a comparison of the US and the EU the dollar exchange rate is therefore important. With a dollar exchange rate of Dfl 1.80 to 2.20 cost price varies from Dfl 2.25 to 2.75 per kg. Cost price level in the past years has been sufficiently high to compete with the EU on the world market.

Output prices

Besides a low cost price, the US also has low output prices, which is quite logical. After all, already for many years output prices have been related to cost price. The average output price in the past 6 years was approximately \$ 1.05 per kg of liveweight.

Therefore, with a cost price of \$ 1 per kg one can speak of positive margins.

3.5 Other developments

Environment

Also in the US, the days of freedom of action as to the environment are over. In several states, pig farms are obliged to register and have to apply for a certificate for their manure management system. Moreover, requirements are set for manure storage systems (the so-called lagoons) to satisfy. In many states, however, compulsory registration and certification of manure storage and management systems are still under discussion.

North Carolina was one of the most well-known examples of states where hardly any account had been taken of the environment until recently. This partly explains the explosive growth in the past years. This increase has come to a halt now by enforcing rules. Pig farms have to adhere to prescribed standards, among which a manure management plan. Moreover, in North Carolina all manure storage systems are checked and should have a valid permit within five years. Also in Iowa stricter environmental regulation applies. Here the allocation of new building permits go hand in hand with requirements as to manure storage and spreading. Moreover, there should be a detailed manure accounting system.

In Illinois farms with over 100 sows or 750 fattening pigs are required to employ a skilled manager. Farms with over 350 sows or 2,500 fattening pigs have to carry out a manure management plan. Besides, manure that has been applied to the land should be covered immediately (injected).

In Missouri only building permits are allocated when fattening pig barns are sufficiently far apart. With 2,500 fattening pigs the so-called buffer distance is approximately 300 to 450 metres; with 17,500 pigs this is 900 to 1,350 metres.

In the US there are still a few states where there are few requirements for pig farms that want to settle in these states, which is why megafirms go to these places.

Grain price

The development of grain prices is of utmost

importance to the US to keep its competitive power. After all, feed costs are to a large extent determined by grain price. The most important production areas for grain are the US, Europe and China. At the moment the world stock of grain is, with a trading stock for about 50 days, at a low level, the reasons for which are:

- production reduction in the EU by changed grain policy
- similar production limitations in the US
- relatively bad weather conditions in the EU as well as in the US
- higher world consumption by, for example, China/Southeast Asia
- a greater indirect demand for grain due to increased meat consumption

For the years to come the demand for grain at world level is expected to increase further.

This is caused by an increase in direct and indirect demands, due to increased meat consumption in emerging economies.

Supply of grain in the coming years depends on a number of factors. Besides weather conditions, politics play an important part. In other words, in what way will, for example, the EU deal with fallowing land the coming years. In the longer term supply from East Europe will increase. Until now consumption has increased faster than supply.

In sum, it can be stated that the grain price at world level will rise the coming years compared with past decades. Shortages of grain are not expected, but world stock will remain low.

4 COMPARISON PIG FARMING IN THE EU AND US

This chapter compares both structures in the EU and the US. Canada is not considered, because it hardly plays a role on the world market. First similarities and differences concerning structure are presented. Then some developments are discussed. This results in strong and weak points of both areas. Lastly, some conclusions are drawn.

4.1 Similarities

There are some similarities in pig farming developments in the EU and the US. Both areas show a tendency towards increase in scale. Moreover, pig farming is more and more concentrated in some important production areas, which results in environmental problems in these areas. There is also an increasing concentration of slaughterhouses/processing industry in both areas. In the US this process has proceeded further than in the EU.

4.2 Differences

Besides similarities there are also considerable differences. Pig farming in the US is more landbound. The EU is further in dealing with environmental problems. The EU is more advanced in environmentally investments, for example, in environmentally friendly housing systems to developing mineral-poor feeding programs. It is the Netherlands that is particularly advanced. The US has only recently started to solve environmental problems, which are mainly problems with respect to stench. Contrary to the EU, animal welfare is hardly an issue in the US.

The technical results in the US lag behind compared with the EU. Because of the availability of cheap materials there is less attention for result improvement. Despite worse technical output, cost price in the US is structurally lower.

Another important difference is the higher speed of scale increase in the primary sector and the large scale of the slaughter sec-

tor in the US. Moreover, the US production chain is characterized by a strong vertical integration, while the EU structure is relatively fragmented. The chain position of the primary producer is relatively weak in the US. The "market power" in the chain is with the slaughterhouses. There are also differences in sales. US sales focus more on bulk products with a low cost price, whereas the EU produces relatively more for market segments, such as bacon in the UK and Parma ham in Italy.

4.3 Developments

The coming years cost price development and consequences of the GATT/WTO agreements will be important for a possible change in competition. For cost price competitiveness particularly grain price development is important.

Grain prices

In section 3.5 it has already been indicated that the grain price at world level is expected to be higher the coming years compared with the past decades, by which the US will be directly affected through higher feed costs. Besides, in section 2.4 the changed EU grain policy, resulting from, among other things, the GATT/WTO agreements, has been discussed. The coming years, EU grain prices will further tend to world market price level, resulting from new WTO agreements and EU expansion. Compared with the past decades this will result in lower grain prices. It is expected that the cost price differences will show a tendency of levelling out. This will, however, not be sufficient for the EU to eliminate cost price differences between the EU and the US.

GATT/WTO

The GATT/WTO agreements have resulted in stimulating world trade, since trade barriers are no longer effective. Competition between the EU and the US will also increase further. As a result of lower grain prices and therefore also feed prices it is to be expected that EU pork can be sold to an increasing extent

without export restitution. In the US the consequences of the GATT/WTO agreements are considered extremely positive and it is expected that export can increase considerably. In our view increasing competition between the EU and the US will take place mainly outside the EU market (Asia). Cost price differences and output prices are too low for the US to consider the EU market attractive. Moreover, the US cannot meet the increasing consumers demands in the EU as to animal welfare.

4.4 Strong and weak points

Table 4.1 summarizes the strong and weak points of both areas.

4.5 Conclusions

On the basis of the previous the following conclusions can be drawn.

The competitive power of the US on the world market is currently stronger than that of the EU, which is caused by a low cost price and strongly integrated organization. Within the EU France has seen an in-

creasing competitive power the past years, due to a low cost price and a well-organized chain. After France, Denmark and the Netherlands follow; both countries do not differ much in cost price. Denmark has a better chain organization and structure.

Cost price differences between the US and the EU will become less the coming years, due to a tendency towards a world market grain price level in the EU. According to ABN AMRO the US will retain a structurally lower cost price. Pig farming in the US is very sensitive to world market grain prices. This holds to a lesser extent for the EU, because here relatively less grain is processed into feed and therefore the influence of world market prices has not been apparent as yet.

Initiated by GATT/WTO agreements and an increasing pork consumption in particularly Asia world trade will increase. Competition between the US and the EU will, therefore, increase, especially in Asia and the former Eastbloc countries. Considering location and competitive power, the US poses a threat to Denmark by exporting fresh instead of frozen meat.

Table 4.1: Strong and weak points of EU and US pig farming

EU	
Strong points	<ul style="list-style-type: none"> * advanced in the area of environmental investments * relatively high productivity * more production for market segments * relatively good financing structure
Weak points	<ul style="list-style-type: none"> * moderately developed chain structure * relatively high cost price * more risk of disease outbreaks * EU is still too fragmented and not (yet) a powerful trade bloc
US	
Strong points	<ul style="list-style-type: none"> * low cost price particularly by cheap materials * strong vertical integration * large-scale processing industry * export particularly aimed at world market
Weak points	<ul style="list-style-type: none"> * moderate technical results * weak chain position primary producer * megafirms are less flexible and extremely price sensitive * little attention for animal welfare

US export will remain to be aimed at cheaper bulk products, which can be produced at a structurally lower price. For the EU there are opportunities for the so-called value added. Guarantees as to source, environment, health, welfare et cetera can be given, but also product differentiation and regional products can be considered. To take advantage of these opportunities a far-reaching chain integration is necessary, in which different chain stages cooperate closely. By increasing world pork consumption and a relatively strong competitive power of pig

farming in the EU as well as in the US, pig farming in both areas can increase in the future. This is partly the result of trade globalization due to the GATT/WTO agreements. Trade barriers disappear to an increasing extent, so that competitive power is becoming more important.

This fact can be at the expense of countries with a higher cost price or a poorly organized chain, also within the EU, so developments may considerably differ among EU member states.

5 CONSEQUENCES FOR DUTCH PIG FARMING

In the years to come world trade will increase and hence competitiveness will change between the US and the EU, which will, of course, have consequences for Dutch pig farming. The Netherlands has reasonable future prospects with its relatively modern farms, good logistic facilities and sound technical results. Whether the Netherlands is able to maintain its export position depends on many factors. Competition of Denmark and France on the EU market will increase. Particularly competitive power of France is developing rapidly. Moreover, Denmark has to compete with the US on the Asian market to an increasing extent. This has indirect consequences for the Netherlands, because now Denmark is increasingly operating on the internal EU market.

To remain competitive at both EU and global level, it is important, therefore, that cost price in the Netherlands remains competitive. Moreover, far-reaching chain integration is required, where the stages cooperate closely. Only in this way a better valuing and marketing of end products can be realized.

In the years to come the sector must also work actively on a better positioning of pork to restore its image. Besides, the Netherlands must catch up with animal health, especially as to Aujeszky's disease and susceptibility to animal diseases.

A competitive cost price means that, to get a better structure, it is necessary to have an increase in scale in the primary sector. In the current discussion on restructuring the sector it is important that possible cost price increases will remain limited for the "stayers".

A low cost price also means that slaughterhouses have to draw up a plan to solve the problem of overcapacity. In such a plan the organizational structure should be geared to a far-reaching kind of integral chain production, the directions for which should be with the slaughterhouses. The slaughterhouses should, as part of these directions, focus more on their marketing function. Also an increase in scale and vertical integration should take place in the processing industry. Considering trade "globalization", it is important to aim at foreign countries as well.

As has been indicated, the Netherlands should focus on products with a higher value added. Especially in the more affluent countries there is an increasing demand for these products, due to changing consumer demands.

Investments necessary for this in welfare, health, environment et cetera will first result in a cost price rise, but in the longer term will see better sale prospects and technical results.

To conclude it can be stated that in the years to come the pig sector will be challenged to retain its competitive power. The industry structure should be reconsidered, where issues such as scale increase, chain integration and value adding should be focused on. To retain sufficient competitive power at EU and world level a low cost price remains important. Moreover, the Netherlands should focus more on products with a higher value added in a chain-oriented organization. Only by collective efforts can competitive power remain. All this cannot prevent a decrease in the number of pigs as well as farms in the years to come.