

Annual production and trade

The Dutch pig sector is operating in the world's second largest pork producing area, the European Union. It can internationally build upon a good reputation. Two-third of the meat production and one-third of the piglets and pigs produced find their way abroad. In 2005 the Dutch pork industry comprised 1.2 million sows, 4.6 million piglets and 5.5 million fattening pigs, totalling 11.3 million pigs. For comparison: this is one-third of the number of pigs in Brazil or one-sixth of the number of pigs in USA. Gross domestic production in 2005 was 20.7 million piglets and pigs, of which 4.0 million piglets and 2.9 million fattening pigs were exported mainly to the neighbouring country Germany. The relatively high number of piglet exports is a typical feature of the Dutch pig sector and gives her already for years the nickname 'breeding ground of Europe'. The export of fattening pigs into Germany has increased lately and was for the vast majority of exports price-driven. Quoted prices per kilo slaughter weight were in Germany higher than in The Netherlands, in 2005 on average differing €0,041 per kilo (ISN, 2006). Number of slaughterings in 2005 were 14.5 million heads equalling 1.3 million tonnes of meat. National consumption per capita was 41.9 kg, leaving 0.9 million tons of meat to be exported. Taking not into consideration the bacon export to the United Kingdom, Italy and Germany are the most significant importers of fresh Dutch pork (PVE, 2006).

Primary farms

In total 9,500 farms keep pigs. The majority of these farms either keep only sows and are focussed on piglet production or keep only fattening pigs and are focussed on meat production. A small share of the farms are closed and both keep sows and fatteners. Including all 9,500 farms, average number of sows per farm is 263 and average number of fatteners per farm is 603. There is a relatively large share (82%) of small scale farms keeping fattening pigs, i.e. farms smaller than 1,000 fatteners. These farms keep 45% of the fattening pigs (PVE, 2006). This aspect of small scale family farms might play an important part in the finding that Dutch pig producers do not use contracts, while MacDonald et al (2004) found that use of contracts is closely related to farm size. In the US farms with sales in excess of \$500,000 are more likely to have a contract, and to have more of their production under contract, than those with sales less than \$500,000.

In former days the majority of the farmers were organised in co-operatives, being a feed and / or a slaughter co-op. Some of these co-op's have changed into private businesses, the latest one converting was the largest pig slaughterer and vendor Vion. In the feed industry, two of the largest companies are still co-op's.

Slaughter and processing

Vion is since 2004 the largest slaughterer, processor and vendor of pork products in the Netherlands with a national market share of almost 70%. On an European scale the market share of Vion is 9%, ranking second after Danish Crown with a market share of 10%. Next to Vion eight smaller slaughterers of significant size operate in The Netherlands, each having market shares of 6% or less (PVE, 2006). Although not officially recorded, it is estimated that 99% of the farmers operate in the spot market or do have a verbal contract with the slaughterhouse (this research). The majority of the transactions take place through pig traders or commissioners, but direct sale from the primary farmer to the slaughterhouse also takes place. Lack of trust, between the primary producer and the slaughterhouse, is probably the main reason why the Dutch pork industry is so segmented and not integrated.

Also the processing segment of the chain is hardly integrated with the slaughterhouses. Data from the year 2003 show that 88% of the processors do not slaughter pigs themselves, are not linked to a slaughterhouse nor belong to a concern. They purchase carcasses from Dutch slaughterhouses or slaughterhouses in surrounding countries like Germany, Belgium and Luxemburg. The share of the foreign slaughterhouses is increasing, up to 20%, meaning that internationalisation is growing (PVE, 2004). With the creation of the VION concern these figures might have changed, but no recent data are available yet.

Research procedures

Two closed workshops were organized in June 2005 with representatives of the different segments of the Dutch pig chain. In the workshops discussions took place to answer the three questions as stated above in the research problem statement. A separate workshop for pig farmers and a separate workshop for representatives of feed companies, animal traders, slaughterers, meat processors and banking enterprises was held. Due to the method used in the workshop, 11 persons at maximum could take part per workshop. In the first workshop eight pig farmers participated; in the second workshop seven other representatives of the pig chain participated.

Preceding the workshop the participants received a DVD with a 45-minute presentation concerning pig production and coordination structures in Spain, USA and Brazil, as was presented in a general meeting to the Dutch pork industry. The information was compiled in the former phase of the project.

Method workshop

A computerised GDR-technique was used to direct the discussion. A GDR is an electronic assembly, using computers which are connected to each other by a network. Participants are invited to react on enquiries by typing their opinion on their own computer. Meanwhile, ideas and opinions of other participants are (anonymously) presented on the screen too, on which can be reacted promptly. With the GDR-technique open questions can be asked, but it is also possible to categorise items, designate strength and weaknesses, distribute e.g. 100 points over fixed items, vote on a 1 to 10 scale or vote for yes or no.

In a GDR the contribution of a participant is more valued at the content of it than at the sender of it. Also, GDR has the advantage that every participant gets an equal 'speaking time'; participants contribute simultaneously.

Program workshop

The GDR-session consisted of six enquiries. Four of them were so called 'categorisers', i.e. participants created per enquiry a variety of opinions and put these into category-buckets. If e.g. the enquiry is 'What's your favourite holiday destination?' and the buckets are 'within The Netherlands', 'within Europe' and 'in the world', participants can categorise their opinions concerning their favourite holiday destinations in these three different buckets. Two of the enquiries were 'surveys'. Table 1 gives an overview of the content of the six enquiries and the type of each enquiry (and potential categories). After every enquiry a central discussion took place to cluster equivalent opinions, to clarify indistinct opinions, and to give additions and explanations.

Table 1: Content and type of five enquiries in GDR-session

Enquiry	Content	Type
1 *	What are the perceived advantages and disadvantages of an open market, a contract and an integration ?	Categoriser (adv open market, disadv open market, adv contract, disadv contract, adv integration, disadv integration)
2 *	Are the advantages of a contract and an integration, as mentioned in enquiry 1, applicable in The Netherlands ?	Categoriser (applicable, not applicable)
3 *	What are the most important applicable advantages of a contract or an integration ?	Survey (click 3)
4 *	Who is responsible to realise the most important applicable advantages of a contract or an integration in practice ?	Categoriser (feed industry, primary farmers, abattoirs & meat processors, all chain segments)
5 **	Which two applicable advantages of a contract or an integration have your personal approval, and which one has your personal disapproval ?	Categoriser (approval, disapproval)
6 *	What is the ideal future mix of the three chain coordination structures ?	Survey (distribute 100%)

* = Give opinion from a sectoral point of view

** = Give opinion from a personal point of view

Results

Perceived (dis)advantages

The most important (dis)advantages of the various chain coordination structures, as perceived by pig farmers and by other representatives of the pig chain, are presented in Table 2 (pig farmers) and Table 3 (other representatives). Both groups agreed that entrepreneurship of pig farmers manifests itself best in an open market and diminishes gradually to zero in an integration structure. Furthermore, the perceived (dis)advantages by pig farmers were related mostly to farm income, e.g. decreased price risks or no impetus to perform excellent and earn correspondingly. The perceived (dis)advantages by other representatives were more related towards quality assurance within the chain.

Table 2: Advantages and disadvantages of the various chain coordination structures as perceived by pig farmers.

((Dis)advantages in *italics* were also mentioned by other representatives of the pig chain).

	Perceived advantage	Perceived disadvantage
Open market	- <i>Free entrepreneurship</i> - Own performance is converted into own financial gains	- Price risk - Small market power (pig farms in proportion to other segments)
Contracts	- Dispersion financial risk - Long term agreements lead to stability	- <i>Less entrepreneurship</i> - Not profit from high market prices
Integration	- Hardly any risks for the pig farmer - Improved market opportunities through enhanced coordination by processors	- <i>No entrepreneurship</i> - <i>No stimulation to produce excellent (and earn correspondingly)</i>

Table 3: Advantages and disadvantages of the various chain coordination structures as perceived by other representatives of the pig chain. ((Dis)advantages in *italics* were also mentioned by pig farmers).

	Perceived advantage	Perceived disadvantage
--	---------------------	------------------------

Open market	- <i>Free entrepreneurship pig farmers</i> -	- More effort to assure product quality - Sub-optimal distribution of revenues in chain
Contracts	- Higher chain revenues - Less price risks	- <i>Less entrepreneurship</i> - Less flexibility within chain
Integration	- Optimal assurance of product quality within chain - Good marketing opportunities (e.g. labelling of products)	- <i>No entrepreneurship</i> - <i>No stimulation to produce excellent</i>

(Most important) applicable advantages

The perceived (dis)advantages of the different chain coordination structures were based on own experiences of the participants and on the information from the studies on chain coordination and chain turnover in Spain, USA and Brazil. Not all of the advantages are necessarily applicable in The Netherlands, due to e.g. different culture, economic structure, or institutional infrastructures. Therefore, both groups were asked which advantage of a 'contract' or an 'integration' structure they would like to apply to the Dutch pork chain. Pig farmers would like to have long term price contracts with meat processors. It would lead to stability in terms of calmness and ordering (no weekly stress in relation to looking for the best price). Other representatives would like to have the highest level of quality and quantity assurance as to their opinion can be achieved more easily in an integration structure.

Actions to turn advantages into reality

The pig farmers do have the opinion that the initiative to turn long term price contracts into practice, is primary the responsibility of themselves. Knowing that in the workshop pig farmers said to be sympathetic towards price contracts and knowing that one of the Dutch slaughterhouses offers a long term price agreement (LTP), it can be discussed whether the agreements offered meet the needs of pig farmers, or that there is a discrepancy between 'saying' and 'doing in practice' for pig farmers.

The other representatives hold the abattoirs & meat processors responsible for turning a high level of quality and quantity assurance into reality. However, they commented on it that other segments in the chain need to bend and bow in concordance with the abattoirs & processors. Otherwise, the initiative is admirable, but will sort no effect.

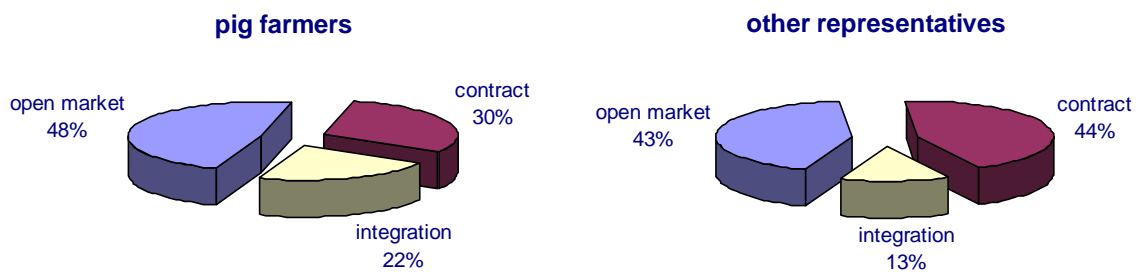
Personal (dis)approval

In the former four enquiries the participants gave their opinion from a sectoral point of view. The opinion of an individual segment or even an individual farm or firm does not necessarily correspond to the one of the whole chain. Therefore, the participants could mark applicable advantages of a contract or an integration that have their personal (dis)approval. An advantage of an integration structure that has the disapproval of the Dutch pig farmers is the limited need for or even no need for the qualities of an individual entrepreneur. They consider their own personal entrepreneurship of paramount importance. The other representatives saw as an advantage of an integration structure that the firm that has ownership over the integration can adapt quickly to changing circumstances in the market, but see it as a threat that this firm makes the decisions for the entire pig sector. Monopoly of this firm sidelines the other representatives.

Ideal distribution various chain coordination structures

Although both groups see advantages of contract and integration structures, they both think that the future of the Dutch pig sector benefits with a structure in which \pm 45% of the farms operate in the open market (see Figure 2). Not much space is destined for integration structures. Although the pig farmer participants expect that 22% of the pig farmers in future will operate in an integration, they do not think that they will be part of it themselves. Giving or having the opportunity for pig farmers to express entrepreneurship is the most important argument for this (odd) distribution.

Figure 2: Ideal future distribution of various chain coordination structures as proposed by pig farmers (left) and other representatives of the pig chain (right).



Conclusions

The following conclusions can be drawn:

- Pig farmers as well as other representatives are open to other coordination structures than 'open market'. They think that the Dutch pig sector could benefit from a structure in which the chain can more (but not solely) be coordinated by contracts. The future of an integration in the Dutch pork industry is considered to be nil.
- The driving force behind the advantages of various chain coordination structures is not equal between pig farmers and other representatives. Pig farmers are driven by economical factors, the other representatives by product quality and assurance factors. In effectuating a movement towards a contract structure, communication cannot be equal towards the different segments.
- Great significance is attached to Dutch entrepreneurship. A structure in which a large part of the farms and firms operate in an integration would have an adverse effect on competitiveness of the Dutch pig sector.

Based on the research and the conclusions it is advised to explore whether contracts can be designed which are based on flexible market prices, but still guaranteeing the advantages of contracts concerning quality and quantity assurance. With these types of contracts pig farmers experience stability in terms of calmness and ordering (no weekly stress in relation to looking for the best price), pig farmers can still profit from high market prices, other representatives of the chain can aim for optimal quality assurance and good marketing opportunities within the chain, and Dutch entrepreneurship can excel.

References

- ISN (2006). *EU-Schweinepreisvergleich der ISN 2005*. Interessengemeinschaft der Schweinehalter Deutschlands, Damme, Deutschland.
- Hayenga, M.L., Rhodes, V.J., Grimes, G.A. en J.D. Lawrence. 1996. *Vertical coordination in hog production*. US Department of Agriculture, Packers and Stockyards Programs, Grain Inspection, Packers and Stockyards Administration Research Report (GIPSA-RR) 96-5.
- MacDonald, J, Perry, J, Ahearn, M, Banker, D, Chambers, W, Dimitri, C, Key, N, Nelson, K, and L. Southard. 2004. *Contracts, Markets and Prices: Organizing the production and use of agricultural commodities*. US Department of Agriculture, Economic Research Service, Agricultural Economic Report No. 837.
- Martinez, S.W. 1999. *Vertical coordination in the pork and broiler industries : implications for pork and chicken production*. US Department of Agriculture, Economic Research Service, Food and Rural economics Division, Agricultural Economic Report No. 777.
- Martinez, S.W. 2002. *Vertical coordination of marketing systems: lessons from the poultry, egg and pork industries*. US Department of Agriculture, Economic Research Service, Food and Rural economics Division, Agricultural Economic Report No. 807.
- PVE (2004). *De structuur van de Nederlandse vleesveredelaars in 2003*. Report nr 0413, December 2004, PVE, Afdeling Markt en Communicatie.
- PVE (2006). *Vee, Vlees en Eieren in Nederland 2006*. Het jaarboekje Vee Vlees en Eieren, April 2006, PVE, Afdeling Markt en Communicatie.