

INTEGRATED QUALITY CONTROL IN THE DUTCH PIG SECTOR

J.N. SCHOUWENBURG<sup>1</sup>, J.G. van LOGTESTIJN<sup>2</sup>, E.J.C. PAARDEKOOPE<sup>3</sup>,  
and J.M.A. SNIJDERS<sup>2</sup>

<sup>1</sup> Product Board for Livestock and Meat, P.O. Box 5805, 2280 HV Rijswijk, Netherlands

<sup>2</sup> Department of the Science of Food of Animal Origin, Faculty of Veterinary Medicine, University of Utrecht,  
P.O. Box 80175, 3508 TD Utrecht, Netherlands

<sup>3</sup> TNO Nutrition and Food Research, Department Dutch Centre of Meat Technology, P.O. Box 360, 3700 AJ  
Zeist, Netherlands

Please refer to Folio 44.

INTRODUCTION

The livestock and meat sector (including poultry and eggs) is very important for the Dutch economy. In 1992, 1.4 million cattle, 1.2 million calves, almost 19 million pigs and 380 million poultry were slaughtered in the Netherlands. Of the total production in this sector, 70% was exported with a value (in 1992) of approximately 13 billion guilders. This is a result of an impressive growth in production during the last two decades.

During the past few years there has been a growing feeling that it is necessary to change from a production driven to a more consumer and market oriented system, i.e., from quantity to quality. In many countries, especially in Europe and Northern America, there is growing consumer concern about the origin, safety and wholesomeness of meat. Therefore, consumers are demanding more guarantees of the quality and safety of meat.

As a result of these developments the consumer image of meat is under some pressure. In the long run, this could have a negative effect on meat consumption.

In the 1980's, the first discussions had already started in the Netherlands on how to counteract these developments. It was recognized that the quality of meat is influenced by all parts of the production chain. Therefore, only an integrated, i.e., for the whole production chain, quality approach would be successful. An approach was advocated whereby all parts of the chain have to be involved in close cooperation. The primary responsibility for the quality and safety of the product must then lie with the producer. The role of the government is restricted to that of a supervisor for those aspects related to public health. This philosophy is referred to in the Dutch meat sector by the term IKB (Integrale Keten Beheersing or Integrated Chain Control).

In 1986 the government in close cooperation with the industry started a pilot project "Integrated Quality Control of Finishing Pigs". Similar projects also were carried out for poultry and calves. The purpose of this pilot project was to develop a model for an integrated quality assurance system for the whole production chain. This should give consumers better guarantees of product quality and enable the producer to optimize production. Some important aims of the pilot project were:

- improving meat inspection procedures by using information from the farm;
- improving herd management, by using slaughter plant data on post-mortem abnormalities;
- and developing a system for feedback of information from the slaughterhouse to the farmer.

## MATERIALS AND METHODS

The pilot project in the pig sector lasted four years and was carried out with three integrated groups of breeders, fatteners and slaughterhouses. A total of 470 pig fatteners participated in the project. During the project data were collected with regard to: animal health status and herd management at all the farms, and post-mortem abnormalities found during post mortem inspection of 1.8 million finishing pigs.

All data were registered and stored in a central data bank.

For an extensive description of the materials and methods used in this project see Den Hartog et al., 1990.

## RESULTS AND DISCUSSION

The results of this project with regard to improving meat inspection have already been described in a separate paper by Snijders et al., 1993.

Some of the other relevant results are as follows.

During the project a quality information card was developed. With this card the farmer gives information about, and a guarantee of, the health status of the pigs delivered to the slaughterhouse. The use of this card during the project resulted in a lower percentage of post-mortem abnormalities. This was mainly due to a better pre selection by the farmer as the final act of good herd management.

During the project a logbook was used to register all treatments on the farm. The results showed that keeping a logbook on the farm leads to lower use of veterinary drugs.

Feedback of some post-mortem abnormalities registered on the slaughter line contributes to better herd management. The most relevant abnormalities in this respect were pleuritis, pneumonia, affected liver, skin lesions and inflammation of the leg.

Improving herd management and minimizing the percentage of post-mortem abnormalities in the slaughter line has led to a decrease in production costs of around four Dutch guilders per pig.

### IQC-scheme for the Dutch pig sector

On the basis of the results of the pilot project, the Dutch Product Board for Livestock and Meat, in close cooperation with the industry, developed in 1991 the PVV/IKB scheme for pigs. In this national scheme basic rules are laid down for Integrated Quality Control (IKB) in the pig sector. The most important goals of this scheme are:

- better quality and safety guarantees for the consumer;
- improvement of animal health and welfare;
- optimization of farm production management;
- reduction of costs in different parts of the production chain (i.e., meat inspection costs);
- improvement of the image of animal production and animal products;
- and provision of a basis for branded meat.

The IKB-scheme contains rules for the quality of the quality assurance system within the production chain, as well as basic rules for the quality and safety of the end product. The quality aspects of the end product relate to the origin (traceability) of the meat, fodder, hygiene, use of medicines and the absence of residues. Another important aspect of the scheme is the exchange of information between the various parts of the chain, from the producer to the slaughterhouse and vice versa.

The IKB-scheme gives a quality assurance certificate for the system, not a product certificate. It guarantees that the production process meets certain quality standards. However, it does not give a guarantee of the quality of every individual item of product. The scheme therefore already contains a considerable number of the elements of the ISO-9000 standard for quality assurance systems.

The present IKB-scheme is considered as a first, but important, step towards satisfying consumer demands.

#### IQC-schemes for suppliers

Other besides the participants in the pig production chain must comply with certain rules. Suppliers, i.e., the feed industry and veterinary surgeons, also have to comply with similar quality assurance schemes set up by their own organizations.

The Dutch organization of veterinarians has set up a Good Veterinary Practice Code (GVP-code). In this code, rules are laid down with regard to the treatment of animals, the frequency and content of visits to the farmer, restricted use of veterinary drugs etc.

The Dutch product Board for the Feed Industry has set up Good Manufacturing Codes (GMP-codes). In these codes, rules are laid down with regard to the quality assurance system, with special emphasis on the microbiological quality (salmonella), preventing contaminants being present in the products and the production of medicated feed, to prevent the carry-over of medicine.

#### Structure of the IKB-scheme (Figure 1)

The scheme comprises the production chain from the breeder up to the slaughterhouse. The slaughterhouse plays a central role in creating an IKB-production chain and is responsible for seeing that all parts of the chain comply with the rules. The slaughterhouse management have to design a quality assurance system for their own production chain. This system must be laid down in a handbook. The handbook and the implementation of the system are inspected by an independent inspection organization to see whether they comply with the rules of the scheme. Only after a positive judgement is the slaughterhouse with its whole production chain admitted to the scheme, with the receipt of an IKB-certificate.

#### Some characteristics of the IKB-scheme

The most important rules for the different participants in the scheme are as follows.

##### Farmers

The total production of a farm must come under the IKB-scheme. There must be adequate identification and registration of the animals. Only feed from a producer with a GMP-certificate may be used. The veterinary surgeon must comply with the GVP-code. Strict hygiene rules must be observed. The use of medicines with longer withdrawal periods (positive list) is restricted. All treatments of animals and transactions must be recorded in a logbook. Animals must be selected before their delivery to the next part of the chain (trader, fatterer or slaughterhouse). A guarantee declaration must accompany every delivery of animals.

##### Slaughterhouse

The slaughterhouse has a central role and responsibility in the scheme. The post-mortem abnormalities: pleuritis, pneumonia, affected liver, skin lesions and inflammation of the leg, must be registered when detected on the slaughter line. This must be done for every animal delivered under the scheme. This information must be fed back to the supplier of the animals. Separation and traceability for the products delivered under the IKB-scheme must be guaranteed.

### Control and sanctions

All participants in a chain are subjected to an internal audit twice a year, with arrangements of audits being the responsibility of the slaughterhouse. The quality assurance system is audited twice a year by an independent inspection organization. If necessary, sanctions will be applied. They vary from a warning through additional inspection to exclusion from the scheme for a specified period.

### Present situation

In September, 1992, seven of the biggest Dutch pig slaughtering companies, with 10 slaughter plants, have received IKB-certificates. The number of IKB-certified farmers at this moment is approximately 400. The annual production of IKB-pigs at the end of 1992 was one million and that is rising rapidly, to an expected one third of total Dutch production at the end of 1994. In the near future, the scheme will be extended with rules for microbiological process control (HACCP) and possibly with standards for animal welfare. Furthermore, the intention is to bring the IKB-scheme up to the level of the ISO-9000 standards and apply for an official ISO-certificate.

In Holland, retailers and supermarket chains as well as local butchers are highly interested in the scheme. We expect that within two or three years the pork produced according to the IKB-scheme will be considered as the standard product. Already some big supermarket chains in Holland have declared that in two years time they will only buy from IKB-certified suppliers. The same developments can be seen in our export markets.

### CONCLUSION

In the near future the pig sector can only survive the intense international competition with an optimal market oriented approach to satisfy consumer demands. Of great importance is the optimal control and assurance of the quality in all parts of the production process, from conception to consumption.

With the start of the IKB-scheme the Dutch pig sector has made an important step towards this goal.

### REFERENCES

DEN HARTOG, L.A., KLOOSTERMAN, A.A.M., VERDIJK, A.T.M., DUIVES-CAHUZAK, S.D. 1990. Integrale Ketenbeheersing bij Vleesvarkens. Projectgroep Integrale Keten-beheersing-Vleesvarkens. Proefstation Varkenshouderij, Rosmalen.

SNIJERS, J.M.A., SCHOUWENBURG, J.N., Van LOGTESTIJN, J.G., BERENDS, B.R. 1993. Modernization of current meat inspection procedures. These proceedings.