CHAPTER NINE

"Residue Avoidance" in the Netherlands: An Overview

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INTRODUCTION

I am very pleased to have the opportunity to say a few things at this International Congress of Meat Science and Technology about residue avoidance in the Netherlands.

I would like to explain the system of residue testing in the Netherlands and to tell you something about the philosophy behind the actual residue control programmes which are the basis for future policy in the fast developing field of residue avoidance.

Residue control started as a public health item. Its main aim was to analyse meat for the presence of dangerous residues. It concerned compounds which had been given intentionally to the animal, such as diethylstilbestrol (DES). Later on the control programmes were extended to all kinds of contaminants from the environment, such as DDT. These compounds often became part of the product accidentally.

Today, residue control has a wider purpose. There is an international tendency to ask for specific guarantees concerning the livestock from which the meat is produced. For example, the Japanese want to buy pig-meat provided that the meat comes from pigs, born and raised under specific circumstances to do with the absence of animal diseases, the use of specific medicines and a variety of residues.

A similar position applies to the consumer who wants to buy meat from livestock that was fed in a certain way—for instance, with a limited amount of feed additives or without growth stimulators such as natural hormones.

THE PRESENTATION

I will start this presentation with today's practice of residue checking programmes in the Netherlands.

Then with a view to risk-analysis, I will emphasize that residue avoidance should not be a public health-item only.

Next I'll give you my opinion about the necessity of Integrated Quality Control to achieve a real, Integrated Quality Assurance in the end. It's the step from responsibility to fill liability, based on certification of all farms and plants involved. The system of Integrated Quality Assurance will be the basis for a reliable system of residue avoidance.

Finally I come to the conclusion that in today's complicated world only an integrated approach, based on the flexible application of risk-analysis principles can lead to a successful, affordable system of residue avoidance.

SCOPE OF THE ISSUE

Residue avoidance! What's in a name?

Residues

For myself, I prefer a broad definition of residues: I would include all residues of veterinary drugs, pesticides, forbidden substances, and environmental contaminants traceable in the living slaughter animal and present in the meat or other matrices (urine, blood, etc.). Doing so, I endorse the judicial system of EC-legislation on this subject. (And I hope you don't object.)

Avoidance

Residue avoidance is certainly not restricted to governmental inspection and analysis only. It includes all the possibilities that are at society's disposal to keep the unwanted presence of residues in animals for slaughter within acceptable standards.

In other words, residue avoidance is a system that makes use of the information from the different steps of the production chain. This information is useful when it contains information of the use of medicines and forbidden compounds. It also gives information about the critical points of the production process. To that end the critical points in the production process have to be described, the way these points are controlled and who controls them (the industry itself or an independent organization).

RESIDUE EXAMINATION PROGRAMMES IN THE NETHERLANDS

The main target in our residue examination programmes is fresh meat, which also includes the liver, kidney, fat, dairy products, eggs, live animals and animal feed.

The most important instruments are the so-called national residue plans, based on national legislation in accordance with the legislation of the European Union. The feedfactory as well as the farm have programmes for animal feed investigations. There are also the industry-initiated and executed programmes for the examination of forbidden compounds in cattle and veal (Product Boards for Livestock, Meat and Eggs).

Later on I will tell you more in detail about these systems (IQC).

CONTROL PHILOSOPHY

A systematic approach and an adequate organization are needed to control a problem as complicated as the prevention of undesirable residues in products of animal origin. Furthermore, it is absolutely necessary, that in this field all players of good will adopt a certain attitude, which will lead to a reliable residue avoidance system. A residue avoidance system can only become truly successful if all the participants within the entire chain of the animal production process possess expert knowledge and a willingness to meet the agreed standards:

- –Refraining from the use of substances that are forbidden;
- –Refraining from the use of registered drugs outside the scope of the limitations established by law;
- –Refraining from the use of substances that are superfluous.

Before discussing the policy behind the practice I'll give you an overview of our national residue testing programs on meat and live animals. First and foremost, all our efforts are directed at bringing the meat safe and wholesome to the consumer's table.

NATIONAL PLAN HORMONES AND OTHER COMPOUNDS IN THE NETHERLANDS

To bring all the activities of "The National Plan Hormones and Other Compounds in the Netherlands" into one schedule is not easy at all. But simplified somewhat it shows as follows:

- –Starting with the EU-regulations; EU legislation harmonizes rules on forbidden compounds and the system of control within the EU. The legislation provides for sampling frequency and measures after contravention of the regulations.
- –The Ministry of Agriculture and Public Health have incorporated these EU rules into national law,
- –The annual redrafted National Plan, provides the guiding principles.
- –Sampling is done by inspectors of the National Inspection Service for livestock and meat (RVV).
- –Analyses, screening and confirmation, is done by the RVV Central Lab.
- –They are supervised by the reference laboratories RIKILT (Agriculture) and RIVM (Public Health),
- –The results are brought back to the coordinators of the National Plan,
- –After contravention of the regulations the General Inspection Service (AID) traces the firm which supplied the animals or products.
- –This is then reported to the European Parliament and Commission (and all interested parties),
- –Which may lead to a new policy, new measurements and laying down the next annual National Plan.

RISK ANALYSIS AS A POINT OF DEPARTURE FOR RESIDUE CONTROL

First of all, internationally speaking, there has been a steep rise in the use of veterinary drugs for curative and preventive purposes. But many substances are new—and while it is true that veterinary medicine laws have resulted in the obligation for the industry to present toxicological evaluations—in view of the short existence of many of these substances, not all questions have been answered. Certainly not.

Speaking about *risk-assessment* we have to examine—for instance—if residue risks are comparable to

the microbiological risks of meat consumption.

Residue control is indispensable. Not only for reasons of public health. But also for economic reasons. Unwanted residues may give the indirect risk of plummeting sales resulting from possible consumer boycotts.

And this leads us to *risk-communication*. In society certain likes and dislikes exist, and we must accept the latter as a risk factor when selling products of animal origin.

Export-oriented countries, like the Netherlands, cannot adopt the viewpoint that clients should accept the product whenever science has adequately established that a food product is wholesome. Clients rejecting a product—for, let us say, unscientific reasons—are a genuine and real risk to producers. A government that approaches residue risk only from the consumer's viewpoint is not justly serving and balancing the interests and rights of all citizens; both consumers and producers alike. In saying this, I indicate that communicating risks to the producers and consumers is one of the tasks of government. But the 'Animal Health Industry' should also play an important role in the production of fully safe food products without unacceptable residues and should develop products that consumers are satisfied with.

Residue policy should be entirely open. This means, first, periodically residue examination results should be published, and that public information to consumers about actual residue risks should be provided. The industry is responsible for a good communication towards the consumers.

But the producer (the farmers, the industry, etc.), too, needs to be educated and informed to a point where he understands how to satisfy the demands of the consumers. Colleagues and clients should exclude those producers that do not meet the rules. The Integrated Quality Control system is a system which assists the producers in dealing with the demands of the consumers. As part of *risk-management*, residue examination programmes should be adjusted to the relative risks ensuing from the occurrence of certain residues. This means that an examination programme should use different ways to approach a single substance that results in different risks from one animal species to another. For example the use of forbidden substances should have a stronger approach (control programme, higher sanctions) than the wrong use of permitted compounds.

Some EU-residue programmes are based on two principles. On the one hand they pretend to be a monitoring programme, merely focused on checking for illegal residues to get information about their (mis-)use. On the other hand, they appear to be an inspection programme, leading to the need to condemn the carcass in the case of positive findings.

In my view, the monitoring programme should:

I. Indicate the status of the absence of unlawful residues in the entire animal population. It is a tool to get a general overview of the presence or absence of a residue. The results of such a programme will in general have no influence on the inspection results of an individual animal or carcass.

Positive results will lead to two successive steps in residue checking, checks with consequences for the inspection results:

II. If problems are expected within a certain group of slaughter animals, monitoring must cease and we must proceed with selective sampling. with the intention to take action. This is what I call a specific action specific for a certain substance, a certain animal species. a certain area or a certain type of operation.

III. Another step is the need to issue a watertight guarantee for a specific—unacceptably risky—substance. In that case each animal/flock to be slaughtered will need to be examined before it can be released for consumption. That should be the step of temporary individual residue inspection: The consequent examination before the meat can be released for consumption for a certain time in case of the suspected presence of illegal residues in an animal presented for slaughter.

If all available information is used, including monitoring results and the current use of veterinary medicines and pesticides, the sale of certain products and data from the inspectors may also be a reason to undertake specific action, and to take temporary measures to examine the meat for the presence of illegal residues.

Only the adequate and responsible separation of monitoring, specific action and temporary individual inspection, will result in a maximum beneficial effect of the very expensive residue programmes.

The whole range of activities aimed at achieving optimum control over residues must be periodically surveyed to determine risks to man, animals, environment, and trade, and the location of those risks. The methods that affect these risks must always be evaluated. The results of this evaluation should be the basis to continue, increase or decrease the control programme.

INTEGRATED QUALITY CONTROL

We have known for a long time that there are other factors to be taken into account. The changes in animal husbandry have made it possible to have a good impression of the animal health situation by measuring certain aspects on the farm. For more than a decade the Dutch ministry of Agriculture has funded research and other activities on a large scale, to promote what is called "Integrated Quality Management". Today, we also see the possibilities of hazard analysis critical control points, where under the supervision of a competent authority the industry takes a greater responsibility for maintaining quality standards. The latest European directives

regarding the inspection of meat products and of poultry meat reflect these developments.

The inspection officers can only give the specific guarantees provided if they have all the information they need. Such information can only be made available if all parties involved work closely together. Cooperation in the whole production chain has become a major requirement for realizing trustworthy guarantees.

So cooperation in the whole chain from field to plate, is necessary from conception to consumption. Each participant in this chain has its own responsibility. Therefore, a smooth information-flow from each stage of the production column must be developed. To this end, it is necessary to investigate whether and how, information during the finishing period of animals on the farm can be collected in a reliable way and be used for residue control. This will make it possible to come to a residue avoidance system.

In order to arrive at this system, a lot of work has to be done by the feed industry, livestock farmers, veterinarians, trades people, slaughterhouses and meat inspectors.

The farmers and veterinarians have to integrate the quality management on the farm. They have to pay minute attention to all the details concerning their part of the production chain, and therefore they have to always know what consumers are aiming for and keep that in mind.

In Holland this means that agricultural and veterinarian research and education have to move in that direction and that means an adaptation of:

> Research, teaching and education programmes. This requires more cooperation and integration in the programmes of researchers and teachers in the field of good veterinary practice, good animal husbandry, and practices of epidemiology, zootechnics and meat hygiene.

As I have said, we in the Netherlands have already started with experiment in this field. In the pig and poultry production these experiments have already been translated into general rules set up by the Dutch Commodity Board for Livestock and Meat.

> The basic rules for taking part in the IQC system are:
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> 1. Only specified veterinary drugs and feeds may be used during the fattening period and the withholding period must be met.
> 2. Veterinarians should act according to the good veterinary practice code. This means that they may only use prescribed drugs. Their signature should be a guarantee for the correct application of the prescribed drugs. Only veterinarians who meet these requirements will be allowed to treat animals for these cooperations.
> 3. The farmers should feed their animals only with feed which has been manufactured by feed producers who meet the requirements of good manufacturing practices in the feed industry.
> 4. All animal treatments should be registered in a health logbook.
> 5. All animals should be supplied with a quality information card which is a specific guarantee.
> 6. The meat inspection service signals and registers pathological anatomical abnormalities.
> 7. The slaughterhouse has to feed back the information about pathological anatomical abnormalities.
> 8. The slaughterhouse fullfills a central role in the IQC system and the mutual exchange of information. The slaughterhouse is responsible for the complying of every link in the meat production chain with the general IQC-regulations of the Commodity Board for Livestock and Meat.
> 9. The farmer should give absolutely reliable information about this production. If the supplied information appears to be incorrect the farmer will no longer be allowed to take part in the IQC system.

On paper, it seems a small step to turn an Integrated Quality Control programme into an Integrated Quality Assurance programme. In reality it is more difficult: it is the step, leading to the correct balance between the responsibilities of government, industry and consumer.

The IQC systems that were designed are well suited to include residue control: on the one hand, by agreements including the non-use of undesirable veterinary drugs and other substances, and on the other hand, because interested clients in the chain perform samplings to verify whether the contractual obligations of the previous links have been met.

An associated form of successful cooperation in this field between the government and industry in our country led to the establishment of a foundation welcoming almost all calf-fatteners, all calf-milk producers and all calf-slaughterhouses as members. Repeated publication of the misuse of growth stimulants—forbidden in our country—has almost bankrupted this sector. This foundation has the aim to move from an Integrated Quality Control programme to an Integrated Quality Assurance system.

Now all the parties concerned have concluded contracts subjecting them to a rigid examination programme to check on the use of illegal substances. Positive find-

ings meet with very heavy financial sanctions—articled out of court. As you would expect, positive findings reported by the governmental residue check programme for fattening calves have steeply declined since this private programme started.

In the beef production sector too, a comparable programme was launched by the industry—in cooperation with the Dutch government.

Actually, this type of producer group associations is in line with GMP codes: it is a concatenation of GMP codes for all links involved, subsequently or laterally, where tough sanctions are used to change a relatively non-committal attitude into a code that can be enforced by the sector itself.

For countries or areas possessing an adequate infrastructure in the sector of animal production, I expect that for the future producers will start to produce with ISO certifications, with a special assurance for the absence of illegal residues. Quality assurance will be audited periodically by an independent certifying institute. Sales from one link to another will only be possible between certified operations that can guarantee complete quality and wholesomeness of the product in this respect.

INTEGRATED APPROACH TO RESIDUE AVOIDANCE

Only an approach focused on the use of all suitable tools in due time will lead to a residue avoidance that guarantees what it is supposed to guarantee, while still remaining affordable.

Certain elements need to be stressed when training those involved in the production of animals and meat: how to deal with veterinary drugs, one's attitude toward air, soil, and water contamination, and a conviction that illegal substances have not been declared illegal lightly.

But certainties cannot only be found in the animal production chain. Even the question of whether a certain substance may be produced at all, should in my opinion, be evaluated by each manufacturer against residue risks. For manufacturers of veterinary drugs, such limiting conditions as a short excretion period, availability of a simple and inexpensive analysis of the residues left in the animal or meat, and optimum information for the user should be routine. It goes without saying that the above-mentioned evaluation is made once again when approving substances, but then it is based on the needs of society. On this level there is a need for discussion between consumers, scientists, government and producers.

Feed suppliers play an essential role in residue avoidance: Tests of final products guarantee that no undesirable substances enter the food chain through feed. An attitude and approach that exclude unwanted contamination is also required.

Finally, for efficient residue avoidance, one must search at that place and time in the entire chain where the highest concentration is expected. Monitoring programmes, specific actions and temporary individual residue-inspections need to be based on that principle. In new E.C. legislation there will be more samples taken on the farm instead of the slaughterhouse. The Dutch Integrated Quality control-system for veal-calves (SKV-system) already takes many samples on the farms. The samples are analysed for the use of forbidden compounds such as clenbuterol. In this way residue control will be more preventive and a better part of a total residue avoidance system.

CONCLUSION

In short, residue avoidance involves more than just residue control: limiting conditions when developing new substances; an approval policy where residue tolerance and the suggested analytical technology are considered; permanent education of and information for all who are in any way involved in cattle and meat production; contractual guarantees in the production chain for the absence of illegal residues; evaluation and continuous development of adequate sampling and analytical methods; expert inspection; and finally prosecution in relation to the violations committed. All these elements can lead to adequate and affordable residue control, but only with the mutual cooperation and coordination of all parties involved.

And so I have come to the end of my lecture. I gave you the actual information about the Dutch residue programs on the one hand and on the other hand I pointed out our view on the future development residue avoidance.

Let me give you once again my personal belief. Real reliable residue avoidance can only succeed if it is based on agreement between producer, government and consumer/client; if it is flexible; and if it places responsibilities primarily with those who can actually influence the absence of undesirable residues.