

Efficient pigs of high quality in Denmark

Better feed conversion, 12-13 uniform piglets per litter and improvements regarding piglet health are the up to date objectives for Danish pig breeding and pig production. Future breeding is based on knowledge of up to 9% of the pig's genes which have now been charted via Danish-Chinese cooperation.

"Our efficiency and this uniform quality are important reasons for the fact that Danish pig production is acknowledged for being competitive."

This statement was made by Director Orla Grøn Pedersen, of the National Council for Pigs, at the recent Agromek Exhibition in Herning, Denmark. The National Council works for the optimisation of Danish pig production via development of breeding and production. The National Council presented the latest results of its efforts at Agromek.

Efficiency helps costs

Efficiency in primary production has resulted in our being reasonably competitive regarding costs.

When the products are sold, these are highly uniform as a result of breeding work. In addition, Danish slaughterhouses are very good at processing the uniform carcasses as various cuts which comply with the numerous and varied demands from markets all over the world.

There is a lengthy tradition that Danish slaughterhouses supply precisely those meats that have been ordered.

Their breeding system is controlled by the producers. There are no shareholders who must earn from breeding work. The Danes can plan their breeding objectives with the exclusive purpose of improving efficiency in the Danish pig sector and improve marketing possibilities for their pork meat products.

This has been a colossal force and it has led to the attainment of more uniform and efficient pigs. No other country has a comparative national breeding system.

Danish pig breeders and multiplier herds supply livestock and breeding material for pig breeding and pig production to other parts of the world.

Pig producers in other countries show great interest in Danish breeding stock. Among other factors, this is due to their sows providing 25-28 piglets or more without problems, regardless as to where



these sows are in the world. In addition, these piglets are uniform – also in the following generations – and they have a high growth rate together with a low feed consumption.

Fortunately, hardly any complaints concerning exported breeding livestock are received. These pigs thrive to a surprising extent in other countries, regardless as to whether this involves China, Southern European countries, Brazil, USA, Canada or other countries.

Exports involve breeding stock for the establishment of central and multiplier herds, which are thus supplemented with genes from Danish breeding stock.

Better at utilising new technology

In Denmark, there are no large pig herds when one compares their herds with the extremely large herds that, for example, exist both on individual farms and at the various production companies in the USA.

The fact that herds in Denmark are owned by farmers means that there is a greater attention to all details in the individual herd. The individual farmer follows up on those possibilities which exist for developing production and these are carried out in close cooperation between the farmer and the farm employees.

All in all, Danish pig farmers are better

at utilising all available technology than their competitors in other countries. This is due to the fact that many farmers place an intense focus on ensuring that their own farm operates in the best possible manner.

This does not imply that all farmers are equally good at their work, because there is a considerable variance in the results attained by the various pig herds.

Considerable trust in new research

The Danes exploit the resources they have in Denmark to the optimum. There is a very close cooperation between the governmental research institutions and the agricultural community on a model that does not exist in other countries.

They do not compete internally. On the contrary, they base their work on each others results. They cooperate by participating on testing and research committees in which they strive to coordinate things in the best possible manner – for the benefit of the environment, livestock welfare and food safety, plus for efficiency.

In addition, Danish farmers have probably more trust in the know-how, that they receive from researchers and advisors, than is the case with their colleagues in other countries.

Via their high schools and their cooperative movements, they have a tradition for joint effort. The Danes succeeded in introducing production levies which ensure that all farmers contribute to pay for the greater part of creating new know-how via research, testing and practical application trials.

Danish farming has also built up an impartial advisory system in which the farmers employ their own advisors. These advisors must be independent of supply companies. A corresponding impartiality is also applied within the testing authorities that function in close co-operation with governmental research institutions, but also in close co-operation with those companies that supply the Danish farmers.

"I am convinced that these conditions result in trust in the know-how which is available to Danish farmers," stated Orla Grøn Pedersen.

The National Council for Pigs works towards the optimisation of Danish pig

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production by maintaining its focus on both breeding and production. Feedstuffs, installations, pen fittings, ventilation and electronics are subjected to intensive, comprehensible testing, for example, via the so-called mobile testing units in various pig herds.

In the production year 2003-2004 alone, the national Council published 54 reports and seven findings regarding innovative know-how.

Every year, the National Council holds a two day congress, at which many different topics are discussed. In 2004, almost 2,000 delegates could choose from a total of 60 different contributed subjects.

In the middle of the 1990s, The National Council for Pigs developed the Info Svin information system in which all accessible know-how concerning pig production was collated on CD-rom.

Info Svin is now available in an internet version which is available to all free of charge.

The National Council's Year Book presents the results of the year's involvement. This publication is also available in English so that the information is accessible for colleagues in other countries.

Regarding the Danish openness concerning new know-how in pig production, Orla Grøn Pedersen told us, "Our know-how is freely accessible for all interested parties in Denmark. In addition, it is our experience that when we sometimes have to travel abroad to gain know-how and inspiration, then it is also necessary for us to maintain an open attitude regarding our own results.

"Naturally, our task is not aimed at making pig production more efficient in other countries. But our information is available for all."

More stringent demands in Denmark

In certain areas, the Danes have more stringent demands concerning the environment than those which exist in the majority of other countries.

According to the EU nitrate directive, one can spread 170kg nitrate per hectare. In Denmark, they have decided that 140kg nitrate per hectare is the limit for pig farms.

The Danes were the first to implement the Zoonosis Directive which is mainly aimed at combating salmonella. They initiated this in the middle of the 1990s, whereas other countries are only just initiating it now. However, Sweden has had an efficient control of salmonella for the past 50 years.

In reply to a question regarding how high an extent of extraordinary national demands the often pressed pig produc-

tion sector can withstand, Orla Grøn Pedersen told us, "We cannot absorb additional demands that result in increased costs.

"For example, in 1998, we decided to stop using antibiotic growth promoters for porkers and stopped applying these for piglets in 2000. This involved increased costs.

"The salmonella action plan also involved increased costs.

"However, in retrospect, I am pleased that we took the lead in these two areas.

"The political climate in Denmark defines that we have to continue to take advanced steps in such matters. Otherwise it will be even more difficult to operate pig production in this country."

In addition, it is a good factor for Denmark – as the world's leading exporter of pork products – to be at the forefront in such matters. It provides a definite signal that they make additional efforts to ensure a high degree of food safety.

The Danes cannot document that these efforts result in a higher price for their pork products, but it often means that they gain preference as suppliers.

Despite the fact that Denmark has come a long way, for example, in its efforts to create an improved environment, there are still a number of challenges to pig farmers during the coming years.

Orla Grøn Pedersen stressed that we have come a long way regarding the environment, but there are still areas where we can improve. For example, with regard to our utilisation of slurry. We must further reduce our ammonia evaporation and we must have better odour control in our production units.

We must be better at positioning our production units at longer distances from rural townships and other habitats so that odour emission does not irritate our neighbours. To date, pig farmers have been held in a vice by planning legislation in that they were only permitted to expand or extend in proximity to their existing buildings.

The Danes were not allowed to locate new livestock housing at the far ends of their fields, despite the fact that this location was far from neighbours. The same applied to positioning of slurry tanks.

Hindered by regulations

Both the authorities who have made these regulations and the pig farmers are currently hindered by these regulations. These regulations must be changed so that, whenever possible, the Danes can position new livestock buildings at a greater distance to rural townships.

When they can gain several hundred metres between the livestock buildings

and their nearest neighbour, then there will hardly be any requirement for filtration of exhaust air from the buildings to reduce odour problems.

However, for pig houses in rural townships, there will be a requirement for some type of air purification in order to solve odour problems. Current technology is not quite good enough as yet. They can collect the ammonia emitting from pig pens, but odour emission is a much more complicated problem.

During the next four years, a great deal of research concerning odour problems will take place. The Danes hope that researchers will succeed in discovering the actual odorants which contribute most to the problem and that professional chemical experts will then be able to develop new methods to greatly reduce odour emission from pig pen units.

Charting of genes applied in breeding

The Danish breeding system is famed for producing meaty pigs. The meat percentage has been increased from approximately 50-60% within only a few years. This means that pork product consumers are protected against a few hundred thousand tons of fat every year.

Orla Grøn Pedersen continued: "We do not continue to pare fat off our pigs. We have not done this for the past decade – and there is no sign that we will have to do this in the future.

"But we will have to improve the feed conversion rate. We have come a long way in our breeding work, but we will have to transfer these fine breeding results out to production units.

"We have been successful in gaining more piglets per litter, but there is still too great a variance in birth weight. In our breeding work, we have the objective of attaining 12-13 uniform piglets five days after birth.. This corresponds to a figure of 27-28 piglets per year sow.

"Finally, we must base our breeding on pigs that possess increased immunity to lung disorders and concentrate on increasing the strength of the pigs so that we have fewer leg joint problems. The requirement for such improvements is particularly obvious in Denmark, due to the fact that we find it odious to apply large quantities of antibiotics in pig production.

These improvements in pig health can be attained via the charting of pig genes, which Denmark has now completed in co-operation with researchers in China. This project has provided a knowledge of the genetic codes from more than 95% of the pig's genes.

More than 100,000 points at which there are hereditary differences between the tested livestock have been discov-

ered. From these findings, it is calculated that 2-3,000 of these have a considerable effect on alterations to the genetic code for protein synthesis and thus for the pigs' characteristics.

Improving welfare and meat quality

The Danes are currently engaged in investigating how they can utilise this knowledge in their breeding involvement. In addition to the health promoting characteristics, they may be able to apply this new knowledge towards improvement of livestock welfare and meat quality.

This major research project concerning pig genome has been undertaken by the National Council for Pigs, Denmark in co-operation with the Beijing Genomics Institute, China, plus Danish Fieldwork Research and the Agricultural College of Copenhagen. n