

Animal Sciences Group

Kennispartner voor de toekomst



process for progress

Report 103

PIGCAS Stakeholder Congress

February 2008



ANIMAL SCIENCES GROUP
WAGENINGEN UR

Colophon

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Abstract

Piglet castration as a means to reduce boar taint in pork is an issue hotly debated in a number of European countries. Potential solutions need to be found in an international context. The EU PIGCAS project and the Dutch 'Road Map' project ("Meer beren op de weg") joined forces to organize an international stakeholder congress in Noordwijk, NL, on 29 and 30 November 2008. The congress aimed to stimulate discussion among stakeholders in the pork chain. This report contains the papers presented, as well as an overview of the feed back from stakeholders in the workshop sessions. It concludes that although it remains a challenge to get everyone to agree on potential solutions, the congress almost certainly succeeded in raising awareness of the various concerns among all stakeholders present.

Keywords

Castration, piglets, boar taint, pork quality, stakeholder dialogue, animal welfare

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PIGCAS Stakeholder Congress

H.A.M. Spoolder and W.H.M. Baltussen

February 2008

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landbouw, natuur en
voedselkwaliteit



Animal Health

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Introduction

About 100 million male pigs are surgically castrated in EU every year. Castration performed without anaesthesia and post-operative analgesia is very likely to induce pain, independent of age, and is therefore, both a painful and a stressful event. From an animal welfare point of view, this is not an acceptable practice. However, there are serious concerns over the quality of pork of intact males, as boar taint, an unpleasant odour and flavour that occurs in a proportion of the entire males, may result in poor palatability. The latter is in fact the main reason why male piglets are routinely castrated on the vast majority of farms in Europe.

On 29 and 30 November 2007 a congress was held in the Netherlands on the issue of piglet castration and boar taint in pork. Nearly 100 people from different stakeholder groups involved in the production, processing, sale, consumption and societal aspects of pork came together to exchange their views on the issue, and reflect on the future direction of pork production.

The meeting was organised by the Animal Sciences Group and LEI, both belonging to Wageningen UR, as a joint event between the EU financed PIGCAS project and the Dutch 'Road Map' project ('Meer Beren op de Weg') financed by the Dutch Ministry of Agriculture. Additional sponsorship for the Noordwijk meeting was obtained from a number of stakeholder organizations (see Acknowledgements section) .

The objectives of the meeting were:

1. To get closer to a definition of 'boar taint'
2. To identify 'clashes' of interests between stakeholders, and possible ways to solve them
3. To increase awareness of the problem of castration, with the aim of a common 'desire' to stop
4. To re-evaluate alternatives to castration

The present report is a record of the meeting. It includes –among other things- the slides of the plenary speakers, an insight into the discussions in the various work shop sessions, and the opinions of stakeholder groups to statements on piglet castration.

It must be noted that neither the congress itself, nor this report aimed to collate, develop and analyse potential solutions to stakeholder problems. As such it is not a scientific study, nor can its outcomes be interpreted to represent views of European stakeholder groups. The views expressed are those of the participants. However, although they should not be analysed in a quantitative sense, the views can be assumed to represent the majority of those present among European stakeholderst. They may therefore provide valuable input for further discussion on this topic.

Congress Programme

Programme Day 1: Thursday 29th of November

| | |
|-------------|---|
| 12.00 | Arrival and lunch |
| 13.30 | Short welcome by the Chairman <u>Prof. Rolf Claus</u> |
| 13.35 | Opening by <u>Mrs. Gerda Verburg</u> , Minister of Agriculture, Nature and Food Quality, The Netherlands |
| 14.00 | Introduction by <u>Dr. Denis Simonin</u> , DG SANCO, European Commission |
| 14.30 | Presentation of PIGCAS project, its objectives and methodology by <u>Dr. Michel Bonneau</u> |
| 14.45 | Coffee Break |
| 15.15 | Practice of castration by <u>Dr. Bente Fredriksen</u> |
| 15.35 | Attitudes of different stakeholders towards pig castration and alternatives by <u>Dr. Maria Angels Oliver</u> |
| 15.55 | Brief explanation of Workshop approach |
| 16.00 | <u>Stakeholder workshops</u> : groups of 12-15 stakeholders discuss future scenario's in the boar taint and castration debate (opportunities and threats) |
| | Coffee, soft drinks served in Workshop rooms |
| 18.00 | Appetizer |
| 19.00-23.00 | Buffet dinner and informal discussion |

Programme Day 2: Friday 30th of November

| | |
|-------|--|
| 09.00 | Reflection on Day 1, introduction of day 2 |
| 09.15 | <u>Thematic workshops</u> : small groups of different stakeholders discuss one of several themes related to reduction of boar taint. |
| 10.45 | Coffee Break |
| 11.05 | <u>Workshop Feed back</u> |
| 12.00 | Concluding comments, thanks and farewell by <u>Dr. Michel Bonneau</u> |
| 12.10 | Lunch |

Opening speech by Mrs. Gerda Verburg

Opening speech by the Minister of Agriculture, Nature and Food Quality, G. Verburg, at the International Conference on Piglet Castration (PIGCAS) 29 November 2007

Thank you Mr Chairman for the opportunity to open this two-day conference on pig castration.

I would like to welcome you all to Noordwijk, on the North Sea. Our decision to pick a venue on the North Sea, with its high annual levels of rainfall, was, you might say, based on strategic reasons. Because when I see your packed agenda, you would have had little opportunity to enjoy the sunshine anyway.

Ladies and gentlemen, Castration of animals is practiced all over Europe, not just here in the Netherlands. And it usually began with their domestication.

It was done mainly to prevent animals from producing offspring, but also to make them more manageable. Although pigs do become more manageable after castration, the main reason for this procedure is to prevent what is known as boar taint. Boar taint is a distinct and unpleasant odour, that can be present in pork and products thereof and is released during cooking. I heard that you will get the opportunity to experience this for yourselves today. But let me assure you, the meat presented at the lunches and dinners is absolutely free of boar taint.

In former days there were people whose job it was to castrate animals. Farmers whose piglets had to be castrated made this known by putting a rake by the side of the road so the castrator would know he was needed. Nowadays pig producers castrate their animals themselves, but anaesthetics are rarely used. In some countries pig castration is rare; there are countries where the market demands explicitly that pork be obtained from non-castrated pigs. In other countries consumers want pork from castrated pigs only.

In the Netherlands pigs are castrated without anaesthetic, although the organic sector introduced the use of the anaesthetic Lidocaine in July this year. There is great demand for Dutch pork and pigs. More than half of Dutch pork and over 4 million pigs are exported annually, mainly to countries that only accept castrated pigs or meat from castrated animals. As a result, pig castration cannot be stopped overnight. Nonetheless, the Netherlands will aim to put an end to this procedure by no later than 2015. Not through a ban, but through market forces.

The Netherlands is not the only country that wants to put an end to this practice. I am pleased to hear that several countries want to stop pig castration or make it less painful.

The call for change in this country is not only due to public concerns about animal welfare, but Dutch pig farmers are also keen to see an end to this practice, as they consider it a very unpleasant business. The average pig breeder in the Netherlands with two hundred and fifty sows has to castrate close to sixty piglets a week, which is a matter of some concern. Pig farmers also indicate that boars produce leaner and better quality meat, have a better feed conversion ratio and produce less manure. A ban on castration would therefore not only improve animal welfare, it would also be beneficial to the environment and economy.

Substantial pressure from a Dutch animal protection organisation, called 'Wakker Dier' has resulted in many Dutch processors and sellers of pork refusing to purchase meat from animals that have been castrated without anaesthetics, or even in some cases from non-castrated animals. The process is evidently moving very quickly.

I think that by 2009 most Dutch pork will be obtained from animals that have been castrated under anaesthetic. This afternoon an agreement will be signed by organisations representing the pork chain, from farmers to supermarkets. This move symbolises efforts to put an end to castration, but as no concrete solutions have been found yet, the issue in the meantime is resolved by castrating pigs under anaesthetics.

I think this is an important development not only from the perspective of animal welfare, but also the way in which this step has been implemented by the market, rather than the government.

Nonetheless, we in the Netherlands believe that castration under anaesthetic offers only a partial solution. Farmers are still required to castrate the piglets themselves, and the animal's integrity continues to be affected.

A small portion of the market appears to have found a way of preventing pig castration by producing pigs of a lower weight. However, the majority continue to be dependent on heavier pigs and demand castrated pigs.

The aim to stop pig castration as of 2015 cannot therefore be realised without help, and my Ministry will therefore provide this assistance. As Minister of Agriculture, Nature and Food quality I am also responsible for promoting animal welfare policy, the central theme of which is safeguarding animal integrity. This involves ensuring there are as few surgical interventions as possible, unless surgery cannot be prevented.

This is also true for castration. Keeping non-castrated pigs may require a different management approach, but I am sure that pig farmers are able to meet this challenge. A much greater challenge is to continue to provide the guarantee that the meat is free of boar taint, and to ensure that key markets are prepared to accept this meat.

It is therefore not only the exporting countries that face problems, domestic markets will also require pork that is free of boar taint. One way of providing this guarantee is by slaughtering pigs earlier, although this is not the only solution, and neither is it the most desirable option. Over the next couple of days various other methods and techniques will be assessed, including castration under anaesthetic, sperm sexing, immuno-neutralisation, detection on the slaughterline and breeding.

I do not think there is one concrete solution to this problem. The issue will be addressed primarily by a combination of techniques, and I believe the market itself will determine the appropriate methods and techniques for putting an end to castration.

It is important that this discussion takes place on a European level. Our understanding of what boar-taint free meat is must not be subject to debate. There should be a single definition that is acceptable to the market.

Within Europe a great deal of research is conducted into how boar taint develops and how it can be prevented. This conference is essential for ensuring everyone is aware of all the latest developments. There are many other parties in attendance at this conference besides researchers. I trust that you will take this opportunity to think about a collective approach to stopping castration.

The European castration workshop held earlier this year leads me to believe that we do have a common agenda in this respect. After the workshop the Dutch media reported that a solution was still far from sight, but I do not agree with this assessment.

If we are to collectively make a change, it is important that we share each other's vision. Dialogue is therefore key. In my view, that workshop marked the first step in the dialogue. This dialogue will be further developed over the next two days, and I am convinced it will be continue to develop over the coming years.

The fact that a dialogue has been established suggests to me that the will is there, and there is a light at the end of the tunnel, even if the tunnel is a very long one. As a marathon runner, I am not one to shy away from a challenge. If the will is there, the finishing line is never far away.

I hope you have a rewarding conference.

Thank you for your attention.

Slide presentation by Dr. Denis Simonin

EUROPEAN COMMISSION

Castration of piglets *European Commission perspectives*

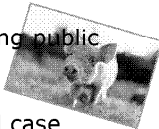
Denis Simonin - Unit D2 Animal Welfare and Feed
Directorate General Health and Consumer Protection -
European Commission

The views expressed here are purely those of the writer and may not in any circumstances be regarded as stating an official position of the European Commission.

EUROPEAN COMMISSION

Introduction

- Animal welfare is growing public concern
- Pig castration: a special case
 - Mainly consumer driven
 - Different approaches in Europe



EUROPEAN COMMISSION

PIGCAS Project

- In line with the Community Action Plan
 - Improving existing standards
 - Promoting further research
 - Increasing stakeholders awareness

EUROPEAN COMMISSION

EU standards on pig castration: Animal welfare

- Directive 91/630/EEC (amended by Commission Directive 2001/93/EC)
 - Castration without anaesthesia is authorised up to 7 days of life (before 2003: 4 weeks of age)
 - Castration by tearing tissues is forbidden

EUROPEAN COMMISSION


EU standards on pig castration: Food Safety



- Before 2006
 - limited use of carcasses of uncastrated pigs over 80 kg
- From Regulation (EC) No 854/2004 on official controls:
 - To be declared unfit only if meat indicates « *pronounced sexual odour* »

EUROPEAN COMMISSION


EFSA opinion (1)

- Adopted in 2004
- Castration without anaesthesia is painful *even under 7 days of age*
- Anaesthesia and analgesia are recommended
- Entire male pigs should not be mixed





EFSA opinion (2)



- Chemicals and immunocastration not recommended
- Sexing sperm and genetic selection not yet available
- Limit of 80 kg of carcass weight not scientifically based
- Need for an harmonised system of detection of boar taint

Increasing stakeholders awareness

- May 2007 AGRI Council request on animal welfare labelling
- Feasibility study on animal welfare labelling and AW Centre to start in 2008
- Pig castration: a possible case for AW labelling?

Workshop on pig castration




- European Commission Workshop on pig castration in Brussels January 2007
- « *Reflections towards alternatives* »
- To update Member States on alternatives to pig castration without anaesthesia



Workshop on pig castration (2)

- Three conclusions:
 - Develop information tools to keep stakeholders informed
 - Organise a stakeholders' meeting (as today)
 - Impact assessment on alternatives


 

Possible Commissions future initiatives?

- Feasibility study on animal welfare labelling
- Impact assessment study on the alternatives to pig castration
- Research for the detection of boar taint at the slaughterline

Conclusion



- Pig castration is an important AW concern
- Complex subject with different alternatives
- No clear immediate and unique solution applicable to all Europe
- Importance of informing the consumer and promoting alternatives

Slide presentation of PIGCAS project by Dr. Michel Bonneau

PIGCAS

Attitudes, practices and state of the art regarding piglet castration in Europe

Overall objective
To provide information on pig castration that will support EU policy

- SSA Specific Support Action
- 100 000 € - EU Commission
- 2007-2008
- 10 participants from 10 countries (9 EU)

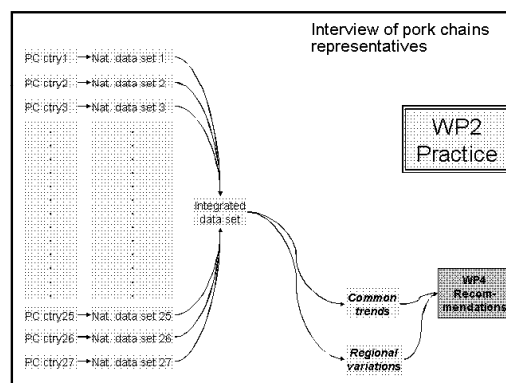
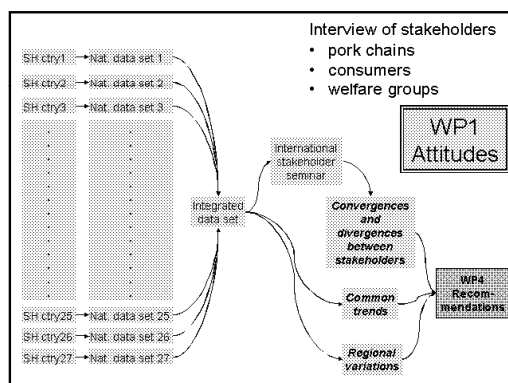
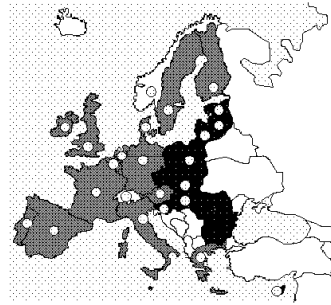
Specific objectives

- to collect information on the **attitudes** of relevant stakeholders;
- to collect information on the **practice** of pig castration;
- to evaluate research work and other information in order to examine the various **alternatives** to surgical castration without anaesthesia and derive **research priorities**;
- to **integrate** the collected information and evaluation in a report providing **support for EU policy**.

WP1
Attitudes

1 national contact in each country was in charge of interviews

WP2
Practice

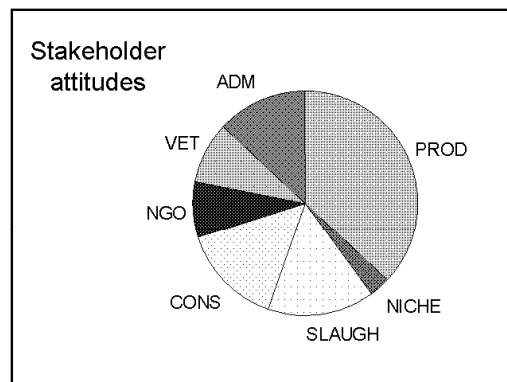
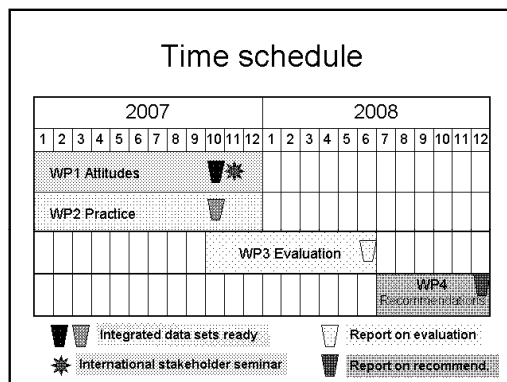
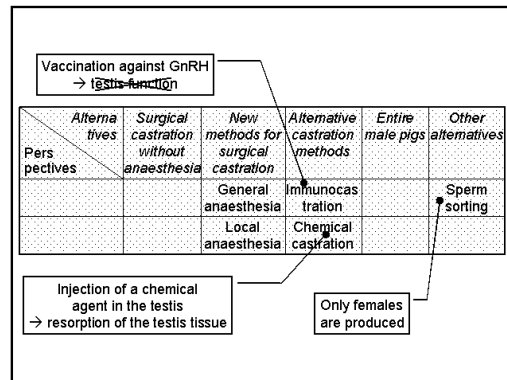


WP3 Evaluation

Evaluation of

- Surgical castration without anaesthesia
- Potential alternatives

| Perspectives | <i>Alternatives</i> | <i>Surgical castration without anaesthesia</i> | <i>New methods for surgical castration</i> | <i>Alternative castration methods</i> | <i>Entire male pigs</i> | <i>Other alternatives</i> |
|----------------|---------------------|--|--|---------------------------------------|-------------------------|---------------------------|
| Attitudes | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Practice | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Animal welfare | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Pork quality | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Economy | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Efficiency | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |




- ## Stakeholder attitudes
- What is your attitude towards
 - Surgical castration without anaesthesia
 - Surgical castration with anaesthesia
 - Immunocastration
 - Raising entire males
 - Sperm sorting




- ## Stakeholder attitudes
- Interviews of representative people from the main organisations that are concerned by the topic of piglet castration
 - It was NOT a comprehensive survey of the attitude of citizens, consumers and chain actors in European countries

Slide presentation on the practice of castration by Dr. Bente Fredriksen

Practice on castration of piglets in Europe




Results of Work package 2
in the EU project
PIGCAS (2007-2008)


Objectives WP2

- To improve knowledge on the extent of the practice of castration and how it is performed in Europe
- To gather and evaluate information about
 - extent of practice
 - conditions under which castration is performed
 - variations between countries;
- For comprehensiveness, all the different kinds of production systems that are active in a country are to be considered, even those that operate on a smaller scale.



Collecting the data


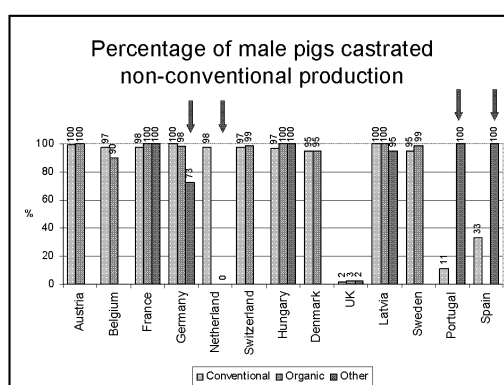
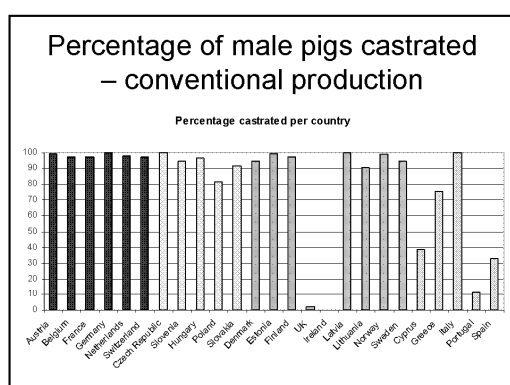
- Regional co-ordinators
- National contacts
- Stakeholder organisations
 - Farmers/breeders
 - Veterinarians
 - Meat industry
 - Pig health services
- Common questionnaire

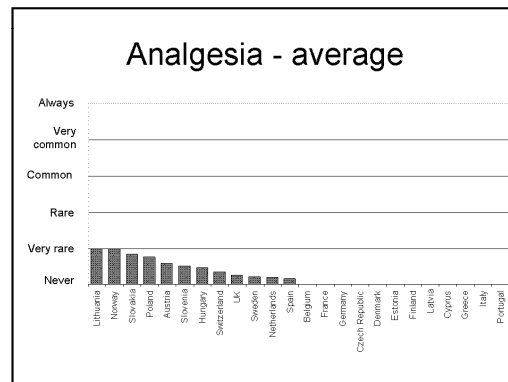
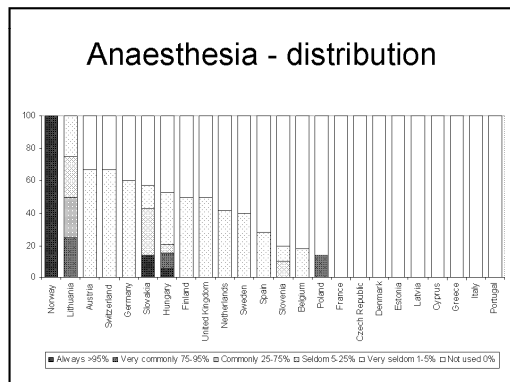
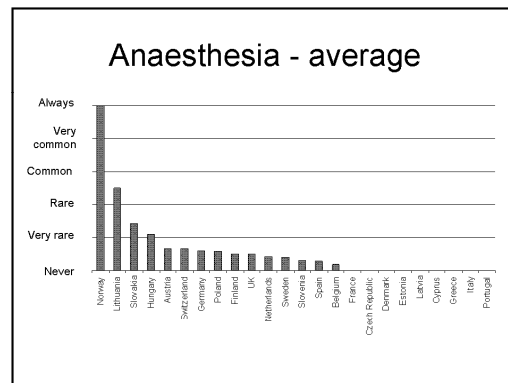
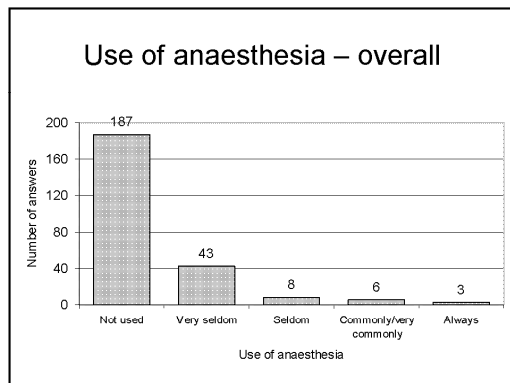
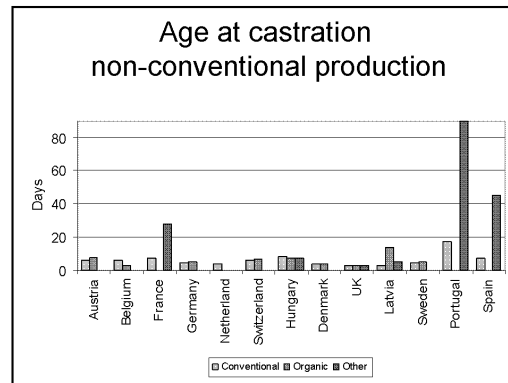
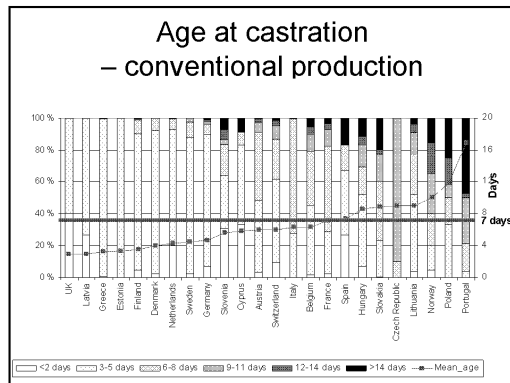


Presentation of the data

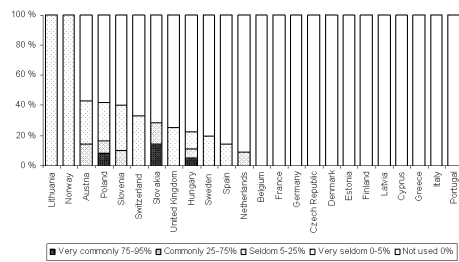
- Average within each country
- Distribution of answers within each country
- Different production systems treated separately
- Comparison of stakeholder groups – not possible

➤ **Interpretation of the results must be done with care**

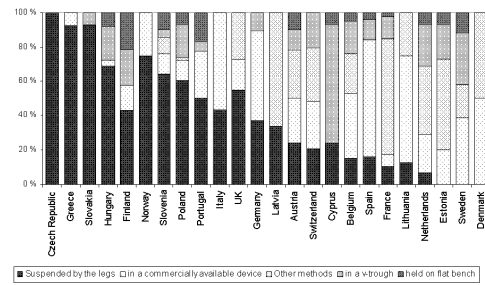





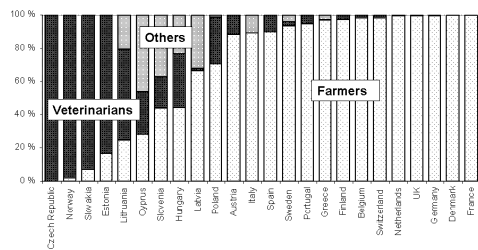
Analgesia - distribution



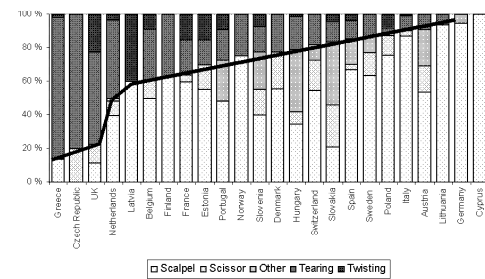
How common are these different types of restraining of piglets during surgery?



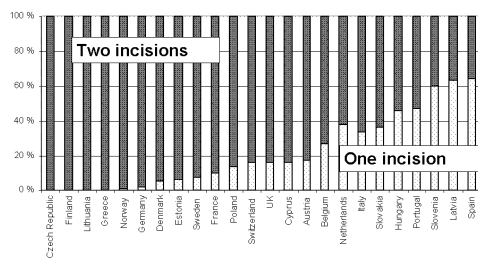
Who performs the castration?



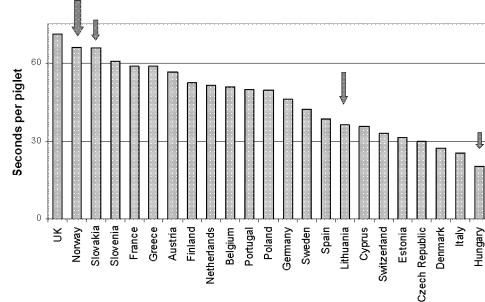
Procedures used to cut the spermatic cord



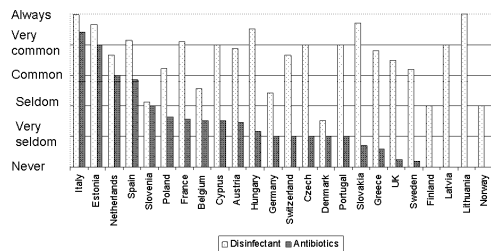
Two incisions



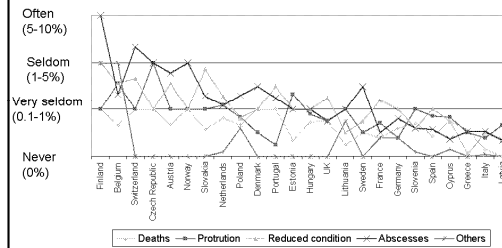
Time consume - castration



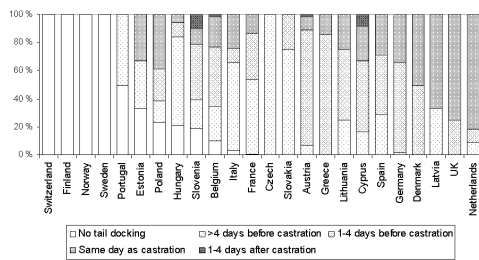
Use of disinfectants and antibiotics



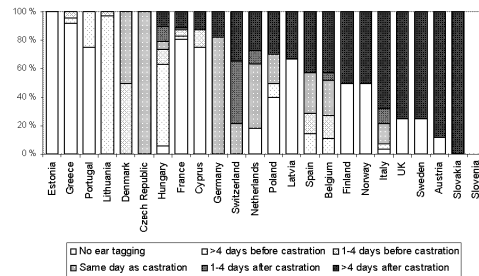
Complications



Tail docking



Ear tagging



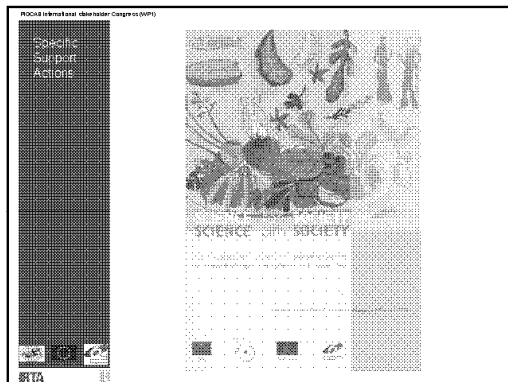
Conclusions

- Castration is very common in most countries
- Some countries find it possible not to castrate
- Use of anaesthesia and analgesia is rare but increasing
- Age at castration and procedures for castration differ widely both within and between countries
- Adverse consequences are rare
- Practices are similar in conventional and organic systems, but differ markedly for some extensive systems

Slide presentation on the attitudes of different stakeholders by Dr. Maria Angels Oliver


PIGCAS

01/12/2007

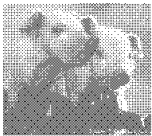


Consumer's concern

For many years the consumers were concerned about the **eating quality** of the meat



Nowadays, there's a new ethical issue related to consumer's concern about **animal welfare**



Objectives WP1

1.1 To collect and evaluate information about the attitudes of stakeholders regarding piglet castration without anaesthesia and its possible alternatives. To derive points of convergence and divergence both between and within the different categories of stakeholders.

To summarise the information at an international level, derive common trends and variations between regions.

1.2 To establish contacts and facilitate the mutual knowledge of attitudes between the scientific community and the various categories of stakeholders.

Methodology used for the data collection

Questionnaire for stakeholders' attitudes

- A questionnaire was designed to ascertain the attitudes of different stakeholders on surgical castration in piglets and the alternatives.
- A translation of the questionnaire into **ALL** the languages of the participating countries.
- The National contact persons collected all the data and an statistical analysis was carried on.

Guidelines for the collection of information on stakeholder attitudes

A short explanation about the performance of the different alternatives to surgical castration without anaesthesia was given to stakeholders before being interviewed.

- Surgical castration with anaesthesia
- Immunocastration of male pigs
- Raising entire male pigs
- Raising only females

11. To which category of stakeholders do you belong to?

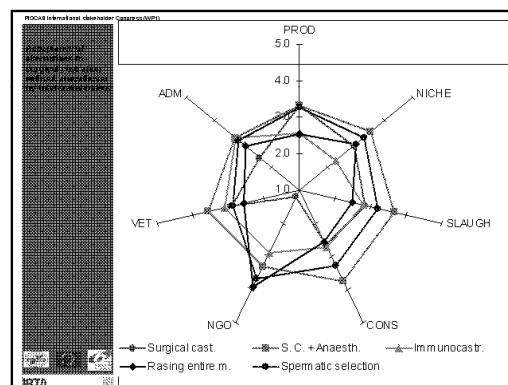
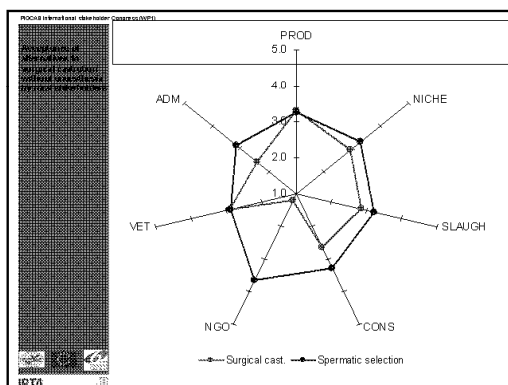
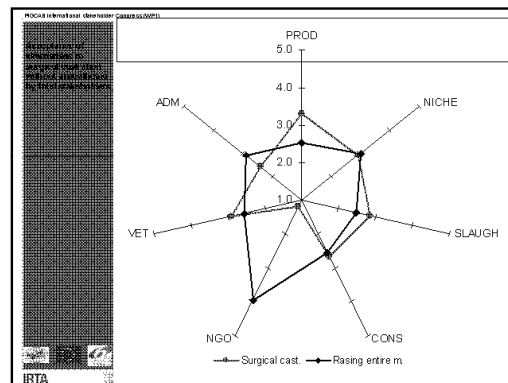
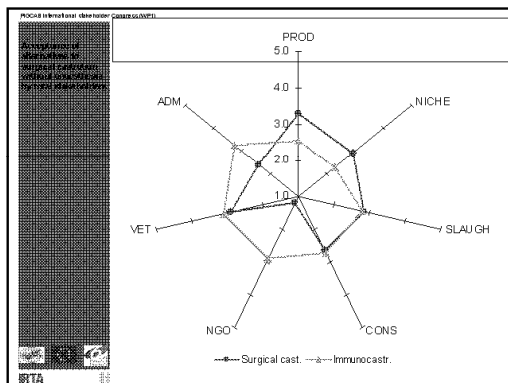
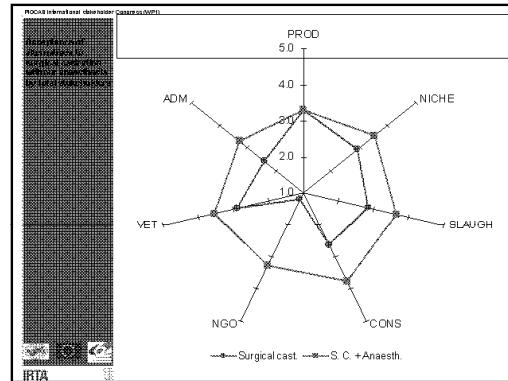
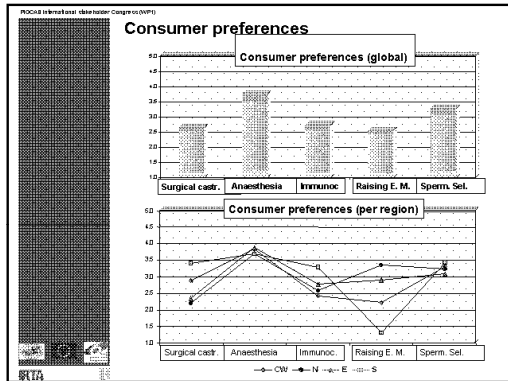
| Stakeholder | Category |
|---|----------|
| Pig producers (main stream) + feed companies + breeders | 1 a |
| Pig producers (niche) | 1 b |
| Slaughterhouses + meat industry + wholesalers | 2 |
| Consumers + retailers | 3 |
| Animal welfare NGOs | 4 |
| Veterinarians | 5 |
| Public/Government administration | 6 |

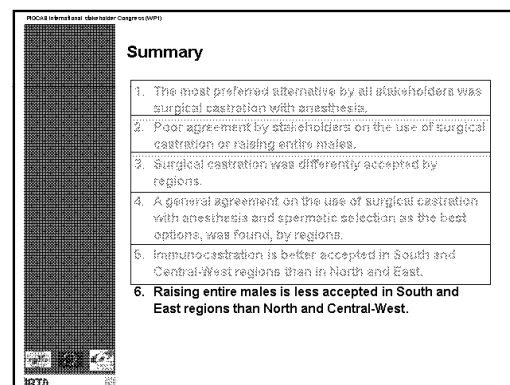
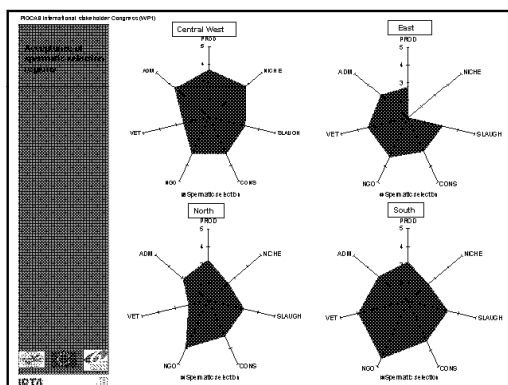
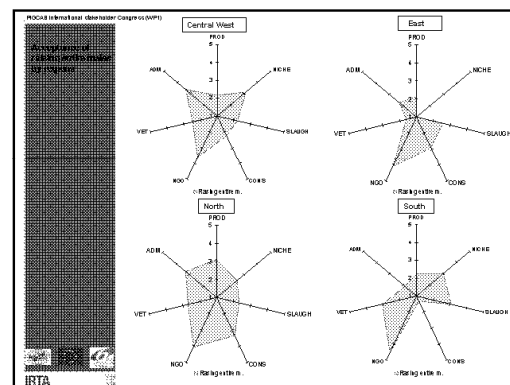
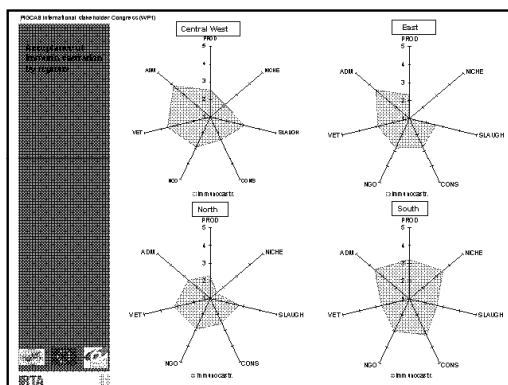
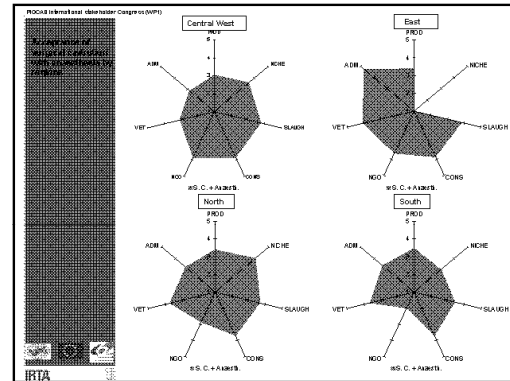
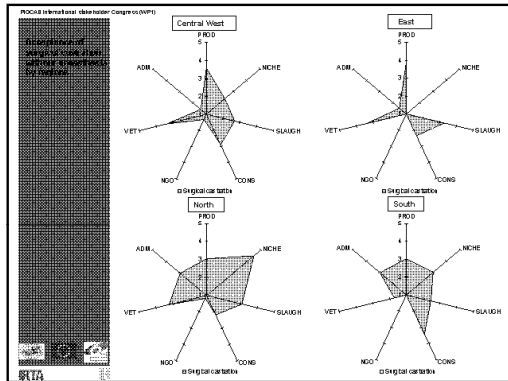
If some people marked more than one category, we assigned only one answer to one category.

Each one of the respondents was described as only one stakeholder type.

PIGCAS

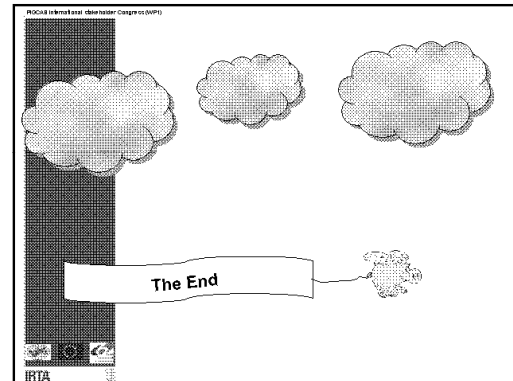
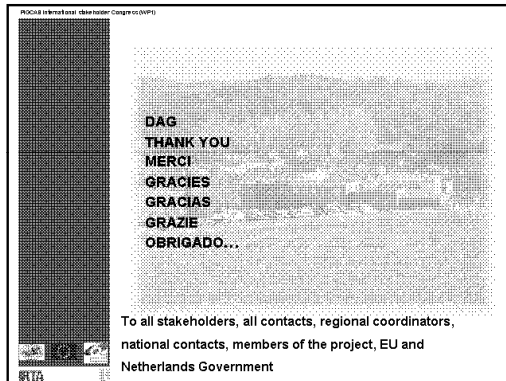
01/12/2007





PIGCAS

01/12/2007



Stakeholder workshops

On Thursday 29th, 16:00 – 18:00 a maximum of 20 representatives of a specific stakeholder group from different countries (Farmers, Veterinary professionals, NGO, Government, Retail/consumers, meat industry) got together in small work shop groups. These groups discussed the PIGCAS results and to gave a view on the subject of castration and alternative strategies for preventing boar taint (including relevance and timeline).

The general aim was to develop a shared understanding of the PIGCAS results, an exchange of views on the subject within the stakeholder group, and a deeper understanding of the differences within the group.

The groups produced a one-liner representing the main perspective of the stakeholder on the subject of alternatives for castration. The one-liners from every stakeholder group were printed on dinner-cards for informal discussion during the evening.

The groups addressed the following questions to reach the objectives:

1. What's is new/relevant in the PIGCAS results (practice and/or attitudes)
2. Are there triggers/developments that make looking for alternative scenario's for castration relevant for this stakeholder group? and why (not)?
3. What do they consider to be the pro's and con's of the different alternatives?
4. What's the preferred scenario for alternatives for castration for this stakeholder group, and when should it be reached.
5. Formulate a 'teasing' one-liner to share your stakeholder perspective with other stakeholders

Some notes from the discussions in the groups, as well as the resulting statements are presented in the following paragraphs.

Government representatives / policy workers

Chairperson: Dr. Michel Bonneau

Reporter: Prof. Ebby von Borrel

The statements below pretty much summarise the discussion which was held. Everybody seemed to be quite happy with the situation in which they are right now with the known exceptions of The Netherlands to target a ban in 2015, Norway seems to be reluctant to the implementation of immunocastration and Switzerland would need more time for implementation of a ban to explore better alternative solutions. There was a consensus on doubts for the effectiveness and added value of local anesthesia. In case of a ban for surgical castration without anesthesia, alternative procedures should stay in the hands of the farmer.

Their statements were:

- Decisions are driven by different regional consumer and citizen perceptions within the EU
- Surgical castration is not seen as an optimum but any of the alternatives have to be evaluated for their added value and implementation

Meat industry and slaughter house representatives

Chairperson: Dr. Thomas Kupper

Reporter: John Erik Haugen

Global market acceptance of alternatives (e.g. immunocastration, sperm selection etc.) is essential. There should be a better understanding by the NGO's consumers, farmers etc. of the alternatives and *vice versa*.

The delegates in this session discussed the completely different situations in different countries with regard to issues related to castration and boar taint: for UK, Ireland and Denmark it was not an issue. But for The Netherlands, Norway, Switzerland, Sweden it is a big issue.

Questions asked were:

Who is running the show? There are several actors – NGO's, retailers, Meat industry...

Does the global market accept the alternatives?

Consumer response – consumer acceptance internationally is essential

Consumer education essential – information levels when doing method/alternative surveys

Trade issues related to new alternatives – should be globally accepted for global exporters approval of vaccines (immunocastration)

It was discussed that NGO's will become more aggressive on this issue. The group also discussed the various alternative methods, and their relative merits. They discussed:

Short term:

- surgical castr. with anaesthesia

Long term (5-7 yrs):

- immunocastration – vaccine

- Genetic selection in combination with detection methods

- Sperm sexing

- Processed boar meat

There probably is a need for different systems/solutions in different countries. For the industry one of the critical questions is: what is the proportion of carcasses that need to be rejected (based on Skatole and Androstenone)?

Their statements were:

- Global market acceptance of alternatives (immunocastration, sperm selection etc.) are essential
- There is a need for better understanding by the NGO's consumers, farmers etc. of the alternatives and vice versa
- The cost of alternatives must be assessed (cost/benefit)
- More European research programs are needed

NGO representatives

Chairperson: Prof Sandra Edwards

Reporter: Dr Antonio Velarde

In response to the data presented during the plenary sessions it was argued that the Information provided was not always accurate. It was regarded essential to inform other stakeholders well before discussing the matter. There was however a consensus among NGO's that the current practice is not good.

The use of anaesthesia was suggested as a good starting point, but it was considered not ideal for any length of time. Rearing entire male pigs should be the aim, in combination with on-line detection of boar taint. Diets can be used to reduce boar taint (skatole).

Sperm selection was not considered feasible. Rearing pigs to a low weight still leaves skatole as a problem. At high weights androstenone is.

Genetic selection would mean we might be able to keep to the preferred weight.

It was proposed that all castration should be banned and found a solution for the problem, and that a date had to be found for this. However, the problem is that this will only work if there is a long term solution. We need some short term solution (anaesthesia?). However, if there is only a long term solution, nothing will happen in the meantime. The only cut-off date mentioned for the end of a short term solution was 7-8 years.

Should we support immunocastration? After some discussion it was decided that anaesthesia and immunocastration should be accepted as short term solutions. Perhaps the name 'immunocastration' should be changed to 'vaccination'?

NGO's also agreed that retailers have a certain degree of responsibility, and they have to act.

Their statements were:

- From 1 July 2008 surgical castration should only be allowed with anaesthesia and analgesia.
- From 1 January 2013 surgical castration should not be allowed.
- Retailer should pledge to only sell meat from pigs not surgically castrated from 2013 and, in the mean time to only sell meat from surgically castrated pigs if anaesthesia and analgesia have been applied.

Farmer representatives

Chairperson: Dr. Kees de Roest

Reporter: Dr. Armelle Prunier

Twenty three people attended the seminar. Nearly all of the participants were representatives of pig farmers coming from Germany, Netherlands, Slovenia, Italy, France and Spain. There were some exceptions who were researchers (2) The atmosphere was very good and most of the people contributed to the discussion.

There were some complains about the PIGCAS survey. Some people were not satisfied by the choice of the people who had to answer the questionnaires. Representatives from most of the countries would like to have the results for their own country and have the opportunity to say whether they consider that these results are correct or not. They seemed to be afraid of how the EU Commission will consider these results.

Numerous representatives expressed that the best solution was the existing solution (= surgical castration without anaesthesia). These producers were convinced that they produce what consumers want: cheap meat without boar taint. They also defended the idea that problems come from a minority of people (= welfare NGOs) that are far from the great majority of consumers.

There was some debate about the possibility of rising entire males with the testimony of producers from UK and Spain who emphasized the importance of the genotype to avoid boar taint. In particular a UK representative stressed that through genetic breeding it was possible to prevent boar taint also at a live weight at slaughtering of 90-100 kg. The effect of the live weight was also discussed but again the necessity to respond to the consumer demand (in terms of size of meat parts, boar taint, price of the meat...) was considered as an obstacle to change. The German and Spanish representatives said that in their countries live weight at slaughtering was gradually increasing. In Spain this tendency might create the necessity to castrate more pigs as the live weight at slaughtering may exceed 100 kg.

There was a discussion about the use of anaesthesia. Dutch farmers tried to convince others that it is a good solution. Farmers from other countries were reluctant to general anaesthesia for reasons of cost and safety for the workers (for instance CO₂ may provoke problems). According to the view of German and a Slovenian farmer it would be quite difficult to foresee general anaesthesia with CO₂ as on farm practice carried out by the farmers themselves. Dutch farmers also express the idea that it is very important that producers themselves drive/promote the research by supporting financially the projects they want. In general, producers had the sensation that very often research does not respond to their needs. There is an urgent need for them to dispose of on farm practicable solution for anaesthesia as the Dutch signed an agreement to introduce castration with anaesthesia at the 1st of January 2009.

There was a long debate on immunocastration and most producers seem to be strongly opposed to it. The biggest problem seems to be that of the safety for the workers but there is also the fear that consumers will not accept immunocastration, or that the effectiveness is not sufficient. There was some criticism regarding presence of Pfizer and the fact that PIGCAS is sponsored by Pfizer.

The position of most of the producers could be summarized by that of the COPA representative: producers are ready to accept alternatives to surgical BUT cost of production must not increase, quality of the meat (in terms of boar taint, size of the meat parts...) must be the same, the technique must be without any risk in terms of safety (producers and consumers), acceptance by the consumers. In other words, pig producers seemed very reluctant to change and the seminar ended with the same conclusion as it started: the best solution is the existing solution.

Their statements were:

- At present there is no good alternative available to castration without anaesthesia
- We need more research on alternatives to surgical castration
- The consumers should remunerate the extra costs.

Retailer and consumer representatives

Chairperson: Dr. Gé Backus

Reporter: Dr. Maria Angels Oliver

It was a small group (6 people). Enterprise, consumers, retailers and government were represented. Each of the attendants gave their opinion and comments on the different alternatives to surgical castration without anesthesia.

The main ideas brought up were:

Pros and cons of each alternative

- consumers are not informed
- a global approach, considering all the lifetime of the pig, should be taken
- a medium time solution could be a vaccine, but a long term solution should envisage raising intact males and detect the boar tainted animals at the slaughter line by means of an electronic nose
- future breeding strategies on production and genetics will bring new solutions

Controversial points were:

- Solutions should be market driven. Does that mean consumers driven?
- Attention should be paid to pigs imported from countries out of the European Union. Will they accomplish the same regulations?

Their statements were:

- Through the market we need to provide transparency to the consumer meanwhile keeping meat quality and integrity of the animal
- We need to develop long term solutions and in the short term quickly intermediate solution which may differ per European region

Veterinarians

Chairperson: Dr. Frank Tuytens

Reporter: Galia Zamaratskaia

Alternative to surgical castration were discussed and following conclusions were drawn:

Use of anaesthesia + analgesia

Some of the questions asked in the discussion were:

- a) Are we doing anaesthesia for pigs or for consumers?
- b) Differences between pain and stress
- c) Should anaesthesia and castration be performed by veterinarians or by farmers?

An advantage of the method is that it reduces pain, however, the injection is also painful. It also costs extra money and there is a risk of cutting before anaesthesia starts working. It was also remarked that analgesia is very important and should also be used along with anesthesia

Immunocastration

In the discussion it was remarked that

- a) Information about immunocastration should be clear; both consumers and “production” people should have an access to this information
- b) It is likely that “producers” are mainly against immunocastration, not consumers
- c) A lot of consumer reaction is anticipated, but will it be any reaction??
- d) Advantages were not discussed, but the welfare of the farmer has to be considered (autoimmunization risk).
The veterinarians consider immunocastration at present probably the best alternative to surgical castration

Genetic selection

The consensus was that selection was successfully performed against high androstenone levels, but that it also selected against steroid hormones (and therefore resulted e.g. in a delay in puberty). It was considered not an option now

Sperm sexing

This may be a good option in the future.

So in conclusion: there are two possible alternatives at the moment – local anaesthesia+analgesia, and immunocastration. Both alternatives need improvement.

Their statements were:

- Analgesia is as important as anesthesia
- Immunocastration is currently the best alternative to surgical castration

Sensitivity testing for boar taint

Ellen Skuterud and Bente Fredriksen

A scientific test for sensitivity to androstenone has recently been developed at Animalia Norwegian Meat Research Centre in Norway. A simplified test was used during the Noordwijk meeting for everybody who wanted to know if they can smell androstenone. All participants were offered three bottles which they had to smell. They were not informed beforehand that one bottle contained diluted androstenone, and two only water. They were asked to pick out the one with the strongest smell. To be characterized as sensitive, an individual had to pick out the right bottle and characterize the intensity of the smell.

Forty eight people, 34 men and 14 women, were tested. Overall, 44% were sensitive to androstenone (38% of the men and 57% of the women). Among the men, highest sensitivity was found in the age group 31-40 years, while among the women, the age group 41-50 years seemed to be most sensitive.

Percentages of sensitive people according to gender and region are given in Figure 1. Except from the eastern region that consisted of two men only, people from the central/western Europe seemed to be the most sensitive ones. Please note that the total number of people tested was limited and that the number of people in each group differed, and that some of the groups consisted of very few people.

Among the words used to characterize the smell in the sensitive group of people were "mens room at a railway station", "pen with boars" and "stinks like hell". In the group of non-sensitive people the smell was characterized as "rustic", "warm", "musty" and "chemical".

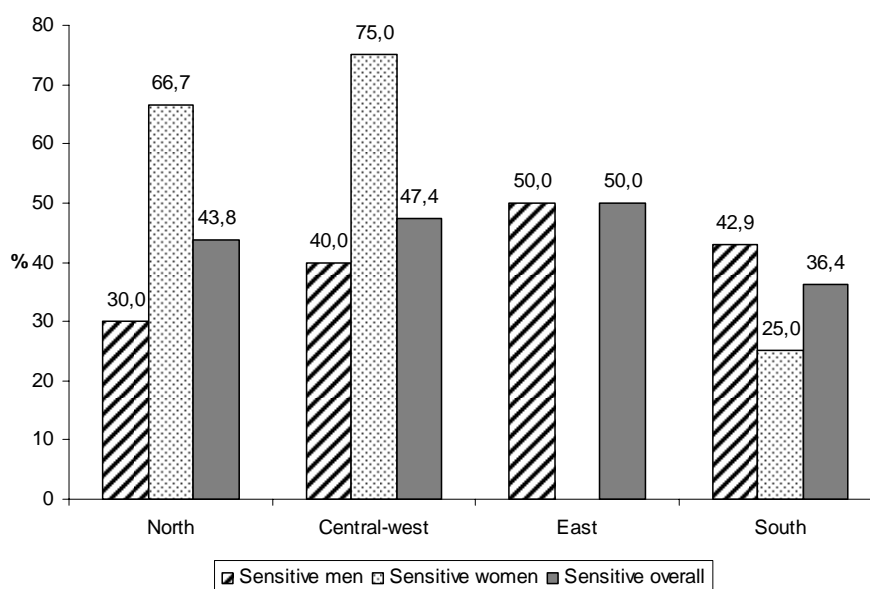


Figure 1 Percentage of people tested that were sensitive for androstenone according to gender and region. The regions used are the ones used in PIGCAS WP1 and WP2. Please note that some of the groups consisted of very few people (East, n=2).

Thematic workshops

On Friday morning between 9:15-10:45 a mixture of 12-18 representatives from different stakeholder groups and different countries discussed stakeholder views on six issues related to castration. They were each asked to present 3 main conclusions on this issue. In the subsequent plenary discussion these 3 conclusions were presented and all delegates had the opportunity to e-vote for the best/most relevant conclusion.

The following people participated in each group:

Animal Welfare (Spiegelzaal, room 40)

Chairman Kees de Roest,
Reporter Galia Zamaratskaia

- Giuseppe Luca Capodiec
- Jostein Dragset
- Niels Peder Nielsen
- Elke Deininger
- Friedrich Ahlers
- Wilhelm Pflanz
- Eskjeur Jensen
- Armelle Prunier
- Live Kleveland
- Jennifer Berenqueras
- Jack Massachs
- Richard Parés
- Lina Andersson
- Johan Beck-Friis
- Lambert Westerlaken
- Phil Brooke (Panel)
- Asmund Prytz



Market Solutions (Maurits, room 11)

Chairman Thomas Kupper
Reporter Frank Tuytens

- Niels Juul
- Birthe Pedersen
- Brigitta Wolf
- Kirsten Sanders
- Sabine Gerlach
- Michael Martin
- Sylvia Pitre
- Anna Vonesch (Panel)
- Marco Leone
- Miquel Higuera
- Henk Hermans
- Martin Houben
- Celia Steegmann
- Martha Gill



Responsibility of Stakeholders (Bernhard, room 10)

Chairman Sandra Edwards,
Reporter Maria Angels Oliver

- Johann Schiederer
- Johanne Mielcarek
- Peter Vingerling
- Wynno Zwanenburg
- Bart Crijs
- Jan Kranghand
- Stefan Martin
- Kate Parkes
- Jan Heemskerk (Panel)
- Jaime Jaume Sureda
- Paul Jansen



Transition Paths (Constantijn, room 9)

Chairman Ge Backus
Reporter John Erik Haugen

- Ann de Greef
- Erik Mijten
- Björn Forkman
- Rolf Claus
- Didier Divion
- Caroline Guittre
- Henri de Thoré
- Marc Tijssen
- Jan Merks
- Ian Cambell
- Peter Munters
- Bart Hoet
- Detlef Breuer (Panel)
- Heinz Schweer



Research (Willem, room 8)

Chairman Ebby van Borell,
Reporter Marion Kluivers

- Frans van Dongen
- Vincent Cordonnier
- Rebecca Langhoff
- Marc Antoine Driancourt
- Wladislaw Migdal
- Bert Urlings
- Kim Matthews
- Han Swinkels
- Julia Wrathall
- Andrej Kastelic
- Bert van den Berg
- Michel Bonneau (panel)



Governance (Alexander, room 7)

Chairman Bente Frederiksen,
Reporter Antonio Velarde

- Jurgen Harlizur
- Hinrich Snell
- Bernd Grosse Lierner
- Lotta Andersson
- Josef Schmidt
- Mick Sloyan
- Annechien ten Have
- Jozef Holejsovsky
- Joel Gonzales
- Theresa Villalba (panel)
- Ellen Skuterud
- Mark Jansen



Transition paths

Chairperson: Dr. Gé Backus

Reporter: Dr. John Erik Haugen

During the discussion the following points were addressed:

Regarding the market situation there is no consensus on understanding/perception of boar taint in Europe. This is very confusing. There are different perceptions of the problem in different countries. Transparency with regard to the problem essential, so there is a need for exchange of information.

Key questions:

- what's happening in the market?
- what can we learn from each other?

Issues discussed regarding market requirements started from the statement that the market determines the solution. Consumer acceptance is vital and NGO should have quality information at their disposal to help inform people.

What we need to get people informed about are questions like "What is boar taint?". What consumers need is evidence, or data.

Solution are short and long term:

Short term solution - castration with anaesthesia

Long term solution - no castration

All solutions should be practical enough.

Finally: we should aim to reduce the number of entire males

Their 3 statements were:

1. Long term solution is: no castration from January 2013
2. Presently there is no appropriate alternative to surgical castration with anaesthesia under current market conditions
3. We need a definition of boar taint and acceptability of boar meat on the European market

Market solutions

Chairperson: Dr. Thomas Kupper

Reporter: Dr. Frank Tuytens

The main issues that were discussed are summarised as follows:

- One shouldn't focus on just one alternative to surgical castration, and short-term solutions should be regarded separately from the long-term solutions
- The desirability of international / EU-wide standards and attitude towards boar-meat (such that there is a harmonised approach that is accepted by all trading partners) rather than national or bilateral agreements
- There's a need to discuss the issue of castration in the perspective of the global pork market in which there are two drivers: quality and price.
- The need to convince supermarkets and consumers that pork ought to be sold at a fair price (as it is unrealistically low at the moment)
- Do consumers really have a voice or is it the big purchasers that decide what consumers buy?
- Should consumers have the choice between high quality & expensive pork versus low quality & cheap pork or should all pork be of high quality and produced with high levels of animal welfare?
- Supermarkets as a key player do not seem very well represented/involved in this debate in general, and the workshop in particular.
- Wholesalers and quality assurance schemes should include 'pain reduction during castration' in their guidelines.
- Is every small step towards a solution worth taking or should one wait until a good solution is fully ready?
- EU has to take responsibility in funding research into alternatives for castration ("quick solutions require quick research")

Their 3 statements were:

1. Any alternative that includes elimination of boar taint is better than surgical castration
2. EU should first encourage implementation of alternatives and then ban surgical castration without pain relief.
3. Methods applied should be adopted according to scientific progress. In the near future castration with anaesthesia/analgesia + immunocastration are realistic.

Animal Welfare

Chairperson: Dr. Kees de Roest

Reporter: Dr. Galia Zamaratskaia

Start point and aim of discussion: a practical alternative to surgical castration is needed to improve animal welfare

The group agreed that surgical castration is a painful procedure (this is the general view). There was also a view that surgical castration before 7 days of age – might not be as bad.

Alternatives to surgical castration were discussed and the following conclusions were drawn:

Raising entire male pigs

This may give rise to aggressive behaviour, which can potentially be decreased if pigs are raised in the same group for the whole period, and transported to slaughter in the same groups as they were raised. Sexual behaviour may also be a problem.

Boar taint can probably be reduced by lower slaughter weight, but this will be a disadvantage from economical point of view.

At present, raising entire males is not an attractive alternative.

Use of anaesthesia + analgesia

The main disadvantages is that it is not practical and difficult to perform on a normal farm. Perhaps it is good as a temporary solution.

Immunocastration

There are several advantages : decreased aggression, less manure, less cost for feed, with a low risk of autoinjection. However, who will perform the immunocastration – farmers or trained people? Also, the responses of consumer should be studied. Immunocastration seems an optimal alternative at the moment but legal approval is needed

Selection against taint

Selection was successfully performed against high androstenone levels, but is not an option now.

Nutrition

The main disadvantage is that it usually reduces only skatole, but not androstenone. Recently it was shown that androstenone can also be reduced, but not completely.

Sperm sexing

There are a lot of disadvantages to this method: prevention of natural behaviour, low fertilization in cattle (not known in pigs), the negative image of “manipulating nature”. This is definitely not a solution in the short run.

The general conclusion was that several alternatives should be available to farmers and consumers. Further more: immunocastration is an optimum alternative to surgical castration at the moment but legal approval is needed

Their 3 statements were:

1. Practical alternatives to surgical castration are needed to improve animal welfare.
2. Immunocastration is an optimum alternative but legal approval is needed. Farmers and consumers should be informed about safety.
3. Anaesthesia should be performed by veterinarians to achieve the best result.

Research

Chairperson: Prof. Ebby von Borell

Reporter: Drs. Marion Kluivers

There was a general consensus that a difference had to be made between long and short term solutions. The emphasis for short term solutions should not just be on anesthesia, but also in the area of analgesia. It would be useful to make an 'added value estimation'. Another short term solution is immunocastration, for which the safety of the farmer deserves further attention. It was remarked that the integrity of the animal is still at risk with this method.

For the long term to stop with castration altogether would be the best solution, and a combined methodology to achieve this is preferred. Part of this approach would be detection at the slaughter line. This requires sufficient attention.

There will have to be a greater involvement of the consumer in relation to 'off flavour' complaints. Better communication is required but it could be asked if this is a job for scientists.

Their 3 statements were:

1. Alleviation of pain during and after castration should be effective and practical.
2. Consumers should be informed and surveyed about their attitude towards alternatives
3. Long term research should be focused on intact males by genetic control and detection of boar taint (on line and live) animals.

Governance solutions

Chairperson: Dr. Bente Frederiksen

Reporter: Dr. Antonio Velarde

At the start of the session it was asked if there is a need to change practice or not? There was some support to stop the castration, and use anaesthesia until then (e.g. 2009). But farmers also need to be able to stop castration. A European approach is needed. In short: stopping castration of piglets is very complex.

The discussion then went on to talk about some country in which retailers will pay for alternatives to castration but in other they do not. Perhaps it would help if the public knows what happens during piglet castration.

If we want to stop we need suitable alternatives. Do we have those? More research is needed to find alternatives to surgically castration and methods to detect boar taint. It was mentioned that anaesthesia decreases the pain very much but it should not be the final solution. The final goal is to stop castration.

Another objective could be to get as many farmers as possible to stop castration, but not to force everybody to prevent castration. Incentives in favour of stopping could be that there is more money to be made from rearing entire male (some estimate 6€/pig).

On government level one should first define what boar taint is exactly and how to measure it, as well as its level of acceptance.

It was suggested that there could be a different price for animals which were screened for boar taint and for those without detection at the slaughter line. The main problem is that we do not have a proper method to detect boar taint.

A final point was that there should be no need to push producer to ban castration, and that any regulation needs to force also third country to do the same.

Their 3 statements were:

1. At the moment there are not viable alternatives. Under given circumstance there is no need for government to move the farmer to change production practice.
2. The objective should be to take away the obstacles that still exist for farmers who want to stop surgical castration in a large scale.
3. As soon as there are viable alternatives, surgical castration without anaesthesia should be banned.

Responsibility of Stakeholders

Chairperson: Prof. Sandra Edwards

Reporter: Dr. Maria Angels Oliver

It was a group of two representatives of NGO's from United Kingdom and France, one person from Public Administration from Belgium, one person from a private company, two persons from Retailers and consumers from Germany and Netherlands, one person from Consulting about welfare from Netherlands and another from the Association of Pig Producers from Austria.

Each of the attendants gave their opinion and comments on the responsibilities in relation to "be transparent to the consumers", "good quality and price", "legislation", "price", "to supply the meat that the consumers were expecting", "to give the best products to the table", "money for research".... It was difficult to have an agreement, but there was a lot of discussion on the topic.

In general the statement "to fulfill the consumer wishes is our responsibility" was agreed by all in the sector. Statements like "Dialogue is needed" and "Alternatives to castration should guarantee absence of taint" were accepted by the majority of the representatives. Also the need for research was discussed. The person representing the producers commented that there is no problem with pain during the castration without anesthesia and his feeling and experience is that castration with local anesthesia is that it is difficult and also increases the pain. For him, another short term solution is required. The alternative of immunocastration was not considered as the best solution by the majority of the representatives, for different reasons.

Their three statements were:

1. Consumers want pain for animals as less as possible: All sector responsible.
2. To provide products that fulfill consumer wishes is a responsibility of the administration.
3. NGO's have to propose alternatives in a reasonable way and not press the media or the citizens.

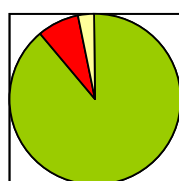
Delegate votes on work shop statements

Below are the results of the plenary voting session by the stakeholder groups on the statements from the workshops. As there was only one delegate who indicated to represent "Retail / Consumers", this category was left out in the following summary of responses.

Please note that these results are only an indication of how delegates felt at the time of the congress, and must not be regarded as the outcome of a scientific study of stakeholder attitudes.

Statements on Animal Welfare

All delegates

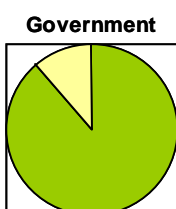


Practical alternatives to surgical castration are needed to improve animal welfare

■ Yes ■ No ■ Don't know



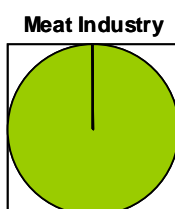
NGO's



Government



Veterinarians



Meat Industry

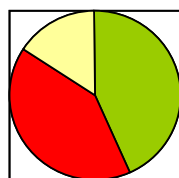


Farmers



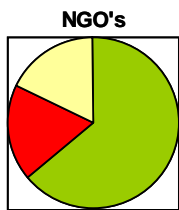
Others

All delegates

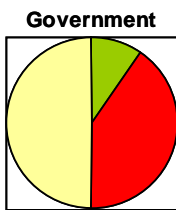


Immunocastration is an optimum alternative but legal approval is needed, and farmers and consumers should be informed about safety

■ Yes ■ No ■ Don't know



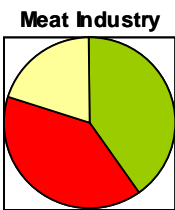
NGO's



Government



Veterinarians



Meat Industry

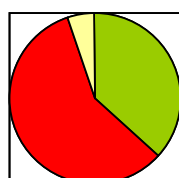


Farmers



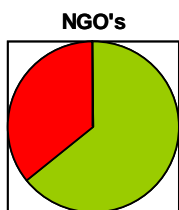
Others

All delegates

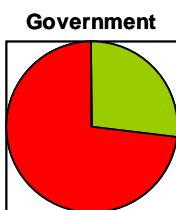


Anesthesia should be performed by veterinarians to achieve the best result

■ Yes ■ No ■ Don't know



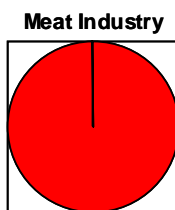
NGO's



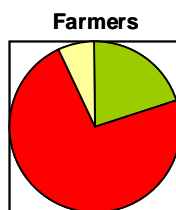
Government



Veterinarians



Meat Industry



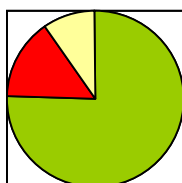
Farmers



Others

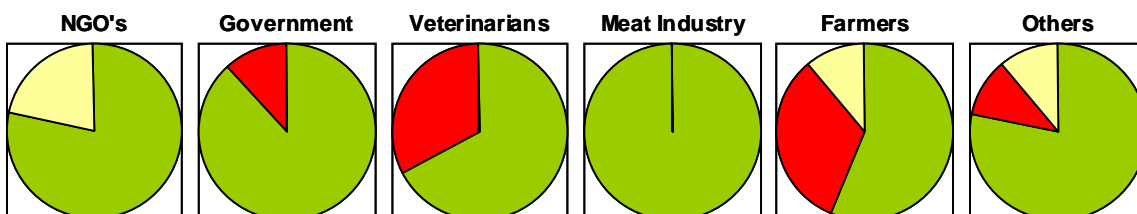
Statements on Market Solutions

All delegates

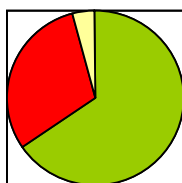


Any alternative that includes elimination of boar taint is better than surgical castration

■ Yes ■ No ■ Don't know

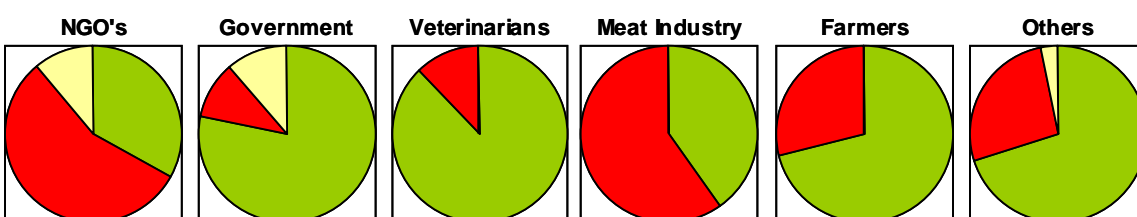


All delegates

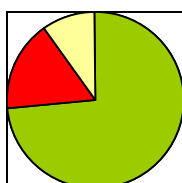


EU should first encourage implementation of alternatives and then ban surgical castration without pain relief

■ Yes ■ No ■ Don't know

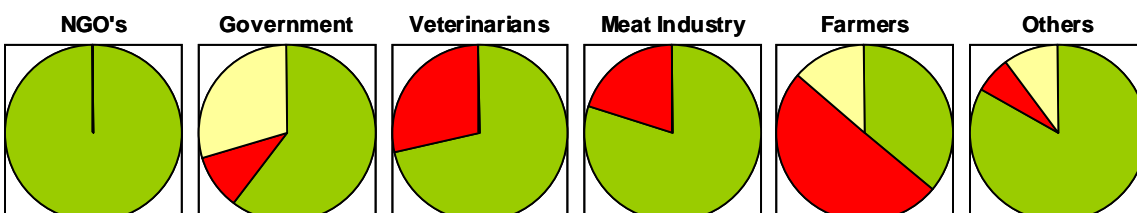


All delegates



In the near future castration with anesthesia/analgesia + immunocastration are realistic

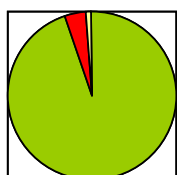
■ Yes ■ No ■ Don't know



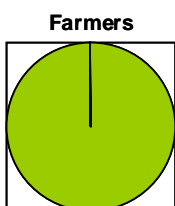
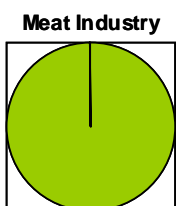
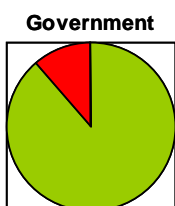
Statements on responsibilities of Stakeholders

All delegates

To provide products that fulfill consumer wishes is the responsibility of all chain stakeholders

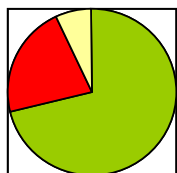


■ Yes ■ No ■ Don't know

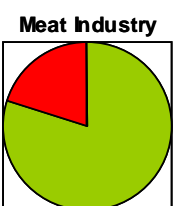
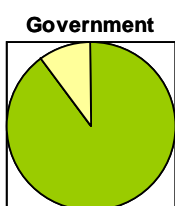


All delegates

The chain has the responsibility to reduce pain

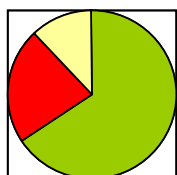


■ Yes ■ No ■ Don't know

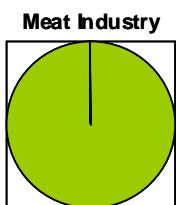
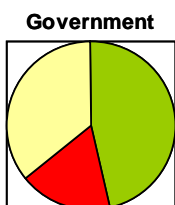
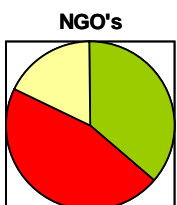


All delegates

NGO's have the responsibility to allow time for economic adaptation to long term goals

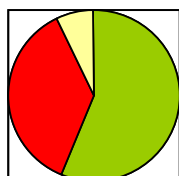


■ Yes ■ No ■ Don't know

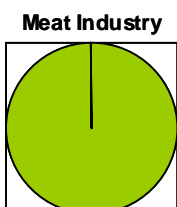
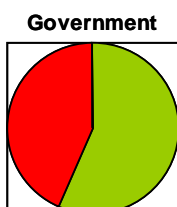
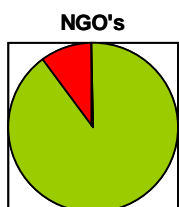


*Statements on Transition paths***All delegates**

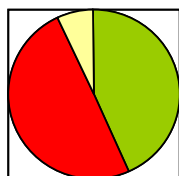
The long term solution is no castration by January 2013



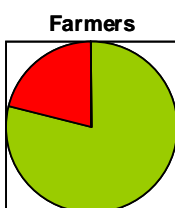
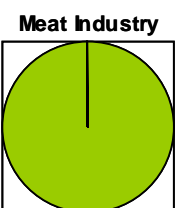
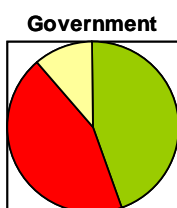
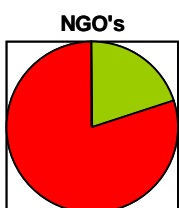
■ Yes ■ No ■ Don't know

**All delegates**

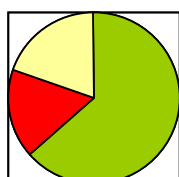
Presently there is no appropriate alternative to surgical castration without anesthesia under current market conditions



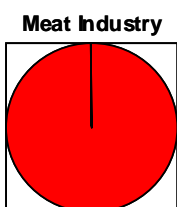
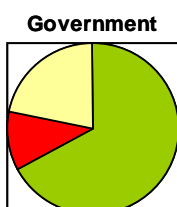
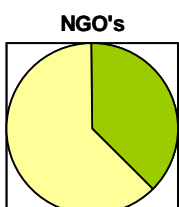
■ Yes ■ No ■ Don't know

**All delegates**

Definition of boar taint is needed for acceptability of boar meat on the European market



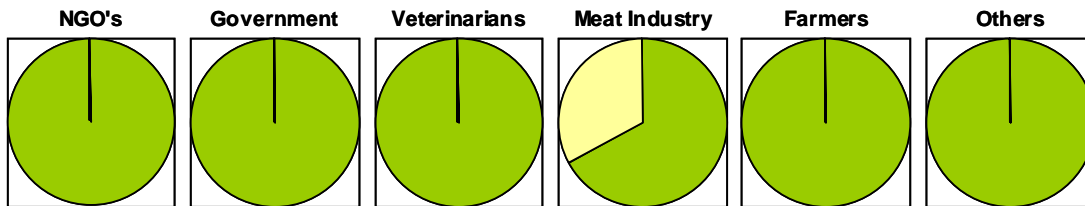
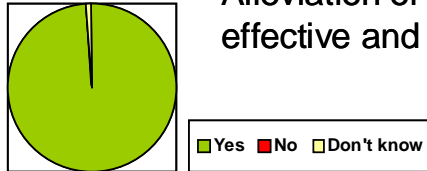
■ Yes ■ No ■ Don't know



Statements on Research

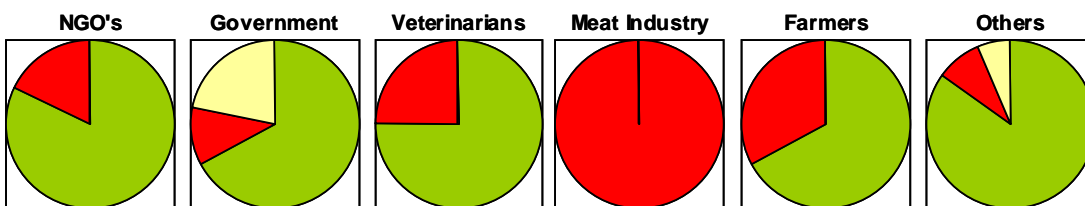
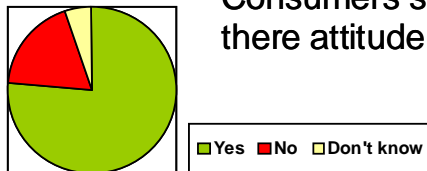
All delegates

Alleviation of pain during and after castration should be effective and practical



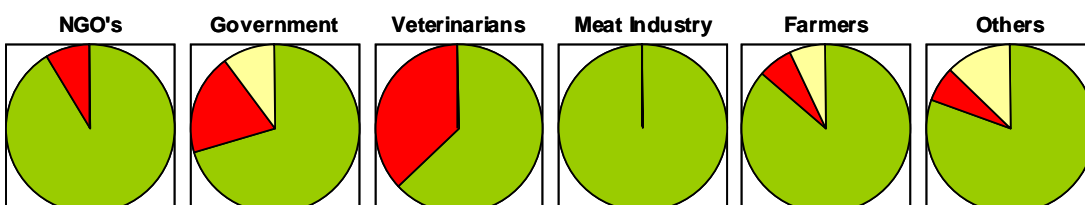
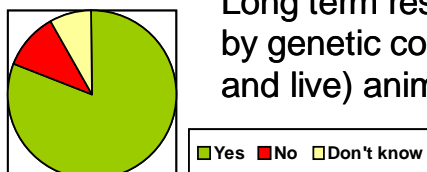
All delegates

Consumers should be informed and surveyed about their attitude towards alternatives



All delegates

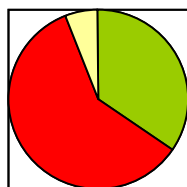
Long term research should be focused on intact males by genetic control and detection of boar taint (on line and live) animals



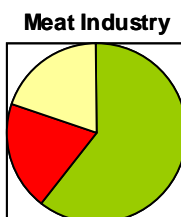
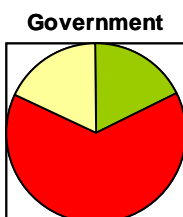
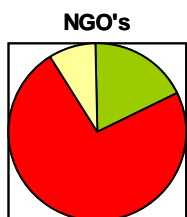
Statements on Governance solutions

All delegates

At the moment there are no viable alternatives. Under given circumstance it is no need for government to move the farmer to change production practice

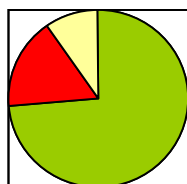


■ Yes ■ No ■ Don't know

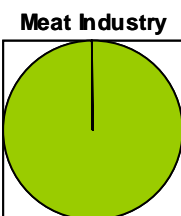
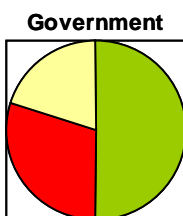
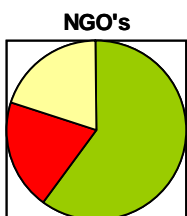


All delegates

The objective should be to take away the obstacles that still exist for farmers who want to stop surgical castration in a large scale

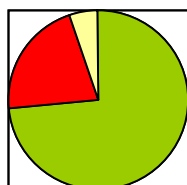


■ Yes ■ No ■ Don't know

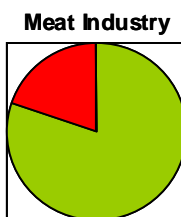
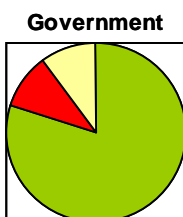
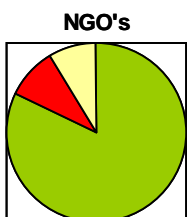


All delegates

As soon as there are viable alternatives, surgical castration without anesthesia should be banned



■ Yes ■ No ■ Don't know



Concluding remarks

The Stakeholder congress aimed

- to identify 'clashes' of interests between stakeholders (as well as possible ways to solve them)
- to get closer to a definition of 'boar taint'
- to re-evaluate alternatives to castration
- to increase awareness of the problem of castration with the aim of a common 'desire' to stop

These were ambitious aims, and each delegate will have to make up their own mind to what extent these aims have been achieved.

What is certain is that the issue of piglet castration received almost two day undivided attention of nearly 100 stakeholder representatives from 15 European countries. 'Clashes of interest' were very clear: the outcome of the voting session indicate very different points of views, and the discussions in the workshops provide some of the background to these differences.

A definition of boar taint is still hard to give. The congress provided an opportunity to experience the smell of taint, and allowed delegates to discuss this amongst each other. However, to reach consensus on this issue much more work is needed on consumer perceptions, frequency of occurrence and the economic implications of using various definitions.

There was ample opportunity to consider alternatives to castration without anesthesia, and much of the work shop time was taken up to discuss that. The notion that certain options, such as anesthetized castration, should not be considered permanent solutions, was shared among a large part of the delegates. Breeding solutions were widely expected to provide more sustainable and permanent opportunities.

The congress did not result in a common desire among delegates to stop castrating. The points of view regarding the negative consequences of rearing intact males differed too much, and there is also disagreement on the level of impact the castration itself has on animal welfare (and hence the very need to stop castrating).

What can be concluded, however, is that the congress helped stakeholders to understand the opposing views of other participants in the debate a little better. And understanding each others views is a prerequisite for reconciling differences between them.

Acknowledgements

We would like to acknowledge the support of the PIGCAS Core team, and in particular Dr. Michel Bonneau, Dr. Bente Frederiksen and Dr. Maria-Angels Oliver who presented their work at the meeting. We would also like to thank the chairman of the meeting, Prof. Rolf Claus, for taking the delegates through the programme in an excellent way.

The friendly and prompt assistance -before and during the congress- by the staff team of Hotels van Oranje is gratefully acknowledged.

The Stakeholder Congress in Noordwijk could not have been organized without the help of Onno van Eijk and Leonie Workel (ASG-Wageningen UR), Monique Buijtendorp, Gé Backus, Liesbeth van Dijk (LEI-Wageningen UR) and Peter Vingerling (Transition Society).

Last, but certainly not least, we would like to thank the sponsors who made it possible to have this meeting at an excellent location with perfect facilities. These are the European Commission (through their funding of PIGCAS), The Dutch Ministry of Agriculture, Nature and Food Quality, VION Food Group, LTO Nederland and Pfizer Animal Health.

Willy Baltussen & Hans Spoolder
Congress Organizers

Appendix I: Participants list

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