The Honorable Nancy Pelosi
Speaker
U.S. House of Representatives
The Capitol
United States of America

Re: Meeting with a Congress Delegation on the Danish experience with stop for non-therapeutic use of antimicrobials

Dear Speaker Pelosi

We have just had the pleasure of meeting with a delegation consisting of four members of the House of Representatives, where we presented our data on the effects of the stop for non-therapeutic use of antimicrobials for food animals in Denmark.

We know that various rumours and sometimes “creative” interpretations of what has taken place in Denmark have been circulated to members of the US Congress, and we are grateful for having been given this opportunity to correct some of these stories.

We are very pleased that you have approved the visit by this delegation, and would hereby like to send you a complimentary copy of the data we presented to the delegation.

If any further information is required, please do not hesitate to contact me.

Sincerely yours

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First Secretary Shawn Waddoups, Embassy of the USA, Dag Hammarskjölds Allé 24, 2100 Copenhagen Ø, Denmark

SUMMARY OF CONCLUSIONS

Meeting with National Food Institute, Technical University of Denmark on Danish experience with the stop for use of non-therapeutic antimicrobials
Copenhagen Sep. 19th 2009

Swine production, diseases and antimicrobial consumption

- The Danish swine production has increased from 18.4 millions in 1992 to 27.1 millions in 2008; a 47% increase.
- Productivity increased continuously before and after NTA stop
- Weaner mortality increased before and a few years after NTA stop – the rate seemed unaffected, except the first year after the ban. Mortality has improved considerably in recent years (management)
- Weaner average daily gain decreased until and increased after NTA stop (continuously during a decade).
- Finisher mortality increased before and after NTA stop, similar rate. (mortality decreased first year)
- Finisher average daily gain increased before and after NTA stop
- Total antimicrobial consumption has fluctuated over time, but has in summary decreased from 100.4 to 48.9 mg/Kg pork produced; a 51% reduction.
- Major reductions in resistance among animal pathogens, indicator bacteria and zoonotic bacteria

Broiler productivity

- Kg broilers produced per square meter: not affected
- The feed-conversion ratio: a increase of 0.9% (0.016 kg/kg) was observed after NTA withdrawal
- Percent dead broilers in total (mortality): increased until and decreased after NTA withdrawal. Positively affected.

National Food Institute
Technical University of Denmark

Effects of the stop for use of Non-therapeutic antimicrobials on overall antimicrobial usage and resistance

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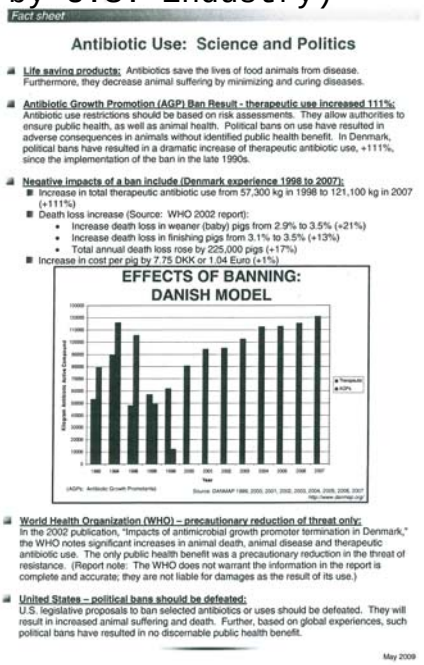
(Distributed by U.S. industry)



Fact sheet

Antibiotic Use: Science and Politics

- **Life saving products:** Antibiotics save the lives of food animals from disease. Furthermore, they decrease animal suffering by minimizing and curing diseases.
- **Antibiotic Growth Promotion (AGP) Ban Result - therapeutic use increased 111%:** Antibiotic use restrictions should be based on risk assessments. They allow authorities to ensure public health, as well as animal health. Political bans on use have resulted in adverse consequences in animals without identified public health benefit. In Denmark, political bans have resulted in a dramatic increase of therapeutic antibiotic use, +111%, since the implementation of the ban in the late 1990s.
- **Negative impacts of a ban include (Denmark experience 1998 to 2007):**
  - Increase in total therapeutic antibiotic use from 57,300 kg in 1998 to 121,100 kg in 2007 (+111%)
  - Death loss increase (Source: WHO 2002 report):
    - Increase death loss in weaner (baby) pigs from 2.9% to 3.5% (+21%)
    - Increase death loss in finishing pigs from 3.1% to 3.5% (+13%)
    - Total annual death loss rose by 225,000 pigs (+17%)
  - Increase in cost per pig by 7.75 DKK or 1.04 Euro (+1%)

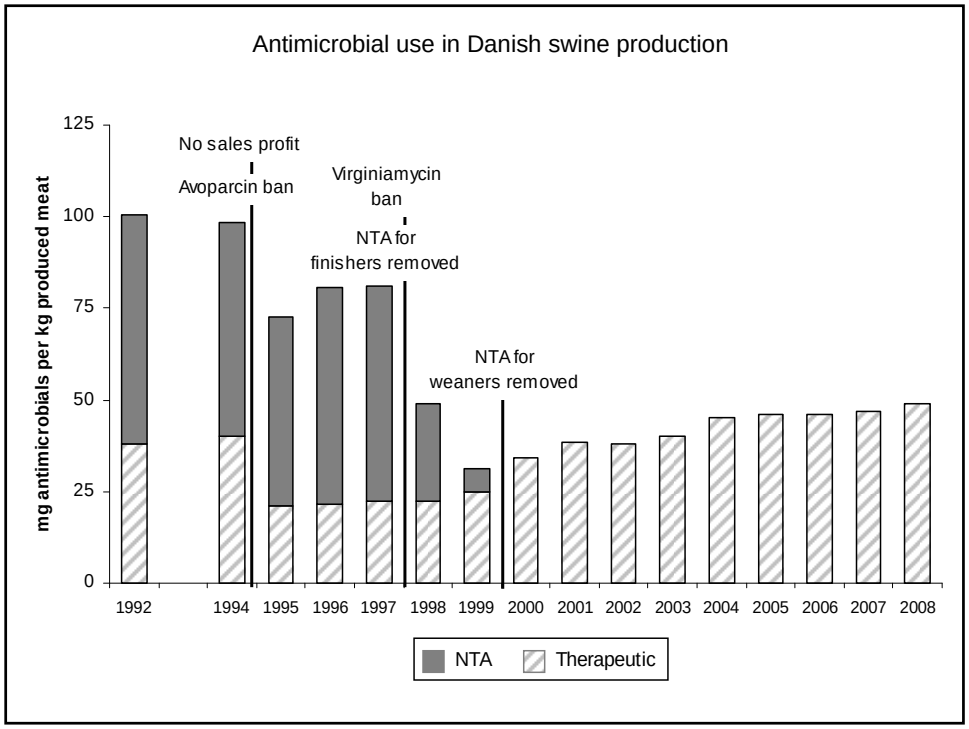
EFFECTS OF BANNING:
DANISH MODEL

- **World Health Organization (WHO) – precautionary reduction of threat only:** In the 2002 publication, "Impacts of antimicrobial growth promoter termination in Denmark," the WHO notes significant increases in animal death, animal disease and therapeutic antibiotic use. The only public health benefit was a precautionary reduction in the threat of resistance. (Report note: The WHO does not warrant the information in the report is complete and accurate; they are not liable for damages as the result of its use.)
- **United States – political bans should be defeated:** U.S. legislative proposals to ban selected antibiotics or uses should be defeated. They will result in increased animal suffering and death. Further, based on global experiences, such political bans have resulted in no discernable public health benefit.

May 2009

Antimicrobial consumption

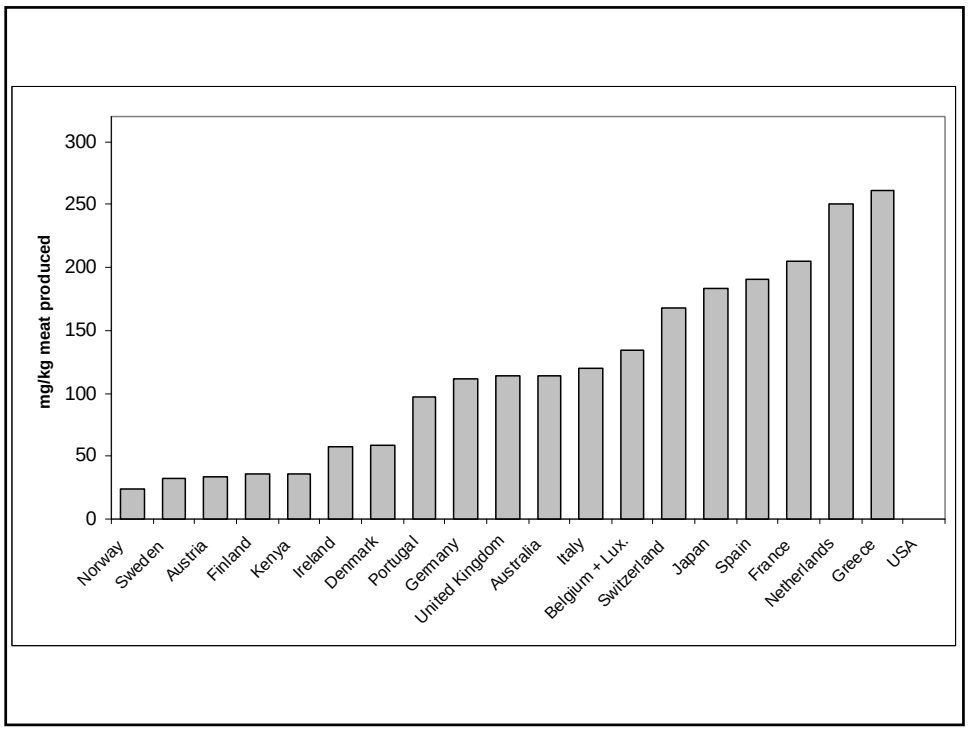
- The Danish swine production has increased from 18.4 millions in 1992 to 27.1 millions in 2008; a 47% increase
- The consumption has been adjusted to mg/Kg produced pork

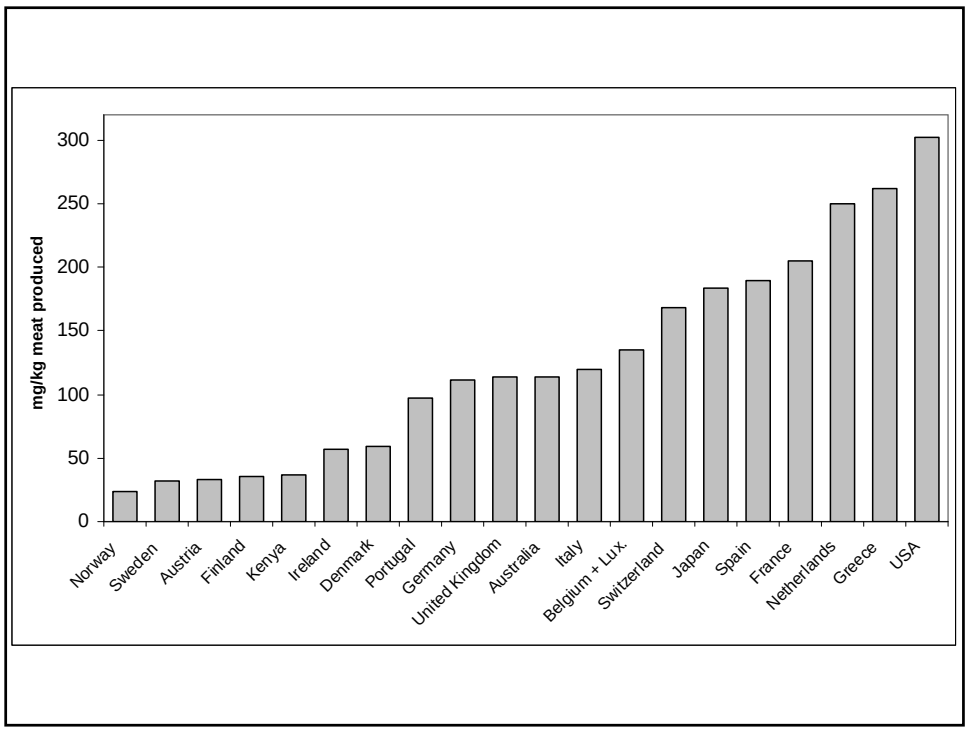


Antimicrobial consumption

- The Danish swine production has increased from 18.4 millions in 1992 to 27.1 millions in 2008; a 47% increase.
- The total consumption has fluctuated over time, but has in summary decreased from 100.4 to 48.9 mg/Kg meat; a 51% reduction.

Danish antimicrobial usage compared to the world

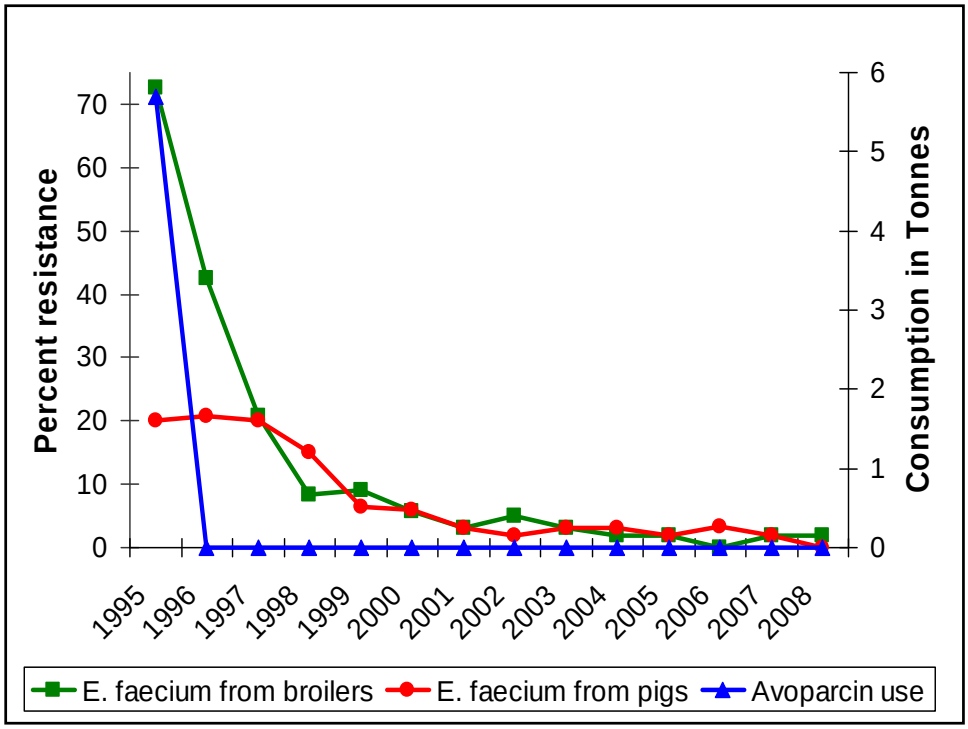

mg/kg meat produced
300
250
200
150
100
50
0
Norway
Sweden
Austria
Finland
Kenya
Ireland
Denmark
Portugal
Germany
United Kingdom
Australia
Italy
Belgium + Lux.
Switzerland
Japan
Spain
France
Netherlands
Greece
USA

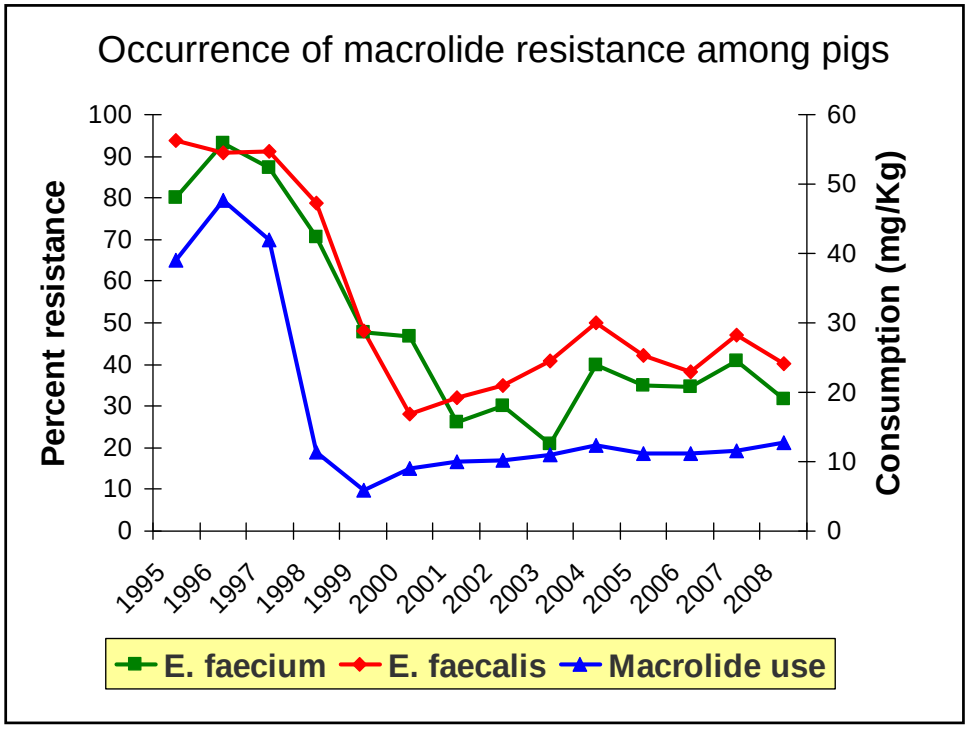

mg/kg meat produced
300
250
200
150
100
50
0
Norway
Sweden
Austria
Finland
Kenya
Ireland
Denmark
Portugal
Germany
United Kingdom
Australia
Italy
Belgium + Lux.
Switzerland
Japan
Spain
France
Netherlands
Greece
USA

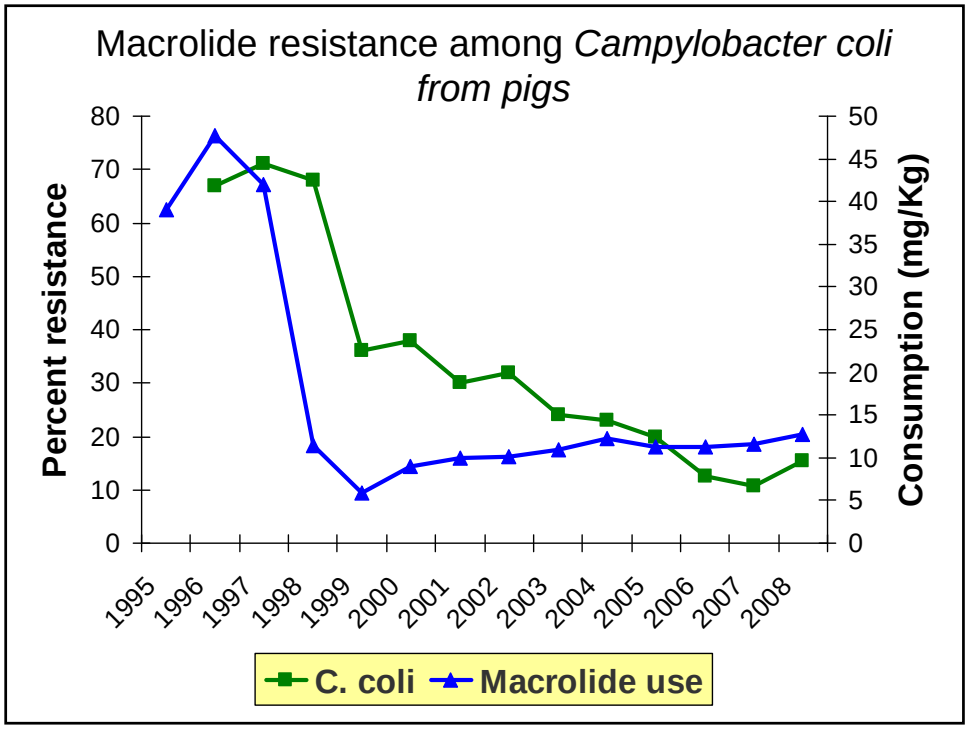
Effects on resistance

The purpose of the interventions were to reduce an observed reservoir in food animals

The growth promoters used in Europe have mainly activity against Gram positive bacteria. Thus, susceptibility in *Salmonella* and *E. coli* are not relevant.




Occurrence of macrolide resistance among pigs
Percent resistance
Consumption (mg/Kg)
100
90
80
70
60
50
40
30
20
10
0
60
50
40
30
20
10
0
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
E. faecium
E. faecalis
Macrolide use


Macrolide resistance among Campylobacter coli from pigs
Percent resistance
Consumption (mg/Kg)
80
70
60
50
40
30
20
10
0
50
45
40
35
30
25
20
15
10
5
0
1995
1996
1997
1998
1999
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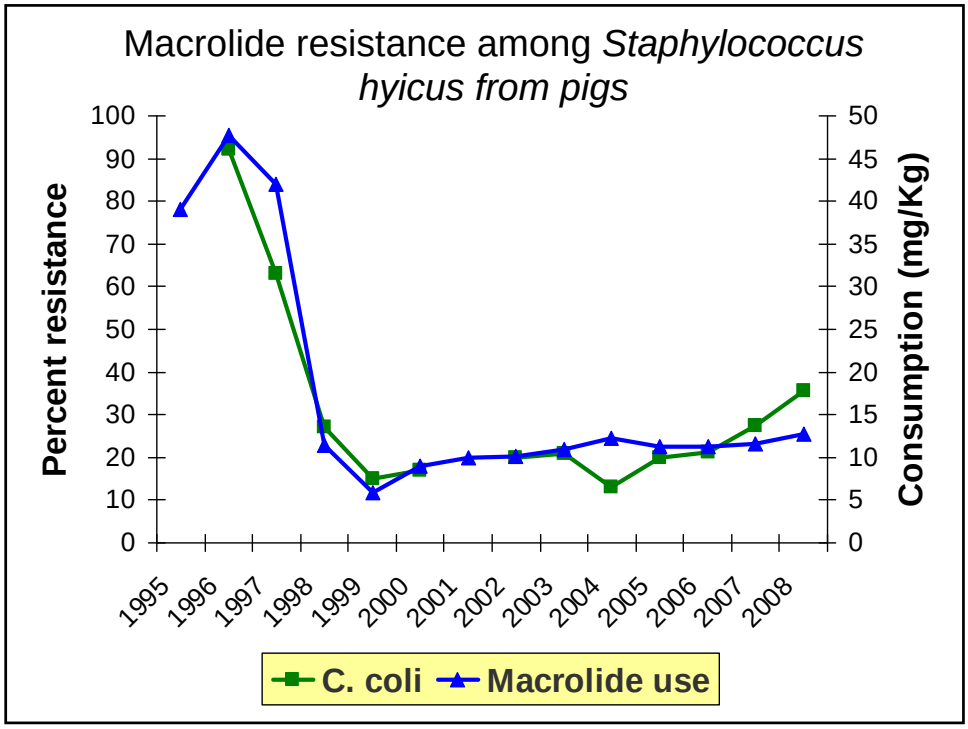
2003
2004
2005
2006
2007
2008
C. coli
Macrolide use


Macrolide resistance among *Staphylococcus hyicus from pigs*
Percent resistance
Consumption (mg/Kg)
100
90
80
70
60
50
40
30
20
10
0
50
45
40
35
30
25
20
15
10
5
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1995
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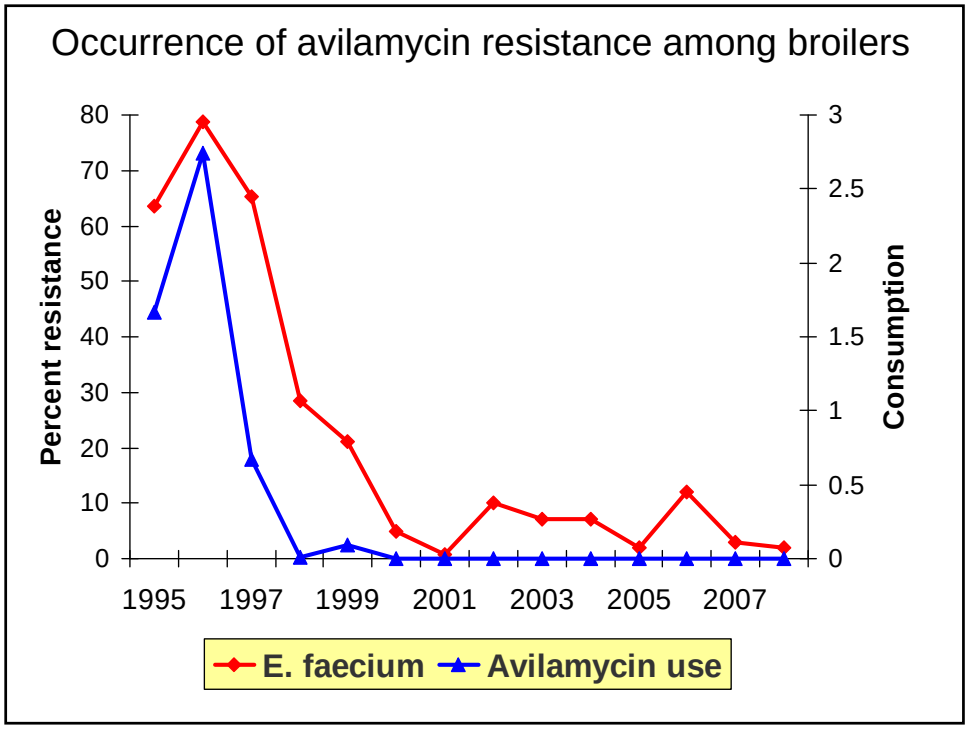
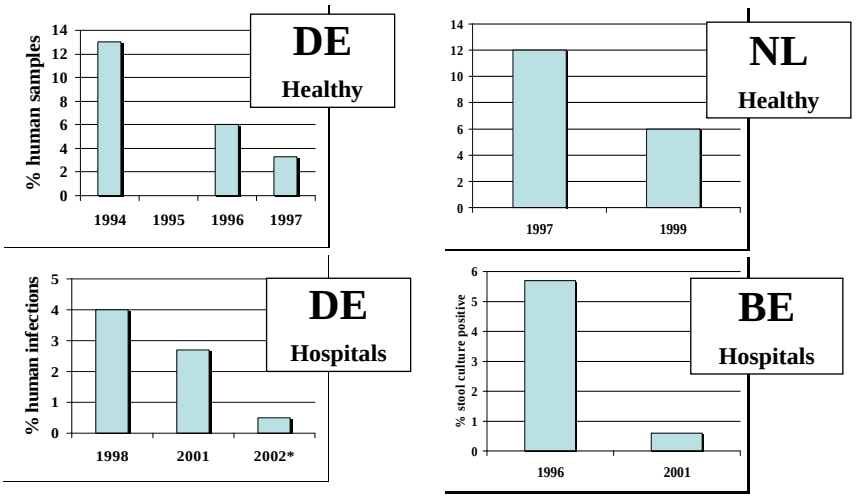
2006
2007
2008
C. coli
Macrolide use


Occurrence of avilamycin resistance among broilers
Percent resistance
Consumption
80
70
60
50
40
30
20
10
0
3
2.5
2
1.5
1
0.5
0
1995
1997
1999
2001
2003
2005
2007
E. faecium
Avilamycin use

Effect on vancomycin resistance in humans

-

No Danish monitoring



Klare et al., 1997; van den Bogaard et al. 2000; Ieven et al. 2001, Witte, 2001 (personal comm.)

Conclusions

- Major increase in Danish food animal production
- Total antimicrobial consumption reduced from 100 to 49 mg/kg (51%) from 1992 to 2008
- Major reductions in resistance among animal pathogens, indicator bacteria and zoonotic bacteria
- Probably easier with larger reductions in other countries where the initial usage is higher
  - eg would equal 80% reduction in USA

Effects of the stop of non-therapeutic antimicrobials (NTA) on productivity and animal health in the Danish swine and broiler industry

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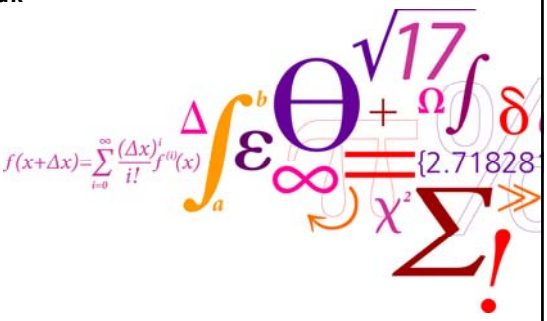


DTU Food

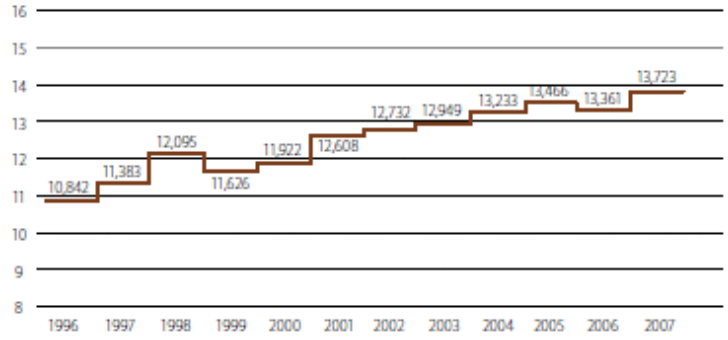
outline

- The effect of stop of non-therapeutic antimicrobials (NTA) in swine production
  - Long term effect of the stop of NTA in swine production
  - The health effect the first year after the stop of NTA in weaners
  - The pathogens that was of interest in relation to stop of NTA
- The effect of stop of NTA in broiler production

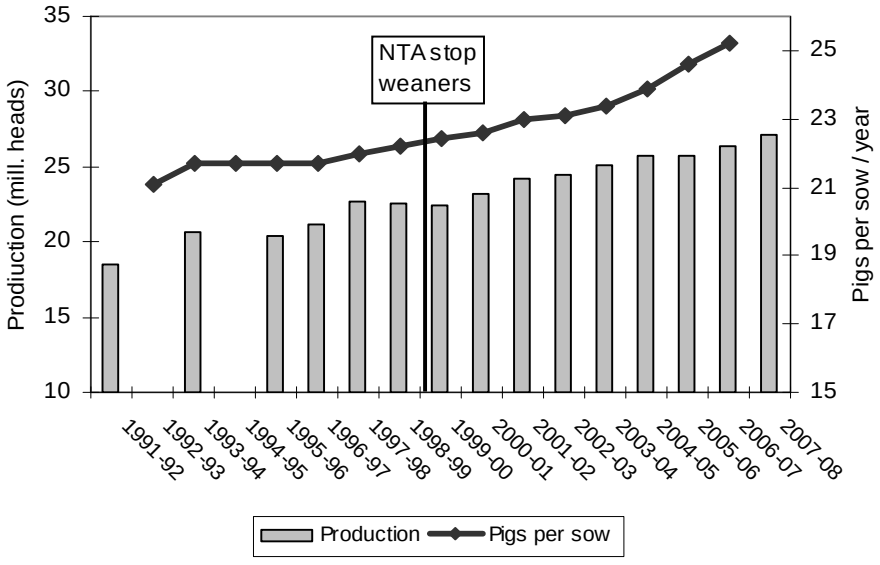
Structure development in the swine production

	Year		
	1987	1997	2007
Swine herds	**38.000**	**19.000**	**7.000**

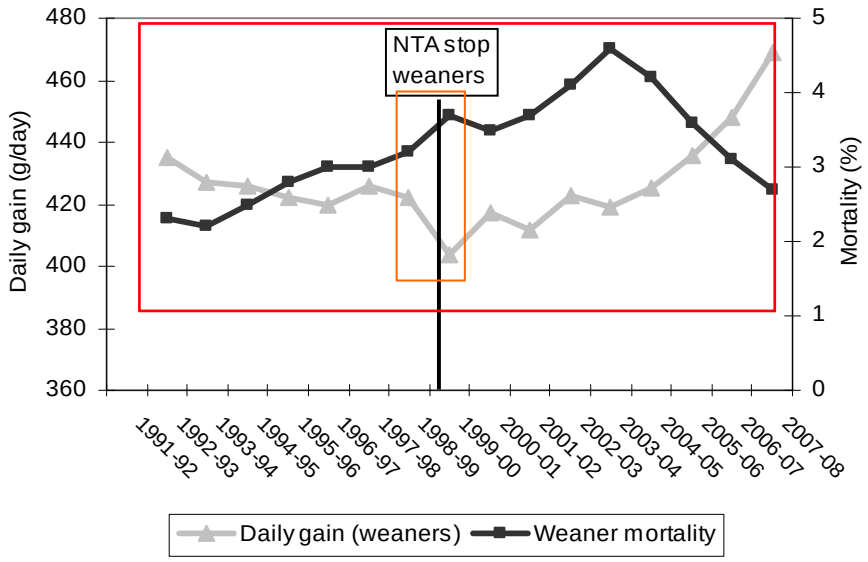
Million living swine



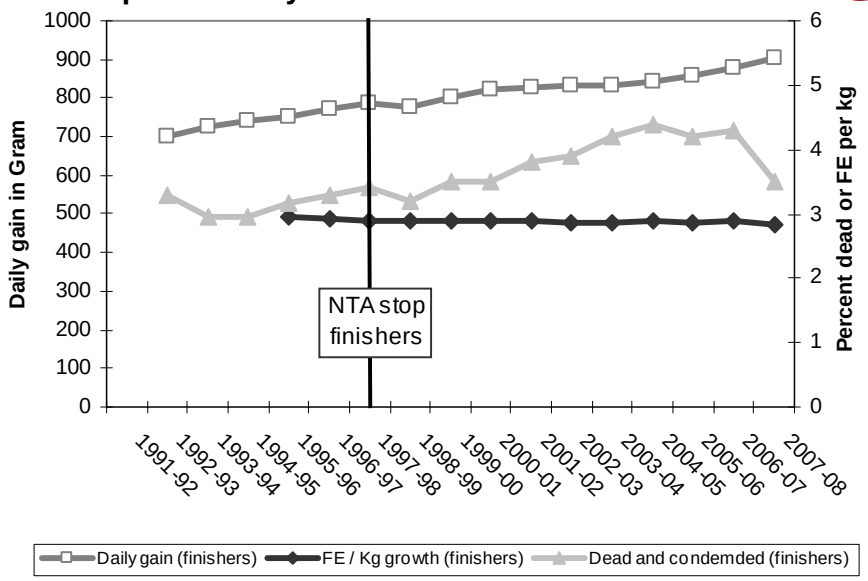
Structure development in the swine production



temporal association between NTA stop in weaners and productivity measures in weaners



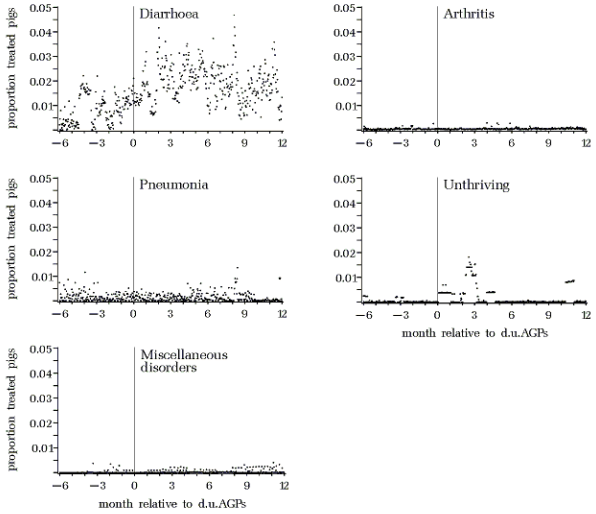
temporal association between NTA stop in finishers and productivity measures in finishers



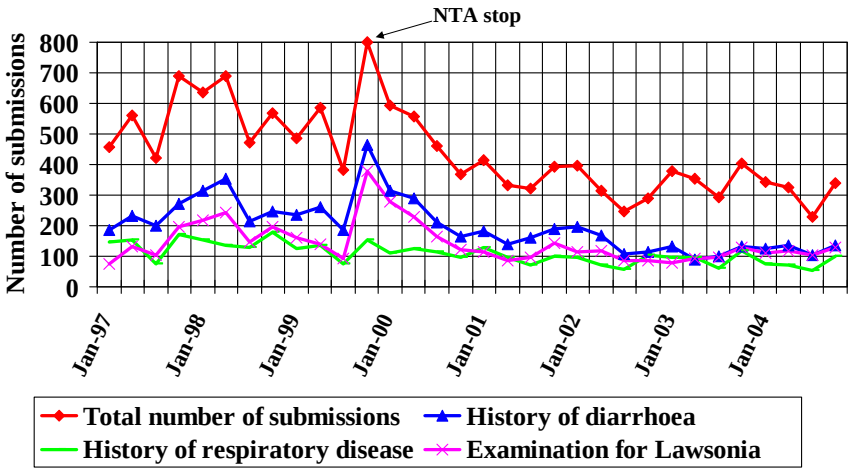
Summary of effect of stop of NTA on swine productivity

- Productivity increased before and after NTA stop
- Weaner mortality:
  - Increased before and a few years after NTA stop – the rate was unaffected, except the first year after stop
  - Mortality has improved in recent years
- Weaner average daily gain decreased until and increased after NTA stop
- Finisher mortality increased before and after NTA stop
- Finisher average daily gain increased before and after NTA stop

The observed effect on the proportion of pigs treated in 68 Farrow-to-finish farms first year after stop of NTA



Submissions 1997-2004 from weaners and finishers

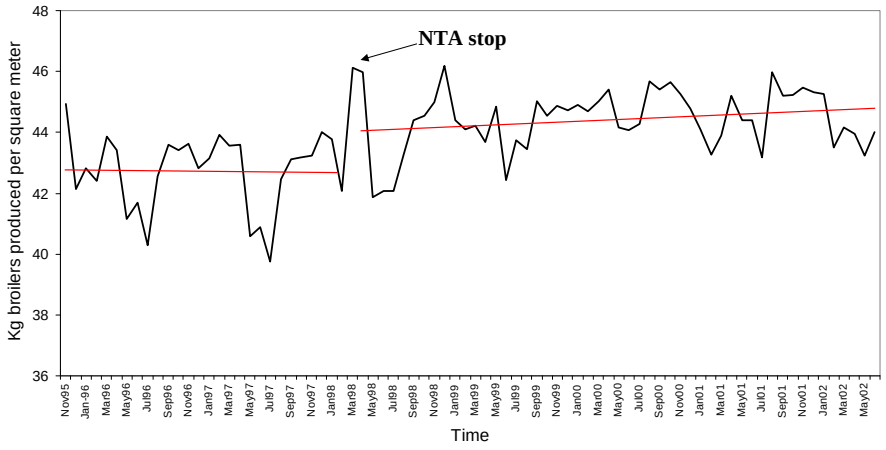


Health effect the first year after NTA stop

- During the first year after stop of NTA there was a significant increase in the number of swine treated by antimicrobials for diarrhoea
- The effect varied among herds – some herds experienced substantial problems, while others experienced no problems after stop of NTA
- No effect was identified for the risk of treatment for other diseases
- The level of submissions for laboratory examination increased, but decreased again after the first 6 months
- Increased awareness among veterinarians and farmers concerning health, management and welfare

Broiler production

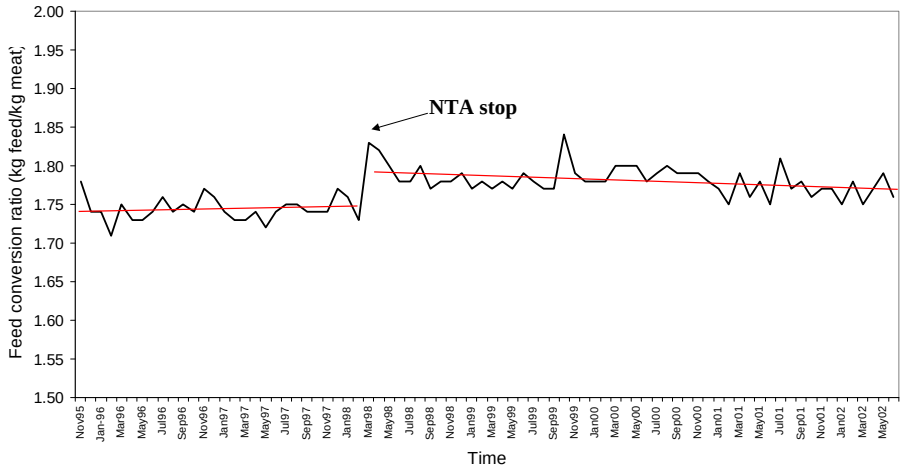
Mean monthly kg broilers produced per m²
(Nov. 1995 – June 2002)



Data: Danish Poultry Council

Broiler production

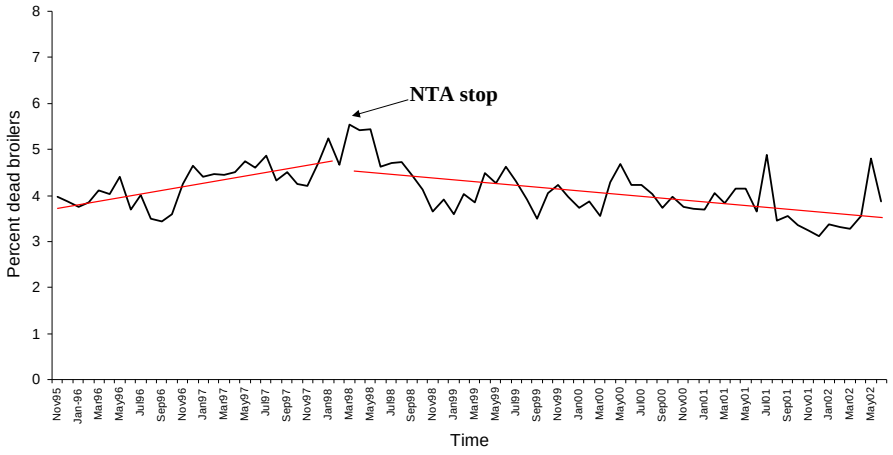
Feed-conversion ratio (Nov. 1995 – June 2002)



Data: Danish Poultry Council

Broiler production

Percent dead broilers in total (Nov. 1995 – June 2002)



Data: Danish Poultry Council

Summary of effect of stop of NTA on broiler productivity

- Productivity (Jan. 1996-Jul. 1999)
  - Kg broilers produced per square meter: not affected
  - The feed-conversion ratio: a increase of 0.9% (0.016 kg/kg) was observed after the stop of NTA
  - Percent dead broilers in total (mortality): affected positively