

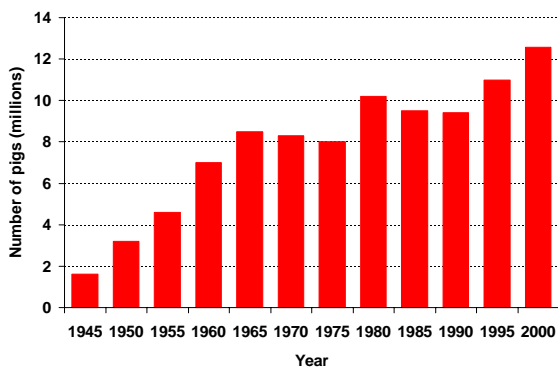
Antimicrobial Use in Swine Is the Danish Model Our Future?

John Waddell, DVM
Sutton Veterinary Clinic
Sutton, Nebraska

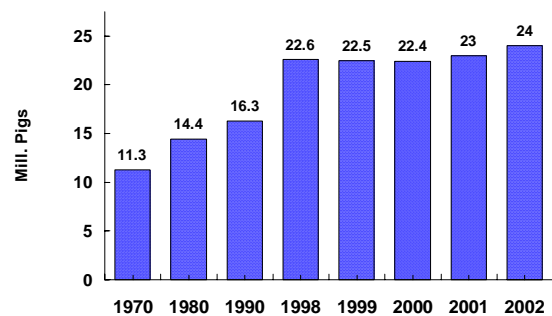
“Predictions are difficult, especially
about the future.” -Yogi

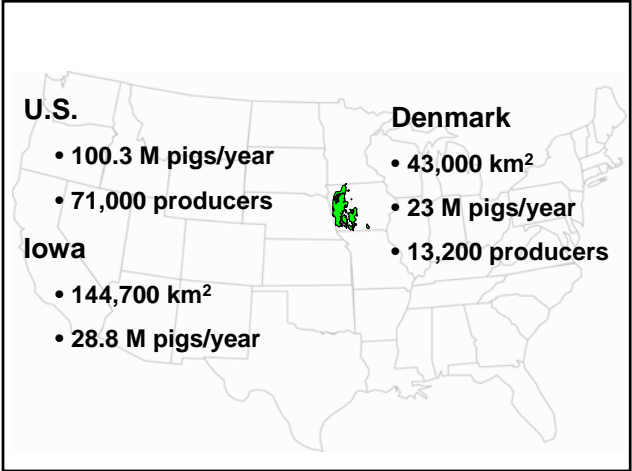
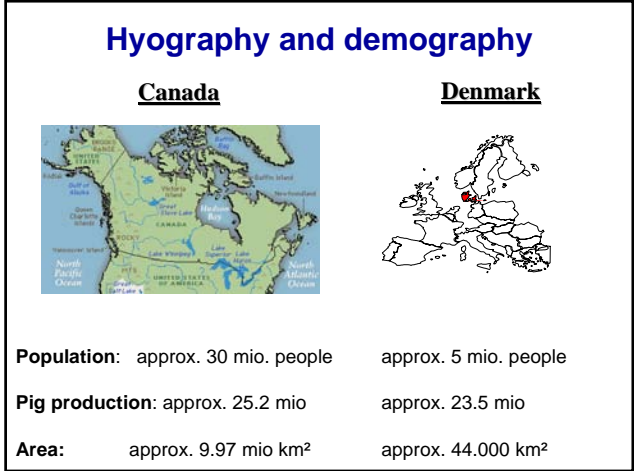
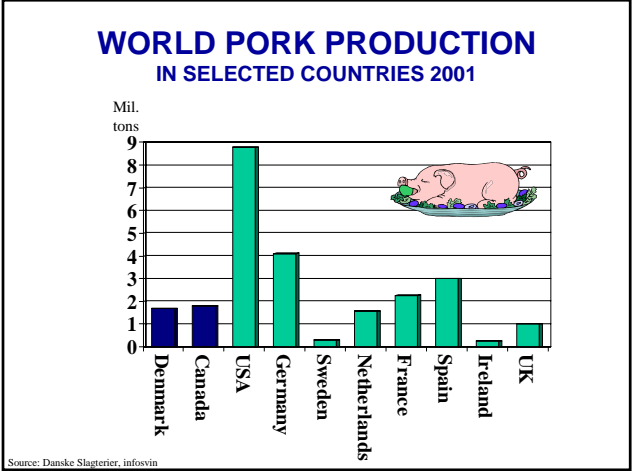
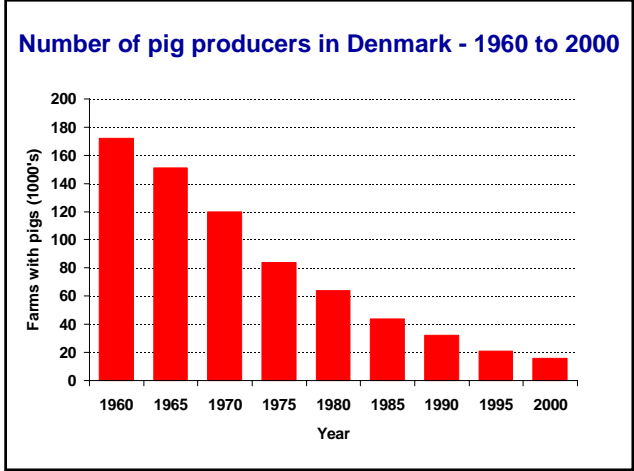


Numbers of pigs in Denmark from 1945-2000



Danish pig production





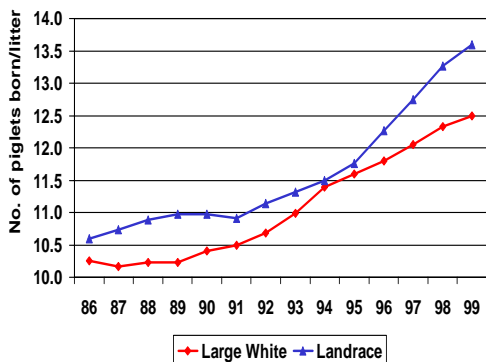
Quality of Danish

1. Meat percentage
2. Meat quality (pH, waterbinding capacity, colour)
3. Uniformity
4. Supplier service
5. Residues
6. Production conditions, animal welfare etc.

The Danish breeding program

- 100 years of continuous, coordinated genetic improvement
- Operated by the National Committee for Pigs
- 8750 sows in nucleus herds
- On-farm and central station testing
- BLUP And Multi-Trait analysis carried out centrally
- Genetic improvement worth \$2.00/market hog/year approx.

Genetic progress in litter size

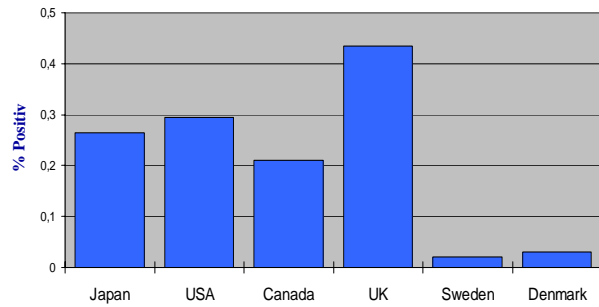


Food safety

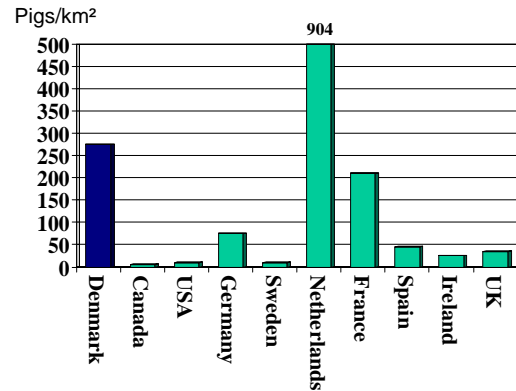
- no salmonella
- no antibiotic growth promotors
- no hormones
- no meat and bonemeal
- specified chemicals on crops
- GMO ?



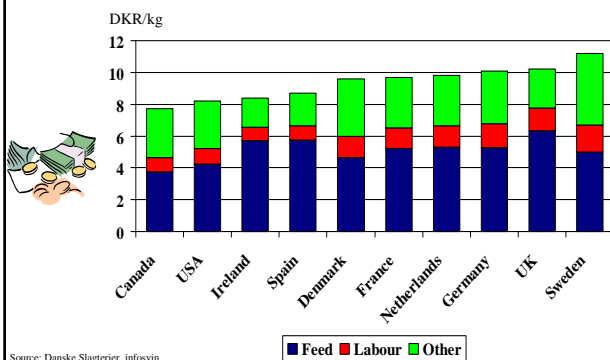
Residues of antibiotics



Swine density in different countries



COST OF PRODUCTION IN SELECTED COUNTRIES



Why the Danes are so successful

- Integrated, cooperative structure
- Good communication between all sectors
- Major investment in R & D
- Producers own processing and get the margin from it
- A total focus on quality and customer needs
- The industry is pro-active and anticipates change

What will limit Danish expansion?

- **Environmental constraints**
- **Increased production costs**
 - **EU & DK legislation, especially on welfare**
 - **Restrictions on production enhancement tools**

The Danish Welfare System

- No gestation stalls after 4 weeks post mating.
- Tail docking by prescription only! (and then only half the tail)
- Bedding and limited amount of slatted floor
- No shoulder sores.
- Strictly enforced space requirements



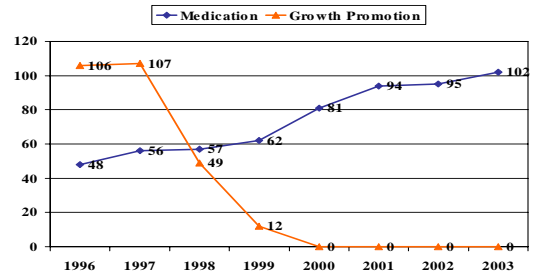
Denmark – medicines control

- Producers must have 12 vet visits / year
- Health report with action plan
- Veterinarian can only supply treatments for short period
- Medicines must be purchased from a pharmacy
- 2000 – VETSTAT scheme to monitor amount / type of medicines used
- No preventative use of antimicrobials!

Removal of Growth Promoters in Denmark

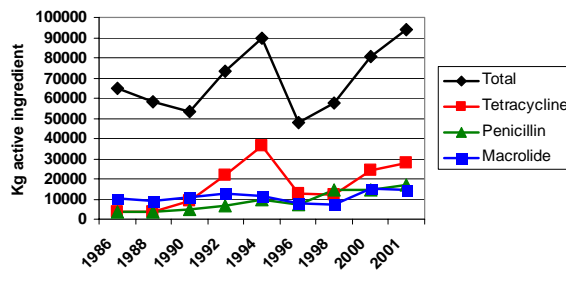
- 1995 National ban on avoparcin
Voluntary agreement between NCPP and the feedstuff industry to minimize the use of AGP's
- 1998 National ban on virginiamycin (Jan)
Voluntary agreement re. finishers (Mar)
National tax on AGP's (Sep) about \$2 per pig
Action plan to phase out AGP's for weaners as of 1-1- 2000
- 1999 EU ban: tylosin, bacitracin, spiramycin and virginiamycin
EU ban: olaquinox and carbadox
- 2000 Voluntary agreement to ban AGP's for weaners (DK)
- 2001 Danmap antimicrobial use data collected by Vetstat
- 2003 Increased use in some antibiotics brings on tighter controls
- 2005 Further restrictions will include ionophores

Danish Total Animal Antibiotic Use



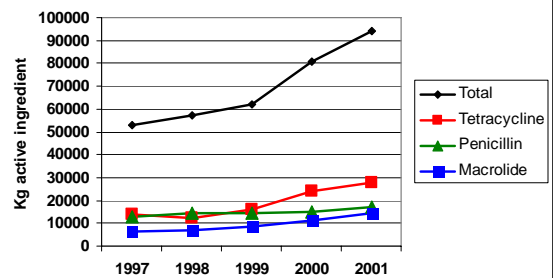
Decrease Antibiotic Use?

Total Antimicrobials for Treatment in Denmark



Decreased Antibiotic Use?

Change in Antimicrobial Use for Treatment v. 1997 Baseline

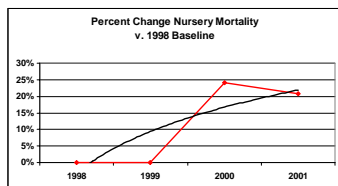
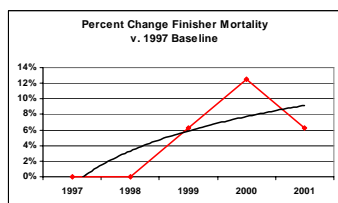


Results of the ban for finishers

- Over all, few problems
- Ileitis caused some problems for some farms
- Increased in laboratory submissions and diagnosis of ileitis.
- A “flattening” of ADG curves occurred
- No public outcry from producers
- Minor effect on productivity



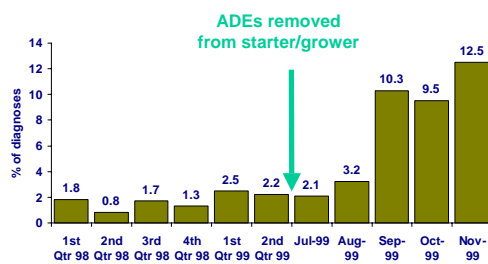
At What Cost?



Niels Kjeldsen, Head of Dept. (Nutrition, Reproduction), The National Committee of Pig Production Denmark

Industry experience of removing ADEs

Ileitis as a diagnosis in Denmark



DS Laboratory - Kjellerup

AGP ban for **finishers (30-100 kg)**
- conclusions

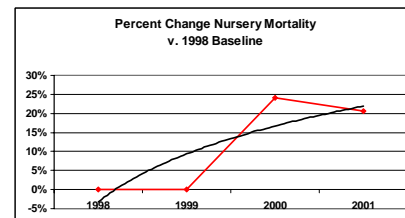
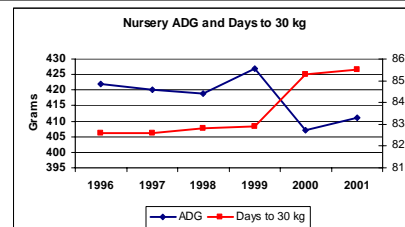
- 1) Overall only **few** problems.
- 2) Existing know-how **sufficient** to solve problems.
- 3) "What's the big deal?"

Kjeldsen 2002



Results of the ban for weaners

- **Outbreaks of diarrhoea in nurseries**
 - Ileitis was allowed to express itself
 - Post weaning treatments went up about 250%
- **Larger spread in weight at transfer**
- **Lower weight at transfer**
- **Increased mortality**
- **Decreased average daily gains**



What producers have done:

- Increased weaning age by about 3 days
- Reduced ration density (protein/energy)
- Utilized more therapeutic antimicrobials
- Practice limit feeding where possible
- Added Zn oxide and organic acids to diets

What Danish producers and vets say:

- Resist the calls for bans
- They must try to recoup losses via marketing perception of higher quality
- They have learned to adapt
- Their perception of U.S. production is one of extremely high level of antibiotic use
- They hope our government bans ours too!

Estimated Costs of a Ban in the US

- \$1 to \$2 per head in the finishing phase
- \$2 to \$3 per head in the weaner stage
- Hayes and Jensen estimated \$4.50 to \$5.00 per head in the U.S.

The results of the experiment

- Public Health Benefit?
 - No positive effect on *Salmonella* resistance
 - Reduction in resistance in pig isolates
 - Negative effect on pig health and welfare
 - Slight reduction in food borne illnesses
- Decrease antibiotic use?
 - Danish antibiotic use is on the rise
 - U.S. does not have flexible feed medication labeling
 - Unintended consequence - increase in antibiotic use
- Improved marketing?
 - That is the Danish producers only benefit of the ban!

Bottom line

- **The “Precautionary Principle”**
 - “When in doubt....don’t!”
 - Replaces good science
- **Minimizing exposure makes more sense**
 - Improved hygiene
 - Consumer education
- **Follow the Danish “experiment”???**
 - That is exactly what it turned out to be....an experiment!

Production Changes Summary

- More labor
- Increased cost of production
- More antibiotic use in weaned pigs
- Increased need for better management

Is this our future?

- Our marketing system is different
- Our industry is 4 times the size
- Vets in DK have more flexible rules for Rx
- Has the FDA been wrong until now?
- Will we learn from the Danes?
- Will we stand and fight or appease the activists?
- Will junk science and activism win the day?

What can producers do?

- Follow Prudent and Judicious Use Guidelines and AMDUCA
- Treat Antibiotic Use as a privilege, not a right
- Be able to discuss the uses of antibiotics with interested parties
 - Take any chance to educate the public by becoming a risk communicator – for production agriculture, public health and food safety
 - Be involved in producer and community activities
 - Think globally...act locally!

What can producers do?

- Always take the high road....put welfare first!
- Be cognizant of the economic effects of antibiotics but be aware that this is not an issue with activists
- Remember that herd or flock treatment, while medically necessary at times, is perceived negatively

What can producers do?

- Utilize the “Take Care – Use antibiotics responsibly” program from NPB
- Don’t roll over and start down the “slippery slope” (creeping incrementalism)
- Remember, antibiotic use in livestock is not the real issue with the activists...so don’t appease them.

“An appeaser is one who feeds a crocodile, hoping it will eat him last.”

Winston Churchill



