

Managing the risk associated with use of antimicrobials in pigs

- Effect of the Yellow Card

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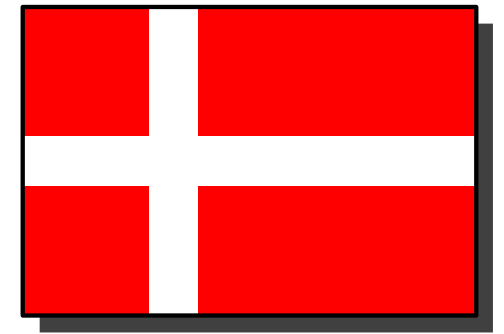
Adjunct professor, University of Copenhagen

Berlin, November 12, 2013

Antimicrobials and pig production

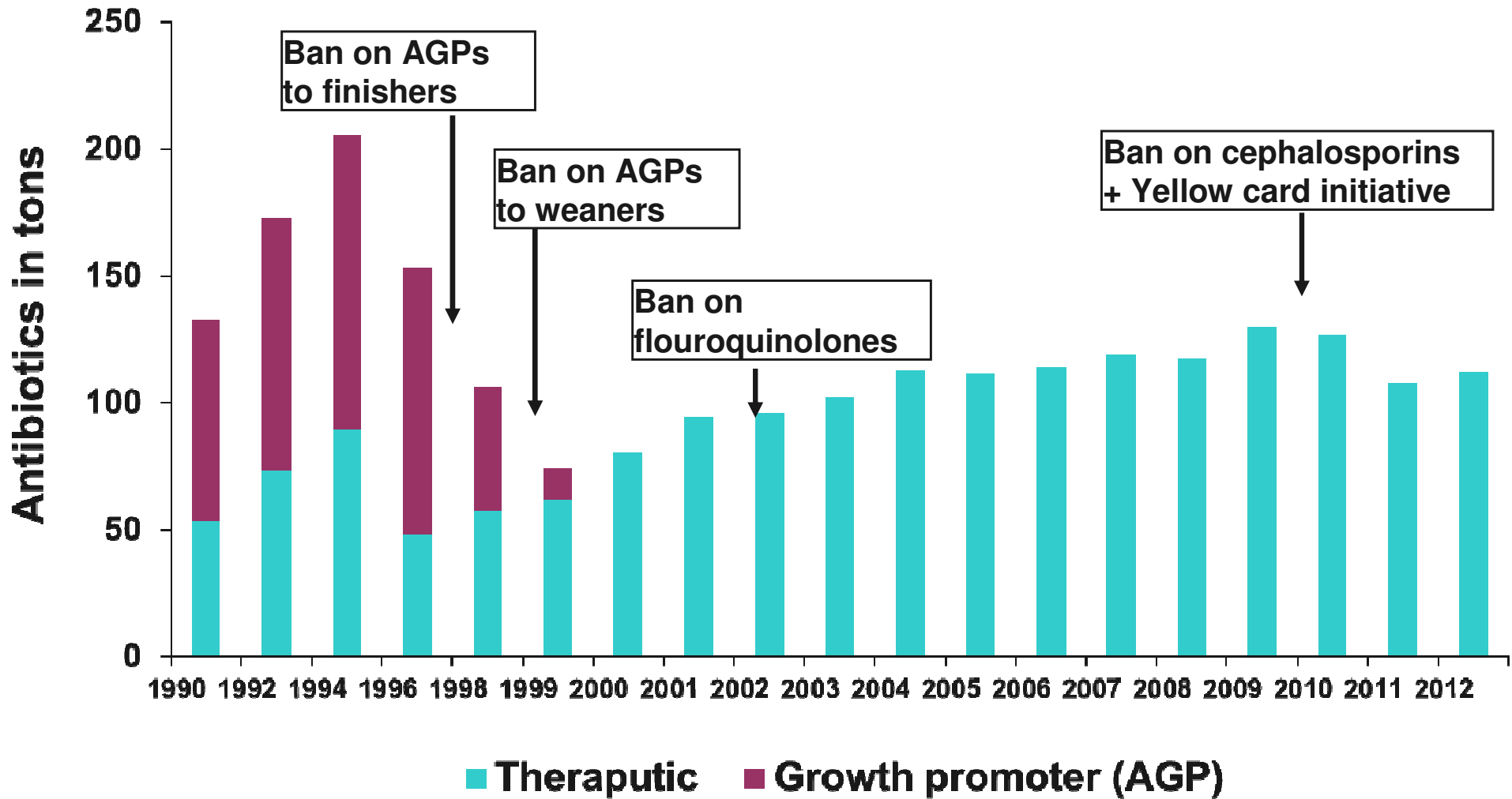
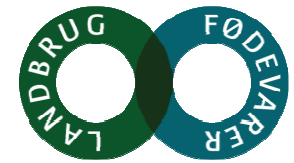
- **Diseased animals should be treated**
 - Antimicrobials often form part of correct treatment
- **A large pig production is associated with a non-negligible use of antimicrobials**
 - Will lead to development of antimicrobial resistance
- **Several initiatives have been put in place to mitigate the risk of antimicrobial resistance**

Outline of presentation



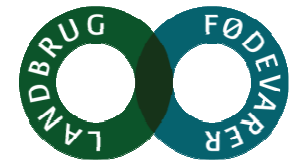
- 1. Brief description of initiatives put in place**
- 2. VETSTAT database**
- 3. The Yellow Card Scheme and its effect**
- 4. Discussion**

Initiatives put in place in Denmark



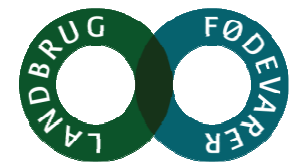
Consumption of antimicrobials to all Danish livestock – 80% for pigs

Other initiatives



- Vets may prescribe but not sell antibiotics
- Herd health agreements
- Treatment guidelines developed
- VETSTAT database - records use of medicine prescribed for livestock
- DANMAP survey tracking development of 'antibiotic resistance' in livestock, food and human population since 1995





VETSTAT database

- **All medicine used by the farmer is prescribed by the veterinary practitioner and recorded centrally in a database (VetStat)**
- **Enables an identification of trends in usage**
 - By farm, veterinary practice or at national level
 - By animal species or age groups
- **Run by Danish Veterinary and Food Administration**

Despite of actions taken, consumption went on the increase 2008-2009

The Yellow Card Scheme

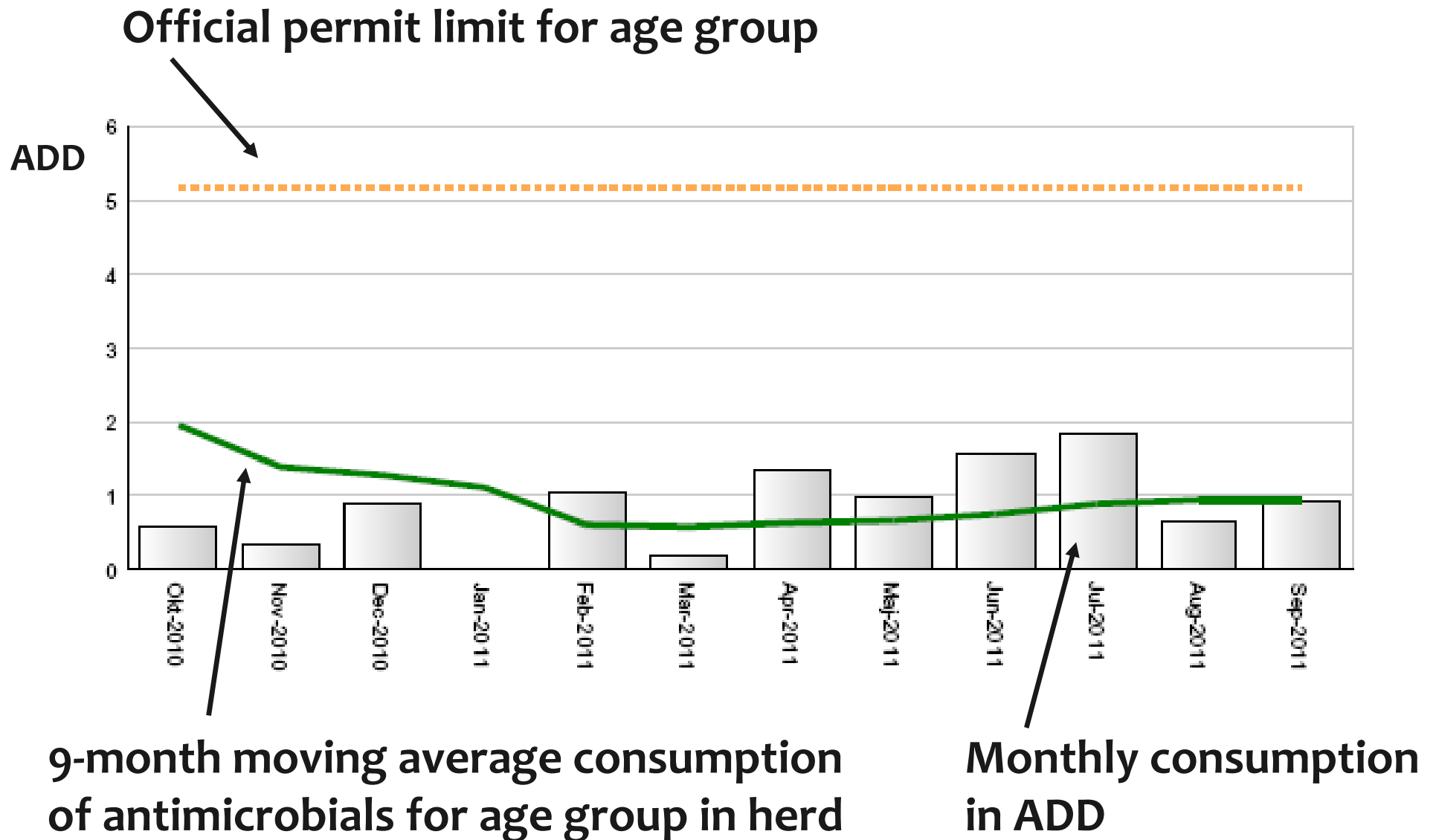


- Adapted in July 2010 by Danish Veterinary and Food Administration
- Make use of data recordings in Vetstat
- Restrictions imposed on pig farmers who use more antimicrobials than twice the average
 - Divided into age groups

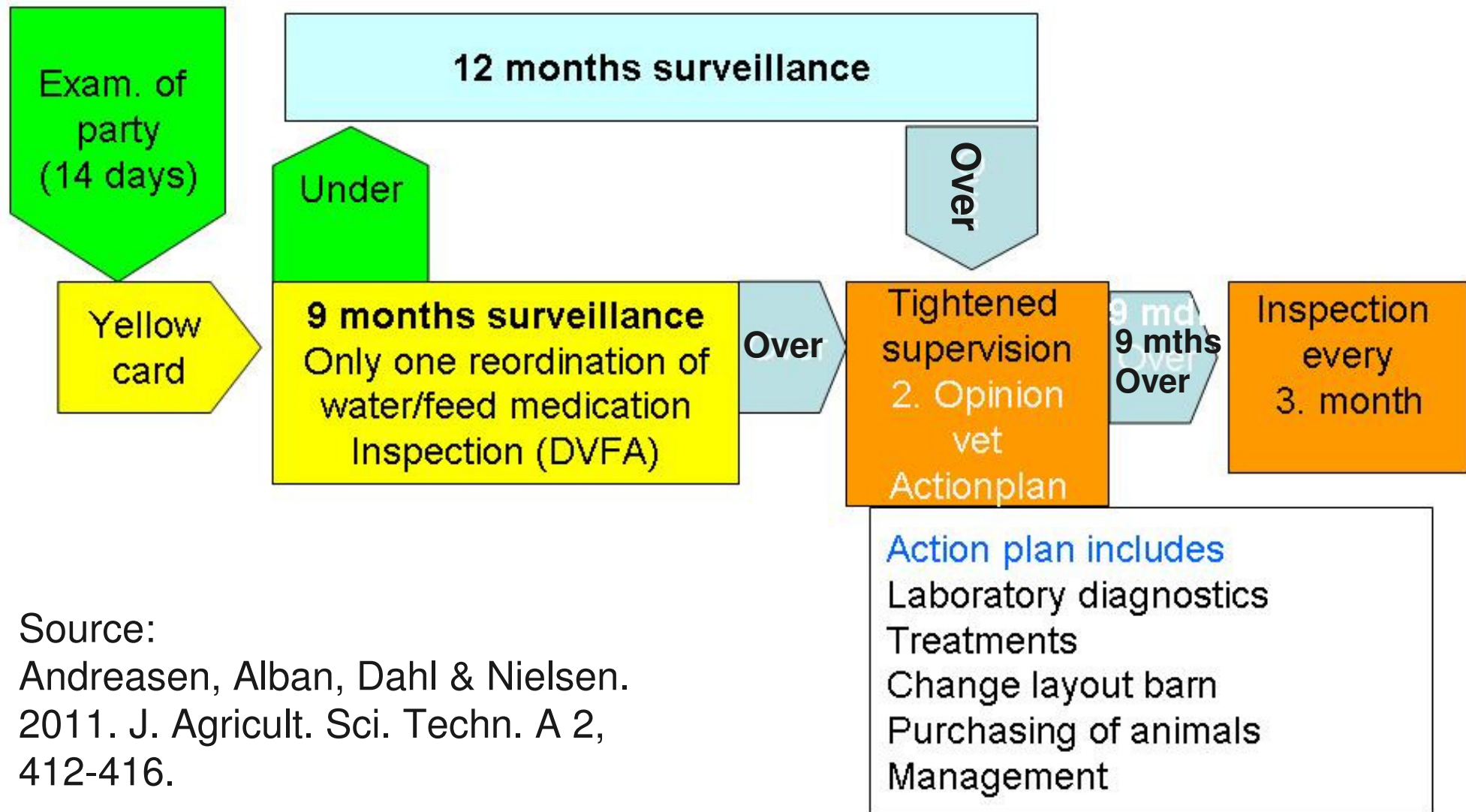
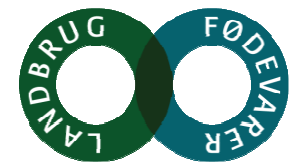
Age group	Permit limit*
Sows and piglets	5.2
Weaners	28
Finishers	8

* Animal daily doses (ADD) per 100 animal days – limits have later been reduced further

Evaluation of antimicrobial consumption in sows and piglets in one herd

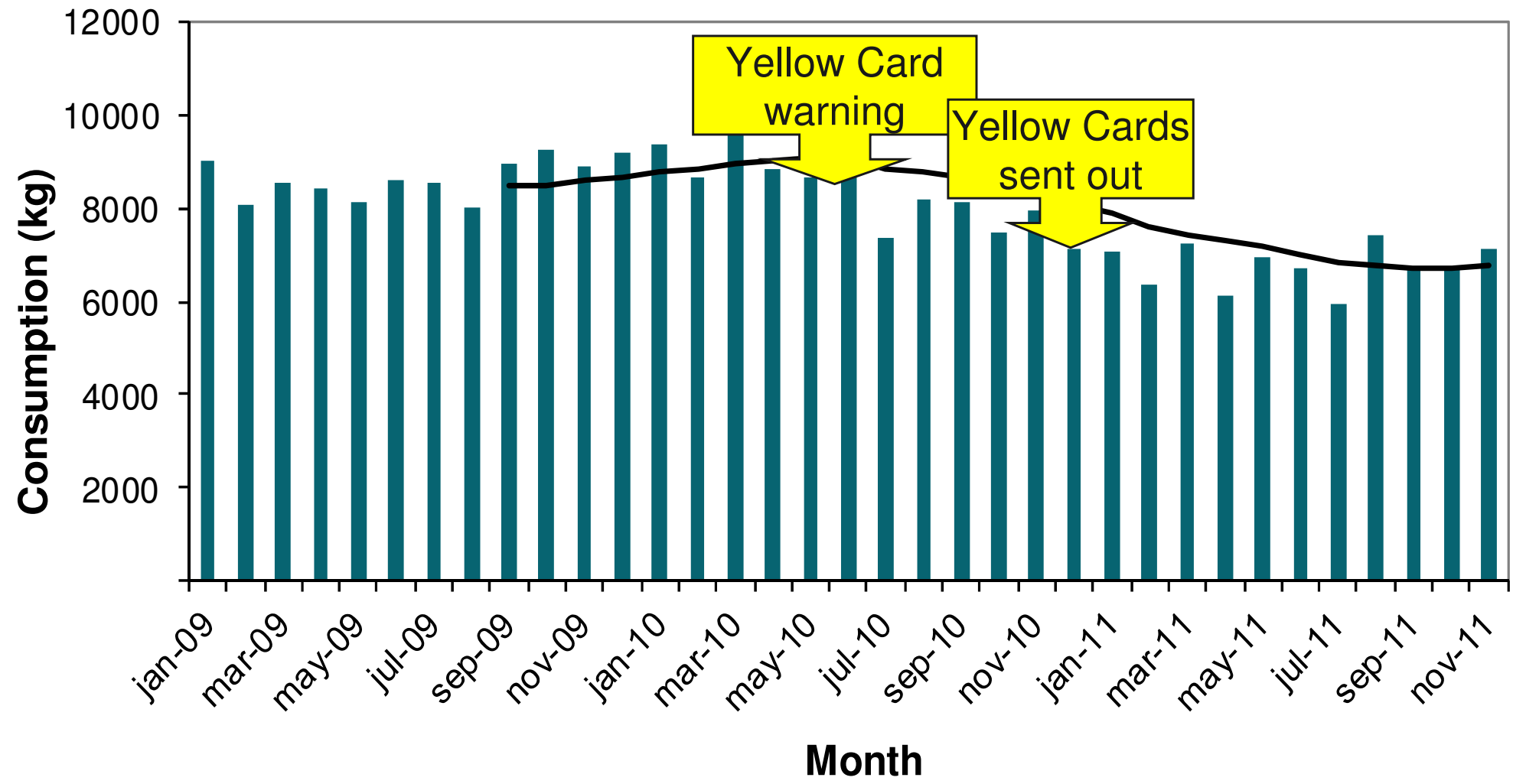


Actions related to Yellow Card



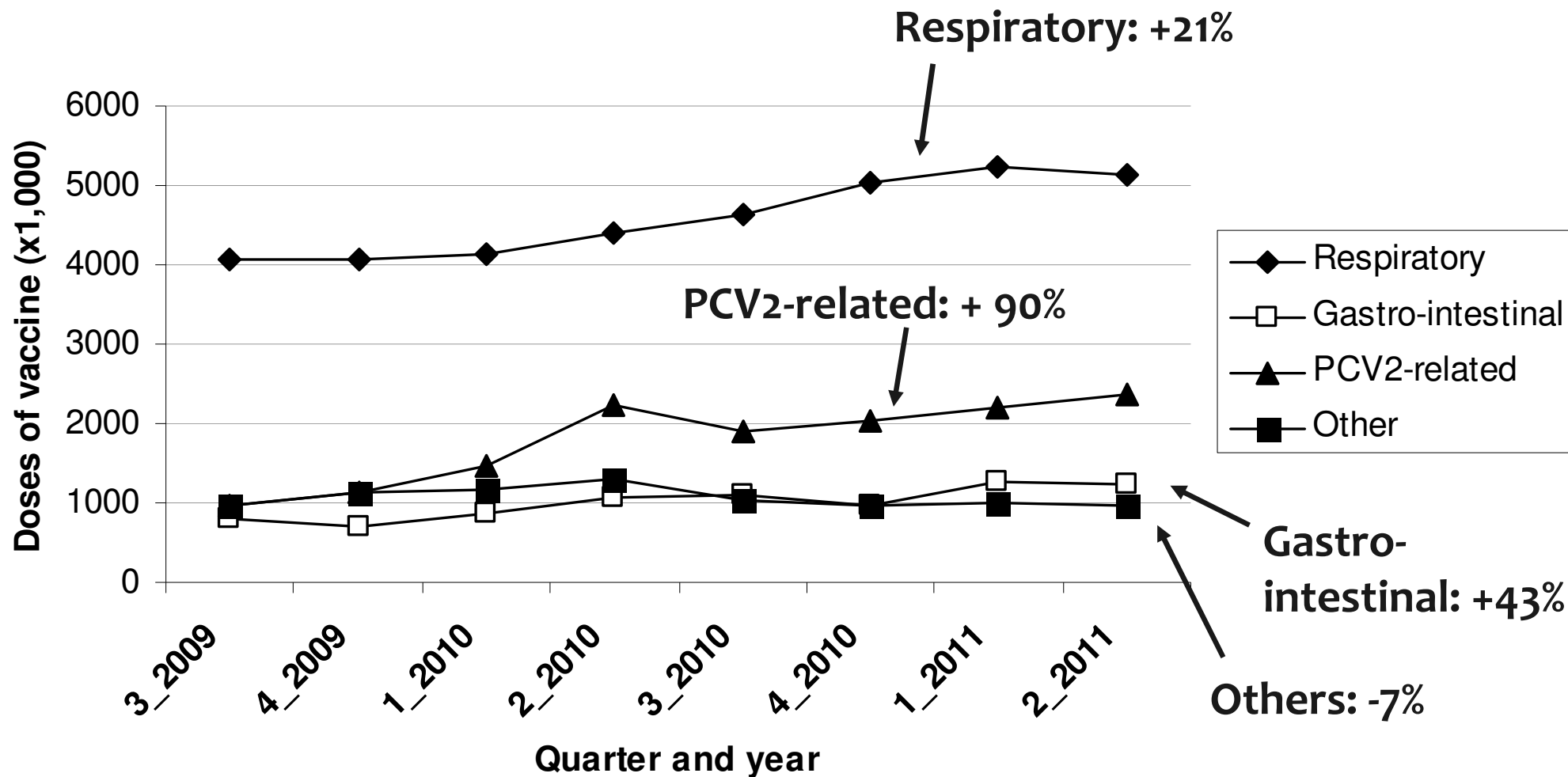
Source:
Andreasen, Alban, Dahl & Nielsen.
2011. J. Agricult. Sci. Techn. A 2,
412-416.

Effect of Yellow Card on consumption of antibiotics



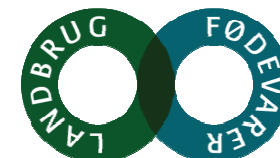
From 2010 to 2011: **increase** in production of **810,000 pigs**

Consumption of vaccines: changes in use seen over 12 months



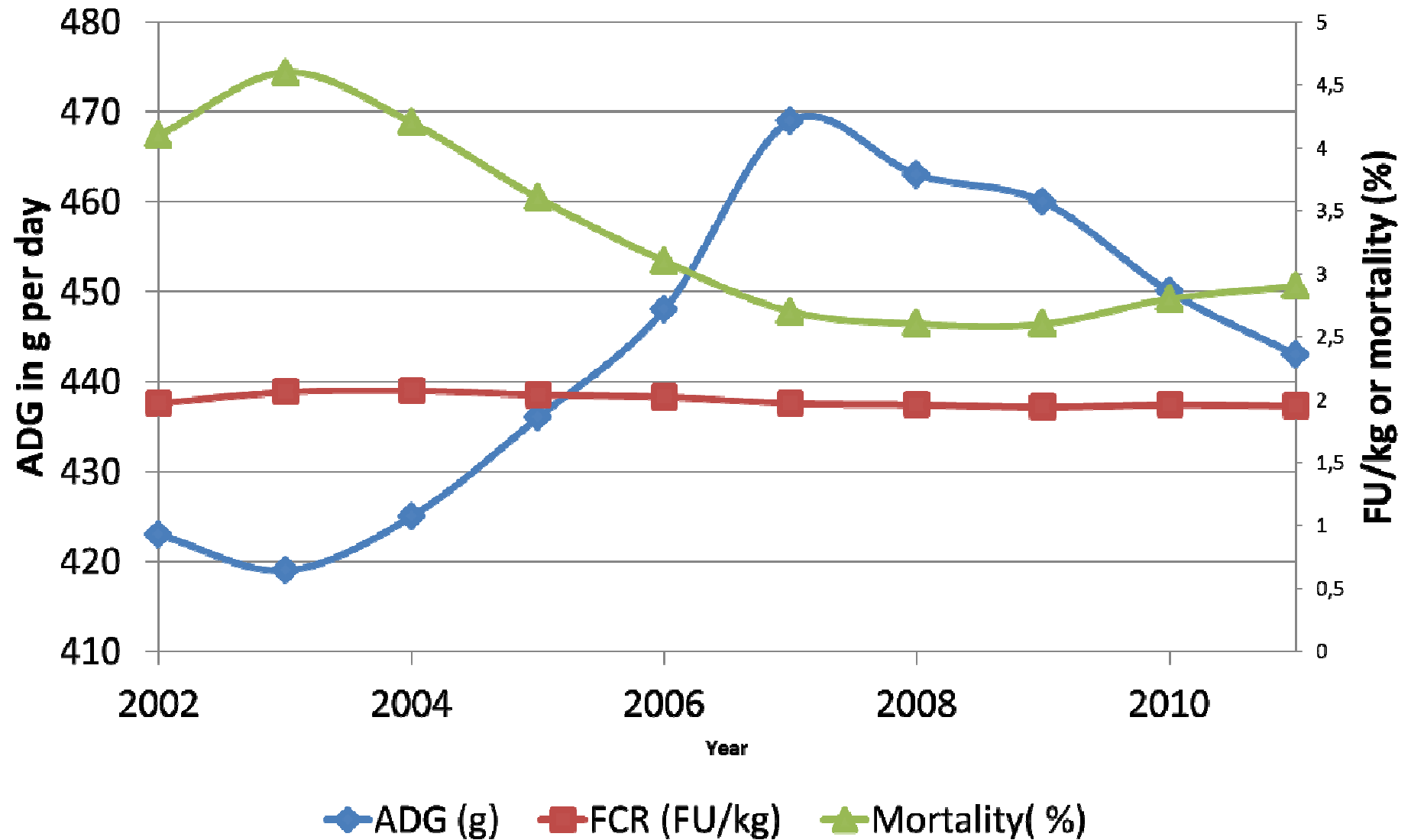
Source: Alban et al., 2013. Prev. Vet. Med.

Comparison of lesions at meat inspection year 2011 versus 2010

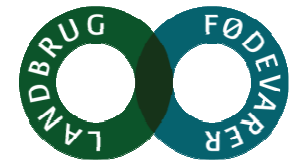


Lesion	Parameter estimate	Odds Ratio	Standard error	95% C.I.	P-value
Chronic peritonitis	0.4381	1.55	0.0364	1.44-1.66	<0.0001
Umbilical hernia	0.2036	1.23	0.0360	1.14-1.32	<0.0001
Chronic enteritis	0.1765	1.19	0.0381	1.11-1.29	<0.0001
Condemnation	0.1138	1.12	0.0582	1.00-1.26	0.047
Osteomyelitis	0.0878	1.09	0.0387	1.01-1.18	0.020
Chronic arthritis	-0.0179	0.98	0.0468	0.90-1.08	0.702
Chronic pleuritis	-0.0336	0.97	0.0309	0.91-1.03	0.266
Chronic pneumonia	-0.3604	0.70	0.0853	0.59-0.82	<0.0001
Chronic pericarditis	-0.5196	0.59	0.0747	0.51-0.69	<0.0001
Tail bite infection	-0.6070	0.54	0.0607	0.48-0.61	<0.0001

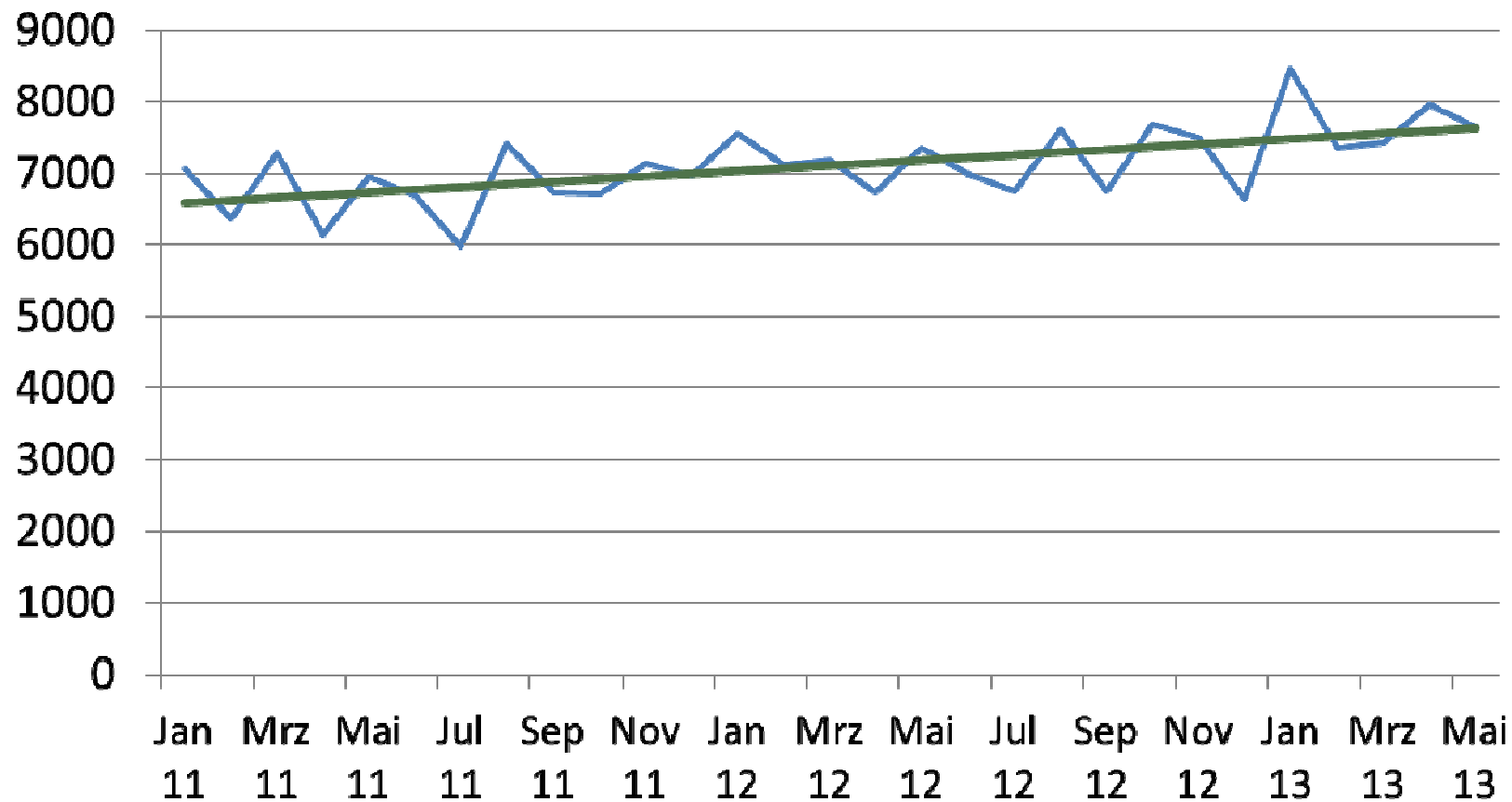
Effect on production



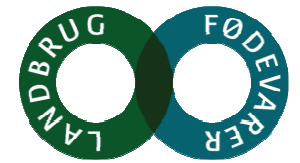
Use is on the increase again



- By 16% between Jan 2011 and May 2013
- But still lower than before the Yellow Card Scheme



Summary: Effect of Yellow Card



Documented effect:

- **Decreased use of antimicrobials**
- **Increased use of vaccines**
- **Minor impact on health and production**
 - assessed on average

Reports from the field:

- **Vaccines not always that effective**
- **In some herds, necessary to change management**



Discussion: Explanation for the relative low use of antimicrobials in Danish pig production

Primary factors

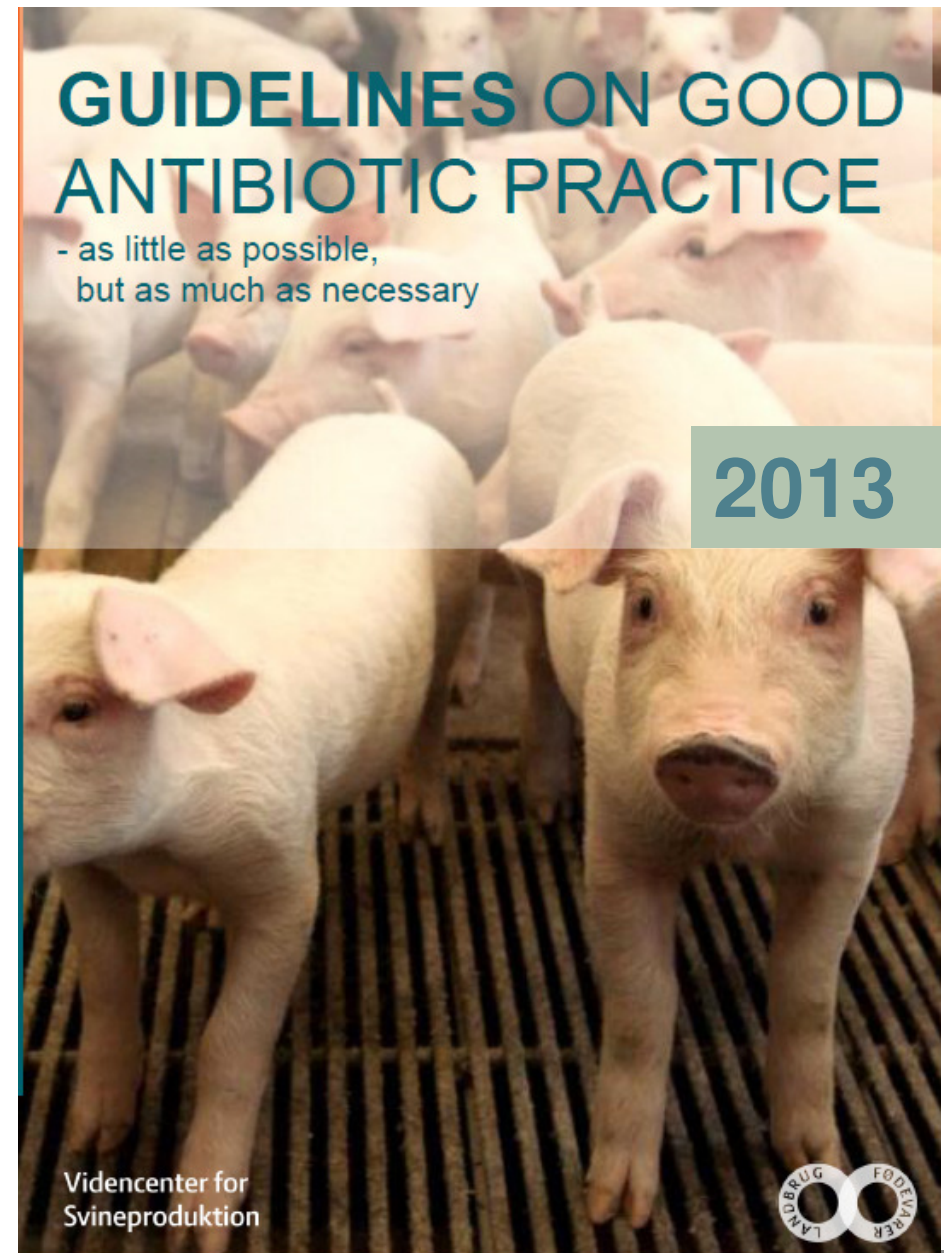
- Pig vet focuses more on advisory service than treatment
- Farmers are well-educated
- Pressure put on production by Danish Veterinary and Food Administration acts as incentive

Other factors

- Unique Danish SPF health management system
- High level of management in general

Tools: Manual

- **Regarding use of antimicrobials**
- **Promoting prudent use**
- **Developed in collaboration with pig vets**
- **Published in Danish, English and Russian**
- **Can be found at:**
http://vsp.lf.dk/Viden/Til%20staldgangen/Manualer/antibiotika_praksis.aspx



Conclusion

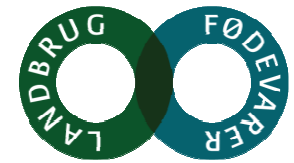
- **The Yellow Card Scheme is a useful tool to limit the consumption of antimicrobials in pig herds**
 - Requires that consumption is monitored by species and age group
- **Farmers become more aware of how their consumption contributes to the overall use**
 - Will make use of the vet to seek alternative treatment
- **However, maybe maximum limits might gradually become accept limits**
 - Whereby the national consumption will increase
 - This will probably lead to new actions



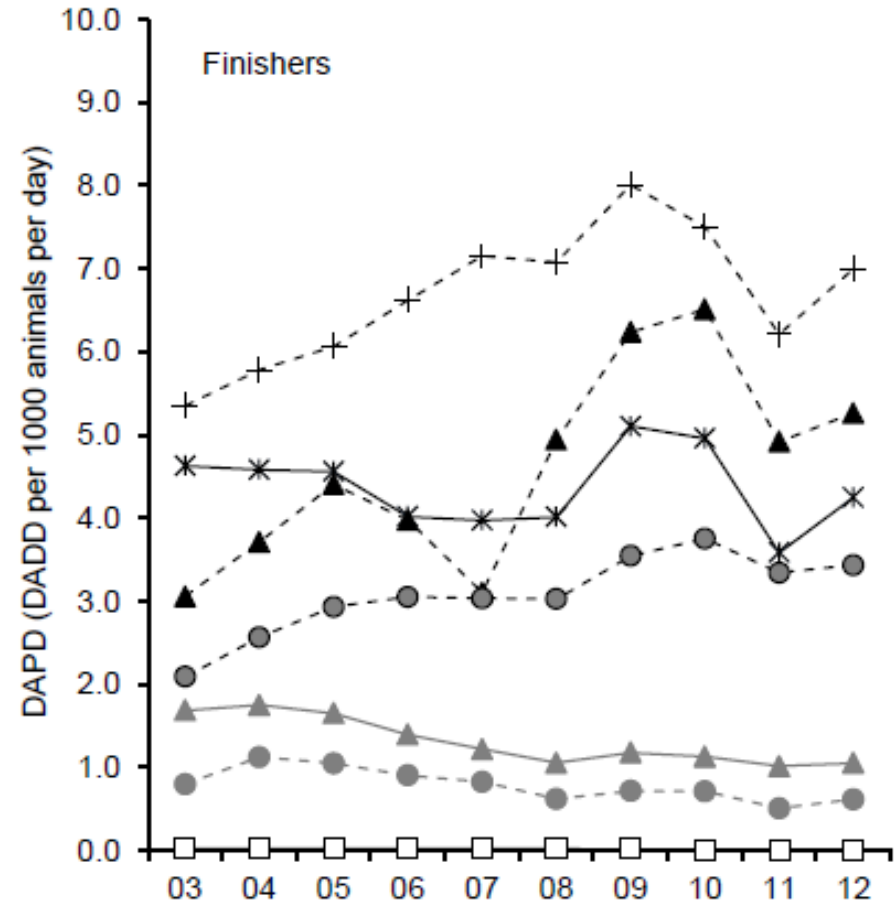
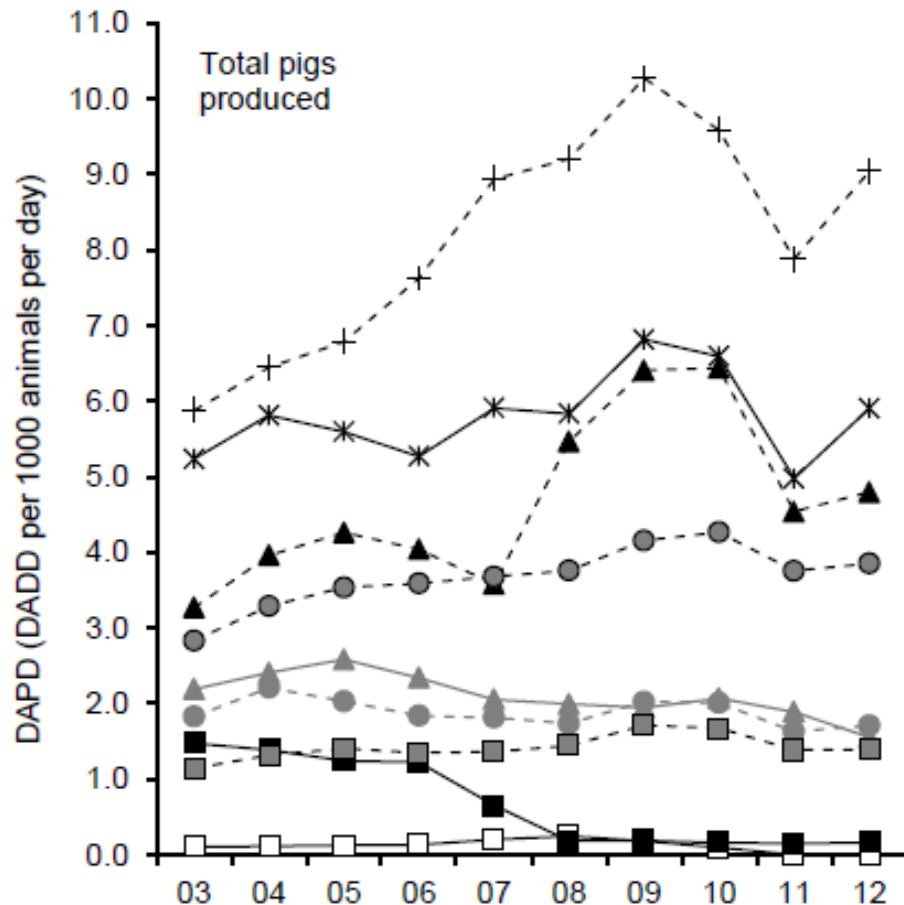
Thank you for your attention

Secondary effect of Yellow Card

- According to DANMAP 2012



DANMAP 2012



DAPD = Number of standard doses for 1 kg animal divided by the estimated live biomass in age group

