Successful control of salmonella and a minimized use of antibiotics in Swedish broiler production by long term implementation of disease preventive methods with special reference to the use of competitive exclusion (CE)

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KEY EVENTS FOR CONTROL OF ANIMAL AND ZOONOTIC DISEASES IN SWEDEN

Background

- Rinderpest 1740
- Education of veterinarians 1775
- Foot and Mouth and Classical Swine Fever
- Bovine tuberculosis 1897-1958
- Bovine brucellosis 1943-1957
- Organized health control 1943
- Salmonella 1941, 1961, 1970, 2001
- Antimicrobial growth promoters ban 1986
- Fallen stock feed ban 1986
- MBM feed to ruminants ban 1986, 1991
- Entry to EU 1995

Initially against EU regulations

Message:
Sweden has a long tradition of sucessful control of animal diseases

Broiler production

Three methods applied

1. Prevention and control of *Salmonella*
2. Competetive exclusion
3. Biosecurity and disease prevention
   - following ban of antimrobial growth promoters

1 day old

Slaughter : 30 days old – 1.75 Kg

1. Control of *Salmonella*

- Start > 50 years ago (1961), specific for broiler since 1970
- Essential elements:
  - prevent introduction through feed and breeding animals
  - high level of biosecurity
  - testing including all flocks before slaughter
  - Salmonella positive flocks destroyed – for all serovars
- Cost paid by producer – insurance

Result:

- Pandemic of S. Enteritidies (late 1980-ies) was prevented
- Annual incidence (last 16 years) infected flock : 0.2%
- Monitoring of carcasses : 0.03% contaminated birds

Ref. Zoonotic reports from EU/ EFSA and Sweden (www.sva.se)

Result - *Salmonella* *Salmonella* control

- Pandemic spread of S. Enteritidies (late 1980-ies) was excluded

- Annual incidence (last 16 years) infected flock : 0.2%
- Monitoring of carcasses : 0.03% contaminated birds

2. Competititive exclusion – Broilact®

Strategy for use:

Prevent Salmonella infection of new flocks

1. in units where previous flock was Salmonella infected
2. periods with increased risk for Salmonella in feed.

Administration:

- in drinking water to the day old chickens

Amount treated:

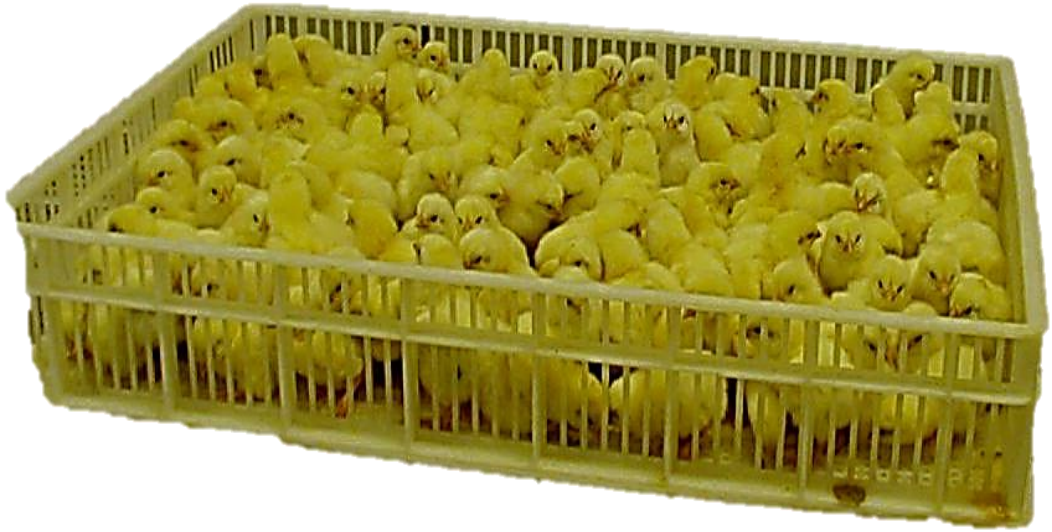
- 3.82 mill chickens / 179 flocks (3.82 mill birds) ; 1981-1990

Result:

- One of 179 flocks Salmonella infected – significantly verified effect
- Effective tool for avoiding re infection of Salmonella

New approach

1. The CE- culture is sprayed directly after hatch
   - prevent Salmonella infection from breeders
2. Assess effect for reducing spread of Enterobacteriaceae with transmissible extended cephalosporin resistance.



3. Disease prevention

- following ban of antimrobial growth promoters (AGP)

- **Background**

  Sweden banned AGP 1986, EU 1997-2006

- **Basic experience**

  Growth promoting due to infectious disease control

- **Basic challenge**

  Implement other ways to prevent infections

Strategies

- Monitor use of antimicrobials and resistance – show facts
- Educate farmers, employers and veterinarians
- Guidelines on the use of antimicrobials
- Batch production – "all in all out "
- Biosecurity
- Disease surveillance
- No economic incitement for vet to prescribe antimicrobials

Final result – use of antimicrobials

Broiler:

1. First years after AGP ban

Antibiotic for Necrotic enteritis (NE) prevention:

- 1987 – 100 % of 3000 flocks (60 mill. broilers)
- 1988 – 7 % of 3000 flocks
- 1995 – <1 % of 3100 flocks

NE the major disease. Proportion treated following ban

Reduction by 99 %

2. Current situation

Total use of antibiotics apart from coccidiostats :

- 2011 – 0.02% ; 6 of 3185 flocks (70 mill. birds)

Use of antibiotics largely eliminated

Conclusion

Long term implementation of
1. Biosecurity 2. Disease preventive management and 3. CE (Broilact®)
have largely
eliminated Salmonella and the use of antimicrobials

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Thanks for your attention

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Questions ?