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

- 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
- 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 successful control of animal diseases
Broiler production

Three methods applied

1. Prevention and control of *Salmonella*
2. Competitive exclusion
3. Biosecurity and disease prevention
   - following ban of antimicrobial 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](http://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. Competitive 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
3. Disease prevention
- following ban of antimicrobial growth promoters (AGP)

- **Background**

- **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
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
   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

Final result – use of antimicrobials

NE the major disease. Proportion treated following ban
Conclusion

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

Thanks for your attention & Questions?