

Salmonella Newport Bacterial Extract 2006 Challenge Study Results



Study Design

- 40 calves were divided into two treatments groups: SRP vaccinated vs. placebo
 - researchers were blinded to identity of treatments
- All calves received either treatment A or B, two vaccinations, three weeks apart
- Two weeks later, calves were randomly placed into pens of 4 head, by group A or B
- Live salmonella was then administered to all 40 calves intravenously
- Calves were monitored twice daily for the next 14 days, including manure samples, body temperatures and subjective evaluations of diarrhea and sickness



Claims and Outcome Parameters Measured During the Study

- **Claim 1: Reduction in the quantity, incidence and/or duration of fecal shedding of Salmonella Newport**
 - Quantity of fecal shedding of salmonella (CFU/g)
 - Positive / Negative salmonella shedding status

- **Claim 2: Aids in the control of Salmonellosis caused by Salmonella Newport**
 - Body temperatures sampled two times per day (AM and PM).
 - Daily feed consumption by pen (daily weigh back of uneaten feed)
 - Subjective evaluation of clinical signs of morbidity including diarrhea, dehydration, respiratory distress and depressed activity

- Vaccination titers (ELISA) were determined from blood samples taken at start of study, first vaccination and weekly through day of challenge, then a final blood sample taken at termination.

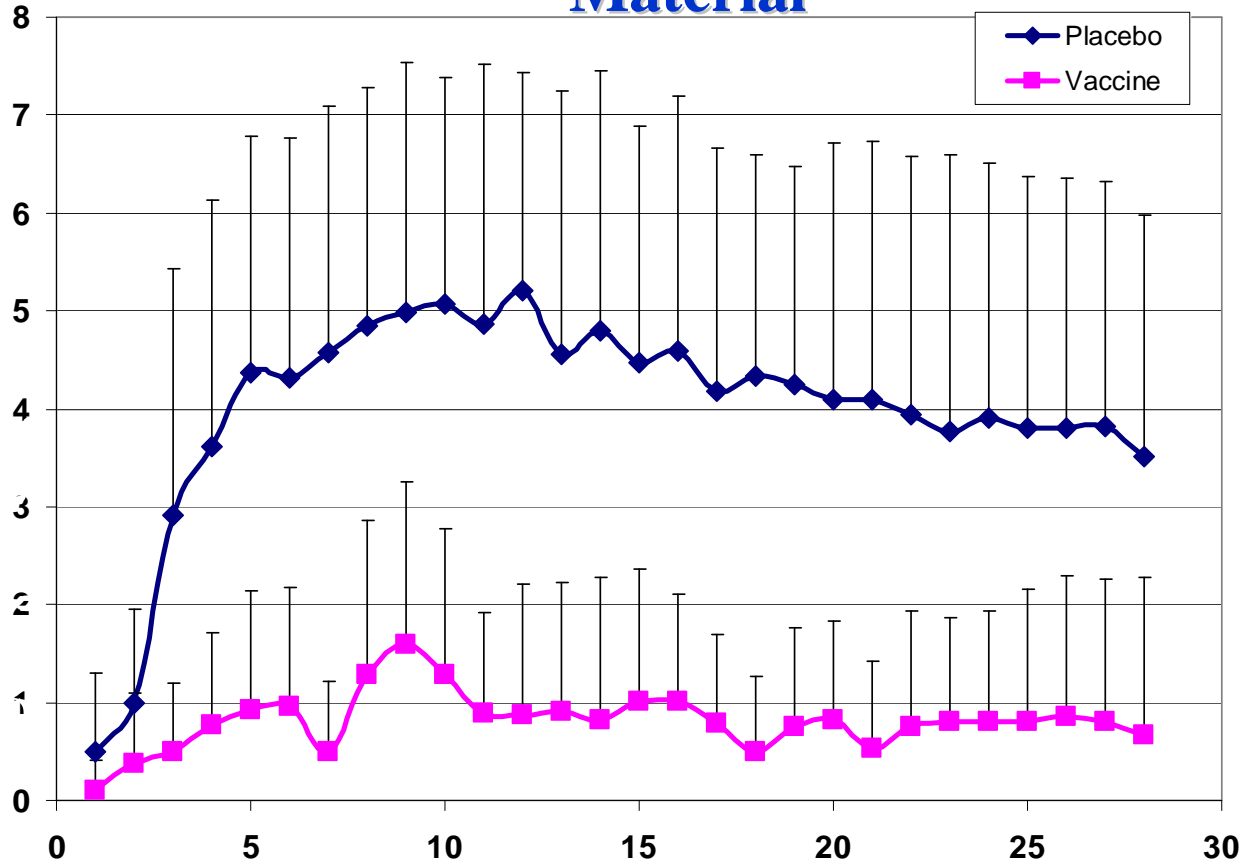


RESULTS

Claim 1: Decreased fecal
Salmonella shedding



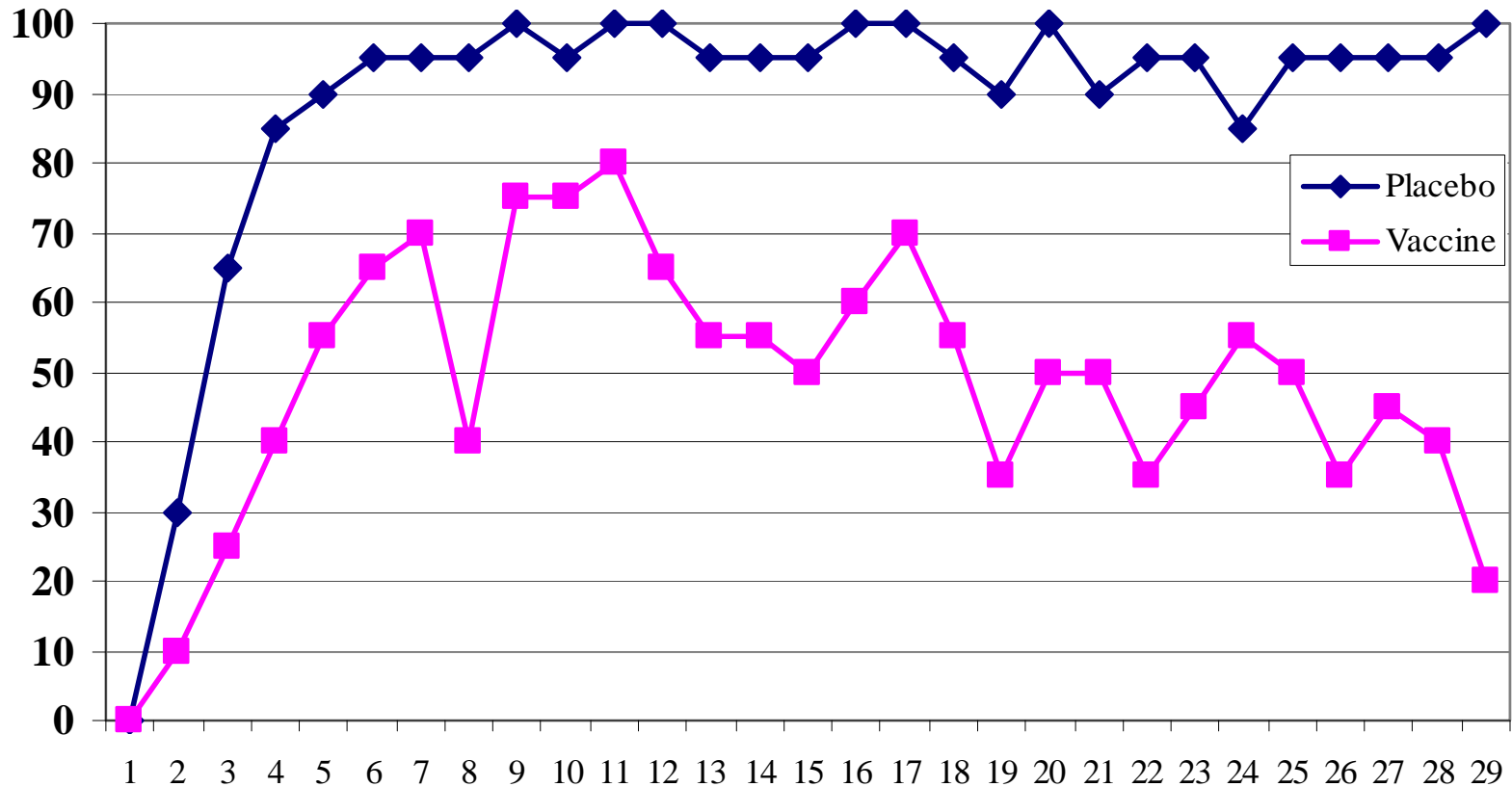
Quantity of Salmonella Shedding in Feces: Average Colony Forming Units (CFU) per Gram of Fecal Material



28 Samplings (AM/PM for 14 days)



Isolation of *Salmonella* Newport: Percent Positive Animals



28 Samplings (AM/PM for 14 days)

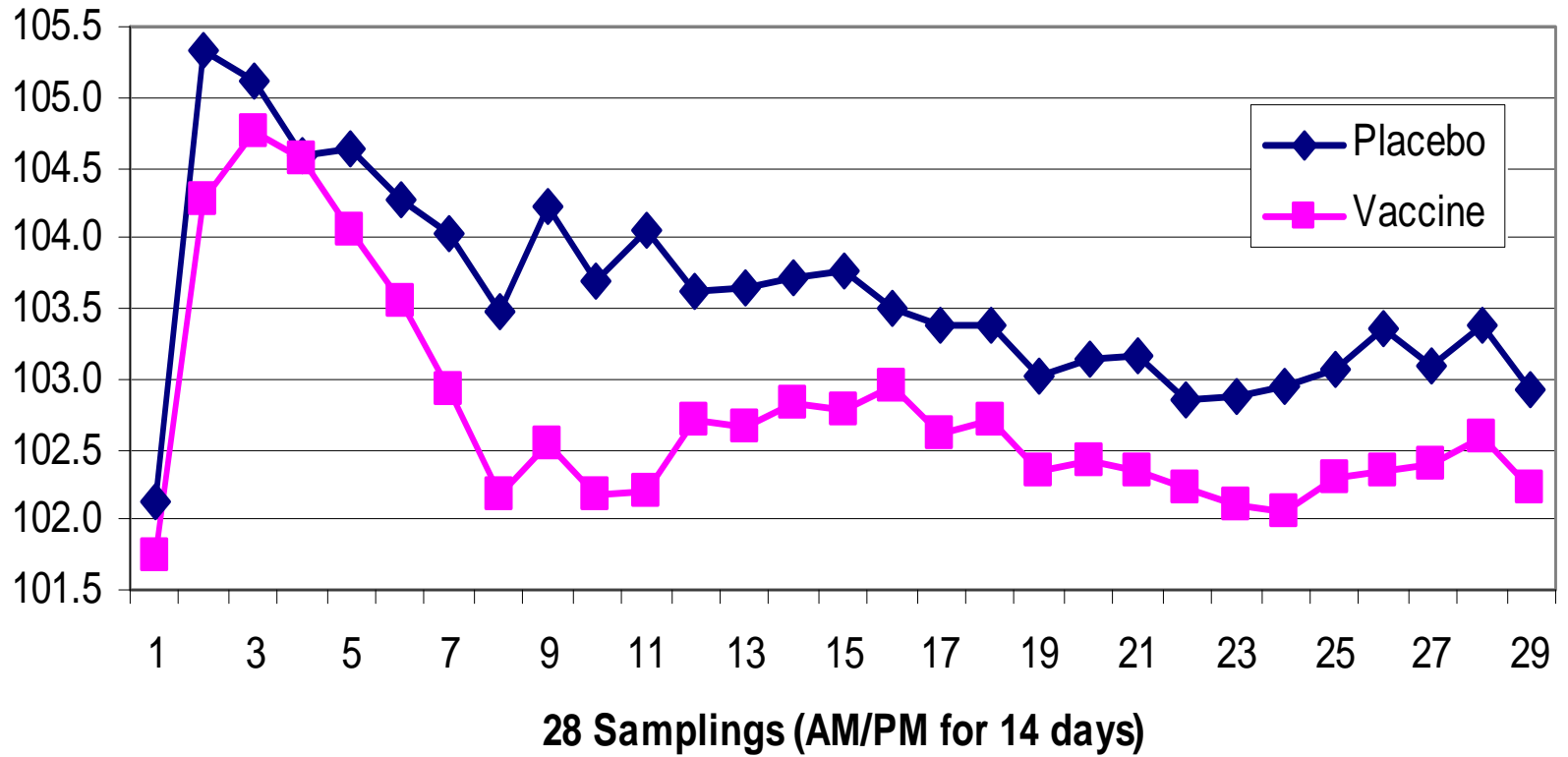


RESULTS

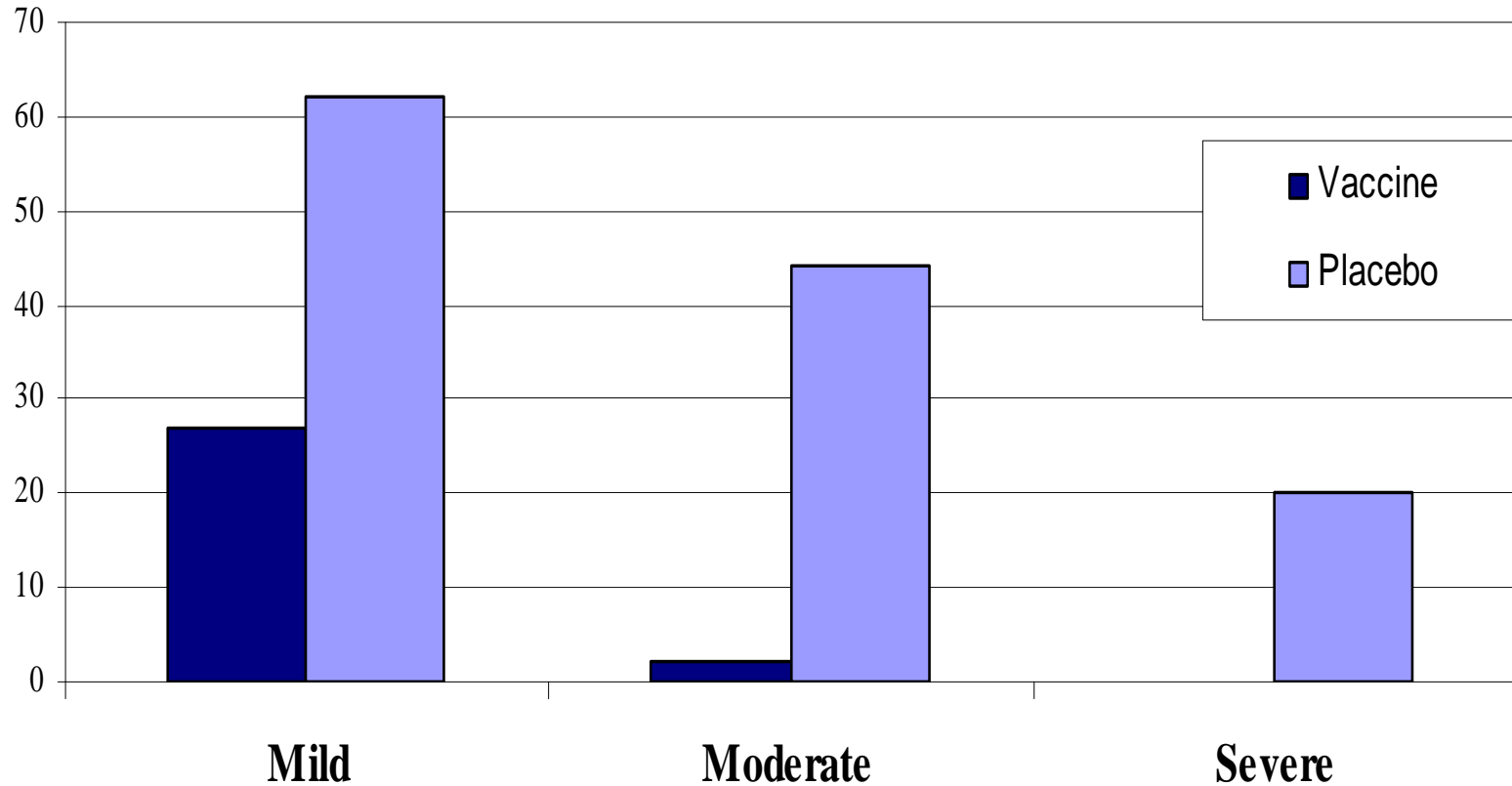
Claim 2: Decreased signs of salmonellosis caused by S. Newport



Average Body Temperature Post-Challenge



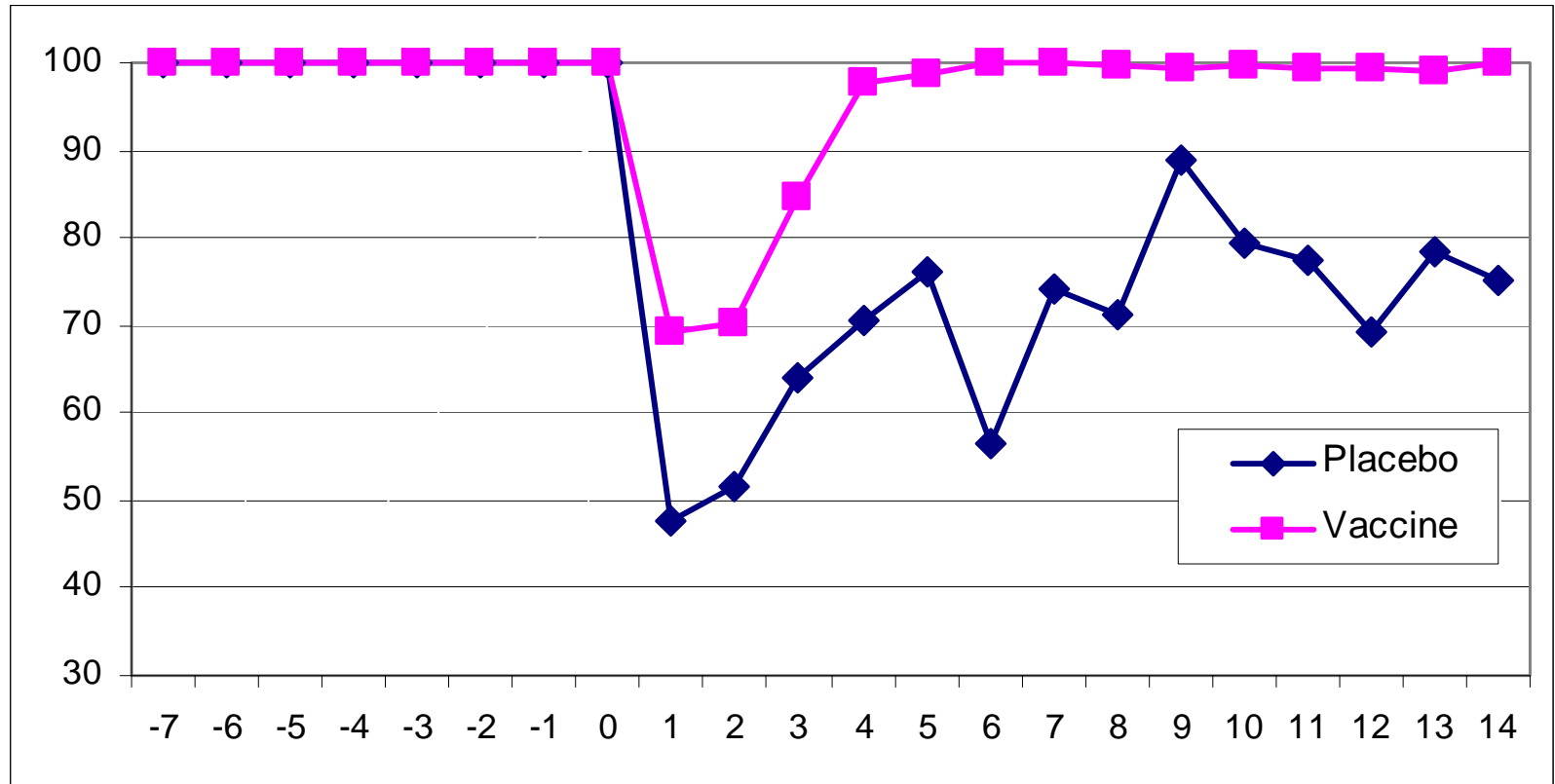
Frequency and Severity of Diarrhea Scores



Appetite Comparison of Treatment Groups A vs. B Using Daily Feed Consumption (lbs/pen/day)



Feed Consumption Expressed as Percentage of Total Feed Available/Pen/Day



Reduction of Salmonella Fecal Shedding in a Large Commercial Turkey Breeding Operation

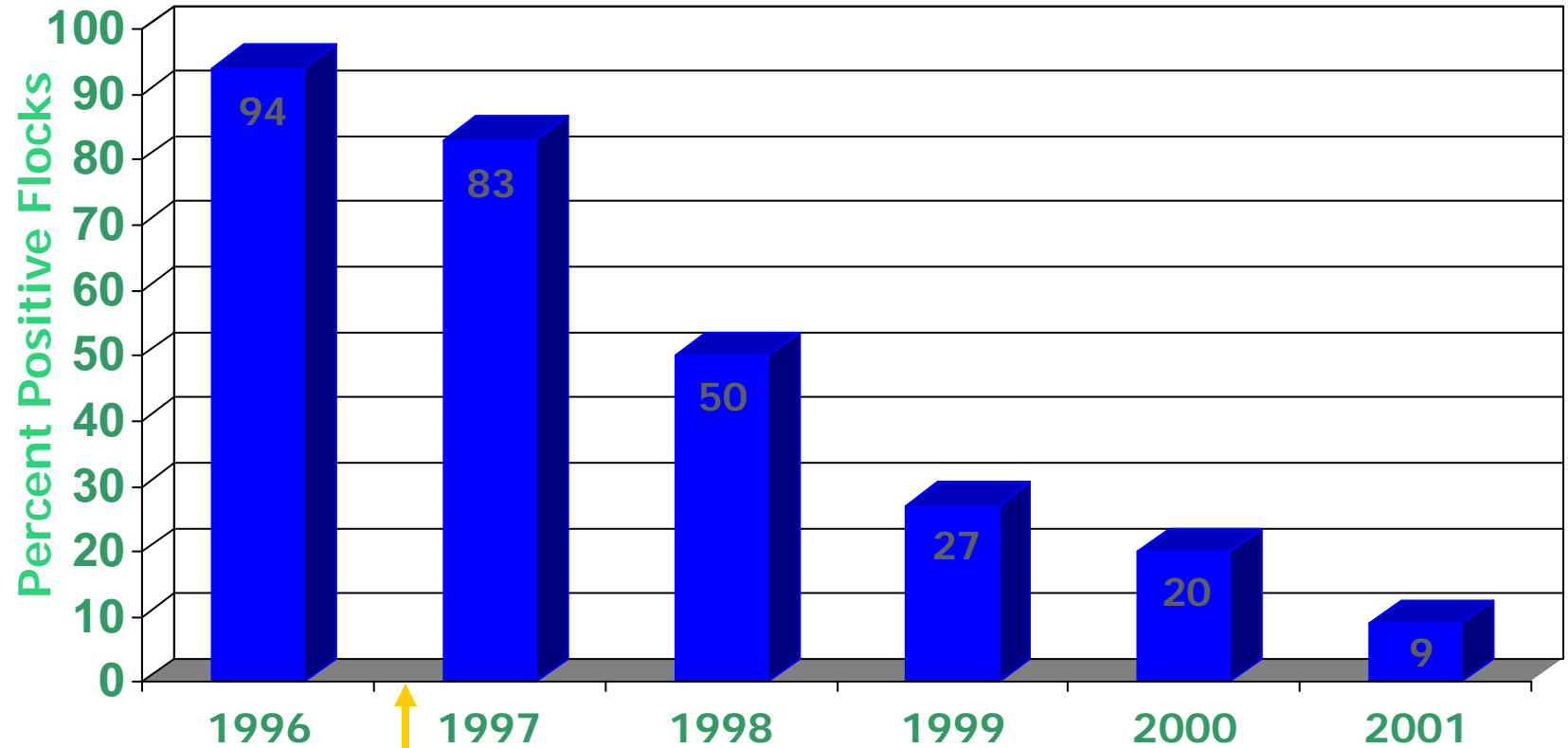


Flock Sampling Methods

- 50 flocks sampled annually
 - 2,500 to 20,000 head per flock
- 500 fecal samples per flock
- 25,000 annual samples
- Positive flock is one positive sample of 500



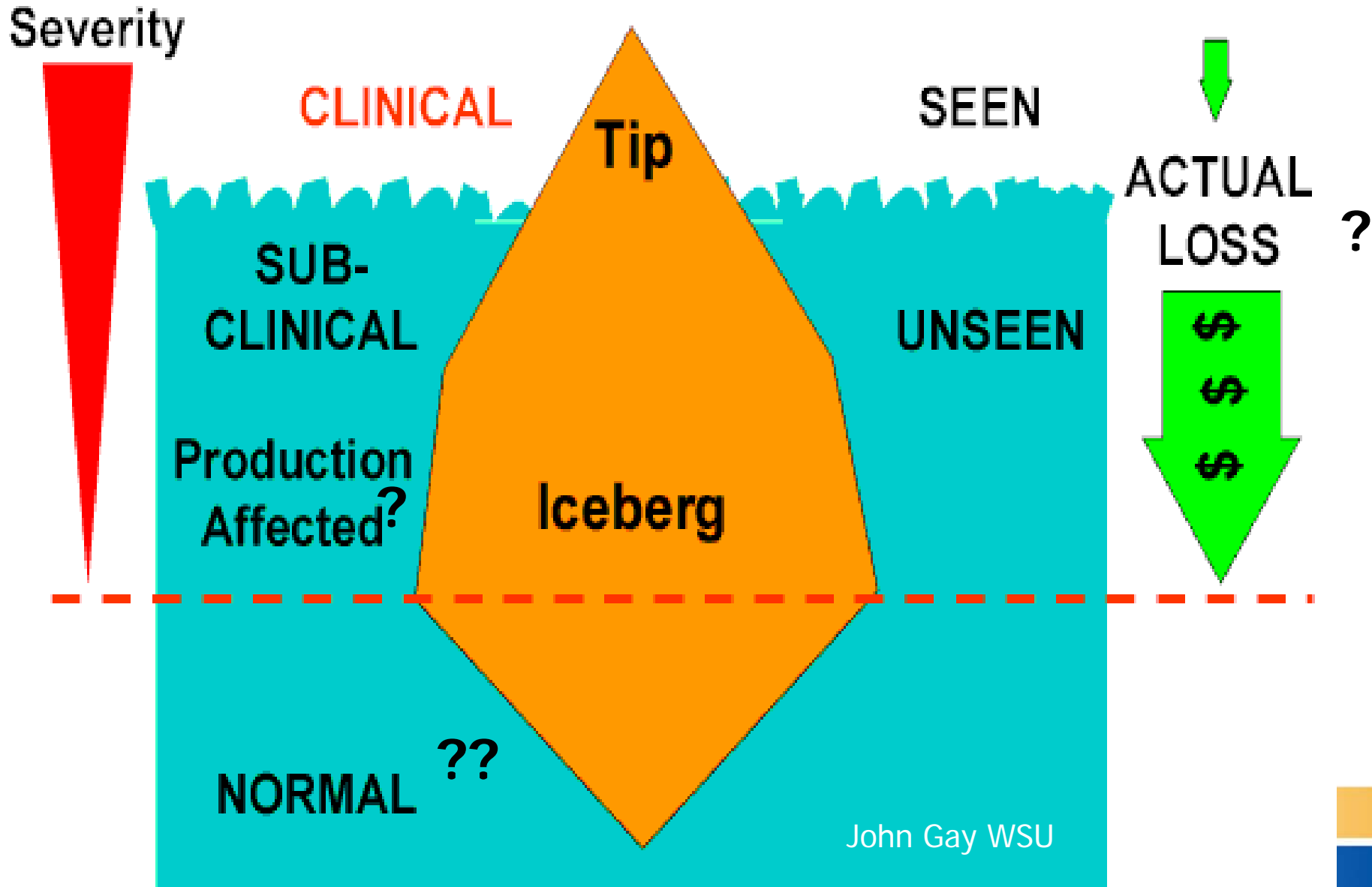
Official Minnesota State Salmonella Test Results for Willmar Poultry Company Breeder Flocks



Implementation of salmonella SRP[®] vaccination over a two-year period



Salmonella in a Dairy Herd



SRP Subclinical Dairy Field Trials



Objective

- To further investigate preliminary findings from earlier studies done by EpiTopix and Colorado State University suggesting that vaccination with SRP in dairy cattle exposed to but not clinically affected with *Salmonella* may have a positive effect on milk production.



SRP Vaccination on a Commercial California Dairy



Study Location and Background

- Tulare, CA - 2000 cow dairy, milking 2x daily
- No clinical history of salmonellosis, but clinician suspected presence.
- Salmonella had been found by UCD researchers on multiple dairies in the area.



Protocol and Parameters

- Cows grouped by lactation and production and randomly assigned to vaccinate or control group at dryoff.
- Vaccinates given SRP per label instructions according to the trial protocol:
 - Primary shot at dryoff
 - Booster shot on movement into closeup/prefresh group approximately 14 days prior to calving
- Non Vaccinated Controls (no placebo)



Data Collection Methods

- Milk weights followed thru 150 days in milk.
- Individual daily milk weights collected by milk meters.
- Results downloaded weekly from DC305 and imported to a statistical analysis program.
- Analyzed by epidemiologists at Kansas State University.



Salmonella Cultures Pre-Trial

- Fecal samples taken at random from 20 fresh animals prior to beginning the study.
- CA – 1/20 positive: *S. infantis* (Group C1)

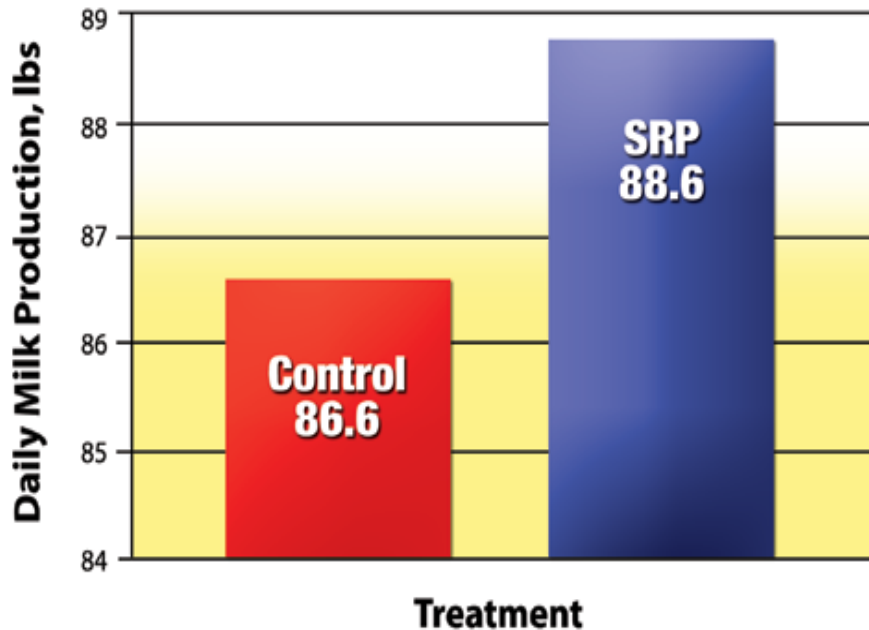


Tulare Study Animals

- 433 animals analyzed
 - 215 vaccinates
 - 218 non vaccinated controls
- Average # of days in milk: 148 days
- Average weight per milking: 44.8 lbs



Overall SRP Effect



- Adjusted for lactation and relative value.
- Overall 1.0 # per milking – 2.0# daily
- No effect on lactation 2 animals
- Effect highest on higher lactation, lower relative value animals.
- SCC data was not available on this dairy

