BVDV
An Australian Perspective

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An American’s Perspective of BVDV within Australia

- Enoch Bergman, DVM
- 2001 Colorado State University Graduate
- 2003 CSU Food Animal Medicine Intern
- 2003 Moved to Esperance, WA
  - Swans Veterinary Services
Esperance, Western Australia

- Rural Coastal Town
- 800 kms southeast of Perth
- 14,000 People within the Shire
- 60,000 Breeding Cows
- 1.5 Million Sheep
- Cropping, Mining, Fishing, Tourism
Esperance and BVDV

- Typical Cow/Calf Scenario
  - Fixed joining
  - Most calves sold at weaning
  - Some backgrounding
    - Usually on farm
    - Few yearling operations
  - Several small feeders
  - Approximately 200 properties ranging from 40 to 5000 breeders
Esperance and BVDV

• Chance encounter with BVDV at aboriginal school.
• Most area producers ignorant of BVDV.
• BVDV low priority to veterinary industry.
• First commercially produced vaccine recently released.
  – Pfizer/CSL’s Pestigard
Elucidating Prevalence of BVDV

• Began detecting BVDV in investigations of poor reproductive performance.
• Presumed incidence of BVDV would be similar to US data.
• Wished to perform a survey both to elucidate prevalence and to educate clients.
BVDV Serosurvey

• Producers reluctant to test for “unheard of” disease.

• Western Australian Department of Agriculture agreed to perform testing for free.

• Pfizer/CSL agreed to pay $100.00 per survey for first 50 surveys to defray collection costs.
BVDV Serosurvey

- Method
  - 75 properties surveyed.
  - Whole blood collected from six cows per property.
  - Agar gel immunodiffusion performed for evidence of recent exposure.
  - Antigen Capture ELISA’s performed on negative animals.
BVDV Serosurvey

• Results
  – 55/75 had detectable antibodies (73.3%)
  – On antibody positive farms
    • 268/352 animals seropositive (74.0%)
  – On antibody free farms
    • Closed herds
    • Smaller herds
BVDV Serosurvey

• Interpretations
  – Proof of infection in Esperance region
  – Similar prevalence to previous Australian survey work
    • Kirkland est. 70% actively infected
    • St. George et al (1967) 90% herds seropositive
  – Heightened producer awareness
  – Demonstrated need for a management plan
    • Testing
    • Biosecurity
    • Vaccination
Australian BVDV Vaccination Options

- Autogenous Vaccines
  - Modified Live
  - Administered by Veterinarian
  - Expensive
- Pfizer/CSL’s Pestigard
  - Inactivated Vaccine
  - Released 2003
Pestigard

- Vaccine demonstrated 80% fetal protection
- Label indicated vaccination at six and two weeks pre-joining, followed by an annual booster.
- Suggested retail price $3.50 per dose.
- Pfizer provided free vaccine to perform a field trial.
Pestigard Heifer Trial

• **Method**
  – 1656 heifers from 8 properties with evidence of BVDV included in trial
  – Proportion of heifers from each property vaccinated
    • Vaccinates randomly selected
    • 1089 of the 1656 heifers vaccinated (65.76%)
  – Two doses of vaccine administered with three week interval immediately prior to joining.
  – Pregnancy rates compared
    • Vaccinates vs Nonvaccinates
Pestigard Heifer Trial

• Results
  – Pregnancy rates of vaccinates were higher on 6 of the 8 properties.
  – Pregnancy rates of all vaccinates were 15.59% higher than all nonvaccinates.
  – Largest individual variation found was 20.5%
    • 928 heifers in property trial
Pestigard Heifer Trial

Effect of Vaccination of Heifers with Pestigard upon Pregnancy Rates

Number of Vaccinates / Number of Nonvaccinates

- Vaccinates: 70.62% 88.79% 62.39% 65.71% 89.19% 47.73% 68.63% 94.29% 92.22%
- Non-Vaccinates: 55.03% 84.00% 40.90% 56.25% 93.33% 46.67% 70.59% 80.00% 85.00%
Pestigard Heifer Trial

• Interpretations
  – Pestigard improved pregnancy rates
  – Vaccine is apparently efficacious in preventing fetal loss associated with BVDV
  – Presume that some properties had persistently infected replacement heifers in trial
Rural Practice Scholarship

• Sponsored by Schering-Plough and the Australian Cattle Vets
• Annual scholarship to a recent graduate to further their career in bovine veterinary medicine
• My project
  – To develop a voluntary BVDV eradication scheme within the Esperance District
Eradicating BVDV in Esperance

- Three fold approach
  - Biosecurity
    • Heighten producer awareness of the risks associated with unrestricted movement of animals into and out of herds.
  - Testing
    • Serosurveys to assess herd level infection.
    • Cost effective, sensitive, simple and quick methods of detecting PI animals.
  - Vaccination
    • Decrease level of maternal viremia
    • Prevent propagation of virus via acute infection
    • Decrease risk of introduction to immunonaive herds.
    • Increase seroprevalence in young stock.
Ear Notch Testing

- Results from First Farm in Australia
  - 84 steer calves tested
    - Fresh eat tissue collected for IDEXX
    - Formalinized tissue collected for WA Department of Ag
  - IDEXX Antigen Capture ELISA
    - Very Sensitive
    - Excellent correlation in OD values of suspected true positives
    - Results
      - 21 positive
      - 4 suspect
  - IHC
    - Excellent consistency between samples
    - Appears to be extremely specific
    - Results
      - 14 positive
  - Repeat Testing to be performed
Ear Notch Testing

• Weaning Weights
  – Average overall steer weight
    • 277 kilos
    • Heavier Bulls removed and PI’s included
  – Average PI steer weight
    • 225 kilos
    • 52 kilos lighter on average
Challenges in Eradicating BVDV

- Develop a veterinary consensus
- Educating producers
- Development of testing procedures
- District wide compliance
- Demonstrating cost effectiveness of control strategies
Thank you

• Australian Cattle Vets
• Schering-Plough Animal Health
• Agricultural Department of Western Australia
• Pfizer Animal Health
• IDEXX Laboratories
• Swans Veterinary Services
• Producers of Esperance, WA