

Ergot Toxicity in Beef and Dairy Cows



Dr. Chris Clark
Western College of
Veterinary Medicine
University of Saskatchewan



Ergot poisoning

- Long history
 - St. Anthony's fire
 - Salem Witch Trials
 - Pont-Saint-Esprit - France 1951

Back to basic Biology

- *Claviceps purpurea* - fungus of cereals and grasses
 - Esp. Rye and other grasses with open pollination
- Starts in the spring with over wintered ergots in wet soils
 - Spore (ascospores) formation dispersed on the wind
 - Mimic pollen



Honeydew

- Ascospores land and penetrate the ovary of the flower
- Within 5 days “Honeydew Stage”
- Conidia (asexual spores)
 - Spread by rain and insects



Ergot formation

- Over time the infected ovary develops into a hard, dark sclerotium (ergot)
- Ergot size and shape is dependent on the species of grass infected

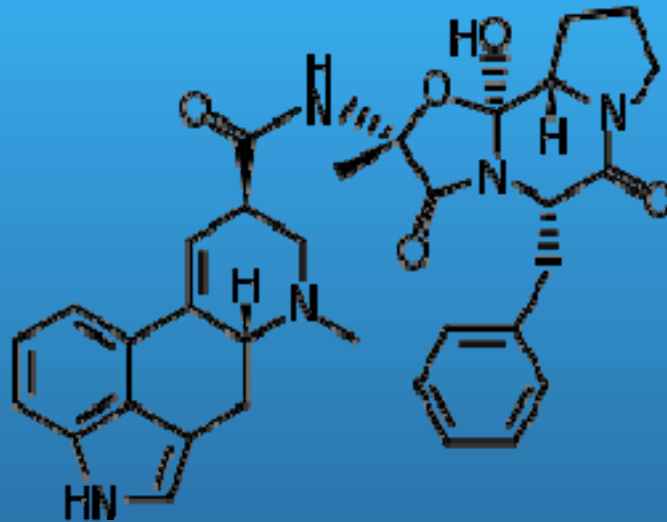


Epidemiology

- Need a source of ergots
 - Previous year
- Need over winter phase
 - Need 4-8 weeks close to freezing - minimum
- Need a moist spring
 - Need moisture for germination
 - Wet cool weather increases the window for infection
 - Uneven growth of crops
- Need susceptible plants
 - Barley, wheat, oats and broad leafs fairly resistant
- Weed grasses on field periphery

Toxins

- The ergot is 2% ergotamine alkaloids (dry weight) up to 12 compounds
- Blood vessels
 - Reduces blood supply to the periphery
- Nerves
 - Hallucinations
 - Decreased prolactin



Clinical syndromes

- In cattle gangrenous form predominates
 - Lameness
 - Tails and ears
 - Potential for abortion/missed milk production
- 2wks - 3 mths post exposure
- Hindlegs especially affected
- Affect of ambient temperature



Ergot in feed

- Legal limit is 0.3%
 - Recommended to be <0.1%
 - Based on visual inspection of 500g
- Heavily contaminated feed can be diluted with other “clean” grain



Modern Methods

- Direct analysis of Ergot toxins and other mycotoxins
- Prairie Diagnostic Services in Saskatoon
 - \$63 and \$84 (\$126)
- Ask for advice on sampling