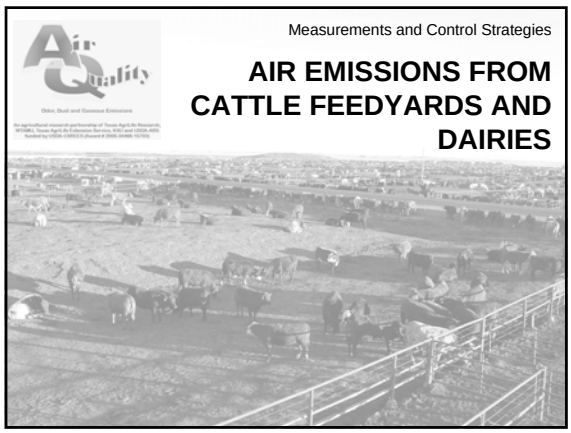

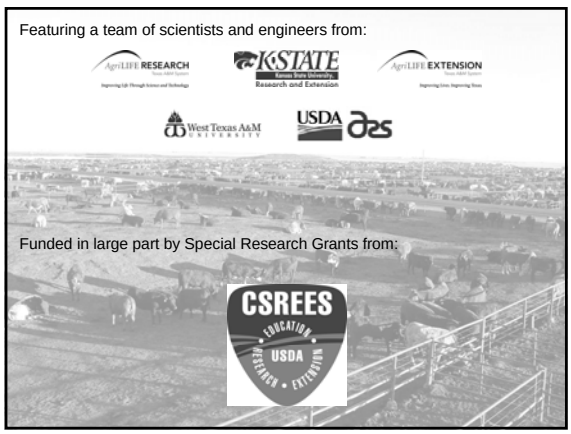

Dietary & Management Regimens to Decrease Feedyard Ammonia Emissions

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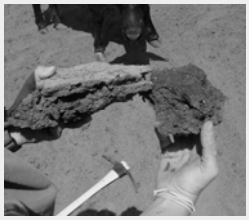
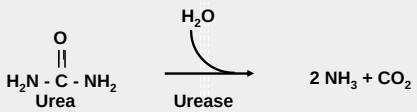


Ammonia Losses

Most feedyard ammonia is produced rapidly (< 3 days) from urine spots on the pen surface

Mechanisms to Decrease NH_3 Losses



Decrease excretion

Inhibit hydrolysis

Bind or convert to NH_4^+

Prerequisites

- **Practices that decrease ammonia should not have adverse "unintended consequences"**
  - Effects on animal performance & health?
  - Effects on worker health and safety?
  - Effects on air quality?
    - Particulates, Hydrogen sulfide, Odors, Greenhouse gases, etc.?
  - Effects on water quality?
    - Nitrates, etc.

Diet & NH_3 : Summary

- **See LPELC Webcast – Jan. 16, 2009**
- **Daily ammonia emissions from beef feedyards may be decreased by**
  - Decreasing dietary crude protein concentration
  - Limiting Ruminally Degradable Protein (i.e. urea) percentage in the diet
  - Phase feeding of protein
  - Feeding supplemental fat (2.5 – 3%)

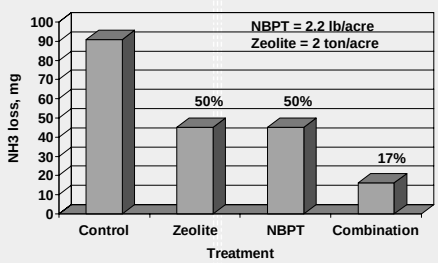
Additional Conclusions

Feeding and management technologies that increase production efficiency
- Ionophores,
- Beta-agonists,
- Hormonal Implants,
- etc.

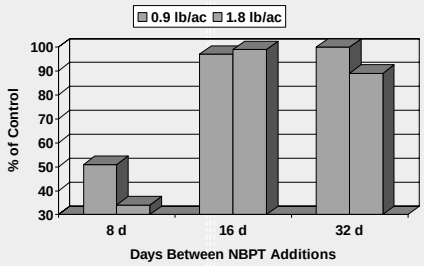
also tend to decrease NH_3 emissions per unit of beef production

In Vitro NH_3 Losses

NBPT & Zeolite Effects



Frequency of NBPT Addition and *In Vitro* NH_3 Losses



Parker et al (2005)

Summary

- Several potential surface amendments (alum, zeolites & urease inhibitors)
- Amendments may have to be applied frequently - approximately 8 days
- Mixtures of a urease inhibitor and NH_3 "binder" may have synergistic effect
- None are currently cost effective
- Dietary modifications currently best option

For More Information: NH_3 Control

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- Varel, et al. (1999). J. Anim. Sci. 77:1162-1168
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Thank You