

Mitigating Dust and Odor Emissions from Open-Lot Livestock Facilities via *Integrated Corral Management*

A National Research Initiative Integrated Air
Quality (28.0) Project

Culprits



Thomas Marek



Brent Auvermann

Integrated Corral Management

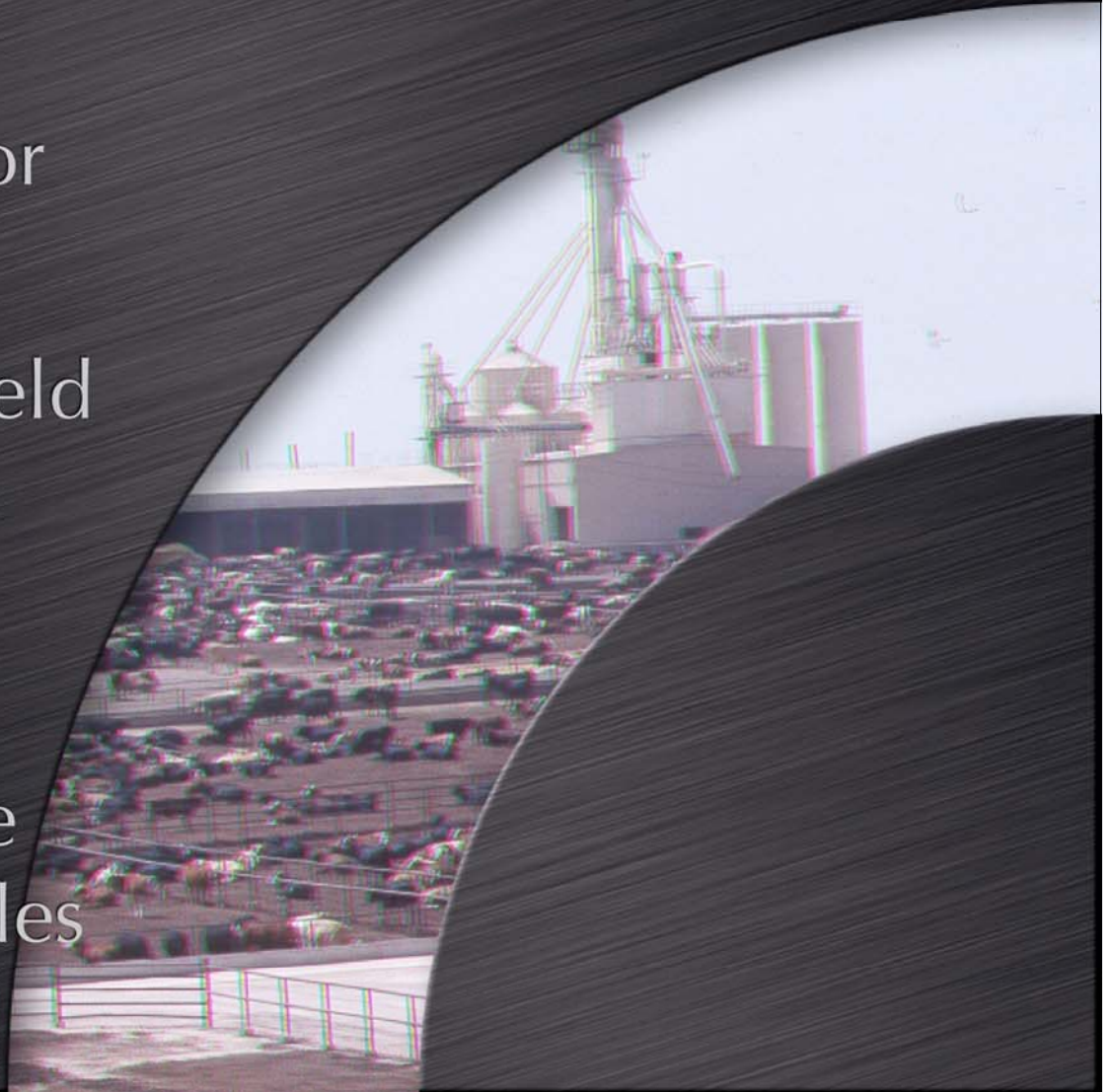
FEEDYARD A

PEN AE-13

Integrating Environmental Protection with the Daily,
Profitmaking Enterprises of Open-Lot Livestock
Facilities

Objectives

- Adapt a visibility-based surrogate for PM monitoring
- Develop a handheld database, DAQ, auditing and reporting system
- CEU and graduate curriculum modules





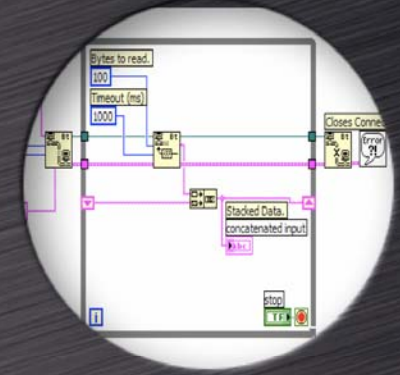
Manure Harvesting

- Optimize for fuel and fertilizer value
- Document improvements in AQ



Wireless Technology

- Integrates RFID, GPS and digital photography with HQ database using IEEE 802.11 (wi-fi)
- Current platform: LabVIEW 8.1
- Tracks employee location in real time; identifies feedyard position
- Automates dispatch, reporting
- Seeking IP protection; licensing arrangement pending



Sprinkler Performance Audit

- Uniformity
- Application Rate
- Effective Depth



Impacts - Knowledge



- We have trained representatives of 12 feedyards (~660,000 hd), power and ethanol companies on manure-harvesting principles integrating AQ control and manure quality for fertilizer and biofuel
- Average knowledge increase through training program was 30%

Impacts

- Two feedyard holding companies feeding nearly 10^6 head will adopt our visibility-based monitoring methods
- Negotiating to license our PDA-based DAQ/database modules

