



United States Department Of Agriculture
Agricultural Research Service

David Parker
Research Leader

Environmental Management Research Unit
– Started March 1, 2010 -

Formerly at West Texas A&M University (13 yrs)

Ph.D. @ UNL 1993-1996

- Activities and Interests -

- **Measurement and Control of Odor, VOC, & GHG at Animal Feeding Operations**
- **Accurate Quantification of Area Source Emissions (Wind tunnels and flux chambers)**

Current Projects:

1. **“Abatement of Phenolic and Indolic VOC Emissions for Odor Control” (NRI-Funded Grant)**
 - Genetically modified *Saccharomyces cerevisiae* (Baker’s yeast) displaying horseradish peroxidase (HRP)
 - Non-GMO approach using soybean peroxidase (SBP)

Needs: Biochemists interested in collaborating, grad students....

Current Projects:

2. “Reduction of Odor Emissions from Swine Farms”

- Collaborating with Premium Standard Farms/MO
- Retrofitted scraper system into former flush barns (76% odor reduction, 90% TRS reduction)
- Vegetative Environmental Buffers (VEBs)
- Biofilters
- Future long-term lagoon monitoring

Current Projects:

3. “Correction Factors for Area Source Flux Measurements (Wind tunnels and flux chambers)”

- NH₃ and VOC flux rates increase with increasing air flow rate in wind tunnels and flux chambers
- Developing normalization standards and correction factors based on equivalent evaporation
- Future research on air flow effects for GHG in feedlot setting, static vs. dynamic chambers

Resources:

New Agilent 7890A GC/MS with
Markes Thermal Desorber



New SRI GHG GC
 CH_4 , N_2O , CO_2



Flux Chambers/Wind Tunnels/
Environmental Chamber

