North Carolina Agricultural Energy Partnership
Thursday May 27, 2010
North Carolina State University
Scott Hall (North Campus), Building #68, Room #216
211 Founders Drive
Raleigh, NC 27606

North Carolina Agricultural Energy Partnership Chairwoman Judy Stevens called the general meeting to order at 11:00am. Immediately she introduced Dr. Mike Williams, Coordinator and Director of Animal Waste Management Programs, from the College of Agriculture and Life Sciences at North Carolina State University.

Dr. Mike Williams began his talk with a disclaimer, that he has never received any help, financial or otherwise, from Fibrowatt. He went on to say that he does not believe that there is an environmental crisis currently associated with livestock practices, but did suggest that use of land application as the only outlet for manure was by no means sustainable!

Dr. Williams began by asking, "Which potential heath risk did we the attendees think poses the greatest risk to society?"

A. Nutrient contaminated surface or ground water,
B. Odor emissions,
C. Ammonia emissions,
D. Pathogenic bacteria contained in animal excreta,
E. Veterinary pharmaceuticals in surface and ground water.

Dr. Williams asked the group to think about this question and the answers throughout the presentation and at the end he would ask and answer this question again.

Worldwide, we treat manure by treatment practices that involve land application near the source of the animal production facilities. The approximate annual inventory of United States animal production are as follows; 100 million cattle, 100 million hogs, 300 million turkeys, and 8 billion chickens. If you add up all of these livestock types, he indicated that you will come up with more than 1 billion tons of manure per year. Here in North Carolina, the state produces approximately 800 million chickens, 40 million turkeys, and 18 million hogs, which translates into a lot of manure. With all of this manure the NC Legislature has recognized that our animal agriculture operations represents environmental and health burdens for the state. SB1465

addressed these concerns by providing environmental parameters for nutrients, heavy metals, atmospheric emissions of ammonia, odor, and disease-transmitting vectors and airborne pathogens.

Veterinary pharmaceuticals play a part in the environmental challenges that animal and agriculture create. Antibiotics, reproductive aids, growth promoters, and anthelmintics (to combat parasites) are all used for disease treatment and disease prevention. Studies that involve agricultural watersheds have shown that these pharmaceuticals have been found in surface and groundwater near the animal feeding operations.

Dr. Williams admitted that there needs to be sustainability and balance between the economy, our society, and the environment.

Dr. Williams moved on to ammonia emissions and the health risks they present. Dr. Williams explained how the animal feed operation created ammonia gas (NH3), which could be looked at downstream in local air through wet or dry deposition modeling. This gas combines with acid compounds that are commonly in air and form fine particulate matter or NH4+X (PMfine). He felt this fine particulate matter has negative effects on humans. He then presented a chart (see below) to quantify the modeled health outcomes for this ammonia in the atmosphere where ammonia emissions are present.

Unit Values Estimates for Modeled Health Outcomes* Health Outcomes	**Value Estimates as thousand 2002 $ per avoided Incidence (number of cases avoided/yr with 10% reduction in PM –fine)**
Mortality	6,093 (5.94)
Chronic bronchitis	356 (4.41)
Asthma hospitalization	7.4 (0.50)
Acute bronchitis	0.062 (11.92)
Lower respiratory symptoms	0.017 (134)
Work loss days	0.114 (918)
MRAD	0.052 (1577)

See full report at: http://www.cals.ncsu.edu/waste_mgt/smithfield_projects/phase1report04/appendix%20c-RTI.pdf

Dr. Williams continued; stating that the reduction in ammonia emissions would have a great benefit to society. The benefits received tremendously out weight the risk of the alternative management technologies. The risks can be minimized through technology!

Dr. Williams ended by asking again, “Which potential heath risk did we the attendees think poses the greatest risk to society?”

A. Nutrient contaminated surface or ground water,
B. Odor emissions,

C. Ammonia emissions,
D. Pathogenic bacteria contained in animal excreta,
E. Veterinary pharmaceuticals in surface and ground water.

His answer was C Ammonia emissions!

After Dr. Mike Williams had finished his report, Chairwoman Judy Stevens thanked him for this along with everyone who was in attendance.

Meeting Adjourned!