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ABSTRACTS OF RESEARCH GRANTS

ECU's Research Development Award Program for 2007-2008

Identifying upper airways problems among agricultural growers and workers in Eastern North Carolina

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Abstract and problem statement

Agriculture is the second most dangerous industry in the US and is the leading industry for Eastern North Carolina. North Carolina ranks eighth nationally in farm income and has a diverse agricultural sector. Rural North Carolina produces 91% of the state's \$7.3 billion in agricultural receipts. Over half of those receipts (59.4%) come from Eastern North Carolina.(North Carolina Department of Agriculture 2007)

Upper airways diseases are the largest contributor to the cost of productivity loss in the workplace. Although there are observed relationships between agriculture and respiratory health problems, little attention has been given to occupational respiratory problems among farmers in the United States. One of the most underestimated and least known respiratory problems is upper airways diseases (UAD), which can cause systemic symptoms, decrease quality of life, and result in reduced workplace productivity. An estimated annual cost of UAD alone was \$2-5 billion in the U.S. in 2003.(Reed et al. 2004) Appropriate management of UAD may be an important component in preventing other conditions, such as asthma or allergic diseases. However, the relationship between occupational factors and UAD is not clearly defined. Approximately 30% of adults disabled by respiratory illness are farmers.(Grisso et al. 2005) Farmers growing soybeans, cotton, and peanuts are at risk for respiratory illness due to exposure to dust, agricultural chemicals, mold spores, and toxins associated with improper storage or ventilation of crops. In Eastern NC, soybeans, cotton and peanuts are among the top five crops produced. As more tobacco farmers transition to these crops, respiratory illness may be increasing. The current status of UAD among farmers is unknown; however local farmers and agricultural community leaders acknowledge that UAD is a common problem (Boree K. 2007).

The main goal of this proposed introductory study is to determine the association between occupational risk factors, and the upper airways symptoms among agricultural workers. Our specific aims are: 1) to identify specific agriculture related occupational risk factors in the area, 2) to describe upper respiratory symptoms and their severity among farmers, and 3) to investigate the possible relationship between occupational risk factors and upper respiratory symptoms. A sample of 325 farmers and farm workers producing soybeans, cotton and/or peanuts will be selected from two counties in Northeastern North Carolina to participate in this study after giving voluntary, informed consent. Graduate students will be trained to interview participants using standardized

questionnaires to collect data on demographics, occupational and exposure history, respiratory and cardiovascular symptoms and risk factors, and physician diagnosed diseases.

This research initiative in this newly developing research area will be the cornerstone of future medical and epidemiological studies on agriculture related occupational UAD. It will create an opportunity for future national collaboration activities with other research institutions.