

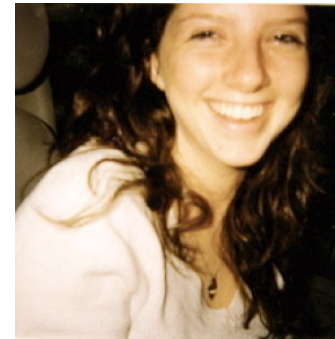
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## *Agricultural Air Emissions Rates, Characteristics and Control*

Airborne noxious chemicals emitted from animal operations can be removed with biological treatment in a biofilter. A biofilter is an air treatment system that relies on microorganisms growing in a biofilm on a support media to break down volatile contaminants. Biofilter media porosity, composition and microbial populations affect biofilter effectiveness and costs. Biofilter media commonly include natural materials, such as compost, woodchips and soils as well as low absorption materials like sand or glass. The inert materials provide support within the media. Some biofilters use a combination of these supports in the media with a moist environment for microorganisms to break down the noxious chemicals emitted from animals. My research will contribute to development of a more energy efficient and cost effective biofilter system. The purpose of my research was to determine media physical properties and airflow characteristics including porosity, or ease of airflow through an assortment of media. Information on how easily air flows through an assortment of biofilter media is essential in determining pressure drop across the media, which indicates the amount of energy needed to blow the air through the media for treatment. Pressure drop and airflow data was collected using a test unit fan. The results will be used to find the most effective pressure and airflow ratio and the most energy efficient biofilter unit.



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