

## CONCURRENT SESSION 5 – WASTE MANAGEMENT

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### **Assessment of Biosecurity of Using Horizontal Grinders to Enhance Composting to Improve Preparedness for African Swine Fever Virus**

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There are currently outbreaks of African Swine Fever Virus (ASFv) in Asia and Europe. ASFv has recently been confirmed in The Dominican Republic, the first ASFv outbreak in the Western Hemisphere in 80 years. ASFv is a hemorrhagic fever virus which only affects pigs. The U.S. Department of Agriculture (USDA), several states, and the pork industry are concerned that if ASFv were to spread to the U.S. it could cause significant damage to the \$40B pork industry and create a public health and environmental risk if the large numbers of pig carcasses resulting from the disease are not quickly managed. Estimated disposal capacity that may be needed is on the order of 3,000,000 lb/day.

On-farm composting is one preferred method of on-farm carcass management because it can inactivate the virus, produces a potentially useful by-product as a natural fertilizer and has been successfully used in past responses to Highly Pathogenic Avian Influenza (HPAI) and other outbreaks in the US. Unlike with poultry, however, whole-swine composting requires 6-12 months, resulting in the farm potentially being quarantined for up to a year. Grinding of the animal carcasses into smaller pieces along with a carbon source such as wood mulch enables pig carcasses to fully compost in approximately one month and provides a means to perform on-farm disposal without having to transport infected material over public roadways. Unfortunately, traditional industrial-scale animal carcass grinding equipment is not widely available and therefore impractical for emergency response. It may be that successful demonstration of the effectiveness of grinding as part of an animal disease response may present an opportunity for commercial development of low-cost grinders for this purpose.

This presentation describes a series of tests to operationally assess the biosecurity of using more readily available horizontal grinders primarily used in the forest industry to perform size reduction of swine mortalities. Porcine DNA was measured in a variety of particle size fractions, to estimate an emission factor from horizontal grinders, which was then utilized with air dispersion modeling to estimate atmospheric transport of potentially infectious particles. Testing was also performed to assess the effectiveness of cleaning and disinfecting the grinding equipment following its use in an ASFv response. The results from these tests will be used to help USDA/APHIS develop standard operating procedures for these operations.

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