AN ANIMAL MODEL TO PREDICT THE PULMONARY RESPONSE TO INHALATION OF AGRICULTURAL DUSTS

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Agricultural dusts are associated with many farm operations such as grain unloading, hay handling, chicken or pig confinement, etc. Such dusts are often contaminated with bacteria, fungi and molds as well as endotoxins, mycotoxins and spores associated with these microbes. Several farm operations are known to generate high levels of dust and have been reported to cause adverse physical reactions in farm workers. Symptoms often include fever, headache, malaise and respiratory difficulty. The present report describes an animal model which characterizes the pulmonary responses to inhalation of selected agricultural dusts. Bulk samples collected at the farm site can be placed in a container and dust aerosols of respirable size generated by acoustical energy. Guinea pigs can be exposed to these aerosols and their pulmonary responses, such as airway constriction and inflammation, can be monitored as a function of exposure dose and time. This animal model may have the capability to predict the potential biological reactivity of various agricultural materials. In addition, this system could be used to determine the agent(s) associated with agricultural dust which causes disease and to determine the mechanisms by which disease develops.

ROLLOVER PROTECTION STRUCTURE (ROPS) FOR FARM TRACTORS: THE STAGE IS SET FOR LOCAL ACTION

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Between 1980 and 1985, nearly 800 people were killed in the United States in farm tractor rollovers. Current data show that farm tractor rollover fatalities have been a factor in 17 percent of all deaths to workers in the Agriculture, Forestry, and Fishing Industry. A 30 percent reduction in the fatality rate for this industry is a *Year 2000* goal for the nation. To address this problem of farm tractor rollovers, a workshop was held to develop strategies for research and safety promotion in preventing fatalities to farm tractor operators. A widely recognized engineering intervention to prevent rollover fatalities is the use of rollover protective structures (ROPS) and seat belts on all tractors. Proposed strategies fell into two categories: (1) retrofitting tractors built between 1970 and 1985, for which ROPS have already been designed; and (2) retrofitting tractors built before 1970, for most of which there are no ROPS designs. Workshop attendees felt that local action groups should begin educational campaigns to encourage owners of tractors built since 1970 to have lifesaving ROPS and seat belts installed.

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