

Chief Source of Serious Swine Disease Found

Apparently healthy swine, that are acting as carriers, are the probable chief source of sudden outbreaks of *crisipelas*, a serious swine disease, according to the U. S. Department of Agriculture

(USDA). Studies by USDA's Agricultural Research Service (ARS) have shown that these carrier swine are probably responsible for previously

unexplained outbreaks. Carrier animals were known to harbor the causative agent, *Erysipelothrix rhusiopathiae*, but their importance in dissemination of infection was not established.

The disease may be responsible for inciting a chronic form of arthritis, a cause of condemnation of prime cuts, hams and picnic shoulders, at slaughter. In addition it also causes death of some affected animals.

A commonly held belief, not supported by research evidence, has been that the organism is capable of long-term survival in hoglot soil. Dr. Richard L. Wood, veterinary medical officer of ARS, initiated his studies by checking on survival of the organism in hoglot soil.

Dr. Wood isolated the organism from 38 percent of samples from Iowa farms populated by hogs with no recent history of swine erysipelas as well as from 26 percent of samples where recent outbreaks of the disease has been confirmed.

Contrary to the commonly held view, however, Dr. Wood's studies at the National Animal Disease Laboratory, Ames, Iowa, showed no evidence of growth or maintenance of populations of the organism after they were added to experimental soils. Survival was affected more by temperature than by soil moisture content, acidity or alkalinity, or organic matter. Survival times varied from 52 hours at 86 degrees to as long as 32 days at 32 degrees Fahrenheit.

If the organism is detected frequently in hoglot soils, even in the absence of acute cases of the disease but survival in soil is poor, Dr. Wood reasoned that the disease must be perpetuated by apparently healthy carrier animals.

Dr. Wood returned to four farms involved in his first study—farms where hogs had been raised 15 years or longer without an acute case of swine erysipelas. He collected more than 600 samples of fresh feces from sows and three to six month old pigs and analyzed the samples for *E.*

rhusiopathiae. Sixteen samples—2.63 percent of the total—contained isolates that produced disease when injected in specific-pathogen-free pigs. The organism was detected in samples from all four farms, from both sows and pigs, and in samples of hoglot soil from each farm.

If 2.63 percent of the fecal

output of apparently healthy swine contains the organism, Dr. Wood estimates that about 11½ pounds of contaminated droppings could be produced daily by a herd of 400 hogs. It is possible, he believes, that this quantity of contaminated feces applied to the relatively confined areas of hoglots is sufficient to perpetuate the disease.



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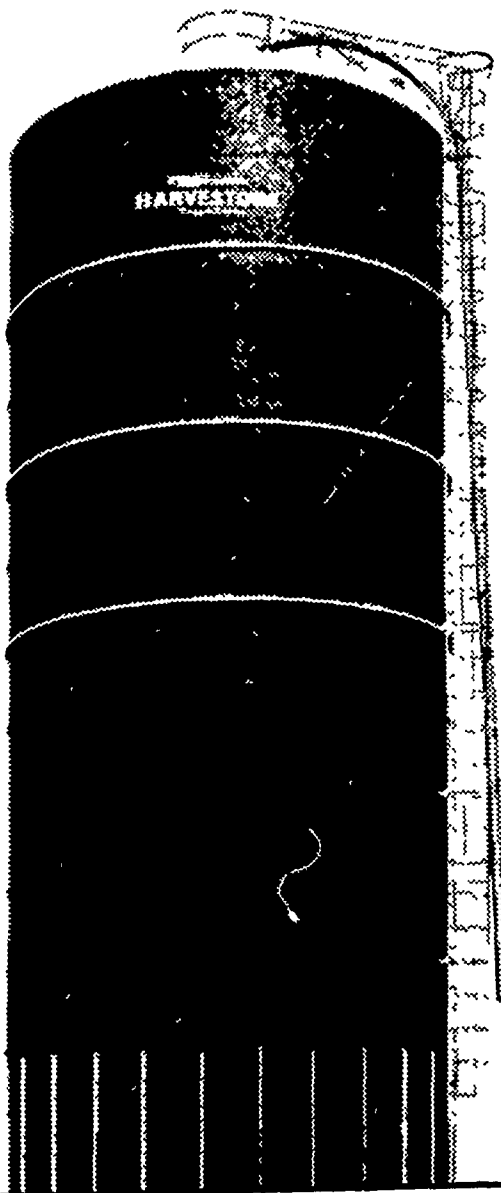
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Sex Attractants Offering Alternative to Pesticides

Natural and synthetic pheromones (female sex attractants) offer promise as alternatives to pesticides in controlling the nation's number one apple pest, according to U. S. Department of Agriculture (USDA) scientists.

Codling moths in the larvae stage are the all too familiar "worm in the apple." Each year they cause West Coast fruit growers over \$6 million in crop damage and control costs.

Spraying a field with myriad tiny capsules containing codling moth pheromone so confuses male codling moths, that the insect pests are unable to find females, hence unable to mate.

First used to bait traps that capture male codling moths and reveal flight patterns and abundance, pheromones proved better than virgin females, originally used as trap lures. Unlike virgin females, pheromones provide a concentrated stimulus that is continually reinforced.

Using a technique developed by USDA researchers at Beltsville, Md., entomologists Dr. Harold R. Moffitt and Darrell L. Hathaway of USDA's Agricultural Research Service (ARS), Yakima, Wash., synthesized the pheromone and encapsulated it.

The researchers then sprayed a one acre field, with the capsules at the rate of three grams of pheromone per acre and released 1,000 sterile moths (500 and 500 female) in the center of the field. Four baited traps surrounded the release area.

By counting the number of males capable of responding to the traps, Dr. Moffitt and Mr. Hathaway determined the effectiveness of the capsules. A significant lack of response to the traps indicated that being surrounded by thousands of "turned on females" so confuses the male moths, that the creatures are unable to act.

The next step in the study is to spray the field again, and release fertile insects, to study the effects on mating and reproduction.

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