

Fungi may cause allergies

UNIVERSITY PARK—Those millions of Americans bothered by what they believe to be pollen in the air may be troubled instead by fungal spores, research at Penn State indicates. Fungi are much more abundant

than pollen, usually at ratios of 100 to 1, reports Dr. Richard D. Schein, professor of plant pathology at University Park.

Speaking to members of the Pennsylvania Allergy Association in Hershey, Dr.

Schein said 99 per cent of the air spores trapped in a three-year study were fungi.

In Europe, fungal spores are known to cause allergic respiratory diseases, Dr. Schein said. In Great Britain in particular, where much research with spores has been done, ragweed seldom exists, he affirmed.

He claimed short duration rains can produce very high concentrations of 65,000 fungal spores per cubic meter during a one-hour period from one very common mold known as *Cladosporium-Hermodendron* (One cubic meter equals about 10 cubic feet). The spores studied were collected in Pittsburgh, Philadelphia, and State College and were considered representative of the state since spores are often carried hundreds of miles by air currents.

The largest numbers of

fungal spores fill the atmosphere from midnight to 6 a.m., it was pointed out. They reach their peak during short showers anytime. Fungal spores decrease sharply during long, continuous rains.

"For all spores over the three-year study, 57 per cent were captured at night, and nighttime loads were higher than daytime levels 64 per cent of the time," Dr. Schein stated.

"If you have patients who complain of allergic disease in showery or wet weather, or at night, consider fungal spores," he suggested.

The allergists were reminded that desensitization developments in the U.S. have centered around pollen. A little interest was shown in fungi during the 1930's, he indicated, but the most reliable research has come during the last 20 years. Most of that work, nonetheless, has been British.

"Despite the lack of ragweed in Britain, late

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summer asthma and respiratory diseases are common there," Dr. Schein stated. "British plant pathologists pioneered efficient trapping of fungal spores and their expertise was seized upon by British allergists in the late 1950's."

In contrast with fungal spores, ragweed pollen in the Pittsburgh area reached its highest one-hour level of only 250 spores per cubic meter. The average ragweed pollen count was 53 spores per cubic meter during an hour's time. During the ragweed season, the highest two-hour concentration was 600 pollen spores per cubic meter.

"Almost half of all spores trapped in our three-year analysis were *Cladosporium*," he said. "*Cladosporium* is plentiful on grasses and is released during drying conditions when humidity drops and wind increases."

"Another major type is the basidiospore—including common mushrooms, toadstools, and puffballs. A third type is the ascospore

which is very small and usually exists in greatest numbers at night."

He showed in graphs that fungal spores were trapped every week of the year with highest numbers present from July through September. Relatively high concentrations are sometimes found as late as November, he noted.

When high daytime spores occur, they are usually the common mushrooms, toadstools, or puffballs, he explained. Short showers, as opposed to long rains, also increase daytime spore levels.

A project report by Dr. Schein and associates has been published by the Center for Air Environment Studies at Penn State and is entitled "Eastern U.S. Aeroallergens." Associated with the project were Dr. Jean Anthony Snow and Mrs. Claire Martin Gesalman. Dr. Leo Criepp of Pittsburgh and Dr. Jay Spiegelman of Philadelphia, both physicians, collaborated on spore trapping.

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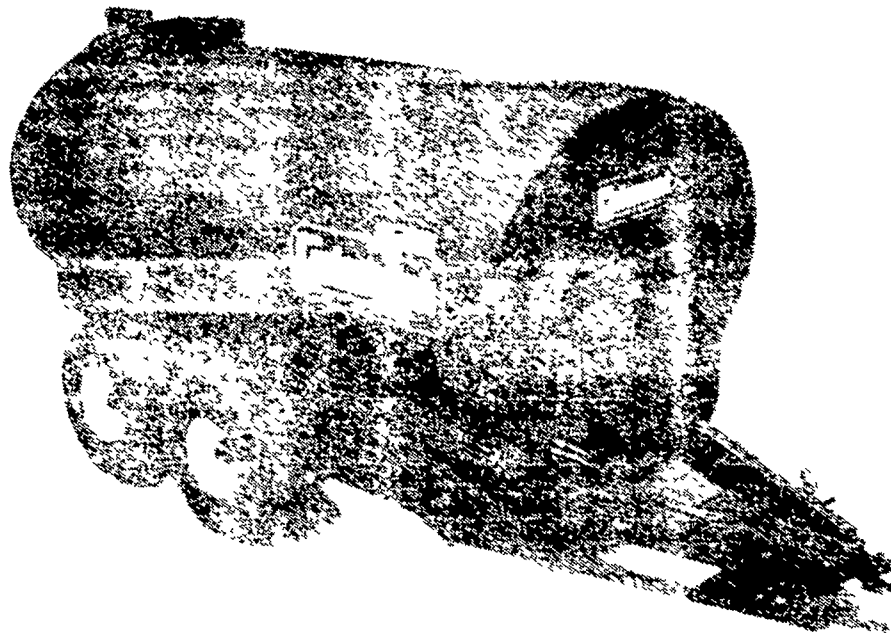


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