

## Lake Bacterial Population Upset By Certain Herbicides

Indiscriminate use of herbicides could upset the balance of nature in lakes by distorting their bacterial populations.

This was the conclusion two Clemson University microbiologists reported to the American Society for Microbiology in April.

Dr. Rufus K. Guthrie and doctoral student Robert N. Ferebee said that a drastic change in number or types of bacteria in a lake could be reduced by those bacteria that break organic matter down into usable nutrients, cut off vital food supplies for other forms of plant and animal life in the lake.

Reporting on one of the first research projects ever conducted to find out how different herbicides alter the balance of bacterial populations common to an actual fresh water lake Guthrie said, "We've found that some herbicides have little effect on the bacteria, while other herbicides tend to stimulate the growth of certain bacteria, depress the growth of others, or both."

It is this reduction in diversification or variety of bacterial types that poses a threat to the delicate balance

of nature in the lake environment, he said.

The Clemson scientists studied three chemicals, each representing general herbicide types that might commonly wash into local fresh water reservoirs, during their two-year project:

1. common 2,4,5,-T had little or no effect on bacteria.
2. paraquat stimulated the greatest total growth of bacteria but favored certain types of bacteria.
3. diuron caused a noticeable drop in total number and bacterial types.

"The point is that we've now shown that different kinds of herbicides might produce very different kinds of effect on the vital bacterial community of a lake," Guthrie said.

## Spruce Budworm Attractant Discovered by Scientist

Sex attractants, a technique of prominence in the fashion and cosmetic world, are finding a place in controlling the spruce budworm, one of the most destructive forest pests in North America.

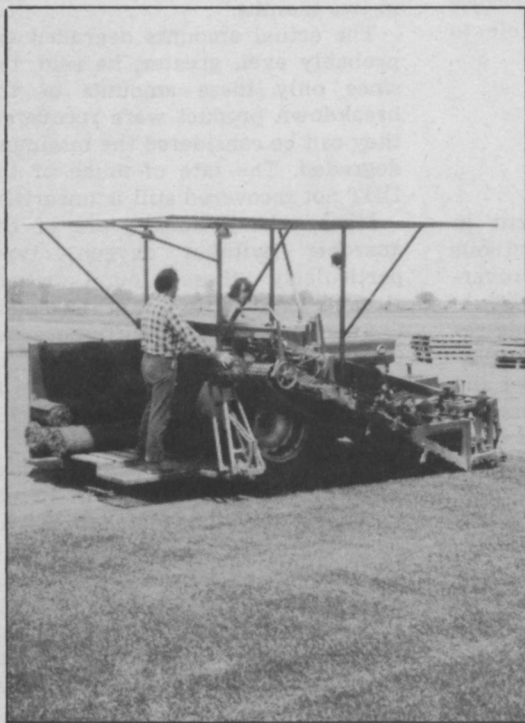
Dr. Iain Weatherston of the Insect Pathology Research Institute, Dr. Christopher Sanders of the Great

Lakes Forest Research Centre—both located in Sault Ste. Marie, and Dr. Wendell Roelofs and Dr. Andre Comeau of the entomology department at Cornell University have isolated and identified a sex attractant given off by the female moths to attract the males for mating.

Now that it is identified, the sex attractant of the spruce budworm can be manufactured in large quantities. Applied over an area where spruce budworm inhabit, the chemical can be used to disrupt mating habits.

These scientists have also discovered two chemicals which inhibit the male budworm's reaction to the attractant. These are substances which are very close in molecular structure to the sex attractant. The way in which they act is not fully understood, but they probably block the receptor sites on the males' antennae, so that the attractant given off by the females cannot be perceived by the males.

Future widespread use of these chemicals is anticipated as these substances are naturally occurring and are readily broken down in nature. Preliminary estimates indicate that only 100 milligrams would be needed to treat an acre of forest at a cost of about 30 cents.



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