

Statistic Strategies Developed To Aid In Gypsy Moth War

There's more to fighting gypsy moths than biological controls and pesticides. A good "sampling poll" is equally important, according to Dr. G. P. Patil, professor of statistics at The Pennsylvania State University. Dr. Patil and his former graduate student Dr. William Stiteler have just completed a

successful two-year study aimed at developing statistical strategies for assessing and predicting the size of gypsy moth populations. The study was undertaken for the Forestry Laboratory of the Northeast Agricultural Experiment Station (NAES). It amounts to a kind of

ecological "voter preference survey" — a system for determining how to sample those few moths who will best reflect the behavior of a whole population.

Among the initial strategies developed by the two statisticians is a technique dubbed the "PSU plot system" by Patil. He says, "with the system, we hope to be able to tell the NAES experimenters when, where, and how to count the moths and how much time to spend doing it for the most efficient and inexpensive sampling." He explains that the system should help the NAES researchers to accurately estimate (or predict) the total number of gypsy moths in an entire forest from the number counted in a small sample plot.

"Of course," Patil adds, "ultimately we are not interested only in assessment and prediction. We want to help get rid of the menace." He emphasizes that in any war on the gypsy moths, statistics will supply the battle plan.

Patil notes that although researchers have already developed several kinds of

controls and pesticides, they still don't know the most vulnerable place or time in the moth's life cycle to impose them. But, with the proper sampling techniques, he says, NAES experimenters could assess the number of moths that survive the application of each of the available types of controls. The observations and experiments could also be repeated for every stage in the moth's life cycle. When all the data were collected and analyzed, the most effective approaches would emerge.

In the end, Patil insists, "planning experiments and analyzing the resulting data are as important and fruitful an expertise as executing the experiment itself."

Patil's newest statistical "weapons" against the gypsy moth are already in great demand both in the U. S. and abroad. He reports that inquiries about the techniques have come from France, England and South America.

Dr. Patil, a member of the PSU College of Science faculty since 1964, is a pioneer in the field of

statistical ecology, the application of statistics to environmental problems. He is chairman of the board of the International Statistical Ecology Program.

Background on the Gypsy Moth

The Pennsylvania Department of Environmental Resources (DER) estimates that 92,000 acres of forests, mostly in the eastern counties of the state, were heavily defoliated during the summer of 1971 by the gypsy moth. Another 506,000 acres suffered light to moderate defoliation. A 1972 DER survey shows that 300,000 acres have been completely stripped of leaves and roughly 150,000 acres suffered moderate to light damage. Again the most severe defoliation occurred in the eastern third of the state.

Defoliation, the first step in the damage cycle of the gypsy moth, is followed by varying degrees of tree mortality. So far, the gypsy moth has killed up to 60 percent of some stands in New Jersey as the result of repeated defoliation. Estimates of tree mortality on Chestnut Ridge in Monroe County, Pa., run as high as 95 percent.

Gypsy moth larvae, or caterpillars, prefer to feed on oak leaves but will also attack a wide range of other hardwoods and some conifers.

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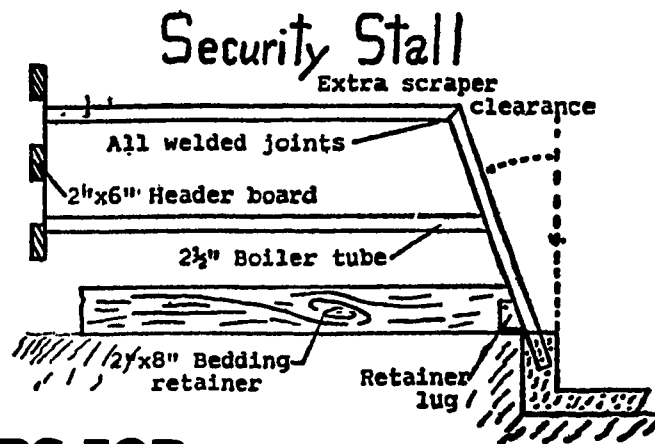
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Berks FFA Holds Training Session

The Berks County FFA Leadership Training Conference was held recently at Governor Mifflin High School.

Berks County president, Terry Murray, introduced as guests three of the State FFA officers: Greg Landis, vice-president; Howard Stoltzfus, Eastern Regional vice-president, and Gerald Metzler, treasurer. Landis gave greetings from the State association and a short talk.

The Greenhand quiz, open only to first year FFA members, was conducted by Harvey A. Smith, area vocational consultant. Placings in this contest were: Thomas Peck, Twin Valley, first; Art Noss, Conrad Weiser, second; Alice Drey, Governor Mifflin, third; Mark Angsdadt, Oley Valley, fourth; Ken Sanner, Kutztown, fifth; Dennis Whitman, Brandywine Heights, sixth; Mike Robinson, Tulpehocken, seventh, and Scott Sechler, Hamburg, eighth.

Following a smorgasbord dinner, the 80 attending FFA members and advisors from throughout Berks County divided into separate meetings for each group of officers. The attending State officers each conducted one group with County advisors conducting the others.

Included in the program was two slide series from the National FFA on Chapter leadership and Chapter scholarship.

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