



Sevin insecticide is pumped from army tank truck to waiting Air Force C-123 transport plane for spraying. Plane covers 500-foot swath.

Gigantic Spray Campaign Stymies

Gypsy Moth Tree Damage

DEFOLIATION of trees by gypsy moth has long been a problem in the northeastern US. Trees are seldom killed immediately, but leaf out the following year. However, many weaker trees eventually perish, especially if they suffer a second year of infestation.

To fight the moth, New York State has long had an extensive program of egg mass counts followed by spraying of the areas of heaviest infestation. A count of more than 500 egg clusters per acre marks an area as a prime target for spraying.

This was the case this past season when the State via its Bureau of Forest Pest Control cooperated with the US Military Academy and the US Air Force to spray 11,000 acres of New York's Hudson River Valley.

Army authorities were con-

cerned about West Point land because it is extensively used for training and foliage is necessary. Also, despite quarantine and inspection procedures, gypsy moth infestations could be transported by military vehicles which range between the West Point training reservation and southern military posts.

In the program this spring, parts of Long Island, Ulster, Rockland, Orange, and Dutchess counties, and Bear Mountain State Park were sprayed in addition to the big acreage at West Point. Spraying was done with a variety of equipment. Included were the New York State jet-powered "Huey" helicopter, four custom operated fixed wing aircraft, two Air Force C-123 transports, and several ground application rigs. The ground equipment was used for close-in work



Trees without leaves were photographed in July. Damage was caused by severe gypsy moth caterpillar feeding. Spray program of New York State and military group prevented widespread damage this season.



Spray nozzles on helicopter spray rig are cleaned and adjusted prior to loading with insecticide.

near buildings and pond water areas.

Pilots and military planes were part of the Special Aerial Spray Flight unit of the Air Force. They are headquartered at Langley Air Force Base, Va., but all spray work in the Hudson River Valley operation was done from Stewart Air Force Base. All Air Force pilots were veterans of the defoliation spray program in Vietnam.

Prior to this year, DDT and Sevin carbaryl insecticides have been used. And until four years ago, DDT was used in remote areas where there was no danger of water or pasture contamination. However, DDT use was abandoned in favor of the newer Sevin insecticide.

The switch to Sevin was made because as a carbamate, Sevin is an entirely different chemical family than DDT which is a

chlorinated hydrocarbon. Sevin can be handled and applied with greater safety margins because it is lower in toxicity to both humans and animals, and presents less hazard to fish, birds and other wildlife.

Sevin, which is a wettable white powder, was used at the rate of one to 1¼ pounds of actual insecticide in one gallon of water per acre. Pinolene, a pine-oil based material, was used as a spreader-sticker. Generally, the New York State spray programs are conducted between May 15 and June 15 each year. At this time caterpillars are young and easier to kill. Also, foliage is almost fully developed and has sufficient leaf surface area to catch the sprayed insecticide.

Practically any type tree is subject to gypsy moth infestation. Certain species such as oaks, willows, larch, linden, poplars, speckled alders, basswood, apple, aspen, gray birch, river birch, and red birch are preferred. Less favored by the gyp larvae in their late instar stage are cherry, elm, hickory, chestnut, hornbeam, maple, black birch, paper birch, yellow birch, sassafras, and black gum. However, these are also often attacked by the moth. Older gyp larvae will also eat native eastern pine, spruce, southern white cedar, hemlock, and beech. Gypsy moth infestations can be found in much of New England including parts of New York, Connecticut, New Jersey, Pennsylvania, and Michigan.

Prior to the New York State spraying operation each year, each property owner is contacted. If too many object, a spray campaign is not economically feasible and cannot be carried out. However, publicity and education over a period of years has largely eliminated objections and complaints are few. Citizens generally have come to realize the value of a carefully planned and conducted spray program designed to prevent ravaging of the tree population.

Cardboard check scraps help spraymen keep tab on effectiveness of insecticide coverage. Test here was made during spraying on New York's Bear Mountain.

