

Field Treatments of Gypsy Moth, *Lymantria L. dispar*, Egg Masses with Golden Pest Spray Oil (93% Soybean Oil)

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Introduction

Golden Pest Spray Oil from Stoller Enterprises, Inc. was used to treat North American gypsy moth egg masses in the field. Four dosages were used with water being the diluent. Hatch was prevented with all dosages except the lowest one tested.

Materials and Methods

Healthy, naturally occurring gypsy moth egg masses were located on oak and white pine at Freetown State Forest, Freetown, Massachusetts. Five survey lines were established through the woods off a pipeline. Lines were parallel, approximately 100 feet apart. A total of 120 egg masses were identified and marked on each line. All egg masses were between one and six feet above the ground. A small number of the test egg masses were covered with snow for very short periods of time during the test period.

Twenty untreated egg masses were treated with each dosage. Six treatment dates were used between January 29th and April 22nd. New previously untreated egg masses were treated at each treatment time. All egg masses in the study received only one treatment. Treatments were made over a period of time to determine if age of eggs affected treatment results. Twenty untreated egg masses were identified as a control for each treatment time. Treated egg masses were marked with colored pins and left in their natural environment until collected for hatchability tests in late April. Different color pin were used to identify treatment times. The Golden Pest Spray Oil was applied directly to individual egg masses using a one gallon, hand held, pump-up sprayer. Egg masses were sprayed until thoroughly saturated with the oil. The spray nozzle was held approximately 8 to 12 inches from the egg mass when the spray material was applied. All dosages appeared to be absorbed rapidly by the egg masses.

The temperature ranged from 25 and 50 degrees Fahrenheit when treatments were made.

On April 24th, all treated egg masses and controls were removed from the woods and returned to the laboratory for hatchability tests.

Egg masses were removed from the trees by use of a knife and placed individually into plastic petri dishes. Dishes with egg masses were held in an environmental chamber at 78°F with 50 percent RH. Egg masses were observed daily for hatch.

Results

The untreated eggs started hatching within 4 days with heavy hatch occurring on days 5 and 6. Hatch in controls was estimated to be 90 percent. This would be typical hatch for field eggs in a healthy, building population. Light hatch occurred with eggs treated with a low dosage of spray oil. No hatch occurred in eggs treated with the 3 highest dosages.

Table 1. Percent hatch of gypsy moth egg masses treated with Golden Pest Spray Oil.

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Formulation	Treatment Dates					
	1/29/92	2/21/92	3/10/92	3/26/92	4/8/92	4/22/92
100% ^a	0	0	0	0	0	0
50% ^b	0	0	0	0	0	0
25% ^c	0	0	0	0	0	0
5% ^d	21 ^e	4	7	5	6	3
Control	90 ^e	90	90	90	90	90

- a Used undiluted, 100 percent of concentration
- b 50 percent of concentrated formulation
- c 25 percent of concentrated formulation
- d 5 percent of concentrated formulation
- e Estimated hatch

Based on this data, Golden Pest Spray Oil is effective in preventing North American gypsy moth eggs from hatching when sprayed directly onto the individual egg masses between January 29th and April 22nd. A dosage of 50 percent of the concentration should be used and egg masses must be thoroughly saturated. Water can be used as a dilutant.

This data supports two previous field tests that demonstrated Soybean oil's effectiveness against gypsy moth egg masses. Previous tests were started in September and terminated in April. Therefore, it is reasonable to say that such treatments with Golden Pest Spray Oil would be effective throughout the gypsy moth egg stage.

Effects of *Bacillus thuringiensis*, Bt on Asian gypsy moth larvae have been similar to results when used against North American gypsy moth larvae. Most likely, Golden Pest Spray Oil will be as effective when used against Asian gypsy moth eggs as it is when used on the North American strain.

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