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WHITEFLIES IN THE COMMERCIAL GREENHOUSE

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Whiteflies are universal pests of greenhouse plants. Although a single individual would not do noticeable injury to its host plant, populations build up rapidly in sheltered conditions. Aside from the small clouds of adults which fly up each time a leaf is touched, the most offensive aspect of an infestation is the large amount of honeydew excreted by the nymphs as they feed by sucking out sap from the leaves. Unsightly sooty molds grow in the honey dew and decrease photosynthesis. Eventually the top side of the plant leaves become chlorotic or spotted by whitefly injury.

There are about 1,100 species of whiteflies and details of their biology vary within the whitefly family. However, all of them have basic stages in their development which are the same. The eggs are laid on the underside of plant leaves and are attached by a peculiar process or stalk which is inserted into the plant tissue and cemented there. The egg stalk has a thin-walled terminal bladder which is able to absorb water from the leaf!

A small crawler hatches from the egg and wanders around the leaf for a few hours and then inserts its mouthparts and begins to feed. The crawler developes into a stage which usually has no legs or antennae by molting. Once the crawler has inserted its mouthparts, it does not move from that spot until it emerges as an adult from the last larval stage or pupa. The immature stages are small, flattened, and almost colorless or whitish but can be easily seen with the aid of a hand lens.

Adult whiteflies emerge from the pupal stage and are able to fly within an hour or so. Adults of many species are so similar that the species can be distinguished by only the pupal stage. Adults are white, resemble tiny moths (about 1/16 inch long), and are usually found on the underside of the host plant leaves. There they feed, mate, and lay their eggs. One female may lay up to 200 eggs. Development from eggs to egg-laying adults takes from 30 to 40 days.

Control of greenhouse whiteflies is difficult because the eggs and immature forms are resistant to most aerosol and insecticide sprays. This means that only the adults are killed. If a grower treats on Monday, he may kill the adult whiteflies. On Tuesday, newly emerging adults give him an impression that the pesticide was ineffective,

HOLIDAY PLANT DAY, LIBERTY, N. C., NOVEMBER 29, 1972

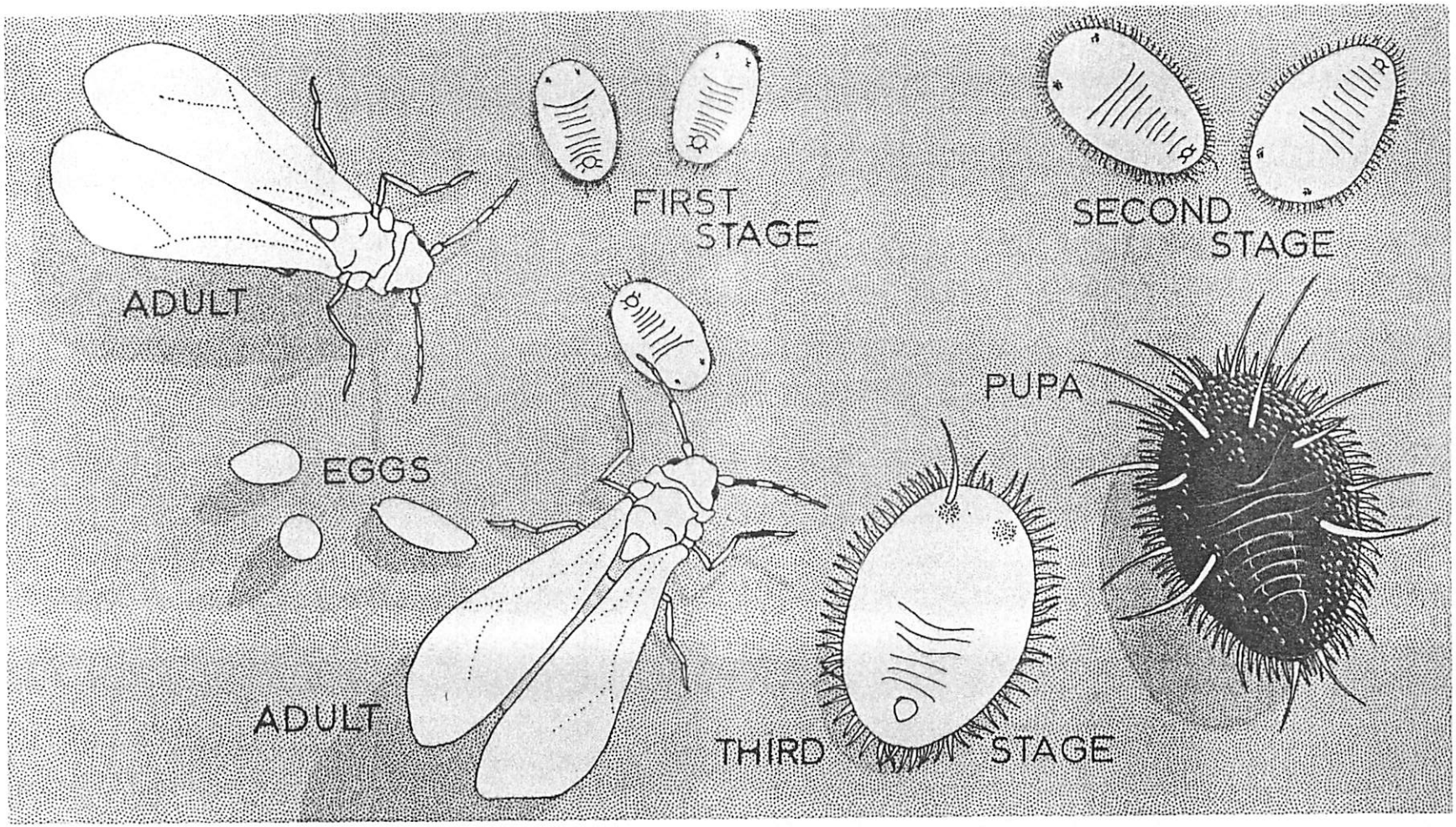
and by Wednesday he is convinced that Monday's application was no good.

Control of an established population of whiteflies in the greenhouse depends upon regular application of pesticides to control emerging adults until the last of a whole generation of immature whiteflies has emerged. The following pesticides are recommended for control.

Pesticide	Formulation Per Gallon	Formulation Per 100 Gallons
Spray		
oxydemetonmethyl (Meta-Systox-R) 25% EC	1 1/2 tsp.	1 1/2 pt.
malathion 25% WP	2 tbsp.	4 lb.
parathion 15% WP	1 1/2 tbsp.	3 lb.
TEPP 20% EC	1/2 tsp.	1/2 pt.
Aerosol		
dichlorvos (Vapona) 10% A endosulfan (Thiodan) 10% A parathion 10% A	1 lb./50,000 cu. ft. bond temperature 80-95°F., house temperature 75-80°F.	
Vapor		
naled (Dibrom) 60% EC	On steam pipes - 1 oz./10,000 cu. ft. Pipes at 160°F. Will corrode pipes with continued use	
Drench		
oxydemetonmethyl (Meta-Systox-R) 25% EC	1 tsp. Maximum 4 fl. oz./6" pot	1 pt.
demeton (Systox) 28.5% SC	1 tsp. Maximum 4 fl. oz./6" pot	1 pt.
Granular		
aldicarb (Temik) 10G (carnations, chrysanthemum, Easter lily, gerbera, orchids, poinsettia, roses, snapdragons)	30-40 oz./1,000 sq. ft. of bench or closely packed pots	

Observe all precautions on the label of whatever pesticide is used. Repeat the spray every 7-10 days until whiteflies are under control. Repeat the aerosol every 4-5 days until whiteflies are under control. Follow the directions for use on the label of the drenches and granules.

THE USE OF TRADE NAMES IN THIS NOTE DOES NOT CONSTITUTE ENDORSEMENT OF ONE PRODUCT TO THE EXCLUSION OF OTHERS.



The life stages of the white fly include the egg, three imature feeding stages, the resting stage or pupa, and the adult.