

# Spotted Alfalfa Aphid Moving Toward East at Rapid Pace

The spotted alfalfa aphid, fast-spreading foreign insect pest ever to invade this country, crossed the Mississippi River eastward and was found last year in 16 states where it is not previously known.

The pest seriously damaged U. S. alfalfa for the first time in 1954, when it was found in six Western States. By 1955's end, it had reached the Mississippi River and appeared in 14 states. It is now found in 30 states, according to entomologists of the U. S. Department of Agriculture.

In 1956 the aphid completed its spread across the entire southern two-thirds of the United States and as far north as South Dakota, Minnesota, and Wisconsin. In most of these 30 states it caused only slight reductions in alfalfa production last year. The newly invaded states east of the Mississippi reported only scattered local injury. However, aphid damage, combined in some areas with drought, exacted a considerable toll from alfalfa growers in 11 Western and Midwestern States last year.

Greatest reported losses were in California, Kansas, Oklahoma and Texas. Losses in Kansas and Texas were based upon reduction in alfalfa due to aphid damage and drought conditions combined. Texas reported an estimated 50 per cent reduction in acreage from aphid-drought damage,

Oklahoma a 25 per cent loss in yield from aphid damage.

Additional cost to produce alfalfa hay in treated areas varied from less than \$1 to over \$7.50 per ton, depending on number of insecticidal treatments required and percentage of crop lost. Malathion and parathion were the materials most commonly used on alfalfa hay crops.

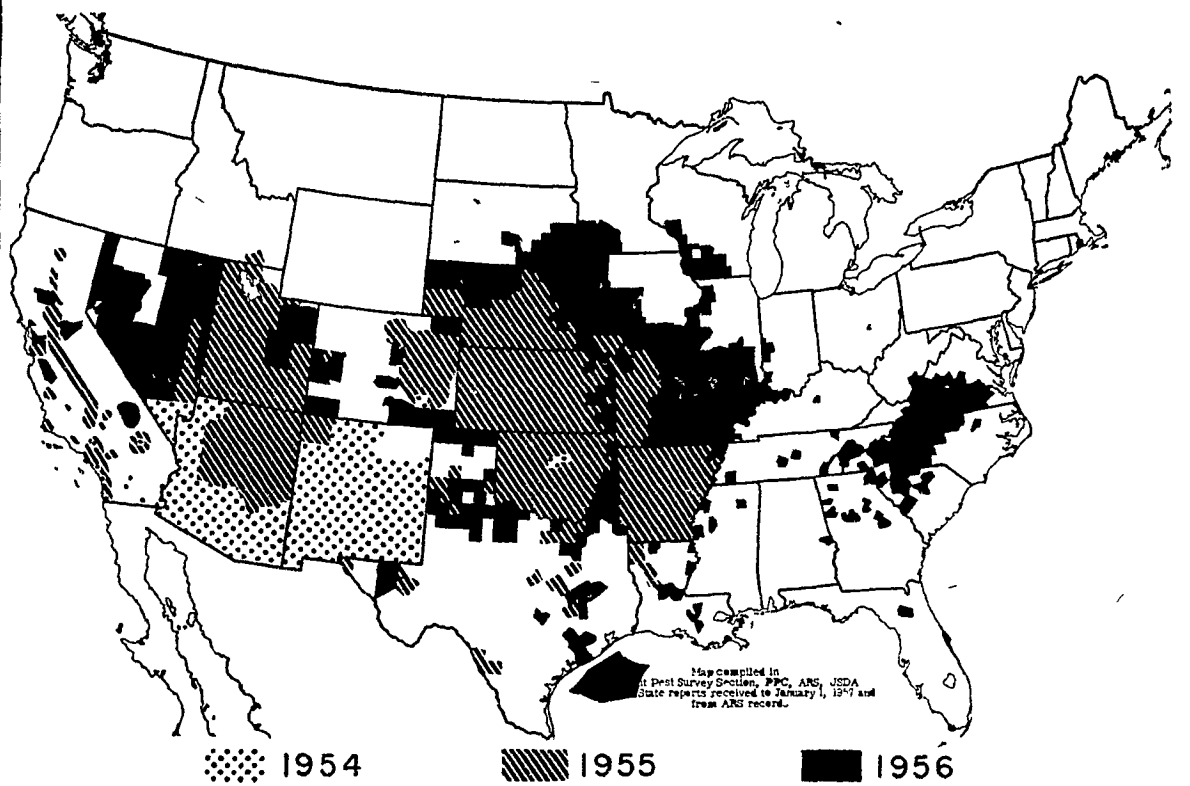
Damage by the pest started early and continued late. Infestations developed in the West and Southwest in January; as late as November, heavy populations were at work in Nebraska and Kansas.

The spotted alfalfa aphid has been found at elevations up to 5,000 feet, and can travel hundreds of miles with the wind. It multiplies fast, and a single specimen can start a new colony.

Since entomologists believe no man-made barriers can halt spread of such an insect, efforts are being concentrated on research to develop control measures for the future. The work has been intensified on several fronts.

Testing and breeding of alfalfa varieties resistant to the pest are being stepped up. USDA entomologists and plant breeders are cooperating in this important task. The plant breeders are obtaining an extra crop each year by growing experimental combinations in a winter seed-increase block in Mexico and in greenhouses in the United States. Plans for additional greenhouse facilities are under way to aid in this round-the-calendar testing and breeding work. Entomologists are testing alfalfas made available by the breeders for their reaction to the spotted alfalfa aphid. Plant breeders are crossing the most promising resistant lines with improved but non-resistant lines. These are being increased vegetatively to get seed for further testing.

Lahontan, a variety with excellent resistance, does best in the irrigated valleys of the intermountain area for which it was developed. It is lending its resistance to other strains. Though some of them look more promising, resistance-wise, than Lahontan,



THE ABOVE MAP shows the rapid spread of the spotted alfalfa aphid. If the spread continues at the present rate, it is very likely, some authorities say, that the aphid will appear on the East Coast this growing season. Thus far, no adequate control measure has been found for the insect. (USDA Map)

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tan, their adaptability is yet to be tested. A long-range, fundamental study of the genetics of Lathontan's near-immunity to aphids is also under way, to give direction in breeding procedures.

Biological control appears promising. Native lady beetles and other predators devoured enough of the pests last year in some areas to keep aphid numbers down.

Fungus diseases decreased populations and proved of some value in California, Missouri, Arkansas, and Arizona in 1956. Such fungus diseases are most effective in moist or irrigated areas. USDA scientists received a shipment of diseased aphids last week from India. From such stock, disease cultures are made for future testing on the aphids now spreading across the country. Several fungus diseases collected in the United States — now in test tubes — will be dispersed on aphid-infested alfalfa in Oklahoma this year, in cooperative Federal-State experiments.

Small aphid-attacking wasps introduced from Asia and Europe have shown promise of controlling the aphid in California and Arizona. Tremendous numbers of parasites were liberated in California and apparently thrived. Late cuttings of alfalfa hay turned up quantities of aphid "mummies" heavily parasitized by the wasps, which lay their eggs in the bodies of the aphids. Many thousands of parasites from the Near East and Europe have been

sent to U. S. laboratories for mass rearing. They were liberated in the field in nine states last year in very limited numbers. Large stocks of three different parasites will be ready this year for liberation in aphid-infested states.

One USDA entomologist is still in India, seeking natural enemies of the aphid. To date, no parasites have been found there, but several predators that feed on the pest will be introduced from India into this country this year.

Unfortunately, insecticides that kill the spotted alfalfa aphid also kill its parasites and predators. They cannot be used where natural enemies have been released. Entomologists are seeking more effective insecticides. The ideal insecticide would kill the aphid and not its natural enemies. It would kill at lower temperatures, say at 40 degrees F — insecticides now available are not effective until the mercury reaches about 55 degrees or higher, and make control difficult on early spring and late fall crops. It would be a one-treatment insecticide; several applications are now necessary during the season. Considerable research is being done on systemic insecticides, with the hope of developing a seed treatment that would make the plant poisonous to aphids during its first crucial weeks.

Just where the aphid came from, or how it got here, is unknown. Aphids almost identical

in appearance to the spotted alfalfa aphid have been found in eastern Mediterranean areas. Apparently such aphids are not highly destructive to alfalfa in such areas, bolstering hopes that natural enemies may eventually be found to curb its damage in the United States.

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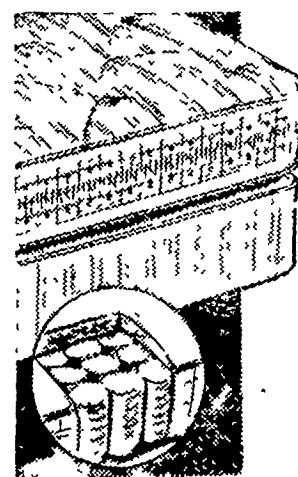
## Dr. Eva Crane To Speak Mar. 12 To Beekeepers

Beekeepers in this area will have an opportunity to hear one of the world's foremost authorities on apiculture, Dr. Eva Crane, of England, in an address at 8 p.m., Tuesday, March 12, in Morris Arboretum, Chestnut Hill, Philadelphia.

The meeting will be open to all bee men of the area. Dr. Crane, editor of the English monthly, "The Bee World," is also director of the Bee Research Assn. of England. Her visit to Philadelphia will be part of a second visit to the United States during the last two years — this time to lecture and to observe commercial bee operations.

In 1955 she made a study of bee research in America.

Fred W. Schwoebel, Philadelphia, in charge of the Mar. 12 meeting, has asked guests to use the Meadowbrook Avenue entrance to the Arboretum. The meeting will be in the Mansion House. A mecca for bee enthusiasts, Morris Arboretum contains the L. L. Langstroch Memorial erected in honor of the inventor of the modern beehive.



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