ENTOMOLOGY

Better Pest Control

➤ THE ANSWER to a farmer's most fantastic dream, plants that kill their own insect pests, now appears within the realm of possibility.

This dream lies in new systemic insecticides, phosphorus compounds developed in Germany, which are used not on the outside of the plant but inside it.

Fed to the plant by spraying the leaves, through irrigation water or by direct injection into the trunk, these new compounds become part of the plant system. Sap carries the insecticide even to new growth, and aphids and mites sucking on it are poisoned.

Moreover, it doesn't kill "friendly" insects—the bees that pollinize the plants or the ladybirds and others that prey on pests. The remarkable systemics just kill the insects feeding on the plant.

The phosphorus compound systemics have set off studies involving almost a world-wide team of research scientists, even the Atomic Energy Commission. While the study is only begun, Dr. R. L. Metcalf, chairman of the division of entomology at the University of California's Citrus Experiment Station at Riverside, believes the outlook is more hopeful than for any other chemical pest control in sight.

Some 500 phosphorus compounds are being tested by the Citrus Experiment Station, many of them from the laboratory of Dr. Gerhard Schrader of the Bayer Co., in West Germany, once a unit of the huge I. G. Farben chemical industries combine.

Ironically, these compounds which may become one of man's great chemical benefactors stem directly from World War II research into the deadly phosphorus compound "nerve" gases. Their effect on enzymes essential to the nervous systems of insects makes them effective controls.

The scientists see hope in the systemics for possible control of the aphid-spread quick decline virus in California orange groves. They even dream of developing systemics which might be administered to domestic animals to protect them from lice, mites, ticks or biting flies.

Science News Letter, December 1, 1951

TECHNOLOGY

Tar Spots in Cotton Fabric Are Resin from Cotton Plant

➤ THE WAY has now been opened for the elmination of "tar spot" blemishes in cotton fabric. These imperfections annually cost textile mills many hundreds of thousands of dollars.

It has always been a mystery where the "tar spots" come from. For years scientists in mill laboratories, colleges and research centers have been pushing toward a solution of the mystery.

Now, Dr. Jack Compton, technical director of the Institute of Textile Technology, Charlottesville, Va., reports that a discovery by Leo Hubbard, ITT research chemist, proves beyond doubt many of the "tar spots" come from tiny resin sacs of vegetable origin.

These sacs are normally present in leaves or burrs which get mixed with cotton fibers during harvesting. These tiny egg-like capsules, about one-fiftieth of an inch in size, often are spun right into a piece of yarn and woven into the cloth.

When heated, they burst and a black substance resembling tar flows out to cause a smudge. Ordinary bleaching operations cannot remove the stain, because this resinous substance will not dissolve in petroleum solvents.

Until this new discovery by textile scientists, it was believed that all "tar spots" resulted from flecks of tar or asphalt picked up by cotton during its journey from the field to the spinning mills. Hence the common name, "tar spots."

Dr. Compton says that while some of the spots which plague the manufacturers and the customers alike are caused by asphaltic materials, a great many also come from the tiny resin sacs of vegetable origin. This discovery, he says, opens a new way toward eliminating the problem completely.

Science News Letter, December 1, 1951

Question Box

BIOCHEMISTRY

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What diet element has been found a key to fast healing of wounds? p. 343.

GENERAL SCIENCE

What questions may be used to differentiate a scientist from a crank? p. 349.

GEOLOGY

How many meteorite craters are now known? p. 346.

MEDICINE

Of what may an illness like King George's warn? p. 343.

PUBLIC HEALTH

How have disease-spreading snails in Japan been fought successfully? p. 338.

TECHNOLOGY

In what way have usually destructive sparks been put to constructive work? p. 342.

What new process for grabbing nitrogen from air is in pilot plant stage? p. 344.

Photographs: Cover and p. 339, U. S. Air Force; p. 341, Chas. Pfizer & Co.; p. 343, General Electric Company; p. 346, National Geographic Society

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