ENTOMOLOGY

Two Weak Insecticides Kill Like Strong One

➤ A COMBINATION of two weak insecticides will give just as high a kill of insects as one strong one. And the amount of each of the deadly chemicals that should be used to get the desired lethal effect can be figured out by a mathematical formula.

Two scientists at the Connecticut Agricultural Experiment Station, New Haven, Conn., investigated the killing power of two combined chemicals during tests to find some way of reducing the chances of insects building up resistance to insecticides. This serious problem was first noticed when DDT became less and less effective for fly control.

Insects resistant to one chemical are not necessarily resistant to all of them, thus two soft blows can be more deadly than one knockout punch. Dr. Raimon L. Beard and Neely Turner are now trying to find the right combinations of insecticides for commercial use against specific insects.

The new mathematical formula for working out just how much of each of two different insecticides to use for maximum effectiveness has been suggested in a report in NATURE, British scientific journal. Drs. P. S. Hewlett of the Pest Infestation Laboratory, Slough, Bucks, and R. L. Plackett of the department of applied mathematics at the University of Liverpool, state that further tests will be needed before they can be sure that the new equation, a modification of a previously used formula, is absolutely corrrect.

The two Connecticut scientists, Dr. Beard and Mr. Neely, also found that insects vary over a period of time in their resistance to insecticides. One day an individual insect may be highly resistant to an insecticide and, a few days later, may be easily killed by it. Thus the only sure means of a true resistance being built up by the insects is to expose them constantly to a killing chemical for a long time. Not using chemicals that remain toxic for a long time after application, Dr. Beard says, would be one way to avoid the build-up of resistance to insecticides by insects.

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ORNITHOLOGY

NATURE RAMBLINGS

The Crow

➤ THE AMBITIOUS gardener who wants an early crop of sweet corn has to contend with many troubles, not least among which is the crow.

No sooner do the first tiny sprouts appear above the soil than this bold black thief goes hopping along the row, pulling up plant after plant, and swallowing the seed kernel still clinging to the roots.

The crow is a choosy rascal. He does not want hard, dry corn—won't touch it if there are bushels of it lying about. What he wants is the soft, sweet grain with its starch turned to sugar by the digestive processes going on during the sprouting. For the same reasons he may later raid the corn patch while the ears are soft and green but lets it alone when they begin to get ripe and hard.

But for all his thievish habits that must make him seem the very embodiment of Satan to the enraged gardener, the crow has redeeming traits. Corn is about the only crop he troubles and it is not the major portion of his diet.

Like all other birds he feeds mainly on insects. June bugs and cutworms in the early summer and grasshoppers in August are his staples, though many another enemy of the gardener goes into his ample interior.

In addition to two or three smaller forms of the true crow found in this country, a quite distinct species, the fish crow, is abundant along the Atlantic and Gulf coasts. He is a smaller bird than the common crow, weaker in flight and in voice and in general he is not so cheerfully noisy a ruffian as the more familiar cornfield nuisance.

The crow, *Corvus brachyrhynchos,* has probably had more work done and more pages written about it than any but a few other wild birds, Dr. Paul W. Parmalee, department of wildlife management, Texas A. and M. College, reported recently in the American Midland Naturalist.

"Because of the bird's large size, black plumage, cunning, apparent intelligence, and great abundance," he states, "it had become one of the best known birds in this country." And because of its economic importance to man, there has been considerable controversy over whether the bird should be destroyed, left alone or protected.

Dr. Parmalee studied the growth, development and behavior of the nestling crow, because such information is important in understanding the adult bird and how its behavior affects man and other organisms with which it comes in contact.

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MEDICINE

Polio Immunity Test

➤ DOCTORS NOW will be able to tell, through a fairly simple and inexpensive test, whether a child who feels a little sick during the polio season is infected with the virus of the disease. The same test will also tell whether a child or grown-up is immune to the disease.

The test was announced by Drs. Nada Ledinko, Joseph L. Melnick and John T. Riordan of Yale School of Medicine at the meeting of the Federation of American Societies for Experimental Biology in New York.

The test is made with testicular tissue from monkeys. This tissue, the scientists discovered, will grow in test tubes containing nourishing fluids. After several days each piece of tissue will have long strands of cells on its outer surface that can be seen under the microscope. When samples of material such as throat swabbings or fecal material are added to the testicular tissue, the long strands of cells are destroyed if the material contains the poliomyelitis virus. If there is little or no virus present, the strands continue growing.

To test for immunity to polio, a blood sample is added to the tube containing monkey tissue culture and to this is also added known polio virus. If the person is immune, the antibodies in his blood will stop the polio virus and the long strands of tissue cells will go on growing as if no virus was present.

Advantages of this test over the one used heretofore are that one monkey can be used for 150 tests, instead of for a single test, and there is no need to wait several weeks to see whether the monkey gets polio. Time, money and work keeping the test animal healthy are thus saved.

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