

# profile...

## Chief entomologist of Illinois says chemicals are by far the farmer's best defense against insects

**E**VENTUALLY, we're going to end up with prescription entomology. We're going to have experts in local communities who know insects and who know chemicals. And, like doctors and veterinarians, they're going to prescribe control methods on the basis of individual diagnosis.

That's the prediction of George C. Decker, head of the section of economic entomology of the Illinois Natural History Survey. Effective control of insects, he says, is now possible but can be tremendously complicated. Not so long ago, we used only lead arsenate, nicotine, pyrethrum, and a few other insecticides. Now there are well over a hundred, with a broad array of properties. Selecting exactly the right chemical for the job is becoming increasingly difficult—and it is more than most farmers can do themselves.

Result: Farmers are frequently using the wrong chemicals or are applying them the wrong way. The answer, at least in part, Decker believes, is the extensive use of consulting entomologists qualified to give expert advice on local insect problems.

Decker is convinced that, in the light of present knowledge, chemicals are by far the most practical means of controlling insects. "In many cases, they are the only method available that offers a definite chance of success," he emphasizes. However, he also believes that many other techniques can and should be used. He points to good plowing methods to wipe out overwintering insect populations. He points to the proper use of fertilizers and good planting methods. He stresses use of insect parasites and diseases to keep insect populations in check. And he observes that insect damage can also be eased by developing resistant crops.

Wherever possible, Decker says, biological methods of insect control should be tried. "We've got to use all the weapons we can against insects; they are fantastically adaptable creatures, with such tremendous reproductive potentials that somehow they've survived everything mankind and nature have ever been able to throw at them."

George Decker has been actively

fighting insects since 1924. In that year, after receiving his B.S. from Iowa State, he joined the Georgia State Board of Entomology, where he studied insects that were plaguing Georgia's pecan growers. After that, he returned to Iowa State to earn his M.S. and Ph.D. His Ph.D. work centered on the over-all problem of preventing the spread of borers in cultivated crops. At the time, Iowa had no corn borer problem. Decker's work helped prepare the state's defense against the ultimate invasion. He studied not only chemical control methods but also natural factors that favor or suppress borer development.

In 1930, Decker played a major part in the first large-scale airplane application of poison bait against grasshoppers in the Missouri River Valley. Several years later, he was among the first to recommend that chlordan, aldrin, and toxaphene sprays be used in controlling grasshoppers.

He also developed improved methods of preventing the migration of chinch bugs from wheat fields to corn. At first this was done by using repellent-treated paper barriers; later dinitroresol dust barriers were used. Years later, he worked out an improved chinch bug control by spraying entire fields with dieldrin, which protects both small grain and corn.

In 1944, Decker left Iowa State to become chief entomologist of the Illinois Natural History Survey. Just at that time the corn borer was becoming a serious menace in Illinois. Through prompt action by Decker and coworkers, this insect was successfully controlled. Without their efforts, Illinois' sweet-corn canning industry would have suffered heavy loss—might even have been wiped out.

### Current Projects

At present, Decker directs the work of eight full-time research men, nine graduate students, and several laboratory assistants. He is especially concerned now with a study on the extent to which insecticides volatilize or decompose on plants, and how these chemicals are affected by plant growth. He is also studying the influence of weather, drift, and outside contamination, as well as errors in application,



**George C. Decker**

Born Sept. 5, 1900, Elkton, Mich. Iowa State Coll., B.S., 1924; M.S., 1927; Ph.D., 1930. Asst. zoologist, Iowa State Coll., 1924. Entomologist, Ga. State Board of Entomology, 1924-26. Asst. entomologist, Iowa State Experiment Station, 1926-34; asst. research prof. of zoology and entomology, 1934-38; research and extension assoc. prof., 1938-44. Entomologist, Ill. Natural History Survey and Agricultural Experiment Station, 1944 to present; professor of entomology, Univ. of Ill., 1948 to present.

sampling, and chemical analysis. This whole subject, he says, is vastly more complicated than many ever imagined.

Decker is also seeking improved techniques for spraying insecticides—learning when to apply them, when to use long-lasting materials, when to switch to unstable compounds. He and his group are also exploring the basic mechanisms involved in the buildup of insect resistance. In still another project, his group has shown conclusively that fly control boosts production of milk and meat.

Although a large share of his time now is spent on administrative duties, Decker is no slave to desk work. In fact, about 50% of his time is spent out of the office. About half of his trips take him outside the state. At present, he is either chairman or a member of eight regional or national committees concerned with food protection, insect control, and pesticides.

Recognized for his knowledge and judgment, he is often called on for guidance and interpretation by research workers, public officials, and companies. Because of his talent for popularizing science, he is also in demand as a speaker. Says one observer: "Some people know entomology forwards, backwards, and sideways. Some know biology or botany. Others know chemistry or genetics. Decker has that rare gift—he can make sense out of all of them."