

## PUBLIC HEALTH

# Tobacco Pesticides Safe?

The residues left by pesticides used on tobacco to control insects are unlikely to kill smokers although their cancer-causing qualities are still unknown—By Faye Marley

► PESTICIDES USED to kill the insects endangering tobacco crops are not likely to kill smokers.

Congressional hearings on the use of pesticides on tobacco revealed that studies of pesticide residues will continue, however.

Dr. Thomas C. Bowery of the National Institutes of Health, Bethesda, Md., said studies he made while head of the Pesticide Residue Laboratory at North Carolina State College, Raleigh, show that although two pesticides—TDE, or tetrachloro-diphenylethane, and endrin—had been found in cured tobacco, the amount during curing decreased.

The U.S. Department of Agriculture has withdrawn approval of endrin for use on tobacco. Justus Ward, director of the Department's pesticide regulation division, said reappraisals of other insecticides are also planned to be on the safe side.

Pesticides as a possible cause of lung cancer are discussed in only a few paragraphs of the 387-page report to the Public Health Service Surgeon General on Smoking and Health. Special attention is called to the decline of arsenic content in cigarette smoke since 1950 after extensive Federal efforts to discourage its use for the control of tobacco hornworms.

The report said it "seems unlikely that the amount of arsenic derived from unfiltered cigarettes is sufficient to present a health hazard."

Pesticides now used in treating tobacco in the United States include, in addition to TDE, DDT, aldrin, dieldrin, chlordane, heptachlor, malathion and occasionally parathion.

The possible role of these compounds in contributing to the potential cancer-causing qualities of tobacco smoke is not known.

The National Cancer Institute is conducting numerous studies on the possible cancer-causing qualities of pesticides in general, but none specifically on the effect of residues on tobacco smoke, an Institute official told SCIENCE SERVICE.

The hearings on the use of pesticides on tobacco were part of a series on pesticides that began last May. Sen. Abraham Ribicoff (D-Conn.) said that his subcommittee on reorganization of the Committee on Government Operations is interested in making a serious inquiry into all phases of the pesticide question, including lack of regulations and the need for agency coordination.

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## PUBLIC HEALTH

# Human Trichinosis Cure

► TRICHINOSIS—scourge of men and animals who eat raw or insufficiently cooked pork—is believed to have been cured for the first time by the investigational drug thiabendazole after wide use on sheep, goats, horses and cattle. It is also being tried out on the offending pigs.

SCIENCE SERVICE reported its human use in January of this year (SNL 85:57, Jan. 25, 1964), and now the Journal of the American Medical Association, 187:536, 1964, tells the story of the use of the Merck drug on a woman in Texas.

Dr. Charles G. Durbin, director of the division of veterinary medicine of the U.S. Food and Drug Administration, told SCIENCE SERVICE that trichinosis was the cause of the birth of the Meat Inspection Act, signed into law by President Theodore Roosevelt on June 30, 1906.

"Germany refused to import our pork because of the trichinosis danger," Dr. Durbin said, explaining that the economic implications drove home the need for Congressional action.

The danger of trichinosis is greatest when meat has not been inspected, especially in home butchering, but Dr. Durbin said Government inspectors are on constant watch

against the pork muscle worm. *Trichinella spiralis* larvae get into the muscles and can kill if pork is not properly cooked.

Although Drs. Orville J. Stone, Charles T. Stone Jr. and J. Fred Mullins of the University of Texas Medical Branch, Galveston, reported the first cure by thiabendazole on a human, clinical testing of the drug has been used with more than 3,500 patients with worm diseases in more than 30 nations, Merck & Co., Rahway, N. J., reports.

Threadworm, pinworm, large intestinal roundworm and hookworm in humans have responded to treatment. The drug has been less effective on whipworm, Merck officials say.

Thiabendazole often permits effective treatment without identification of the worms by species. It is given in a single dose, but in the case of heavy infections, a three-day dosage is most beneficial.

The Food and Drug Administration has not yet licensed the drug for general use, but the wide experiments with animals justifies investigational use, Dr. Durbin said.

The organism that causes trichinosis is identical in man and in the experimental animals successfully treated.

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## MEDICINE

# Mother Has Normal Baby After New Cancer Drug

► FORTUNATELY, humans do not always respond to drugs as animals do. A woman gave birth to a normal baby boy after taking vinblastine sulfate (VLB) for the usually fatal malignant Hodgkin's disease, although pregnant golden hamsters taking the same new cancer drug produced monsters.

Report of the normal human birth in Science 143:703, 1964, followed another Science report, 141:426, 1963, concerning the hamster experiment.

Drs. James G. Armstrong, Richard W. Dyke and Paul J. Fouts of Indianapolis, Ind., continued dosages of VLB in Marion County General Hospital without knowing about the previous experiment with animals. Oral dosages kept the pregnant woman's malignancy under control without any undesirable effects.

The earlier animal study was by Dr. Vergil H. Ferm of the Dartmouth Medical School, Hanover, N.H.

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## MEDICINE

# Italian Antibiotic Inhibits Cancer, Staph

► A NEW ANTIBIOTIC called Daunomycin, discovered in Italy, shows marked "inhibiting action" on solid and ascites tumors in animals.

The antibiotic also has a "weak inhibiting activity" on *Staphylococcus aureus*, which causes boils and more serious infections.

Dr. A. Di Marco and seven coworkers, all of Milan, said the action of Daunomycin shows some similarities with those of actinomycin, another antibiotic substance isolated from mold, which has been used in this country to reduce cancer growths in human patients. No use of Daunomycin upon human beings was reported in Nature, 201:707, 1964.

An ascites tumor is any tumor that grows in the abdominal cavity as free tumor cells rather than as solid tumors. The fluid of the cavity serves as a growth medium, so the ascites form of tumor growth is comparable to tumor cells growing in a test tube in artificial culture medium.

The test tube work of Dr. Di Marco's team shows that Daunomycin is bound to deoxyribonucleic acid (DNA). This is significant in possible cancer use because the combination with DNA molecules is believed to prevent cell division or growth, which DNA controls.

The combination with DNA could also prevent the function of DNA as a primer in synthesizing ribonucleic acid (RNA). RNA is the nucleic acid found in the cytoplasm of cells believed to control the synthesis of complex protein molecules. Some viruses also are composed of RNA.

The research was done at the Italian National Cancer Institute and the Farmitalia Research Laboratory for Microbiology and Chemotherapy, Milan.

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