FOOD TECHNOLOGY

Test for Food Additives

AEC suggests use of radioisotopes to help producers prove food coloring safety. Laboratory toxicity tests could be speeded up and more accurate results attained.

THE USE of radioactive isotopes could help food producers prove the safety of artificial food colorings, preservatives and processing methods.

In a special report on radioisotopes, the Atomic Energy Commission said many toxicity tests on laboratory animals could be speeded up and made to yield more accurate results through use of radioisotope tracer technology.

But the food industry is not familiar with the use of such tracers, no training center is devoted to instructing food technologists to use isotope techniques, and at present there are no inexpensive radiocompounds available that would be used in food tests, the report said.

To help correct the situation, the AEC has contracted with the Massachusetts Institute of Technology for a study directed toward putting isotopes to work effectively and economically in testing food additives for toxicity.

Radioisotopes particularly could be helpful in checking out food preparation techniques. The report said certain toxic materials on foods that normally would not enter the blood stream can be changed by a detergent into a form that permits their absorption.

More and more detergents and wetting agents are being used to wash soil, spoilage microorganisms, insects and chemical residues from raw food products before packaging for the consumer, the report said. These chemical washes are supposed to be removed by a final rinse with clean water.

Radioisotopes therefore could be used to evaluate food-washing practices and to establish procedures needed for complete removal of detergents. The National Canners Association is working on this problem under an AEC contract.

Science News Letter, February 20, 1960

VETERINARY MEDICINE

Blowflies Menace Sheep

THE BUZZING of millions of blowflies is the worst menace facing Australia's 150,000,000 sheep.

The sheep produce some of the finest wool in the world, which is worth an average $900,000,000 a year, or half the national export income.

The sheepman's blowfly is bronze green in color and known as *Lucilia cuprina*. It is responsible for 90% of the fly attacks in sheep. Each female is capable of laying from 2,000 to 3,000 eggs in its lifetime.

Veterinary officers of the N.S.W. Department of Agriculture estimate the blowfly menace cost the country $10,000,000 in 1938. If the losses had continued at the same rate, the losses would total $50,000,000 a year by now.

Lucilia cuprina is not a native of Australia, but was introduced in the early days of settlement. The blowfly began to thrive towards the end of last century when the Vermont strain merino was introduced from the United States.

The blowflies thrived on the thickly woolled U. S. imports, with their moist folds and wrinkles of fleece.

In a few years blowflies were causing enormous sheep casualties. Graziers found they attacked after rain when the fleece was damp.

Pastoralists daubed their livestock with repellents and dipped them in carbolic washes. Others tried sulfur and oil. But the relief granted was only temporary.

A blowfly committee of veterinary experts and entomologists studied the problem. It was decided that removal of the skin folds from each hind leg might reduce the menace. Large-scale trials were undertaken in 1938, and today the operation has become routine in the industry.

In post-war years aldrin and dieldrin increased the immunity period for sheep from blowfly ravages. But in recent years flies resistant to chemical protection have developed. Diazinon is now being used with increasingly improved results.

How long blowflies will succumb to their newest enemy is not known, but agricultural scientists believe the insect will ultimately develop resistance to it.

Science News Letter, February 20, 1960

GENERAL SCIENCE

U. S. Air Force Expands Science Fair Cooperation

YOUTHFUL eagerness to probe the secrets of space is getting an extra boost from the U. S. Air Force.

Expanding its existing program of recognition for outstanding work exhibited by teen-aged space scientists at the annual National Science Fair-International, the Air Force and the Space Education Foundation of the Air Force Association will honor students at each affiliated regional or state fair. Air bases will offer cooperation to science fairs, clubs and classes in their localities by providing such help as speakers and films, and through briefings, tours and open houses at the bases.

At each of 200 or more fairs affiliated with the National Science Fair-International, administered by SCIENCE SERVICE, five citation certificates will be awarded for the best projects in aerospace dynamics, meteorology, propulsion, electronics and aerospace power.

At the National Science Fair, to be held in Indianapolis, May 11-14, five plaques will be awarded for top level exhibits in these categories. One of the plaque winners will be selected to attend the annual convention of the Air Force Association in San Francisco next September as the honored guest of the Association.

Science News Letter, February 20, 1960

ASTRONAUTICS

First Spaceman Cooled By "Pulsating Sponge"

A "PULSATING" vinyl plastic sponge will help keep America's first man in space cool.

The sponge will absorb perspiration given off in the body-cooling process. The sponge will be automatically squeezed at intervals by a mechanical squeezer.

This detail and others, relating to how scientists plan to keep the Mercury astronaut alive for three orbits around the earth, was reported in a House of Representatives Committee on Science and Astronautics staff report on Project Mercury, the U. S. man-in-space program.

The astronaut will have two oxygen supplies sufficient to sustain life for up to 56 hours. They will keep the space capsule pressurized in normal flight, or will pressurize his space suit in an emergency. The second oxygen supply will be switched into the system automatically when the first supply runs out.

The oxygen supplies will be connected to a closed pressure-suit circuit and a cabin pressure regulator valve. The pressure suit connections are at the torso and helmet. A lithium hydroxide canister will remove carbon dioxide and odors, a blower will circulate the oxygen, a water-boiling type of heat exchanger will remove the spaceman's heat output and the "pulsating" sponge will soak up body moisture.

The cabin will be pressurized to five pounds per square inch. (Sea level air pressure is 14.7 pounds per square inch.) It also will have a blower and a heat exchanger to remove heat generated by electrical equipment.

Normally the astronaut will fly with his suit ventilated but not pressurized. If the capsule's pressure fails, the spaceman's suit will be pressurized to five pounds per square inch. He can live for 56 hours this way. If the cabin pressure fails and the closed suit-circuit fails also, oxygen will automatically pass through the suit and exhaust into the cabin. He can live three to six hours. If the suit circuit alone fails, he can breathe the cabin's oxygen.

Science News Letter, February 20, 1960