

## ANIMAL HUSBANDRY

### Effects of noise

Farm-raised animals adjust rapidly to noises and show little evidence of distress as the result of loud noises, according to research on possible sonic boom effects.

Dr. James Bond of the U.S. Department of Agriculture's Agricultural Research Service in Beltsville, Md., conducted experiments in which Jersey cows were exposed to fright stimuli caused by exploding paper bags. At first the milk flow ceased, but it returned 30 minutes later, he says.

Another study of 42 herds of dairy cattle adjacent to an airbase revealed no evidence of lower milk productions because of flyovers or sonic booms. Dr. Bond says similar studies with sheep, horses and swine also showed little effect from sonic booms.

When nursing sows were exposed to different frequencies of sound, Dr. Bond found them startled at first; the sows then resumed nursing their young within a short period of time. Birth and weaning weights were not affected by noises.

## HERBICIDES

### Combinations more effective

Synergistic effects of combinations of weed killers become 10 to 20 times greater than individual applications of single chemicals, a Cornell University research team finds. Much smaller dosages of combination herbicides, thus, could minimize the dangers of soil pollution and chemical residue buildup in crops.

Research director Robert D. Sweet of the vegetable crops department at the New York State College of Agriculture at Cornell says that one pound of atrazine mixed with another chemical in 40 gallons of water can do the work of two pounds of atrazine alone in 40 gallons.

Prof. Sweet tested atrazine in combination with Lasso, diphenamid, nitralin, 2,4-D and trifluralin, as well as new herbicides yet to be approved for use.

The mixtures controlled a variety of annual grasses such as foxtail, crabgrass and barnyard grass, all considered much more resistant to atrazine alone.

"The results of the tests are almost unbelievably good," Sweet says.

## ECOLOGY

### Imported fish for weed control

A fish from the icy waters of Siberia's Amur River may provide a partial solution to Florida's problem with water hyacinths and other water weeds.

The white amur feeds entirely on aquatic vegetation, and scientists at the Plantation Field Laboratory at Ft. Lauderdale, an agricultural experiment station of the University of Florida, are hoping the fish will prove a practical biological control of Florida's water weeds.

The arctic fish can tolerate a wide range of climatic conditions. It has been used to control aquatic vegetation in Russia, Czechoslovakia, Poland and India.

"Research seems to indicate the white amur will

not spawn in our waters unless artificially injected with hormones," says Robert D. Blackburn, the United States Department of Agriculture botanist directing the aquatic weed research. This would be an advantage for keeping the white amur in check, he says. The fish grows from three to five pounds a year and can reach weights of up to 60 pounds.

The Plantation Field Laboratory has acquired 300 white amurs for testing.

Problems have occurred before with fish introduced into Florida waters to kill water weeds. One fish, the tilapia, upset the ecological balance, eating beneficial as well as harmful aquatic plants.

## HERBICIDES

### Enzyme protects crops

Cotton and other plants are protected from adverse effects of certain herbicides by the plant's natural enzyme system, which detoxifies the weed killers, U.S. Department of Agriculture scientists have discovered.

Chemists D. Stuart Frear and Fred S. Tanaka, and plant physiologist Harley R. Swanson, of USDA's Agricultural Research Service, isolated the enzyme N-demethylase, which acts together with the coenzyme NADPH and oxygen dissolved in plant tissue to detoxify certain phenylurea herbicides such as monuron, diuron and fenuron.

The plants' enzyme systems may be used to help facilitate the rapid screening of new pesticides for their effects on crops. In addition, experiments with the enzyme system can be used to indicate which insecticides and herbicides can be combined safely.

Tests at the ARS Metabolism and Radiation Research Laboratory at Fargo, N.D., indicate that some carbamate insecticides will inhibit the enzyme system's ability to detoxify phenylurea herbicides, when these two kinds of pesticides are used together.

## AQUICULTURE

### Shrimp-growing experiment

A successful shrimp harvest taken from natural marshland ponds by Texas A and M University researchers provides insight into effect of shrimp predators on shrimp harvest.

Marine advisory specialists sponsored by the National Science Foundation-Texas A and M University Sea Grant Program found that control of shrimp predators is important, but mostly because of competition for food.

Says Jack Parker, project leader: "We found that the competition factor—fish, crab and shrimp competing for the same food—was much more important than the mortality factor—fish and crabs eating the shrimp."

The shrimp survival rate did not change significantly, whether predators were chemically controlled or were not.

But shrimp harvested from the pond where predators were controlled were 15 percent larger than a test group without predator control. In the pond with fewer predators, the shrimp grew to an average size of 130 millimeters; in the uncontrolled pond, none reached a length greater than 108 millimeters.