Keep pesticide residues out of milk

Scientists are exploring new methods of combatting pesticide residues.

PESTICIDE residues in milk aren't a serious problem . . . yet. And, Michigan State University dairy scientists are working to keep it that way.

Researchers call their effort "preventive research." They're leading the way to squelch the pesticide residue problem before it gets out of hand. Their chief concern is what do you do if a cow becomes contaminated with pesticide residues?

Most of the work to date has centered around dieldrin, a chlorinated hydrocarbon that is fat soluble and is held in body fat and butterfat. In one study, cows deliberately were contaminated with dieldrin and then the best way to eliminate the pesticides from their milk was studied.

Cows were divided into four groups. One group was underfed, another overfed, a third given thyroprotein to speed up the metabolism, and a fourth group was given no special ration. None of the treatments increased the rate of dieldrin cleanup from the milk or body fat.

One interesting fact was noted: The more milk a cow produces, the faster pesticide residues are cleaned out of her milk. Very little of the dieldrin is lost when a cow is put on a diet to reduce her body fat. Milk is the primary means by which pesticide residues are eliminated.

Passed on to calf . . .

However, a dairyman would not appreciate throwing away hundreds of pounds of milk and waiting for many weeks for a contaminated cow to clear up. Furthermore, if that cow is pregnant, enough pesticide residue can be passed on to her calf through the placenta to present a possible residue problem when that calf starts producing milk.

The problem of placenta transfer was uncovered in a recent study. It also was found that bred heifers ac-

DDT but will not cause harmful effects or leave residues. Compounds are being tested on rats and, if they prove successful, will be tested on dairy animals.

Another tack is being tested by Michigan State food scientist Roy Dugan. He is trying to develop processing techniques that will remove pesticide residues from milk. This type of approach already is being used effectively to rid milk of radioactive Strontium 90. Strontium 90 becomes attached to the calcium in milk, so scientists can remove both the calcium and the radioactive material and then readd purified calcium to the milk.

Research also is being carried out to see if anything can be done within the rumen to prevent the residue. Dairy scientists Robert Cook, J. W. Thomas, and Roy Emery are working on this project.

Commenting about the all-out Michigan State research effort, Dr. Charles Lassiter, chairman of the dairy department, says, "We have a definite commitment to producers and consumers to safeguard the milk supply. This pesticide problem is one which must be solved before the situation becomes critical."

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The problem of placenta transfer was uncovered in a recent study. It also was found that bred heifers accumulate residues if they eat pesticide contaminated feeds, and most of these residues are not eliminated until the heifers start milking.

Currently, scientist Darwin Braund is experimenting with rats to see if this placental transfer can occur through more than one generation. He also is trying to find ways to inhibit the transfer. Once enough information is collected, similar tests will be run on dairy animals.

Braund is very hopeful that some chemical compound may be found that could speed up the breakdown of pesticides within the animal. For example, research already has shown that DDT stimulates the breakdown rate of dieldrin. Therefore, it might be possible to find or develop a compound that will behave like



"You lean against my silo, do that, and all you can say is, 'oops'?"

to build it!

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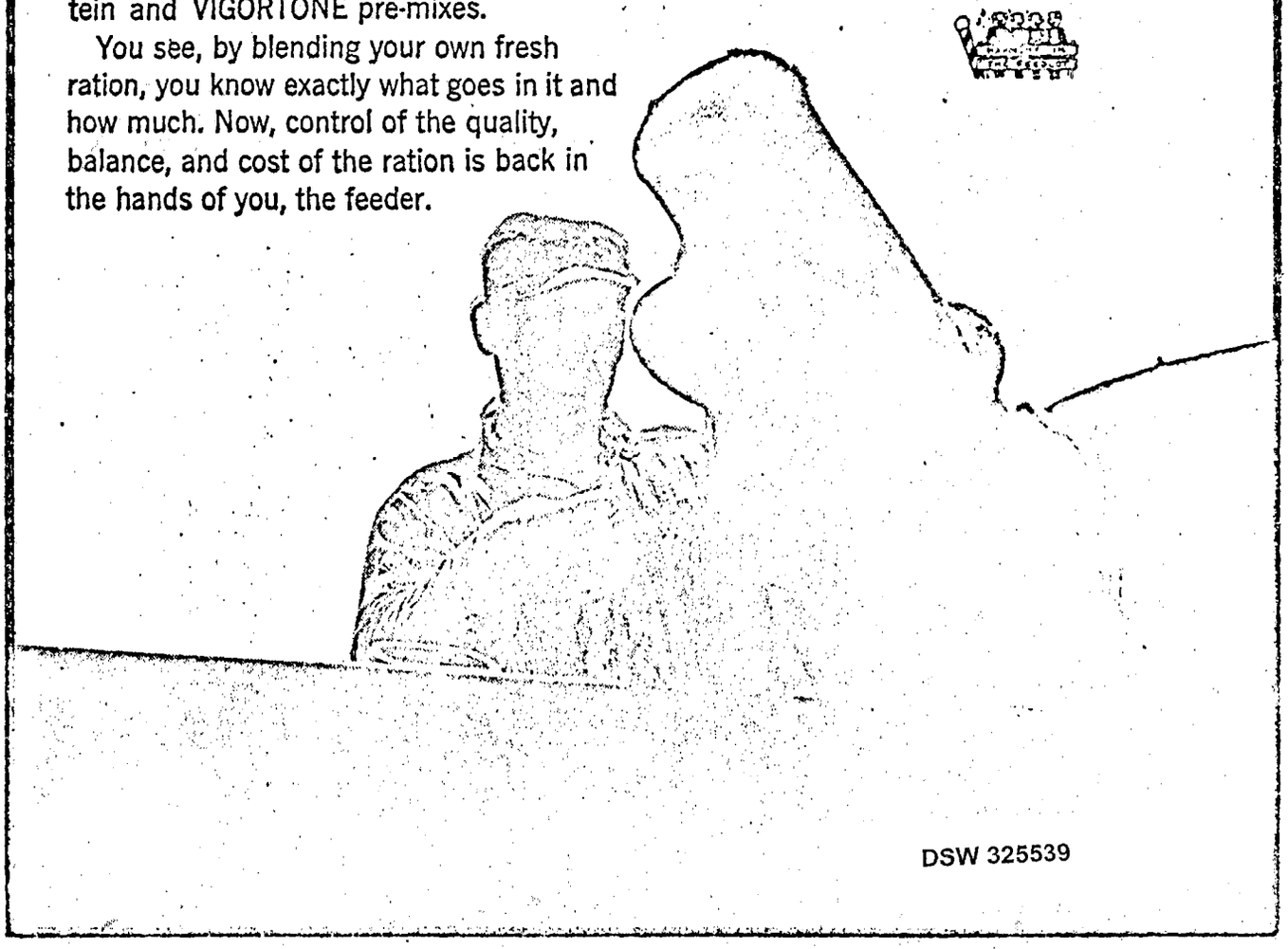
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