The extended methylene blue test as described will detect 0.05 unit Penicillin G per ml of milk and will detect many samples containing as little as 0.02 unit per ml. Aureomycin and terramycin may be detected at levels of 0.5 to 1 microgram per ml. Streptomycin may be detected at levels of 3 to 5 micrograms per ml. As a confirmatory test, after the methylene blue has reduced, all tubes may be held for a period up to 10 hours and observed for curd formation. Samples containing no antibiotic set up a firm curd well ahead of those samples which contain at least 0.05 unit of Penicillin G per ml of milk.

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REFERENCES


THE "PROTECTIVE SCREEN" PROGRAM FOR CANNED FOODS

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The canning industry has long been aware of the fact that in the maintenance of consumer confidence in canned foods, each member of the industry is "his brother's keeper." One of the principal reasons for organizing the National Canners Association some fifty years ago was to insure the safety and wholesomeness of canned foods. Perhaps some can remember the botulism scare in connection with canned ripe olives in the early 1920's. This hurt canners of every product, and although no deaths from botulinus poisoning in commercially canned foods have occurred within the past twenty-five years, it took a long time to rebuild consumer confidence in canned food. The cranberry episode last November was another dramatic demonstration of how all the members of the cranberry industry could be injured by the acts of a few; and some Wisconsin cranberry canners were among those injured.

Before the 1960 canning season got under way, the canning industry laid plans to prevent the occurrence of a similar situation occurring in connection with any other canned food. For want of a better name, we have called this program "The Protective Screen Program for Canned Foods." It amounts to a series of defenses to protect canned foods against chemical contamination.

The basic program was developed by the National Canners Association and is being carried out in co-operation with state canners' associations. Of course, the success of the program depends primarily on the care and intelligence with which the individual canner utilizes the program.

The protective screen program is directed to the problem of food additives as well as to pesticide residues and is broken down into three phases:

I. To prevent contamination of our raw product.
II. To prevent the processing of any contaminated raw product.
III. To prevent the addition of illegal chemicals during processing.

The features of each of these are as follows:

I. To prevent the contamination of our raw product.
This is the most important part of the program and involves six steps:

A. All canners, not only the members of the National Canners Association, are furnished by that association complete and current information on what agricultural chemicals have been accepted for registration by the U. S. Department of Agriculture under the Federal Insecticide, Fungicide and Rodenticide Act. Lists of these pesticides were distributed early this year and are kept up to date by means of a special Pesticide News Letter. These lists, of course, include not only insecticides, fungicides and rodenticides, but also herbicides, fumigants, defoliants, desicants, and plant growth regulators.

B. All canners were urged to furnish each of his growers a list of pesticides to be used on the specific crop or crops to be produced by the grower, together with directions and limitations as to the use of such pesticides. A few canners prepared such lists of their

Presented at the annual meeting of the Wisconsin Association of Milk and Food Sanitarians, at Elkhart Lake, Wisconsin, September 13, 1960.
own but most of them relied entirely on the recommendations of the state agricultural experiment station. We obtained from the University of Wisconsin and sent to canners for such distribution to their growers over 9,000 copies of bulletins containing the Wisconsin recommendations for insect control and weed control of field crops, vegetable crops and fruits.

C. All canners were urged to make periodic checks with their growers throughout the year to make certain that only approved chemicals were being used properly. This is the job of the cannery fieldman whose job it is to supervise the growing of the crop and to determine when it will be ready for harvest.

D. All canners were urged to maintain detailed records of any pesticide usage on each crop. Forms for such record-keeping were made available by state canners' associations. The records were maintained at the cannery office from information supplied by the fieldman or by the grower. A separate record sheet was set up for each field consisting of a single planting.

E. All canners were urged to obtain written guaranties from their growers that the crop had not been treated with any pesticide except as approved. On acreage contracted for at planting time, this guaranty was incorporated in the grower contract, but on open market acreage, this guaranty is required with the first delivery of a particular crop bought from a grower. On open-market purchases, the grower is also required by most canners to attach a crop history record to the guaranty.

F. State canners' associations have been carrying on educational campaigns to enlist the support of canners and growers in the foregoing steps of this program. This has been done through canner and grower meetings and through newspaper publicity.

II. To prevent the processing of any contaminated raw product.

This phase of the program relates particularly to open market purchases where the canner, despite written guaranties from the grower, cannot be absolutely sure that the raw product is not contaminated. To check on possible contamination, some canners run analyses in their own laboratories, but most will use commercial testing laboratories such as the Wisconsin Alumni Research Foundation.

The canning plant is able to remove some pesticide residues adhering to the surface of raw vegetables and fruits by washing and peeling. Another defensive procedure is to segregate production into small lots, for instance, by changing code marks on cans each hour or half hour, so that if contamination does occur, relatively small lots can be isolated.

III. To prevent the addition of illegal chemicals during processing.

This phase of the program is largely in the hands of the canner himself. The National Canners Association undertakes to keep the industry informed of the substances which may be added to foods, that is, the substances which the Food & Drug Administration classifies as "generally recognized as safe," and the substances it has specifically approved with or without tolerances for residues. Some special problems that arise relate to detergents, germicides, antibiotics and container coatings. Other additives that concern canners are condiments, thickeners, emulsifiers, flavorings and colorings.

A special problem of pea and corn canners, but of particular interest to the dairy industry, is the contamination of pea and sweet corn silage with pesticide residues. Actually no problem exists on pea silage because none of the pesticides used, including parathion for aphid control, leave any residues on the vines. The problem then comes down to sweet corn silage where the crop has been treated with DDT.

The recent registration of Sevin will minimize the sweet corn silage problem, but where DDT is still being used, the canner should carry out the program we have recommended for the past three years, i.e.,

1. Completely segregate the husk and cob silage from any fields treated with DDT.

2. Obtain a written acknowledgement from the grower or other purchaser of the treated silage that he understands the silage is not to be fed to dairy animals, and is not to be fed to meat animals within ninety days of slaughter.

The Wisconsin canning industry is sincerely interested in the well-being of the Wisconsin dairy industry because practically all of our growers are dairy farmers. If any better ways to protect Wisconsin milk from possible contamination can be found, Wisconsin canners will be glad to cooperate.