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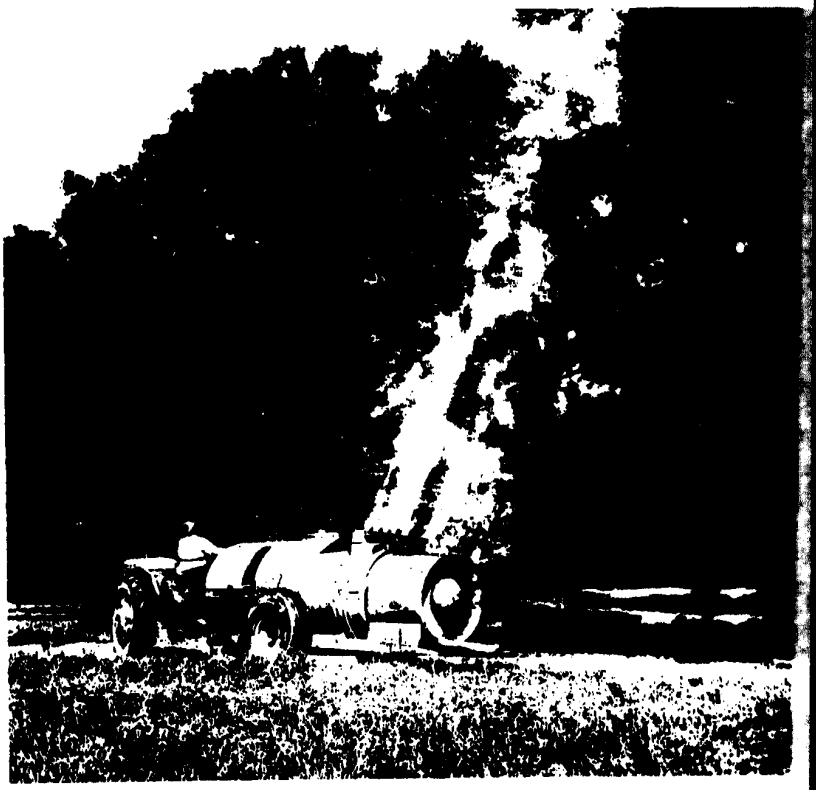
DDT Residues In Foods Decline



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FDA's latest survey of pesticides in food shows a slight overall drop from levels recorded in the 1960's. The lower level of DDT apparently reflects the sharp curtailment of its use on crops.

Drastic curtailment of the use of DDT on crops and elsewhere appears to have resulted in a decline in DDT-related pesticides in the Nation's food supply, according to an FDA survey.

The decline was noted in all the food products surveyed except eggs, where DDT residues remained constant, and fluid whole milk, where there was a slight increase. The DDT product found in milk, a degraded form known as DDE, has remained in the environment and may be expected to show up in other foods of animal origin, particularly fish.

The information on DDT comes from a study made by FDA in fiscal year 1973 of pesticide residues in foods. Results of the study indicate there was a slight overall decline in residues from the levels found in a study covering the years 1963-69, but statistically valid comparisons are precluded by differences in the size and design of the two surveys.

The new survey was conducted by FDA for residues of pesticides and PCB's (polychlorinated biphenyls, a class of toxic industrial chemicals) found in 10 major food categories. PCB's were not known to present a health hazard during the 1960's and were not included in the earlier study. The new study does not encompass findings by the U.S. Department of Agriculture of pesticide residues in meat and poultry as did the earlier study, although FDA will work toward incorporating these data in future publications of combined results.

Generally, pesticide residue violations fall into one of two categories. For some pesticides, maximum levels—amounts which can be tolerated in food without posing a health hazard—have been established. Residues in excess of these levels are not permitted. For other pesticides, any evidence of the substance in food is considered a violation.

The fiscal 1973 study of violative residues involved 8,388 samples of which 3,013 were imports. It covered raw agricultural products, manufactured dairy products, shell eggs and egg products, fish, processed animal feeds, vegetable oils, fluid whole milk, processed foods, foods for special dietary use, treated seeds, and a few other miscellaneous categories. Permitted pesticide residue levels or prohibited residues are established by the Environmental Protection Agency, and FDA enforces these tolerances and conducts surveillance to assure that the food supply is free of unsafe residues. FDA takes regulatory action against violations, or in some instances, the States take follow-up regulatory action.

For chlorinated pesticides, the samples showed overall violative residues on or in 2.1 percent of domestic products and 1.8 percent of imported products and, for organophosphorus pesticides, 1.1 percent of domestic products and 3.5 percent of imported products.

The survey consisted of sampling of specific food commodities by each FDA District. Where pesticide residues problems were indicated by initial sampling or by other intelligence, selective follow-up sampling was made, and the results were incorporated into the study.

The study made limited use, for the first time by FDA, of a newly developed laboratory detection method capable of detecting up to 60 different organophosphorus compounds or breakdowns (metabolites) of these compounds. The greater part of the study involved use of an older method which can detect about 20 parent organophosphorus compounds but does not detect metabolites of such compounds. FDA intends to increase use of the newer, more comprehensive method in future studies, as resources permit.

One reassuring note to FDA was that in the assays employing the new method, no trace at all was found of some 20 compounds the method is known to detect. In the past, there was no way of knowing whether some of these compounds could be in the food supply, since the older method was incapable of detecting them. Several compounds that were found in foods by use of the new method would have gone undetected if the older method had been used in the tests involved.

The relative frequency of dieldrin residue occurrence declined slightly in raw agricultural products but increased slightly in dairy products, eggs, and fish.

PCB residues were not among those most frequently found except in fish, where their frequency ratio was exceeded only by the DDT-related residues. No comparison figures are available on PCB's for the 1963-69 period.

Organophosphorus pesticide residue occurrence was not significant in dairy products, eggs, and fish, but a slight shift toward more residues in raw agricultural products appears to be developing, possibly as the result of the shift away from use of the organochlorine pesticides, which are stable and persistent and remain longer in the environment, to the phosphated pesticides, which are less persistent in the environment.

Combined endosulfan compounds, toxaphene, and carbaryl appear to have increased in relative frequency. BHC (benzene hexachloride) occurrence increased in domestic milk, dairy products, and fish, and remains the most frequently encountered residue in imported (European) cheese.

Copies of the FDA survey, "FY 1973 Pesticide/PCB in Foods Program—Evaluation Report," are available without charge from the Assistant Commissioner for Professional and Consumer Programs (HFG-1), Food and Drug Administration, Room 15B-41, 5600 Fishers Lane, Rockville, Maryland 20852.

MONS 030984