1. IDENTIFY THE SO[redacted] Feed is a likely source w[redacted] inge being the most probable source of contamination. It is almost certain to be if the silage was stored in a silo constructed with concrete staves between 1960 and 1972 and was coated with an epoxy coating called CUMAR or any other epoxy coating which used "Aroclor 1254" as the plasticizer. Analysis of the silage or scrapings of the silo wall needs to be made.

2. STOP FEEDING THE CONTAMINATED FEED. This is essential. Do not try to salvage contaminated feed by feeding to heifers, dry cows or steers as the PCB's will accumulate in the body fat.

3. IF NO FEED OR WATER SOURCE CAN BE FOUND, PCB'S IN THE MILK ARE FROM BODY STORES COMING FROM FEEDS WHICH WERE FED PREVIOUSLY.

4. DECONTAMINATE COWS BY "MILKING-OUT" THE PCB'S. THERE IS NO OTHER METHOD. Using suitable feedstuffs, formulate the best milk-producing ration possible without causing a reduction in the percent milk fat.

Upon withdrawl of the contaminated feed in controlled intake studies, there was a rapid drop in residue concentration by about 1/2 in 14 to 16 days. This phase was followed by a much slower elimination rate which was described as one percent drop per day of what remained each day. Since there will be unknowns relative to the time and amount of PCB ingestion, cows may already be in the slow elimination phase when PCB's are detected in the milk, and the rapid drop during the 14-16 days after detection will not occur. Decontamination time will vary according to the level of PCB's in milk and in body fat and the amount of milk produced daily. A minimum of 60 to 90 days is likely to be needed for the cow. However in some herds, decontamination may extend to 9 months or a year.

Monitor decontamination rate with milk samples which are two weeks apart. When PCB levels in the bulk tank milk fat are between 3.0 and 4.0 ppm, analysing the milk of each cow offers the possibility in selecting cows which are producing milk below the tolerance level.

5. BEWARE OF FRESH COWS AND FIRST CALF HEIFERS. THEY COULD BE LOADED. Do not market the first milk if herd level is near the tolerance level.

6. REPLACE OR DO NOT USE THE CONTAMINATED SILO UNTIL INNER SURFACE HAS BEEN CLEANED AND RECOATED. The only certain method for eliminating PCB's in silage is to build a new silo or to replace the staves in the contaminated silo. Barrier-coating is another alternative but cannot be considered a permanent solution because the barrier-coating may come loose with time. Thus, PCB contamination could occur again.

If barrier-coating is feasible, then extreme care is required. All dirt and loose particles of old coatings and/or deteriorating wall surfaces must be removed as the barrier-coating will be no better than the surface to which it is applied.

Sandblasting is an excellent method of cleaning a silo wall surface. When this method is used, care should be taken to control dust, debris, and sand which can spread PCB contamination to other areas of the farm.

Washing the surface with high pressure water (500 psi) has been shown to be an effective method. When this method is used, the run-off must be controlled to prevent PCB contamination of waterways, and time must be allowed for silo walls to dry prior to barrier-coating application.

Wire brushing the surface is also effective, but requires a great deal of time and labor.

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A special problem is encountered when the previous coating is still intact or the silo is constructed of wax-treated blocks. For good bonding, the barrier-coat requires a firm rough surface. Sandblasting may be the best way to remove intact coatings. Do not use organic solvents because it will spread the PCB contamination and may leave the surface unfit for recoating.

The barrier-coating must withstand the harsh environment inside the silo. In addition, the coating should not contain chlorinated hydrocarbons or toxic chemicals which will contaminate the silage (FDA approval for the product is recommended); OSHA standards for safety of workers applying material from toxic or flammable vapors should be satisfied; and coating should not contain a solvent in which PCB's are readily soluble.

"Thoroseal" and "Acryl 60" - Standard Dry Wall, Inc., Miami, Florida which is a barrier-coat using a hydraulic cement containing an acrylic bonder and "Kan-Glas" - Feller Enterprises Inc., Waukon, Ia. have been shown to be effective barrier-coatings. When using "Kan-Glas" the walls must be absolutely dry. Materials with similar properties could be used. The use of trades is to identify products which were used in research and not meant to endorse them.

POTENTIAL

Milk is under constant surveilance for chemical residues including PCB's which are only one of a number of chemicals screened for in milk supplies. Feed is the most likely carrier. This means that more care needs to be given to knowing the history of all feeds used by dairymen.

Any dairyman who is using a concrete stave silo which was coated with "Cumar" is in jeopardy. If type of coating is unknown, then silo wall scrapings should be analysed for PCB's.

Be cautious about use of sewage sludge for fertilizer as it may be contaminated with PCB's from industrial sources.

It would be good insurance to document all feed purchases and store samples of these feeds for at least one year.

Because feeds are a probable source of many contaminants that may cause a dairyman problems, it is strongly recommended that a two pound sample of every batch of feed be saved and adequately labeled.

This may seem to be another additional management burden but this procedure will be extremely valuable in determining sources of costly contamination. These samples, if properly stored, can be either discarded or fed.

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Cooperative Extension Service
2120 Fyffe Road
Columbus, Ohio
43210
AGRICULTURE/HOME ECONOMICS/NATURAL RESOURCES

August 26, 1976

TO: Agricultural Industry
Area Supervisors

RE: Recommendations for Dairymen with PCB Residues

Dear Co-workers:

The enclosed article was prepared by Dr. Lynn B. Willett, Department of Dairy Science, to be used as a reference while answering PCB questions raised by dairymen. I feel certain the article will be very useful and does answer several questions dairymen will be asking.

Dr. John Staubus, Dairy Science Department, is the initial contact for extension personnel and dairymen at the state level. Dr. Staubus is coordinating the Dairy Department PBC educational program.

If you have dairymen excluded from the market, please send the name and address of the dairy farmer to my office.

Sincerely,

Ted L. Jones
Assistant Director
Agricultural Industry

TLJ/dz

Enclosure

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Cooperative Extension Service

2120 Fyffe Road
Columbus, Ohio
43210

AGRICULTURE/HOME ECONOMICS/NATURAL RESOURCES

August 4, 1976

To: Agricultural Industry
Area Supervisors

Subject: Analysis of Silage and Silo Wall Scrapings for PCB's

Dear Co-workers:

Recently we have received questions from county agents, agriculture and dairy farmers related to PCB's. Many farmers do not know whether or not they have a PCB problem. The enclosed article briefly describes the background of the PCB problem and gives procedures for having silage or silo wall scrapings analyzed.

Dr. Lynn Willett is the PCB authority in Ohio and he provided the basic information in the attached document. Dr. Acie Waldron, Entomology Department is the contact person regarding sampling procedures and sample analysis.

We expect to have a followup article within approximately two weeks which will provide recommendations for dairy farmers who have determined they have a PCB problem.

Sincerely,

Glen H. Schmidt
Chairman
Dairy Science Department

Ted L. Jones
Assistant Director
Agricultural Industry

TLJ/GHS/dz

Enclosure

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