

ANNUAL REPORT

TITLE: Project 78-N5 Aflatoxin Analytical Methods and Monitoring Programs

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1. Objectives:

Project 78-N5 has three main objectives: (1) To participate in an aflatoxin analytical check program in cooperation with the USDA and FDA, (2) To monitor almonds and almond products for aflatoxins, and (3) to work with Dr. Doug Phillips on his aflatoxin project.

2. Interpretive Summary:

The minicolumn screening method on almond products has now been adopted as official first action for the detection of total aflatoxin levels of 5 ppb and above. The DFA aflatoxin check sample program continues to show excellent agreement with the independent, federal, and state laboratories taking part in the program. While almond products are still being collected for the 1978-79 aflatoxin survey, samples tested at present indicate the continued high quality of U.S. No. 1 Select S/R and Manufacturing Stock. Almond hulls tested are much better than last year. The 1978-79 aflatoxin survey will be completed shortly after the first of the year, and a more complete version of this report will be made at that time. The work on all samples submitted by Doug Phillips has been completed by the DFA.

3. Experimental Procedure:

Same as previously used by the DFA, except that 10 lb. samples were drawn instead of 30 lb. samples on all almond products except hulls. This change in sample size was started with the 1977-78 aflatoxin survey in accord with U. S. Food & Drug Administration guide lines.

4. Results:

I. The following results are taken from part of the American Oil Chemist Society (AOCS) aflatoxin check program:

PEANUT MEAL SERIES

	<u>SAMPLE NO.</u>	
	<u>3</u>	<u>4</u>
DFA (ppb)	88	1285
AOCS mean (ppb)	54	

CORN SERIES

	<u>SAMPLE NO.</u>	
	<u>3</u>	<u>4</u>
DFA (ppb)	19	58
AOCS mean (ppb)	17	45

COTTONSEED MEAL SERIES

	<u>SAMPLE NO.</u>	
	<u>3</u>	<u>4</u>
DFA (ppb)	14	31
AOCS mean (ppb)	21	32

II. 1978-79 crop presently under study:

- 1) One hundred aflatoxin tests on U.S. No. 1 Select S/R planned. Nineteen have been completed and all were negative.
- 2) Forty aflatoxin tests planned for Manufacturing Stock. Six have been completed and all were negative.
- 3) Twenty aflatoxin tests on hulls planned. Six were to be from the north, eight from the central, and six from the south. Sixteen of these samples have been completed and all were found to be negative.
- 4) Ten aflatoxin tests in press cake meal are planned. These samples will be collected in January and/or February.

The attached graph and table shows the results obtained in the aflatoxin survey since 1973.

III. Doug Phillips has been given the results of the aflatoxin tests run on all the samples submitted to the DFA by him.

5. Discussion:

DFA results in the American Oil Chemists Society (AOCS) aflatoxin check samples program continues to show good correlations with other laboratories.

When the data is available on the 1978-79 crop, this report will be revised to reflect the complete results. However, aflatoxin contamination was relatively insignificant in the 1977-78 crop, with most of the contaminated almonds going into making press cake meal for non-human consumption.

6. Publications:

Collaborative Study of the Minicolumn Detection Methods Applied to Almonds, George Stanley, Vincent DiProssimo, and Anna C. Koontz, Journal of the Association of Official Analytical Chemists, Volume 62, No. 1, 136 (1979).

	SELECT NUTS		MFG STOCK		OIL STOCK	
	CONTAMINATED SAMPLED	%	CONTAMINATED SAMPLED	%	CONTAMINATED SAMPLED	%
1973	0/11	0	10/30	27	NS	NS
1974	0/34	0	8/62	13	13/22	60 ☆
1975	NS	NS	13/100	13	11/11	100
1976	NS	NS	7/56	12	30/50	60 ☆
1977	1/89	1	1/30	3	10/10	100

NS : NO SAMPLES TAKEN

☆ : REJECT NUTS, NOT PRESS CAKE MEAL

