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OBJECTIVES: To develop a sampling plan for accurate estimation of the aflatoxin content of manufactured cut almonds (diced, sliced)

INTERPRETIVE SUMMARY: Most aflatoxins in almonds appear in the manufacturing stock and reject materials because processing removes them from whole almonds. Thus a sampling plan is needed to accurately estimate the amount of aflatoxin in manufactured nutmeats. Adequate analytical techniques exist.

Data were secured from two lots of almonds that were known to contain aflatoxin at different concentrations. These were diced at 8-14/64" (60 pieces per kernel) boxed into 25 lb boxes, the fines kept and the whole lot was collected and transported to WRRRC. Individual boxes were sampled and aflatoxin analysis run. The fines were also sampled and analyzed. The data was then statistically treated and the sampling plan developed.

The sampling plan is a multi-step plan where samples are drawn and analyzed sequentially. If in the first sample aflatoxin content is too high the lot is rejected; if low enough the lot is accepted. If the analysis shows an intermediate aflatoxin content, sampling and analysis are repeated until a decision is reached to either accept or reject the lot. This type of sampling plan results in accurate, fast and less expensive sampling to get reliable answers to the lot quality.

We sampled both the fines screened from the diced nutmeats and the diced material. Thus, sampling either the diced or the flour can be used, to determine the aflatoxin quality of the diced product. The particle size in the sample influences sample size so a smaller sample can be used with the fines than with diced or whole almonds. We use 10 lb samples for diced and 150 gm samples of the fines. As the fines represent the aflatoxin content of the lot they can be used for analysis.