

Title Stack-curing and storage of peanuts for prevention of postharvest aflatoxin contamination.
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Abstract

Postharvest aflatoxin contamination of peanuts is a serious problem around the world. In many areas, the lack of mechanised drying of harvested peanuts and lack of adequate storage facilities to maintain proper moisture conditions facilitate the growth of *Aspergillus flavus* and *A. parasiticus* and the contamination of peanuts with aflatoxins. In the early to mid-1900s in the United States, peanuts were cured by constructing "stackpoles", around which freshly dug peanut plants were "stacked" off the ground. Peanut pods were placed in the centre near the pole and plant material and foliage faced outward. Studies have been carried out to determine the potential for aflatoxin contamination of peanuts cured in stacks. Peanuts were dug at optimum maturity in south Georgia at two different times and were cured conventionally (windrow curing followed by artificial drying) as well as in stacks. Half of the stacks received substantial supplemental irrigations in addition to natural rainfall to create the worst possible curing and storage conditions. Conventionally cured peanuts were harvested after windrow curing for three days, and stacks were harvested after a curing period of about six weeks. All peanuts were evaluated for *A. flavus* growth and aflatoxin contamination. Results from the first harvest showed that significant ($P < 0.05$) aflatoxin (mean=118 ppb) formed only in stacks receiving supplemental irrigation (49.5 cm of combined rainfall and irrigation). Stacks from the first harvest, which were not watered, received 14.2 cm of rainfall, but contained only 2.6 ppb of aflatoxin. Conventionally harvested peanuts were not contaminated. No peanuts from the second harvest were contaminated with aflatoxin even though the irrigated stacks received 53.8 cm of rainfall and supplemental irrigation.