

## **Comparison of Practices Designed to Increase Yield and Financial Return and Minimize Aflatoxin Contamination in Peanut in Northern Ghana**

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Peanut (*Arachis hypogaea* L.) yield and financial returns are often low for smallholder farmers in Ghana. Additionally, aflatoxin concentration in foods derived from peanut can be high enough to adversely affect human health. Eight experiments were conducted in 2016 and 2017 in northern Ghana to compare yield, financial returns, pest reaction, and aflatoxin contamination at harvest with traditional farmer versus improved practices. Relative to the farmer practice, the improved practice consisted of weeding one extra time, applying local potassium-based soaps to suppress arthropods and pathogens, and either homogenized oyster shells or a commercial blend of fertilizer containing calcium. Each of these field treatments were followed by either drying peanut on the soil surface and storing in traditional poly bags or drying peanut on tarps and storing in hermetically-sealed bags for 4 months. Peanut yield and financial returns were significantly greater when a commercial blend of fertilizer or oyster shells were applied compared to the farmer practice of not applying any fertilizer. Yield and financial returns were greater when a commercial fertilizer blend was applied compared with oyster shells. Severity of early leaf spot (caused by *Cercospora arachidicola* Hori) and late leaf spot [caused by *Cercosporidium personatum* (Berk. & M.A. Curtis) Deighton], scarring and penetration of pods by arthropods, and the number of arthropods at harvest were higher for the farmer practice than for either fertility treatment; no difference was noted when comparing across fertility treatments. Less aflatoxin was observed for both improved practices in the field compared with the farmer practice. Drying peanut on tarps resulted in less aflatoxin compared to drying peanut on the ground regardless of treatments in the field. Aflatoxin concentration after storage was similar when comparing post-harvest treatments of drying on soil surface and storing in poly bags vs. drying on tarps and storing in hermetically-sealed bags. These results demonstrate that substantial financial gain can be realized when management in the field is increased compared with the traditional farmer practice. While aflatoxin concentrations differed between the farmer practice and the improved practices at harvest and after drying, these differences did not translate into differences after storage.