No use a decision tree, analytical hierarchial process (AHP) and a participatory approach to examining the problem in research and extension priorities for reducing the levels of aflatoxin contamination of peanuts. Overall vulnerability of the ranks is attributable with an index of COW. Respondents emphasize harvesting, field drying, drying before storage, early planting, and cleaning the storage house as the priority need to address these problems. Farmers and non-farmers were split in their rankings with the farmers rating harvesting as the most important while the non-farmers rated improved storage as the most appropriate means of reducing AF levels in peanuts.

Introduction

Staples such as maize and peanuts are contaminated with levels of aflatoxin (AF) that far exceed those considered safe by the World Health Organization/Food and Agriculture Organization. AFs act as immunosuppressive agents and increase susceptibility to infectious diseases in animals. High AF levels were found in 50%-80% of peanut samples from the Northern and Volta Regions of Ghana. AF contamination of grains inflicts annual losses of over $700 million in Africa, and $20 million in Ghana. However, research on ways to reduce the incidence of AF contaminated peanuts in Ghana has been directed solely by agricultural and health professionals. Farmers and market participants’ contribution to develop a research and extension strategy for AF reduction has been insignificant.

We use a decision-tree, analytical hierarchial process (AHP) and a participatory approach to examine Ghanaian’s research and extension priorities for reducing the levels of AF contamination of peanuts (Figure 1).

Principles of Analytic Hierarchy Process

Analytical Hierarchal Process (AHP) started in the 1970s (Saaty, 1980) in a MCGA Multicriteria Decision Act (MCDA). The method is used when there are conflicting economic, financial, social, institutional, technical, environmental, and other objective criteria to be made. It has not been used in prioritizing research needs. In this study we employ the AHP to develop a research and extension agenda for reducing AF levels in peanuts in Ghana. AHP is based on a theory of measurement for dealing with quantitative and intangible criteria that has been applied to numerous areas, such as decision theory and conflict resolution (Saaty, 1990). It is flexible and allows stakeholders participation in the decision making process (Saaty, 1983). The AHP may help the decision maker set priorities and make the best decision by reducing complex decisions to a series of pair wise comparisons, thus synthesizing the result. The AHP makes explicit the preferences that individuals hold for one objective relative to another (Whitman and Valdage, 2006). The AHP considers a set of criteria and a set of alternative options among which the best decision can be made. The AHP follows four steps:

1. Develop a hierarchy of interrelated decision elements describing the problem.
2. Perform pairwise comparisons of decision elements using a point weighing method. (Saaty, 2003).
3. Compute the relative weights of decision elements. A weight is generated for each criterion based on the decision maker’s pairwise comparisons of the criteria.
4. Determine criteria management options by ranking the criteria and decision options (Saaty, 2003). The higher the weight, the more important is the corresponding criterion.