Introduction

Peanut is an important crop in Mali and other countries in West Africa. One of the main problems is the occurrence of high levels of aflatoxin B1.

Aspergillus flavus contamination in grain poses a great threat to human and livestock health as well as international trade. The objectives of this study were to determine:

1) The rate of progress of the aflatoxin B1 in rice granaries located in 26 villages and in the granaries located in the corresponding 26 markets.
2) The association between aflatoxin B1 with environmental variables outside the peanut granaries.

Materials and Methods

Peanut samples were collected every three months from 26 granaries located in villages and from 26 granaries located at local markets for Aspergillus flavus and aflatoxin B1 determination for the periods 1999/2000, 2000/2001 and 2001/2002. The aflatoxin B1 was determined by the ELISA test developed by ICRISAT.

Results

In Mali, the rainy season starts in May and ends in October (Figure 1). The highest temperatures occur in April and the lowest in July and August. The aflatoxin B1 levels were low in February for all granaries. There was a consistent increase in aflatoxin B1 from April to December for the villages and market granaries, reaching levels above the international standard (20 ppb) (Figures 2).

The granaries located at the market showed higher values of aflatoxin B1 than the granaries located at the villages. The correlation coefficient (r) between the average number of Aspergillus flavus in the village's granaries and the aflatoxin B1 amount was 0.85, 0.83 and 0.85 for years 1999, 2000 and 2001, respectively. This indicated that on average, the infection with Aspergillus flavus was related to the presence of aflatoxin B1 in the granaries for the three years of the experiment.

The storage conditions should be improved in order to decrease the infection with Aspergillus flavus.

Conclusions

Peanut stored in rural areas are highly contaminated by aflatoxin B1 with levels significantly above the accepted international standards especially between the months of June and December.

One village (Tiele) had very high aflatoxin B1 levels in the granaries for the three years of the experiment. This indicated that on average, the infection with Aspergillus flavus was related to the presence of aflatoxin B1 in the granaries for the three years of the experiment.

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