ABSTRACT

Legume Seed Quality in Jamaica.

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Bean, cowpea and groundnut seeds collected from six parishes in Jamaica during 1989 and 1990 were assessed for seed-borne fungi, germinability and crude protein content before and after storage for various lengths of time in different environments.

Thirty-nine species of fungi representing 20 genera were detected, 38, 22 and 14 species being from beans, cowpeas and groundnuts, respectively. Most abundant were *Penicillium citrinum* at 32%, 16% and 57%, *Fusarium pallidoroseum* at 8%, 23% and 0.8% and *Cladosporium cladosporoides* at 32%, 13% and 0.6% in beans, cowpeas and groundnuts, respectively. Twenty-eight of the fungi in beans, 27 in cowpeas and nine in groundnuts, including *Botryodiplodia theobromae, F. solani, Aspergillus flavus, Colletotrichum* spp. and *Phomopsis* sp., occurred in less than 4% of the seeds. Occurrence of the other fungi detected, including *Aspergillus* spp., *Alternaria alternata* and *Macrophomina phaseolina* ranged from 4.6% to 8%. Sixty-seven percent of the fungi isolated from component seed parts of beans occurred in the seed coats, 27% in the cotyledons and 6% in the embryonic axes. Germinability was 80% in beans, 61% in cowpeas and 31% in groundnuts. Normal, mature beans had a higher percentage germination than discoloured and distorted ones but the age of the seed did not always seem to be correlated with the level of fungal infection or germinability.

Decreases in germinability and increases in the occurrence of storage fungi were more pronounced in seeds stored at 28°C than at 5°C and in polythene than in paper bags at the former temperature. Crude protein content increased from 21.7% to 25.9% in beans and 25.6% to 28.6% in cowpeas during storage. The increases were greater for seeds stored at 5°C than for those stored at 28 °C and for longer rather than shorter periods of time. *A. oryzae* occurred most frequently in beans, *A. fischeri* in cowpeas and *A. niger* in groundnuts. Occurrence of *A. flavus* in beans ranged from 0 to 32%. After storage, one bean sample with a 2.2% incidence of *A. flavus* yielded aflatoxins at a level of 4 ppb.