

AFLATOXINS (Presumptive)

PRINCIPLE

Aspergillus flavus exhibits a characteristic bright greenish-yellow fluorescence (BGYF) when exposed to long wavelength ultraviolet light. A large sample of whole (or cracked) corn is viewed under an ultraviolet light in a darkened room or in a viewing cabinet, and the number of BGYF particles or kernels is counted and reported.

SCOPE

This "Black Light" procedure is intended for application to whole or cracked corn, as a screening test and provides presumptive evidence only (Note 1).

SPECIAL APPARATUS

Viewing Cabinet: The cabinet should be equipped with a long wavelength (366 nm) ultraviolet light. It should be sufficiently large to accommodate large corn samples conveniently and construction should preclude the entrance of visible light. Satisfactory viewing cabinets are available from several suppliers or can be built from readily available components (Figure 1, Example of Viewing Cabinet; Fisher Scientific or equivalent).

REAGENTS

BGYF Standard: Tinopal BHF (Ciba Geigy Corp., Greensboro, NC 27409) or Blak-Ray Green Fluorescing Crayon (Ultra Violet Products, Inc., 510 Walnut Grove Ave., San Gabriel, CA 91778)

PROCEDURE

Distribute a sample of corn (**verify how much w/ GIPSA**) in a single layer of kernels under the ultraviolet light in the viewing cabinet; spread smaller portions, but use the entire sample, if the cabinet does not accommodate the sample as received. Compare the fluorescence of contaminated kernels with that of the standards under long wavelength ultraviolet light; count and report all particles or kernels exhibiting BGYF (Notes 2 & 3).

AFLATOXINS (Presumptive) — continued**CALCULATION**

Report the total number of BGYF particles or kernels in a 10 pound sample.

NOTES AND PRECAUTIONS

1. Numerical counts have been correlated with quantitative results obtained by minicolumn and thin layer chromatography. Information published in *Cereal Chemistry*, Vol. 55, No. 6, 1978, pp. 1065-7, reported that corn samples containing no more than 18 BGYF particles per 10 pounds, by this procedure; seldom contained more than 20 ppb aflatoxins, when analyzed quantitatively by minicolumn and/or thin layer chromatography.
2. Wear protective goggles that filter out ultraviolet light; this reduces eye strain and prevents eye damage from long exposure.
3. Cob tips, glumes (bee's wings) and soybeans without seed coats may fluoresce yellow, and therefore should be compared with the standard.

REFERENCE

“Aflatoxin-Presumptive Test,” Method 45-15, *American Association of Cereal Chemists*. Re-approved November 1999, 10th Edition, 2003.

METHOD HISTORY

Corn, Aflatoxin (Presumptive) (A-5), Date of Acceptance 10-10-1985, Revised 12-08-2006.

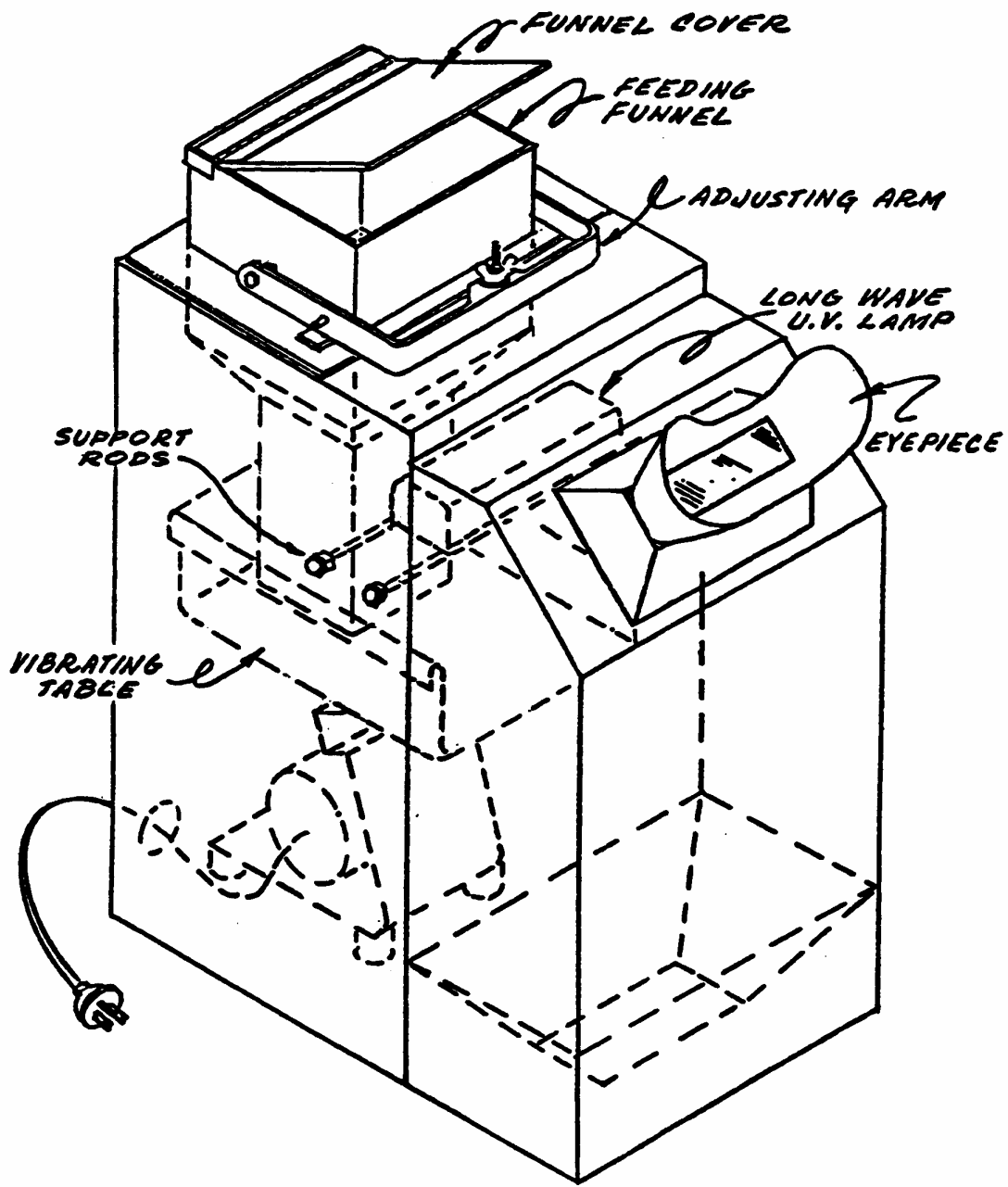


Figure 1