Date: 08/05/2026
Subject: Identification of Entomological Filth Elements Isolated from Food Samples During Filth Analyses

Dear Members of the Commercial Scientific and Testing Laboratory Industry:

This letter is directed to laboratories involved in performing filth analyses. It has come to the attention of the U.S. Food and Drug Administration (FDA) that there may be some confusion or inconsistency in the industry regarding the need for laboratories to identify isolated entomological filth elements to the lowest taxonomic level possible. This communication restates current FDA policy and explains our rationale for including entomological identification when performing filth analyses.

FDA recognizes that a food commodity in the field is more likely to be susceptible to the attack of many pests than it is after harvest or during storage. During its movement from farm to processor and through distribution channels, environmental conditions surrounding the commodity change significantly, which may provide conditions for different species of organisms to challenge the product's integrity. Therefore, the identification of entomological filth elements is important because it provides clues to discern the potential origin of the presence of pest(s) in a particular food sample. For example, insect identification helps to discern if the presence of that insect originated in the field (i.e., field pests or pests of field crops) or if it is a pest that attacked the food product after harvest or during storage (i.e., storage pests). Therefore, identification of entomological filth elements that are isolated from a food sample provides important etiological information.

FDA's Food Defect Levels provide the current maximum levels for defects in food that are natural or unavoidable under good manufacturing practices. These levels apply mainly to contaminants originating in raw agricultural products that pose no inherent hazard to human health. These levels were set because it is FDA's position that pesticides are not the alternative to preventing natural or unavoidable defects. The use of chemical substances to control insects, rodents, and other natural contaminants has little, if any, impact on natural and unavoidable defects in foods.

The goal of the analyst performing taxonomic identification is to work a specimen down the classification hierarchy as far as possible, arriving at the least inclusive taxon to which the specimen can be reliably assigned. Thus, the analyst includes species level identification whenever morphological characters and other key features that are present in insect fragments, whole/equivalent insects, or other filth elements will allow it. Analysts performing identification of filth elements isolated from food need to have proper training to achieve the maximum and most accurate taxonomic level of identification possible.

There are many references available to assist with the identification of entomological filth elements. Below are some references that provide further information on this topic and some examples of references that may be useful for identifying entomological filth elements isolated from a food sample to the lowest taxonomical level possible.

- Gorham, J. R. (Ed.). (1981). Principles of Food Analysis for Filth, Decomposition, and Foreign Matter, FDA Technical Bulletin No. 1.
- Gorham, J. R. (Ed.). (1977). Training Manual for Analytical Entomology in the Food Industry,
- FDA Technical Bulletin No. 2.
- Olsen, A.L., Sidebottom, T.H, and Knight, S.A. (Eds.) (1996). Fundamentals of Microanalytical Entomology: A Practical Guide to Detecting and Identifying Filth in Foods. 1st Edition
- Micro-Analytical Biology Workbook for Food Sanitation Control Analysts (Volume I & Volume II), by Don J. Vail, Jr., Entomologist
- Macroanalytical Procedures Manual (MPM)
- ORA Laboratory Manual, Vol. IV, Sec. 4, Microanalytical and Filth Analysis
- Defect Action Levels (DALs)
- CPG Sec 555.600 Filth from Insects, Rodents, and Other Pests in Foods
- AOAC Official Method 970.66 Light and Heavy Filth, General
- Jackson, M.M. et al. 1958. "Identification of Stored Product Insects by the Micromorphology of the Exoskeleton. VI. Adult and Larval Beetle Mandible." *Journal of the AOAC* 41(2): 460-471.
- Peace, D.M. 1985. Key for the Identification of Mandibles of Stored-Food Insects. Association of Official Analytical Chemists, Inc. Arlington, VA. ISBN 0-935584-32-3.

In closing, FDA thanks members of the commercial scientific and testing laboratory industry for your continued efforts to perform rigorous analytical work to help ensure the safety of the food supply in the United States.

Sincerely,

Terri McConnell
Director, Division of Science Program Coordination
Office of Regulatory Testing & Surveillance (ORTS)
Office of Laboratory Operations & Applied Science (OLOAS)
Human Foods Program (HFP)
U.S. Food and Drug Administration (FDA)