

Sampling Ingredients/Feed and Surfaces for Biological Hazards

Due to the ubiquitous nature of biological hazards, such as bacteria and viruses, and sensitivity of the PCR tests, it is important to minimize potential for cross contamination when sampling feed or feed ingredients.

- Suggested surfaces to swab or feed/ingredient samples to collect:
 - Feed/ingredient samples
 - Finished feed (3 samples - one from each of three different diets)
 - Any 'high risk' ingredient concerned about, particularly the dust from inside a tote or bulk feed container.
 - Swabs
 - Receiving pit grates (3 swabs - one from each the front, middle, rear of pit), swab the top surface and sides of grates.
 - Liquid fat hose or inlet (1 swab)
 - Load-out discharge or sock (1 swab)
 - Interior of finished feed bin, preferably from discharge area (1 swab)
 - Pellet mill air intake (1 swab)
 - Inside dust collection system (1 swab)
 - Floor in highest traffic area of receiving area, such as where drivers exit trucks, or employees walk to observe unloading (1 swab)
 - Floor in highest traffic area of manufacturing area, such as where hand-adds are mixed or added or near sample ports (1 swab)
 - Floor in highest traffic area of control room (1 swab)
 - Floor in highest traffic area of warehouse (1 swab)
 - Bristle from most frequently used broom (1 swab)
 - Shoe bottoms from employee who walks the most in the mill (typically mill manager or supervisor; 1 swab)
- Methods for feed sampling (based on AAFCO Feed Inspector's Manual)
 - Materials needed for each sample:
 - Clean disposable gloves, sterile transfer utensil such as a cup, sterile whirl-pak bag
 - Wear clean disposable gloves and use aseptic technique. Change gloves between each sample.
 - **Packages** – External surface should be wiped with a bleach wipe (12 oz/gallon). Use sterile whirl-pak bag. (If whirl-pak bags are not available, use 2 sterile disposable cups (250 ml/8 oz) per sample. Open package in such a manner to permit withdrawal of sample without contacting packaging material. Use a separate sterile transfer utensil for each sample, to transfer product from container to whirl- pak bag. Fill bags a maximum of 2/3 full.
 - **Bulk** - Use sterile whirl-pak bag. (If whirl-pak bags not available, use 2 sterile disposable 250/ml/8oz cups per sample. Take 5 well-spaced sub-samples directly by scooping from the lot with sterile sampling cup or by passing sterile sampling cup or whirl-pak through the stream of a lot being transferred into or out of a storage bin. If using sampling cup, transfer sub-samples to whirl-pak bag. Close bag immediately.

- Methods for environmental swabbing (based on USDA FSIS guidelines)
 - Materials needed for each sample:
 - Pre-sterilized sponges in 10 mL neutralizing buffer with gloves (suggested: 3M™ Sponge-Stick with 10 mL Neutralizing Buffer and Gloves SSL10NB2G such as those at https://www.3m.com/3M/en_US/company-us/all-3m-products/~//SPGESTK-3M-Sponge-Sticks/?N=5002385+3293785595&rt=rud)
 - From drop-down menu, select ‘Enterobacteriaceae’ as the microorganism, ‘Neutralizing Buffer’ as the Media Type, and ‘Gloves’ in the Includes section.
 - Wash hands
 - Put on sterile gloves
 - Use hand sanitizer on gloved hands
 - Open bag containing pre-sterilized sponge
 - If not already in bag, pour neutralizing broth into bag to hydrate sponge
 - Close bag and moisten sponge by squeezing the outside of the bag
 - Squeeze excess broth from sponge
 - Remove sponge from bag
 - Swab area of interest.
 - Size of swab location
 - For yes/no or semi quantitative, target an area that is approximately 10 cm²
 - If needing quantitative data, swab 10 cm² using a sterilized template
 - Swab technique
 - Swab area vertically 10 times, turn swab to other side and swab horizontally 10 times, turn swab back to original side and swab diagonally 10 times.
 - Open bag and place sponge back inside.
 - If desired, snap off stick portion and dispose.
 - Squeeze air out of bag, fold at least 3 times, fold tabs to hold in place
 - Do NOT twist flaps together.
 - Label bag with the date, mill, location of sample collection
 - Place sample bag in pre-chilled cooler with ice.
 - Remove gloves.
 - Repeat for each sample. A new set of gloves should be used for each sample.
 - Send samples overnight for laboratory analysis.



Suggested analyses:

- General risk of biosecurity: Enterobacteriaceae family via bacterial culture (apx. \$15/sample)
 - Note - request that samples are enriched prior to analysis, which typically costs apx. \$10 extra.
 - If interested specifically in *Salmonella* spp., most can do this by bacterial culture or PCR.
- PEDV/deltacoronavirus by qRT-PCR (apx. \$25/sample)
- Senecavirus A via PCR (apx. \$25/sample)