Technical Services Testing Capabilities

Laboratory–Based Challenge Studies

- Growth Inhibition Studies: Artificial inoculation of foods with pathogenic or spoilage microorganisms to track outgrowth during product storage; USP 51 antimicrobial effectiveness studies; Antimicrobial ingredient minimum inhibitory concentration studies.
- Inactivation Studies: Validation of chemical dip and spray interventions against pathogenic or spoilage microorganisms artificially inoculated onto food product surfaces; Validation of thermal treatment conditions (baking, frying, kettle cooking, blanching) used to provide foodborne pathogen lethality; Determining the efficacy of chemical sanitizers against foodborne pathogens attached to environmental surfaces; Meat fermentation and drying procedure validation studies.
- Combination Studies: Determining the effectiveness of inactivation procedures used to provide foodborne pathogen lethality combined with tracking outgrowth during storage.

In–Plant Challenge Studies

- Inactivation Studies: Using non–pathogenic surrogate microorganisms to validate chemical dip and spray intervention efficacy; Using non–pathogenic surrogate microorganisms to validate thermal treatment conditions (baking, frying, kettle cooking, blanching) used to provide foodborne pathogen lethality.

Shelf Life Studies

- Cooler and Retail Display Case Refrigerated Storage Studies: Spoilage microorganism growth; Organoleptic evaluation; Chemical evaluation.
- Highly Controlled Temperature and Humidity Chamber Stability Studies: Spoilage microorganism growth; Organoleptic evaluation; Chemical evaluation.
- Room Temperature Ambient Storage Studies: Spoilage microorganism growth;
- Organoleptic evaluation; Chemical evaluation.
- Accelerated Shelf Life (Q10 Model) Storage Studies: Organoleptic evaluation; Chemical evaluation.

Data Collection and Modeling Studies

- Thermal Modeling Studies: Collection of thermal lethality device (oven, fryer, roaster etc.) temperature data and modeling to determine foodborne pathogen lethality.
- Environmental Condition Modeling Studies: Collection of environmental condition (temperature, moisture, pH) and indicator organism data and modeling to determine pathogen outgrowth in food plant environments.

In–Plant Assessments
- Contamination Sources: Foodborne pathogen harborage investigations; Spoilage organism source investigations; Sanitary dressing procedure evaluations.
- General Assessments: Environmental sampling site assessments; GMP evaluations; Sanitation evaluations.

Foreign Material Identification
- Visual Evaluation: Stereoscope; Microscope.
- Physical Evaluation: Solubility; Magnetic attraction.
- Fourier Transform Infrared Spectrometry: Purity indices; Database matches.

Microbial Identification and Subtyping
- REP–PCR Subtyping: Gram Positive bacteria; Gram Negative bacteria; Fungi.
- Bacterial Identification: Biochemical identification; 16S rRNA gene sequencing.
- Fungal Identification: Biochemical identification; 18S rRNA gene sequencing.

Testing Method Validation Studies
- AOAC International: Method developer studies; Single laboratory validation studies;
- Collaborative study participation.
- Health Canada: MFHPB validation studies.
- FSNS Internal Method Validations.
- USP Suitability and Preparatory Testing

Proficiency Testing Programs
- Microbiological Proficiency Testing Programs.
- Chemical Proficiency Testing Programs.

Bacterial Toxin Testing
- Staphylococcal Enterotoxins
- *Bacillus cereus* Diarrheal Enterotoxin