Study of Microbiological Criteria as Indicators of Process Control or Insanitary Conditions

NACMCF Plenary Session

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U.S. Army Veterinary Service

DoD Executive Agent

Our Customers and Our Focus

Animal Health and Human Health for Military Personnel and their Family Members

4.1 Million Military and Family Members

Globally Committed

83 Countries & 279 Duty Locations

Background (1 of 3)

- DOD procures food globally and has auditors evaluating processing conditions in food establishments
- Over the years, DOD has established their own standards to help auditors evaluate processing systems
- These standards need to be evaluated for their applicability to current processing conditions where the food is produced

Background (2 of 3)

- Microbiological criteria standards need to address all stages of the production and distribution process
- Food processors routinely use microbiological standards and certificates of conformance to evaluate individual components of RTE products that may be in the final product without further processing to inactivate biological hazards

Background (3 of 3)

- Traditional analytes may indicate insanitary conditions or poor process control
- U.S. and international regulatory food agencies have developed microbiological criteria but there is no consensus of acceptable micro levels in the U.S.
- NACMCF's guidance on the role of microbiological or other indicators to evaluate raw materials or product components in food establishments would greatly support food safety initiatives

Question 1

Describe process and important considerations that could be used to develop a microbiological criterion for a particular product (e.g., ground beef, RTE sliced luncheon meat) at various points in the process that might indicate poor process control and/or insanitary conditions. Describe how the processes and considerations could differ in other regions of the world where processing conditions may make certain indicators or levels of indicators more or less appropriate.

Question 2

At the point of production, how many *Staphylococcus aureus, Bacillus cereus*, generic *E. coli*, coliforms, *Enterobacteriaceae*, enterococci, and/or gas-forming anaerobes in RTE finished products might indicate: a) a possible process control problem or insanitary conditions, or b) potentially hazardous products unfit for distribution? How might the levels and applicability of these criteria vary between different RTE products (e.g., processed meat, poultry, egg products, refrigerated meat/poultry salads, and bagged leafy green salads)?

Question 3

At the point of production, what level of mesophilic aerobic plate count in RTE finished products and in non-intact raw meat and poultry products might indicate a possible process control problem or insanitary conditions? How might these criteria vary between different RTE products (e.g., processed meat, poultry and egg products, refrigerated meat/poultry salads)? How these criteria vary between different non-intact raw products (e.g., beef trimmings vs. ground product)? How might these levels be expected to change during the expected shelf-life of the product?

Question 4

Are there other potential indicators (e.g., microbiological, biochemical or molecular parameters) of process control that should be considered? If so, how might these apply at various points in the process to major product categories (e.g., processed meat, poultry and egg products, bagged leafy green salads and refrigerated meat/poultry salads)?

Question 5

Discuss various sampling plans (e.g., International Commission on Microbiological Specifications for Foods 2 or 3 class plans) that may be applicable for the various analytes and products identified in the questions above. In the attached table, provide appropriate values [i.e., ranges (log CFU/g), categories (acceptable, marginal, unacceptable)] and if applicable, the recommended sampling plan.

Subcommittee Approach

1. Conduct a background review of General Principles and Guidelines established by other organizations for both process and product control
    a) Codex
    b) ICMSF
    c) NAS
    d) NACMCF
    e) FDA
    f) USDA (FSIS/AMS)
    g) DOD
    h) DOC (NOAA/NMFS)
    i) ISSC
    j) Industry
2. Review current DOD microbiological criteria
3. Address NACMCF's charge questions, incorporating current practices

Questions?