

Sampling for Defensible Decisions: Florida Department of Agriculture and Consumer Services Pilot

Guidance on Obtaining Defensible Samples (*GOODSamples*)

In August 2016, the Florida Department of Agriculture and Consumer Services hosted a four-day training for 20 food safety professionals from a variety of functions within the Department. These professionals represented

- Inspectors (manufacturing facility, grocery retail, aquaculture farming and seafood processing),
- Laboratory personnel (microbiologists, chemists),
- Management personnel.

Professionals from all different segments of food safety not only heard the same sampling message, but also could better understand and discuss the challenges of their colleagues.

Topics covered in this course included the following:

Sample quality criteria: The diversity of the group was especially useful because the definition of the question to be answered and the decision unit were often revisited as the group



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introduced different types of sampling and how they should be addressed. A course can often be so theoretical that it is difficult to apply the concepts. With this course, the students were able to stop and discuss their specific types of sampling and more clearly identify the purpose for their sampling, the decision unit, and how a sample must be taken to be statistically relevant for their purpose.

Theory of Sampling (TOS): Although the course was based on the *Theory of Sampling* by Pierre Gy, it was custom designed to address the specific needs of the students. For example, many food samples are finite element materials that can be collected as individual units (e.g., tomatoes, cans of tuna, and swabs for microbiological contamination). If properly collected randomly, traditional statistics can be applied. The difference between collection of these types of materials and infinite element materials (e.g., hamburger, cheese, and spices) was discussed with multiple examples taken directly from the students' work.



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Laboratory preparation and mass reduction to yield an analytical sample and test portion:

Analytical scientists spend their careers trying to reduce error and prevent bias, and it is quite a revelation to realize how very simple preparatory steps can contribute to error in the final result. Monies are now being directed toward procurement of appropriate equipment to improve sample preparation procedures.

Additional course topics included **material properties, sampling statistics, sampling tools, development of sampling protocols, and the maintaining of sample integrity.**

GOODSamples is proving to be effective! I foresee investing in efficient blenders in the future and changing our sampling procedures processes. —Patty Lewandowski

The most important outcome of the *GOODSamples* course is the development of sampling relationships built on a common understanding of the theory. It is easier to implement changes when the process of making defensible decisions is recognized by the entire organization. In the Florida class, many decisions were reached before students left to resume their work. Many projects are now underway at the Florida Department of Agriculture, demonstrating the impact of *GOODSamples*.

Current Sampling Project Underway as a Result of the Florida Pilot Project

The Florida Department of Agriculture and Consumer Services Microbiology Department is undertaking a yearlong project evaluating preparation of laboratory samples prior to removing the analytical portion to improve accuracy in detection of microbiological contamination.

This recall was a result of all your efforts but the Listeria [monocytogenes] would not have been identified if we were not doing the blending project! —Patricia Hanson

Preliminary results on preparing ice cream and frozen vegetable samples for *Listeria monocytogenes* testing show that improved preparation of laboratory samples prior to taking an analytical portion increases the probability of detecting microbiological contamination by correcting a bias toward negative results. Additional food matrices and target analytes will be evaluated in 2017.

