Sampling for Defensible Decisions: Minnesota Department of Agriculture Pilot

Guidance on Obtaining Defensible Samples (*GOODSamples*)

In April 2016, the Minnesota Department of Agriculture (MDA) hosted a four-day training for 20 food and feed safety professionals, which included

- Inspectors and field staff,
- Compliance officers,
- Laboratory analysts, and
- Supervisors and managers.

The MDA wanted to participate in the *GOODSamples* training pilot to create a solid framework for all the different sampling programs and objectives in which our regulatory agency engages: surveillance (non-targeted), investigational, and enforcement-related sampling.

The challenges focused on were pesticide misuse and finished product testing following positive findings. In both cases, our agency is responsible for determining whether food intended for commerce is potentially adulterated and unsafe to consume. The *GOODSamples* training provided us the keys to unlocking what had been a mysterious "black box" of sampling protocol.

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This course provides a common language and approach for making decisions based on analytical results. The key to this course's success is having all stakeholders in the agency involved in developing the Sample Quality Criteria and the sampling protocol.

—Carrie Rigdon

A fundamental concept is the Decision Unit: the material from which sample is collected and to which inference is made. For example, during testing of finished product, the decision unit may be each gram of food produced, each container of food produced, or the entire production run.

I gained a new understanding and appreciation of the challenges associated with collecting the samples that we analyze. Perhaps more importantly, it gave me insight into potential new sampling strategies and how they may affect the laboratory workload.

—Matt Forstner

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For this pilot training, we invited all of the sampling agency's stakeholders to put this **GOODSamples** *approach to the test, and it passed with flying colors! Each participant brought a different viewpoint that enriched the collective learning process. We now can better pose the questions we want to answer and better understand what the analytical data can—and cannot—represent.*

—Carrie Rigdon

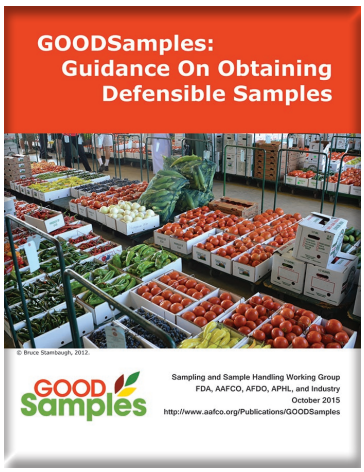
Each decision unit has its own requirements for proper collection of a representative sample and what inferences can be made. Our agency discovered that there can be different decision units depending on the analyte of concern; for example, a pathogen, such as *Salmonella,* has an acute risk of illness compared with a pesticide, which has a risk that is chronic.

Pilot Highlights

- Training emphasized the importance of defining sample quality criteria as a first step in any investigation.
- Training provides a systematic method to develop a sampling protocol that meets program needs.
- Training provides an understanding of error and the degree of confidence in analytical results.

One Application of the Minnesota Pilot Project

Shortly after our *GOODSamples* training, we were faced with a problem that needed a sampling solution. Samples from a sliced, packaged produce manufacturer indicated that *Listeria monocytogenes* was present in their manufacturing environment. But there was insufficient information to tell us whether any finished product in the marketplace was contaminated.



In the past we would have sent most of our inspection staff out to collect retail samples, but were always unsure if we did enough sampling. This time, we used our *GOODSamples* training to assess our options based on sample quality criteria. We consulted with the laboratory and the inspection supervisors to devise our sampling protocol.

We determined that fewer inspectors could collect fewer samples and still be quite confident the data would provide for a defensible decision. In the end, no *Listeria* was found and we had confidence that the likelihood of widespread contamination was very small. We were able to accomplish our objective with less staff time and fewer laboratory costs—a win-win!

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