

## Proper performance of manual sampling of a combo containing 2000-lb of beef trimmings using a MicroTally swab.

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### Introduction

- The goal is to sample as much of the trim on top of the combo as possible using both hands with an aggressive, vigorous technique of scrubbing the MicroTally swab across the trim pieces front to back and side to side and pushing the swab down in between and around meat pieces to maximize the amount of meat trim sampled with the swab.
- The sampling process should be for a minimum of 90 seconds. If longer is needed to get a good sample of all the trim on top of the combo then go ahead and sample longer.
- The most likely pitfall is personnel collecting the samples not being aggressive enough in sampling. The sampling must be vigorous enough so that any contamination that might be on the meat is transferred to the MicroTally swab.

### Procedure

1. Assemble appropriate sampling supplies. Remove the perforated top from the MicroTally bag.
2. Put on plastic sleeves and gloves and sanitize appropriately. Use alcohol sanitizer **without** quat (equivalent to Alpet D2 **Quat-Free** (Green lettering, not purple; Best Sanitizers, Penn Valley, CA)).
3. Ensure there is no excess sanitizer on gloves before handling the MicroTally swab.
4. Do not touch anything aside from the combo liner, meat, MicroTally bag, and MicroTally swab.
5. Pull back the poly liner from the combo to expose the entire surface of the meat contained in the combo.
6. Designate a sampling location on the combo to begin and end sampling.
7. Remove the MicroTally swab from the sample bag. Use both hands to vigorously scrub the beef trimmings with the unfolded swab.
8. During sampling you should scrub the top surface of the beef trimmings and drive the MicroTally swab into the crevices between the trimmings to sample as much surface area as possible. There are two acceptable sampling techniques:
  - a. Using one side of the MSD swab, sample one half of the meat exposed on the top surface of the combo using a combination of surface swabbing and pushing the MicroTally swab into the crevices and working around half of the circumference of the combo in 45 seconds. Make sure to use enough pressure to ensure that any bacteria present are dislodged from the product and captured within the swab. Flip the MicroTally swab over to the other side and sample the remaining half of the top surface of the combo in a similar fashion for another 45 seconds. Sample collection is conducted for at least 90 seconds total time for the combo.

- b. Sample the entire top surface of the combo for 45 seconds using a surface swabbing technique and working around the entire circumference of the combo. For the next 45 seconds, flip the MicroTally swab over and push the swab material down in between pieces of trim/primal while again working around the entire circumference of the combo. Total sample collection time should be at least 90 seconds.
9. You will use all of one side of the MicroTally swab for sampling each 45-second sampling of the combo surface.
10. Use a readily visible timer to facilitate proper sampling time. It may be best to have a second person monitor the timer to ensure proper sampling duration.
11. The total sampling time will be no less than 90 seconds, so pace yourself to work around the combo and reach the starting location by 90 seconds. If longer is needed to get a good sample of all the trim on top of the combo then go ahead and sample longer. The 90 second minimum is for actual sampling time, if sampling is delayed for some reason (to move around the combo because other combos are in the way or someone comes by to talk to the sampler, etc) the timer should be stopped until sampling resumes (or extra time added at the end to compensate).
12. Again, make sure to scrub the top surface of the beef trimmings and drive the MicroTally swab into the crevices between the trimmings to sample as much surface area as possible.
13. When sampling is complete, refold the MicroTally swab and return to original bag. Close and label the sample bag.
14. Weigh the sample and record for monitoring sample consistency.
15. Send samples to lab for processing.

Note: Placing ice blocks directly against the MicroTally samples can cause some localized freezing of the MicroTally samples. Put a layer of cardboard between the swab samples and the ice packs.
16. If not collected already, the lab should tare a scale to an unused sample bag and swab then weigh each sampled swab and bag. A baseline of sample weights should be kept to ensure samples are consistently obtaining similar weights. This weight along with a two-person timing system can be the basis for a verification program (see below).
17. Following weighing, add 200 ml of bacterial growth media to the sample bag containing the swab and stomach for at least 30 sec. Ensure swab is pushed to the bottom of the bag.
18. Remove aliquots for enumeration of indicator counts and pathogens as needed. Incubate remaining sample enrichment.
19. Sample enrichment incubation times and temperatures will be in accordance with pathogen detection test platform validation procedures.

The above procedure is to ensure that the method is carried out properly in each plant that chooses to implement the technology. An MSD demonstration video can be found at <https://www.fremonta.com/microtally>.

### **Best practices for the MSD**

- Dry ice should not be applied to the top 6 inches of the combo. If the top layer of beef trimmings in the combo are frozen with dry ice it will lead to inefficient sample collection with the MSD and may damage the samplers' hands.
- A horseshoe-shaped platform at the appropriate height is recommended to ensure team members are able to access the entire top surface of the combo.

### **Verification of MSD sampling**

As with the previous beef trim sampling methods (N60 excision and N60 plus), steps should be taken to verify that the MSD sample is consistently collected in a proper manner. Procedures to be used in MSD verification likely will include one or more of the following procedures.

1. **Two-person sampling.** While one team member is sampling the combo, an independent team member completes 100% verification at the sampling station by ensuring that the correct time of active sampling is attained with a stopwatch and assuring proper technique is followed. Both team members are responsible for the accuracy of the sample.  
Note: The method of timing should be accurate, readily visible, and have the ability to stop and start during the sampling to accommodate breaks in sampling for repositioning of the sampler. Actual sample collection should be performed for a minimum of 90 seconds.
2. **Video or unannounced monitoring and oversight.** Direct Observation via Camera System or an inconspicuous observer – At a defined frequency, trained personnel complete a direct observation of sampling technique (duration, pressure) in an unbiased manner via surveillance cameras or inconspicuous observer to verify that the combo is being sampled for a minimum of 90 seconds and that the employee vigorously sampled the entire surface of the combo.
3. **Sample weight baseline.** Each plant should record the weights of each MSD MicroTally swab for continuous improvement programs. The results of weighing each sample before shipping can be used to verify that the MSD sample collection procedure was performed adequately. Matching sample weights to employee will identify samplers who are consistently collecting low weight samples and may be in need of additional training.  
Note: samples weights will vary depending on lean point of the product sampled, hence baseline weights should be categorized by lean type.