

Supporting HACCP Decisions

Dr. Dennis Buege, Extension Meat Scientist

Supporting Decisions on the Frequency of:

- monitoring a CCP
- observing a monitoring measurement being taken (verification)
- calibrating thermometers (verification)
- reviewing records (verification)

Situation: Inspection programs are asking for your justification for the frequency at which you perform certain tasks associated with your HACCP program.

Solution: You need to prepare simple statements explaining why you decided on the frequencies of observations you chose. These decisions should be based upon: 1) your record of results in previous observations, and 2) your own good common sense and good judgment.

You need to consider several factors in deciding on frequencies:

- how can you minimize the number of observations you make, while yet assuring food safety control for your process.
- what is the risk that the system could unexpectedly be found greatly out of control, questioning the safety of product produced since the last observation.
- what is the seriousness of the hazard if the observation is a deviation.

(What is your limit of comfort in balancing these factors)

Buege's "Progressive Evidence Approach":

1. At start-up of a process or activity, take frequent measurements to determine your usual values, and the amount of variability among values.
2. After collecting observations, review your information to set your frequency.
3. Write down simply how your observations led you to decide on the frequency of an activity.
4. Continue to make observations at the frequency you set. This progressively adds to the body of evidence.
5. Based upon your findings over time, your future frequency of observations may stay the same, decrease or increase in frequency.

Examples:

1. Raw - Not Ground or Raw-Ground Product
CCP: measure internal product temperature at packaging
CL: < 50°F
See plant temperature data that follows:

Plant 1			Plant 2		
Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
41	40	42	43	39	41
43	42	39	47	45	46
39	38	40	39	49	44
40	41	42	49	42	49
42	44	41	47	48	47
44	43	44	46	51	45

What would be a reasonable frequency of monitoring this CCP throughout daily production?

Justification: "We have frequently monitored the meat temperature during processing, and found it to consistently be in the upper 30's and low 40's (see records). We daily monitor our cooler temperature and processing room temperature as an SOP. One measure of product temperature per day will be sufficient to document process control and compliance with our critical limit. If measurements over time change, we will revise this frequency."

Note: Records for Plant 2 suggest that Plant 2 may be having deviations and more frequent monitoring and corrective actions may be necessary.

(Other Considerations: the pathogen growth risk associated with raw meat is low. Most deviations could probably be determined to not pose a problem by use of the pathogen growth model. This is a different situation than with the cooking of a ready-to-eat product, where the consequence of undercooking could be much more severe, making monitoring of each batch essential.)

- Calibrating thermometers used to measure cooked product internal temperature. Calibrated against a certified thermometer in warm water. Results of one week of calibration:

Day	Certified Thermometer (°F)	Thermometer 1 (°F)	Thermometer 2 (°F)
1	158	158	157
2	163	163	163
3	159	159	154
4	156	157	159
5	154	154	154
6	160	160	157

How frequently would you recommend that these thermometers be calibrated?

Justification: "Frequent calibration checks on the thermometer (see records) demonstrated that it is highly reliable. Therefore, weekly calibration will be sufficient to ensure control of processing. If future results show a change in the reliability of the thermometer, this frequency may be changed."

3. Observing a monitoring procedure as part of a CCP verification.

Day	Monitoring Verification Checks	
	Plant 1 (2 people take measurements)	Plant 2 (10 people take measurements)
1	ok	ok
2	ok	- not doing correctly
3	ok	ok
4	ok	ok
5	ok	ok
6	ok	- not doing correctly

Justification: "This is a small operation, with only two individuals taking monitoring measurements. Those two people have worked in the plant for more than 10 years, thoroughly understand the monitoring procedure, and perform it frequently. Our records (attached) demonstrate no problem with how measurements are taken. Therefore, we will verify the measuring procedure once every three months for each individual."

Note: Plant 2 records suggest workers aren't consistently using correct monitoring procedures; more frequent verification and corrective actions may be necessary.

4. Reviewing records as part of a HACCP plan verification.

Verification of Records		
Day	Plant 1	Plant 2
1	ok - complete	- forgot initials at a CCP
2	ok - complete	- forgot to record cooler temp. SOP
3	ok - complete	- forgot pre-shipment review
4	forgot to date a measurement	- ok
5	ok - complete	- did not record thermometer calibration
6	ok - complete	- did not write down observation of monitoring

Justification: "Daily records review allows us to rapidly take any corrective actions before products enter commerce. We have never had to recall a product because of improper record keeping."

Note: Plant 2 records show that workers need to re-trained in record keeping. More frequent record review (verification) may also be necessary.

For more information contact:

Steve Ingham, Extension Food Safety Specialist (608) 265-4801, scingham@wisc.edu

Dennis Buege, Extension Meat Scientist (608) 262-0555, drbuege@wisc.edu

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The University of Wisconsin-Madison Center for Meat Process Validation provides science-based HACCP support to small meat processors in meeting state and federal mandates for safe food processing and handling.