

GUIDE TO NMPAN'S MODEL HACCP PLAN, SSOPS, AND SOPS FOR MOBILE SLAUGHTER UNITS

This guide to NMPAN's model HACCP plan, SSOPs, and SOPs for a mobile slaughter unit provides instructions on how to use these model plans, as well as explanations of specific plan elements.

The plans themselves should be as simple as possible. For example, you must be able to provide adequate justification for all elements of your HACCP plan, such as identification of what is and is not a hazard and how you will address hazards. Justification documents must be in your files (e.g. a copy of the research paper describing why your specific hazard intervention works) but is typically not written in the HACCP plan itself.

Our model plans have been reviewed by food safety experts, HACCP experts, and policy staff from USDA's Food Safety Inspection Service. **But remember: they are MODELS.** You must adapt them to your specific operation. Don't just cut and paste.

If you have not yet taken HACCP training, required by FSIS, some terms in our plans may be confusing. FSIS, The HACCP Alliance, and others offer many resources you can consult until you go through training.

HACCP Model Plan

The model HACCP plan has four parts:

- Front Matter: title/signature page; revision records; process category description
- Process Flow Diagram
- Hazard Analysis Form
- Critical Control Points

Title/signature page (p. 1): fill in your MSU's information. Your plan should be signed by your MSU's HACCP coordinator (not the state HACCP coordinator).

Process category description (p. 3): Adjust the answers per your specific operation. Create a similar page for each species slaughtered, noting differences. It is fine to use "harvest" instead of "slaughter."

Because this HACCP plan is for the MSU, this page should refer only to what happens at the MSU. For example, "labeling" doesn't include what will happen at the cut and wrap.

Process Flow Diagram (p. 4): Delete all steps that are NOT part of your process and add any steps not already shown, making make sure to assign each new step a number/renumber as necessary.

Be aware that if the "mechanical; gunshot" method is used for slaughter, the head is condemned, and the tongue is the only portion of the head considered edible under this HACCP plan.

Hazard Analysis Form (pp. 5-14)

Instructions:

1. Make sure that every step shown on the Process Flow Diagram is included in the Hazard Analysis Form and that the numbers match.
2. Check the three categories of hazard (Chemical, Physical, Biological) shown for each step.
 - a) If you think a listed hazard is not reasonably likely to occur at that process step, leave it in column 2 (Food Safety Hazard) and enter "No" in column 3 (Reasonably likely to occur?). You are not required to list your reason for "No" in column 4 (Basis). However, you must be able to provide documentation for why you believe the hazard is not likely to occur. The one hazard for which it is prudent to provide a basis even when answering "no" is prions, because of heightened concern about them.
 - b) If you think that a relevant hazard should be added at a step, describe the hazard in column 2 (Food Safety Hazard). Then determine whether the hazard is reasonably likely to occur and put the answer in column 3. If you said "yes," provide your basis in column 4.
 - c) Column 5 can be left blank if a hazard is not reasonably likely to occur.
 - d) If the hazard is reasonably likely to occur: fill in columns 5 and 6.
 - e) In column 5, list measures that could be applied to prevent, eliminate, or reduce the hazard to an acceptable level. At least one of these measures must be either a Critical Control Point (CCP) at that step, or a CCP at a later step.
 - f) If the hazard is controlled by a CCP at that step, enter the CCP number in column 6.

Hazard Analysis Form Annotation

Here, we provide the basis for some of the "No" answers we gave in column 3 of our model plan.

Step 1: Animal Receiving

- Chemical: Chemical residues are not likely, because producer will certify suitability of animal for slaughter including absence of chemical residues by signing the Slaughter Log saying they have documentation. There is a low risk of antibiotic and pesticide residues in meat according to USDA's Residue Monitoring Program.
- Physical: Visual observation for foreign materials during processing and inspection of equipment during cleaning make physical hazards unlikely. There is a low incidence of occurrence.
- Biological – prions: Though we said "no," we did provide a basis – SOP-4, our SRM plan – because of concern over this issue. Non-ambulatory animals and downer animals are not accepted for slaughter, per 9 CFR 309.3(e). FSIS data indicate that BSE has occurred in very few downer cows in the U.S.

Step 3: Bleeding

- Chemical: No chemical substances unsuited to food processing are introduced during the slaughter process.
- Physical: Animals slaughtered with gunshot will have heads condemned.
- Biological – pathogens: The bleeding process punctures the animal's hide and may transfer pathogens. However, the sticking knife will be heat-sanitized prior to sticking. Visible contamination in neck area will be avoided or trimmed off before cutting through the hide.

Step 10: Splitting

- Physical: Visual observation for foreign materials during processing and inspection of equipment during cleaning make hazard unlikely.

Step 13: Organic Acid Spray

- Chemical – excessive acid: SOP-2 for preparing organic acid spray and SSOP-1 Log to monitor pH levels together make hazard unlikely. Organic acid used is food-grade.

A note about pH v. titration:

Our model plan uses pH to monitor acidity, a decision validated by PSU 2005.¹ Another option, used by one MSU, is to titrate the original acid (each 50 gallon drum purchased), because pH is not an exact indicator. However, some experts recommend pH as easier for a small and/or mobile plant to manage.

Bottom line: whether you use titration or pH or temperature, you must have documentation to validate your choice. E.g. if you use pH, you can use the PSU study for back up, as long as you follow their methodology.

Step 11: Zero Tolerance Trim

This step is required by federal regulation, and many plants make it a CCP. However, it is not required to be a CCP, and we have chosen not to make it one. You will have to decide what is best for your MSU.

Step 14: Transfer to cooler:

- Biological – pathogens: Pathogens are adequately controlled by the final wash/organic acid spray. Carcasses are stored under refrigeration, and the cooler is monitored for proper ($\leq 40^{\circ}$ F) conditions, per SSOP-4 for final product storage, making growth of pathogens unlikely.

¹ Pennsylvania State University. 2005. Antimicrobial Spray Treatments for Red Meat Carcasses Processed in Very Small Meat Establishments. Available at: <http://foodsafety.psu.edu/movies/intervention%20booklet%202005.pdf>.

Step 15: Transport to processing facility

- Biological – whether species cross contamination is likely to occur depends on whether your MSU has more than one species in the cooler at one time. How you control this potential hazard will depend to some degree on your unit configuration.

Critical Control Points (p. 15)

Our model HACCP plan suggests one CCP. You must decide if this is appropriate for your MSU.

1. Examine the Critical Limits listed for the CCP and make sure that these are the limits that will work best in your MSU. The scientific documentation for our CCP is PSU 2005 (see footnote 1).
2. If you choose to add a new CCP, you will need to determine the scientifically valid Critical Limits to be used and obtain supporting scientific information. Your inspector and/or university extension specialists can help.
3. Examine the “Monitoring Procedures and Frequency” column for the CCP. You may change the procedure and/or the frequency, but we advise that you check with your inspector or a university extension specialist for help. You will also need to write down your reasoning for making the change and include this reasoning in your HACCP files.
4. Examine the “HACCP Records” column. If you use different forms for recordkeeping, please put the correct form title(s) in this column.
5. How often you verify (once per operation day, once per week) is up to you. However, you must be able to show that this is a reasonable frequency. If you choose to do additional verification activities, enter them in the “Verification Procedures and Frequency” column. Again, consult your inspector or university extension specialists for help.
6. Be sure to have a form to document corrective actions that you take. A corrective action form is included in this model.

Standard Operating Procedures (SOPs)

Our model has five SOPs and two monitoring logs. Adjust them to fit your operations.

Additional info/explanation:

SOP-1: Live Animal Receiving

Not all MSUs may require livestock owners to provide all of this information. This wording is suggested based on current practice among some MSUs. You can also use this form to record/verify production practices, for example, whether the animal is certified organic.

SOP-2: Organic Acid Spray Preparation and Use

Make sure you have validation documentation to back up your choice of acid & concentration. We focus on two types of organic acid – lactic and acetic – in our plan, but there are other options, including

peracetic acid and FreshBloom®, a mix of citric acid, ascorbic acid, and erythorbic acid. PSU recommends lactic acid primarily because of the smell, discoloration on carcass surfaces, and employee complaints associated with acetic acid.

SOP-3: Thermometer Calibration

This SOP is self-explanatory.

SOP-4: Procedures for Minimizing BSE Risks Associated with Specified Risk Materials

This SOP, because it is specific to the MSU, does not have to explain the details of how SRMs are handled during further processing at the cut and wrap facility. However, if you slaughter cattle 30 months of age or older, this SOP must say that (a) those cattle will be kept separate from younger cattle during chilling and transport, and (b) the remaining SRMs (vertebral column) will be removed at the cut and wrap facility. The point is that you must account for all SRMs.

SOP-5: Generic E.coli Testing Plan

This SOP is self-explanatory.

Sanitary Standard Operating Procedures (SSOPs)

Our model has a general information page and five SSOPs. Adjust them to fit your operations. We also include a monitoring log for each SSOP and a sample Deficiency/Corrective Action log.

- General information page with revision/reassessment signature table
- SSOP-1: Pre-operational sanitation
- SSOP-2: Potable water
- SSOP-3: Operational sanitation
- SSOP-4: Cooler, carcass, and edible offal temperature monitoring
- SSOP-5: Waste water, dust, and fly management

Additional info/explanation:

SSOP-3: Operational sanitation

By “as necessary” we mean when contamination occurs. For example, if an intestine ruptures during evisceration, then all equipment contacted must be cleaned with 180° F water. (Carcass areas should be trimmed clean.)

FSIS Directive 6410.1, “Verifying Sanitary Dressing and Process Control Procedures in Slaughter Operations of Cattle of Any Age,” provides useful guidance on effective sanitary dressing procedures: <http://www.fsis.usda.gov/OPPDE/rdad/FSISDirectives/6410.1.pdf>

Chemical sanitizers may be used in lieu of 180° F water if they provide an equivalent sanitizing effect and the requirements of 9 CFR 416.4(c) are met, i.e. that the sanitizer is safe and effective under the conditions of use; chemicals are used, handled, and stored in a manner that will not adulterate product or create insanitary conditions; and documentation substantiating the safety of a chemical's use in a food processing environment is available to FSIS inspectors for review.

The rest of the SSOPs are self-explanatory.

Additional Plans FSIS recommends that an MSU have:

- Training program for employees on humane handling

For guidance, see the FSIS guidebook, "Humane Handling of Livestock and Poultry":

http://www.fsis.usda.gov/PDF/Humane_Handling_Booklet.pdf.

A companion DVD, featuring Dr. Temple Grandin, is also available from FSIS. You can order it here:

http://origin-www.fsis.usda.gov/Science/HACCP_Resources_Order_Form/index.asp (it is listed near the bottom of the "Other HACCP Information" section).

- Training program for employees on using dentition to determine age of cattle

For guidance, see Harris and Savell (2009), "Complying with Regulations on Specified Risk Materials (SRMs)," posted here: www.fsis.usda.gov/PPT/How_To_Comply_SRM.ppt