

Developing Product Lotting and Coding Systems for Small Meat and Poultry Processing Operations

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Would your company be prepared to locate all meat and poultry products associated with a recall? Does your company have a lotting and coding system in place that would identify the amount of product produced under your Hazard Analysis and Critical Control Point (HACCP) system and accurate records for locating the product? An important component of your plant's HACCP program is to have the ability to lot and code products. Even in the best circumstances, unexpected events such as a recall will require plants to identify a product and trace it back to its source of origin or forward into the chain of distribution.

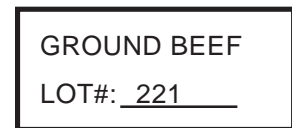
To develop a traceback system using lotting and coding, there are several steps that must be implemented. First, a lot number must be established. Next, a coding system should be identified using the lot numbers. Record-keeping forms to be used throughout processing, packaging and distribution must be developed. A method for applying the code to the final product can then be determined. These steps can be applied to any product process.

Establishing a Lot

The United States Department of Agriculture (USDA) defines a "lot" as "from full sanitation to full sanitation," which typically consists of one day's production. All products produced within that time period should be identified with the same lot number. This in-house lotting system should identify the date, month and year the product was produced. This can be accomplished by placing a tag containing a production date or a Julian code with the product as it travels through the production process. That number will later be recorded in the packaging records. The tag shown in Figure 1 identifies a lot number using a Julian date that could be placed in a lug of ground beef. A Julian date

is three numbers assigned to each day of the year, beginning with January 1 as 001 and December 31 identified as 365. Many calendars include Julian dates.

Figure 1. Example of a product tag identifying production lot number.



A traceback lotting system is very similar to what often is used to maintain the identity of custom products throughout the manufacturing process. By modifying your current custom record-keeping system to include wholesale and retail products, you can implement a lotting and coding system.

Identifying a Coding System

It is recommended that each package of product have a permanent legible code that can be referenced to the in-house production record. This code appears on the final package and identifies the product throughout distribution and consumption. A code could be a use-by or freeze-by date or an encrypted code.

Use-By or Freeze-By Dates

This date will let the customer know how long the

product could be held fresh before it should be used or frozen. A use-by or freeze-by date is determined by the refrigerated shelf life of the meat and poultry product.

Example:

BEST IF USED BY: 8-09-99

FREEZE BY: 8-15-99

Encrypted Code Dating

An encrypted code is used by companies who choose to keep their coding systems confidential to prevent consumer rejection of the product before the product is actually unsafe for consumption. Encrypted coding is ideal for frozen products that have a long shelf life. An encrypted code could include a combination of numbers and letters. For a final package code, a year designation should always be included.

Example: **H099 = August 9, 1999**

First character = month:

A=January B=February
 C=March D=April E=May
 F=June G=July
 H=August I=September
 J=October K=November
 L=December

Next two digits = day of month:

09 = ninth day

Last digit = last digit of year:

9 = 1999

Example: **90359 = August 9, 1999**

First digit (9) indicates the last number of the year as shown above.

Third and fourth digits are added to equal the month.

example: 3 + 5 = 8th month (August)

Second and fifth digit are put side by side to get the day of the month.

example: 0 & 9 = 9th day

Example: **221A = August 9, 1999**

First three digits indicate the three-digit Julian code (001= January 1; 365 = December 31)

example: August ninth is the 221st day of the year

Last character indicates the year:

example: A = 1999
 B = 2000
 C = 2001

Record keeping

Establishing Raw Material and Formulation Records

Raw material and formulation records are commonly referred to as batch sheets. These records should contain: the product name; the date; the in-house lot number; supplier identification; the lot number or the date of produc-

tion for the raw material source; the formulation; the total pounds produced in the batch; and the initials of the employee conducting the operation. Initials should always be used in order to identify the employee conducting the task so they may be contacted if questions arise about the product. Figure 2 is an example of this type of record where a Julian date is used for the in-house lot number. The lot number assigned to the batch will be used to identify the product throughout processing.

Figure 2. Example of raw material and formulation record.

GRINDING RAW MATERIAL AND FORMULATION RECORD			
LOT #: 221			
DATE: 08-09-99			
PRODUCT: Ground Chuck			
Supplier Establishment #	Trimming Lot # (or date of production)	Raw Material Formulation	Pounds
KSU Meat Lab Est. 694	214	Two-Piece Chuck	200 lbs.
House Trim	218	Chuck Trim	100 lbs.
		Total Weight:	300 lbs.
		Signature:	BD
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Figure 3. Example of packaging record.

PACKAGING RECORDS				
DATE: 08-09-99				
Product and Lot#	Package Code	# of Packages/ Package Size	Total lbs.	Employee
Ground Chuck (221)	H099	299/1 lb. pkg.	299	BL
Ground Beef (221)	H099	200/1 lb. pkg.	200	TM
Pork Sausage (218)	H069	50/2 lb. pkg.	100	TM
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Establishing Packaging Records

When a product is packaged, the in-house lot number that was assigned during production should be documented and a code applied to the package. The packaging record should document the product name, the date, the lot number, the assigned package code, the number of packages produced, the total weight packaged, and the initials of the employee responsible for packaging. This record can also be used to determine plant yields. A packaging record is shown in Figure 3.

Establishing Distribution Records

To have a complete traceback system, a company needs to be able to identify who received product from

each production date. This record could be developed by recording the codes on the invoices that are currently being used. An invoice, including a package code, is shown in Figure 4. If invoices are not currently being used, a distribution record sheet should be developed. Information on this record sheet (see Figure 5) should include the name of the product, the date the package was sold, the package code, the customer and the employee initials. For retail operations, this can be done by recording the number of pounds for each package code that was transferred to retail sales.

Applying a Code to a Package

A code must be properly applied to a package for the traceback system to be

effective. Since polyethylene bags are difficult to stamp or mark with a code, there are several options for applying a code to any packaging material. One approach is to stamp each package using a waterproof ink. There are no regulations in Kansas or federal regulations on using ink on polyethylene bags, as long as the processor can prove that the ink will not bleed through the package and that it will not smear or rub off the package (MPI Regulations Part 316.5 A). Another approach is to use labels, which have a pre-printed code, with adhesive that will adhere to the bags. Although handwritten labels are not permitted, there is currently no regulation on the use of handwritten package codes (MPI Regulations Part 317.2 A, B). If labels are being printed electronically, the code could easily be incorporated onto the label. Processors operating under other state inspection programs should check with their inspection personnel about the use of ink on packaging.

Other Concerns in Lotting Ground Beef Rework

Rework is product leftover from one lot that is mixed into subsequent lots. To maintain lot integrity, the use of rework must be controlled. Processors need to develop a

Figure 4. Example of invoice incorporating package code.

KSU Meat Lab Weber Hall		INVOICE		
		Invoice Number: 2100		
		Invoice Date: 08-14-99		
Sold to:	John's Grocer 100 Pine Manhattan, KS 66502			
Quantity	Item	Pkg Code	Unit Price	Extension
50/1 lb.pkg	Ground Chuck	J099	1.19	59.50
				Subtotal: 59.50
				Sales Tax: 3.87
				Total Invoice Amount: 63.37
				Payment Received: 0.00

Figure 5. Example of distribution record.

DISTRIBUTION RECORD						
Date Sold	Product	# of Pkgs /Pkg Size	Lot#	Package Code	Customer Identity	Employee
08-12 99	Ground Beef	50/1 lb. pkg.	221	H099	In-house retail	BD
08-14-99	Ground Chuck	95/1 lb. pkg.	221	H099	John's Grocer	TM
08-14-99	Pork Sausage	20/2 lb. pkg.	218	H069	Willie Wildcat	BL
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strategy to prevent rework from being carried over into the next day's production lot. Rework from fresh product can be packaged separately or whatever product is left at the end of the run could be sold through employee sales. Alternatively, rework could be used in a cooked product that has a pathogen kill step. All rework must be assigned its own lot number or identity. The size of a recall may be minimized if rework is not carried into the next day's production lot.

Microbial Sampling of Product

If product is sampled for microbial testing, all product should be held until results are available. If any product is released to commerce and the sample is positive for a pathogen, the plant will have to recall the product.

Mock Recalls

Once your traceback system is in place, a practice run or mock recall should be conducted. To do this, select a product package code and determine which customers received the product; then, determine if you and your employees can follow the product back through the process from packaging to the raw material sources. It is recommended that a mock recall be a regular part of your plant's monthly schedule.

To implement a traceback system, include the information needed for lotting and coding into the programs you currently have in place. Proper lotting and coding are necessary in the event of a recall and to have a functioning HACCP system.

Definitions

Coding: system of identifying products using a code to identify when the product was produced.

Julian Date: a three-digit number assigned to each day of the year; beginning with January 1 as 001 and December 31 as 365.

Lot: any meat product produced in an operation from one full sanitation to the next full sanitation.

Lotting: system for identifying meat products according to date of production.

Mock Recall: performing an in-plant recall to assess if proper records are being taken and if employees are able to locate each lot of product and trace it back to its source of origin or forward into the chain of distribution.

Package Code: permanent, legible code that can be referenced to the date of production; can be an encrypted code or a freeze-by or use-by date.

Recall: the voluntary removal by a firm from commerce of distributed meat or poultry products when there is reason to believe that such products are adulterated or misbranded under the provisions of the Federal Meat Inspection Act or the Poultry Products Inspection Act. A "recall" does not include a market withdrawal or a stock recovery.

Rework: product leftover from one lot that may be traditionally mixed into other lots.

Traceback: tracking meat products back through the production system as well as forward through the distribution chain.

Types of Recalls:

Class I Recall: Involves a health hazard situation where there is a reasonable probability that the use of the product will cause serious, adverse health consequences or death.

Class II Recall: Involves a potential health hazard situation where there is a remote probability of serious adverse health consequences or death.

Class III Recall: Involves a situation where the use of the product is not likely to cause adverse health consequences.

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