

NDSU

EXTENSION



2024



www.ag.ndsu.edu/food EXTENDING KNOWLEDGE >> CHANGING LIVES

Upcoming Webinars

- **March 13 - Spuddles, Vader Tots and Small Fries: Let's Talk Potatoes!**
- Susie Thompson, Plant Sciences Associate Professor, NDSU
- **March 20 - Tips For Preserving the Bounty of the Harvest**
- Barb Ingham, Professor and Extension Food Safety Specialist, University of Wisconsin-Madison

EXTENSION

NDSU



Presenter

Audio Settings

Chat

Raise Hand

Q&A

Leave

- **Please complete the short online survey** that will be emailed to you after today's webinar. It will take just a couple minutes!
- Be sure to sign up for an opportunity to win a prize in the drawing. After submitting the survey, a form to fill out with your name/address will appear.

Acknowledgement: This project was supported by the U.S. Department of Agriculture's (USDA) Agricultural Marketing Service through 21SCBPND1069. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the USDA.



March 6

Understanding Product Dating: Food Safety vs. Food Quality

Byron Chaves, Assistant Professor and Food Safety Extension Specialist,
University of Nebraska - Lincoln



NDSU

EXTENSION



2024



www.ag.ndsu.edu/food EXTENDING KNOWLEDGE >> CHANGING LIVES

Understanding Product Dating: Food Safety vs. Food Quality

Byron D. Chaves, PhD.
Assistant Professor & Food Safety Extension Specialist
Department of Food Science and Technology
University of Nebraska-Lincoln



NDSU Extension
March 6th, 2024

Food Safety vs. Food Quality

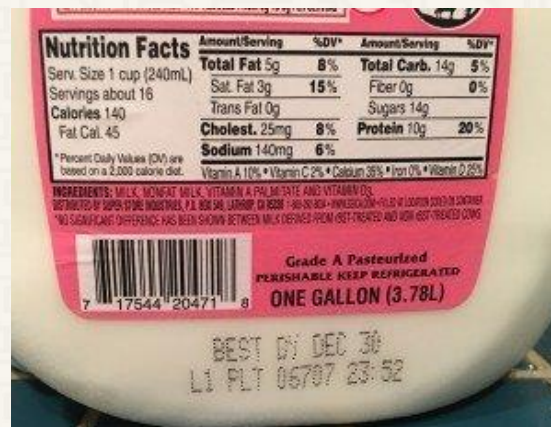


- Food quality is the sum of the food characteristics that we can measure – shelf life and stability, sensory and organoleptic traits, interactions with the packaging materials and the environments, nutritional composition, and many more.
- Food safety is the assurance that the product will not make consumers sick when used as intended.
- Can a high-quality product make you sick?

Product Dating

- A calendar date applied to a food product by the manufacturer or retailer.
- The date provides information on the estimated period for which the product will be of best quality and to help the store determine how long to display the product for sale.
- A code that consists of a series of letters and/or numbers applied by manufacturers to identify the date and time of production.
- Common in canned or boxed food

Open Dating



Closed Dating



slido



Is food product dating required by federal law?

ⓘ Start presenting to display the poll results on this slide.

Product Dating Requirements

- Dates are not an indicator of the product's safety, so product dating is not required by Federal regulations.
 - **EXCEPTION:** Infant formula
- For FSIS-inspected products, dates may be voluntarily applied provided they are truthful and not misleading.
 - To comply, a calendar date must express both the month and day of the month. In the case of shelf-stable and frozen products, the year must also be displayed.
 - Immediately adjacent to the date must be a phrase explaining the meaning of that date such as "Best if Used By."

What Factors Influence the Dating Process?

- **INTRINSIC FACTORS:** pH, water activity (a_w), chemical composition
- **EXTRINSIC FACTORS:** temperature, relative humidity, packaging conditions
- The quality of perishable products may deteriorate after the date passes; but they should still be safe if handled properly.
- The "Use-By" date is selected by the manufacturer, packer or distributor based on product analysis throughout its shelf life, tests, or other information.



Product Labeling Descriptors

- A "**Best if Used By/Before**" date indicates when a product will be of best flavor or quality. It is not a purchase or safety date.
- A "**Sell-By**" date tells the store how long to display the product for sale for inventory management. It is not a safety date.
- A "**Use-By**" date is the last date recommended for the use of the product while at peak quality. It is not a safety date except for when used on infant formula as described below.
- A "**Freeze-By**" date indicates when a product should be frozen to maintain peak quality. It is not a purchase or safety date.

slido



Do you eat foods that are past their "expiration" date?

ⓘ Start presenting to display the poll results on this slide.

Food Loss and Waste - Dating Confusion

- It is estimated that 30% percent of the food supply is lost or wasted at the retail and consumer levels.
- Foods not exhibiting obvious signs of spoilage should be wholesome and may be sold, purchased, donated and consumed beyond the labeled "Best if Used By" date.
- With an exception of infant formula, if the date passes during home storage, a product should still be safe and wholesome if handled properly until the time spoilage is evident.
- Food spoilage can occur much faster if food is not stored or handled properly. A change in the color of meat or poultry is not an indicator of spoilage.

Codes on Cans and Pouches

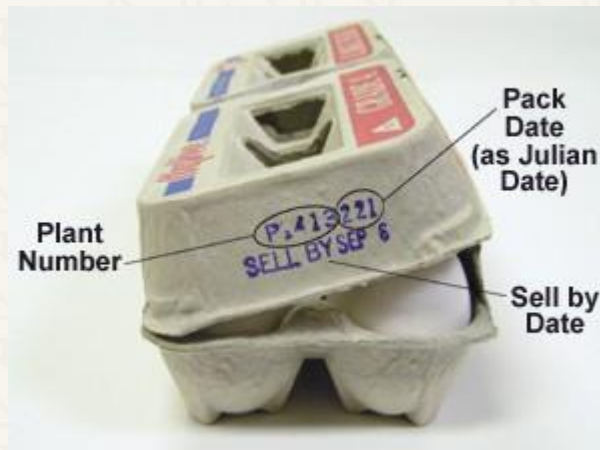


- Can codes enable the tracking of product in interstate commerce.
- Can codes appear as a series of letters and/or numbers and refer to the date the product was canned.
- Unless otherwise stated, the codes are not meant for the consumer to interpret as a "Best if Used By" date.
- High-acid canned foods (e.g. tomatoes and fruits) will keep their best quality for 12 to 18 months. Low-acid canned foods (e.g. meats and vegetables) will keep for two to five years.
- Discard cans that are dented, rusted, or swollen.



Codes on Egg Cartons

- No “expiration” dating is required by federal law, but states may have different requirements for eggs.
- The pack date is the day the eggs were washed, graded, and placed in the carton per USDA AMS guidelines.



**WHY DO WE REFRIGERATE
EGGS IN THE U.S.?**

Other Codes on Food Packages

- A **Universal Product Code** (UPC) is a barcode that appears on packages and are also used by stores and manufacturers for inventory purposes and marketing information. A UPC can reveal such specific information as the manufacturer's name, product name, size of product and price. The numbers are not used to identify recalled products.
- A **Stock Keeping Unit** (SKU) code is a number assigned to a product by a company or retailer for stock-keeping purposes and internal operations. A particular product may have different SKUs if sold by different companies or retailers.

Product Dating and You!

1. Know your product - intrinsic properties such as pH and a_w
2. Determine the storage, transportation, and common handling conditions for your product, including unintended uses.
3. Prioritize your own quality parameters and conditions - temperature, relative humidity, etc.
4. Run your own observational study.
5. Run a shelf-life study (third-party testing company; university consulting services)

Keep in mind that product dating is not mandatory, unless you are producing infant formula.

Store in the refrigerator

| <u>FRUIT</u> | Berries | <u>VEGETABLES</u> | Belgian Endive | Cauliflower | Leafy Vegetables | Radishes |
|------------------------------|-----------|-------------------|-----------------|-------------------|------------------|-----------------|
| Apples (more than 7 days) | Cherries | Artichokes | Broccoli | Celery | Leeks | Spinach |
| Apricots | Cut Fruit | Asparagus | Brussel Sprouts | Cut Vegetables | Lettuce | Sprouts |
| Asian pears | Figs | Green Beans | Cabbage | Green Onions | Mushrooms | Summer Squashes |
| | Grapes | Beets | Carrots | Herbs (not basil) | Peas | Sweet Corn |

1. Place fruits and vegetables in separate, perforated plastic bags.
2. Use within 1-3 days for maximum flavor and freshness.
3. Store each group in different produce drawers in the refrigerator to minimize the detrimental effects of ethylene produced by the fruits on the vegetables.

Ripen on the counter first, then refrigerate

| | | | | | | |
|----------|------|------------|---------|-------|-------|----------|
| Avocados | Kiwi | Nectarines | Peaches | Pears | Plums | Plumcots |
|----------|------|------------|---------|-------|-------|----------|

1. To prevent moisture loss, store fruits and vegetables separately in a paper bag, perforated plastic bag, or ripening bowl on the counter away from sunlight. Ripening fruit in a bowl or paper bag can be enhanced by placing an apple with the fruit to be ripened.
2. After ripening, store in refrigerator and use within 1-3 days.

Store only at room temperature

| <u>FRUIT</u> | Citrus fruits | Persimmons | <u>VEGETABLES</u> | Garlic* | Peppers† | Tomatoes |
|-------------------------------|---------------|--------------|-------------------|---------|-----------------|-----------------|
| Apples (fewer than 7 days) | Mangoes | Pineapple | Basil (in water) | Ginger | Potatoes* | Winter Squashes |
| Bananas | Melons | Plantain | Cucumber† | Jicama | Pumpkins | |
| | Papayas | Pomegranates | Eggplant† | Onions* | Sweet Potatoes* | |

1. Many fruits and vegetables should only be stored at room temperatures. Refrigeration can cause cold damage or prevent them from ripening to good flavor and texture. For example, pink tomatoes ripen to a better taste and red color if they are left at room temperature. In the refrigerator, they do not turn red, and even red tomatoes kept in the refrigerator lose their flavor.
2. Keep away from direct sunlight.
*Store garlic, onions, potatoes, and sweet potatoes in a well-ventilated area in the pantry.
†Cucumbers, eggplant, and peppers can be refrigerated for 1-3 days if they are used soon after removing from the refrigerator.



EXTENSION

Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska-Lincoln cooperating with the Counties and the United States Department of Agriculture.

University of Nebraska-Lincoln Extension educational programs abide with the nondiscrimination policies of the University of Nebraska-Lincoln and the United States Department of Agriculture.