Value-Added Packaging and Labeling MasterCourse
Special Thanks

We would like to give a special thank you to all of our partners:

• Kentucky Department of Agriculture
• University of Kentucky Cooperative Extension Services
• Food Systems Innovation Center
• Kentucky Center for Agriculture and Rural Development.

We would also like to give a special thank you to the Specialty Crop Block Grant Program for helping fund MarketReady’s Master Course Webinar Series.
Overview

We have developed a 1 hour advanced topic webinar on value-added packaging and labeling with specific emphasis on food safety.

Participants are encouraged to interact with guest speakers via questions or experiences.
Special Guests

Dr. Melissa Morgan - Animal Nutritionist and Food Microbiologist with Animal and Food Science

Annhall Norris - Extension Associate with Family Consumer Science

Dr. Tim Woods - Extension Professor and agribusiness management and marketing specialist with Agricultural Economics
Value-Added
Preserving Food Quality and Safety
Packaging Options
Food Safety and Quality
Melissa Morgan, PhD
Shelf life and quality

- Gain/loss of moisture
- Lipid oxidation
- Enzymatic degradation
- Non-enzymatic browning
- Microbial growth
- Nutrient loss
- Changes in color or flavor
Glass

• Advantages:
  – Odorless and chemically inert
  – Impermeable to gases and vapors
  – Withstands high processing temperatures
  – Rigid, provides good insulation, different shapes
  – Product visibility

• Disadvantages:
  – Heavy
  – Breakage from internal pressure, impact, or thermal shock
Metal - most versatile

- **Aluminum.** Cans, foil, and laminated paper or plastic packaging. Highly resistant to most forms of corrosion; Pure aluminum is used for soft-drink cans, pet food, seafood, and pre-threaded closures.

- **Laminates and metallized films.** Lamination is binding of aluminum foil to paper or plastic film to improve barrier properties. Examples: dried soups, herbs, spices and tuna.
Metal - most versatile

*Tinplate.* Produced from low-carbon steel. Excellent barrier properties to gases, water vapor, light, and odors, tinplate can be heat-treated and sealed hermetically, making it suitable for sterile products. Used to form cans for drinks, processed foods, and aerosols; containers for powdered foods and sugar- or flour-based confections; and as package closures.
Plastics

- Can be made into sheets, shapes, and structures, offering considerable design flexibility
- Chemically resistant, inexpensive and lightweight with a wide range of physical and optical properties
- Many are heat sealable
- Disadvantage is variable permeability to light, gases, vapors, and low molecular weight molecules
Safety of plastic

- FDA reviews and regulates substances used to make plastics and other packaging materials. Any substance that can reasonably be expected to migrate into food is classified as an indirect food additive subject to FDA regulations. (21 CFR §170.39)
- FDA advises consumers to use plastics for intended purposes in accordance with the manufacturer's directions to avoid unintentional safety concerns.
Plastic types - Polyolefins

The simplest and most inexpensive plastic. High melting point (160°C) makes it suitable for hot-filled and microwavable packaging.

- High-density is stiff, strong, tough, resistant to chemicals and moisture
  - bottles for milk, juice, and water; cereal box liners; margarine tubs; and grocery, trash, and retail bags
- Low-density polyethylene is flexible, strong, tough, easy to seal, and resistant to moisture
  - Bread and frozen food bags, flexible lids, and squeezable bottles are examples of low-density polyethylene
Plastic Types - Polyethylene terephthalate (PETE)

- Good barrier to gases (oxygen and carbon dioxide) and moisture
- Containers (bottles, jars, and tubs), semirigid sheets for thermoforming (trays and blisters), and thin-oriented films (bags and snack food wrappers)
Paper and paperboard

The use of paper and paperboards for food packaging dates back to the 17th century. Paper. FDA regulates the additives used in paper and paperboard food packaging (21 CFR Part 176).

- Plain paper is not used to protect foods for long periods of time because it has poor barrier properties and is not heat sealable.
Paper

When used as primary packaging (direct contact with food), it is treated, coated, laminated, or impregnated with materials such as waxes, resins, or lacquers to improve functional and protective properties.

- Kraft paper - package flour, sugar, and dried fruits and vegetables.
- Sulfite - glazed to improve its appearance and to increase its wet strength and oil resistance. Used to make small bags or wrappers for packaging biscuits and confectionary.
- Greaseproof paper - Provide a surface that is resistant to oils. Used to wrap snack foods, cookies, candy bars, and other oily foods.
- Glassine - greaseproof paper taken to an extreme. Used as a liner for biscuits, cooking fats, fast foods, and baked goods.
- Parchment paper - Impervious to water and oil. Does not provide a good barrier to air and moisture, is not heat sealable, and is used to package fats such as butter and lard.
Paperboard

Thicker than paper with a higher weight per unit area and often made in multiple layers. Commonly used to make containers for shipping—such as boxes, cartons, and trays.
Summary

- Preserve food quality
- Reduce preservatives
- Contain the food
- Protect against microbiological, chemical and physical damage
- Provide information essential to consumers and marketers
Value-Added Packaging and Labeling Regulation
Food Labeling Requirements

Annhall Norris, Extension Associate
Family and Consumer Sciences
Food Packages and Containers must have

• Statement of Identity
• Net Quantity of Contents Statement
• Ingredients Statement
• Name and Address of Manufacturer, Packer or Distributor
• Allergen Information
Food Packages and Containers may have

- Nutrition Facts Panel
- Claims: Nutrient and/or Health
- Directions for use
- Sell by or Use by Dates
- Bar codes
- Marketing information (recipes)
Required Information Must Be

• In English
• At least 1/16\textsuperscript{th} inch type (6 point font)
• Legible
• Truthful
Principal Display Panel (PDP)

The portion of the package that is
Most likely to be seen by the consumer at the time of purchase.
• Statement of Identity
• Net quantity of contents
Statement of Identity

• The name of the food
• Prominently displayed
Net Quantity of Contents

• The amount in the package
• Placed in the lower 30% of the package
• Shown in English and Metric
Ingredient Statement

• List of each ingredient in the product
• Most predominant to least predominant
• Subingredients must be listed too

INGREDIENTS: Ketchup (tomatoes, distilled vinegar, high fructose corn syrup, water salt, natural flavors) molasses, brown sugar and garlic powder
Manufacturer’s Statement

• Name of the manufacturer, packer or distributor
• Address of the manufacturer, packer or distributor
  • Street address or PO Box
  • City and State
  • Zip code
• Can be printed on side or back of package
Allergen Information

• The Big 8 are required to be identified

  • Milk
  • Eggs
  • Wheat
  • Soybeans (soy)

  • Peanuts
  • Tree Nuts (by name)
  • Fish (by name)
  • Crustacean Shellfish (by name)
Allergen Information

• The Big 8 or any proteins derived from the Big 8 must be identified by name
  • Identify by naming the allergen in the ingredient list
    Or
  • Adding a separate Contains Statement immediately after or adjacent to the ingredient listing
## Allergen Information

### How to label allergens:

<table>
<thead>
<tr>
<th>Within the <strong>ingredients</strong> list</th>
<th>Using a <strong>contains</strong> statement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ingredients:</strong> Apples, Pie crust [flour (wheat), shortening, liquid albumen (egg), salt], Sugar, Flour, Lemon juice, Whole milk, Cinnamon. May contain pecans.</td>
<td><strong>Ingredients:</strong> Apples, Pie crust [flour, shortening, liquid albumen, salt], Sugar, Flour, Lemon juice, Whole milk, Cinnamon. <strong>Contains:</strong> Wheat, Egg, Milk. May contain pecans.</td>
</tr>
</tbody>
</table>

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College of Agriculture, Food and Environment Cooperative Extension Service
The Nutrition Facts Panel

- Required if a nutrient content claim is made
- Required if a health claim is made
- Required if gross sales of food more than $50,000
- Required if total gross annual sales more than $500,000
Claims

• Nutrient Content Claim
  • A statement relating the presence or lack of certain nutrients in the food using terms such as free, high or low

• Health Claim
  • A statement describing the relationship between a food and reduced risk of a disease or health-related condition
Claims - Healthy

• Healthy is defined by FDA
  • Low in total fat
  • Low in saturated fat
  • Low in cholesterol
  • Low in sodium

• Definition is changing – Proposed Changes
  • Focus more on the type of fat rather than the amount
  • Contain at least 10% DV per reference amount of Potassium and Vitamin D
  • Limiting sugar
  • Nothing finalized
Use by or Sell by dates

- Generally not required on food labels
- Inform the consumer of the quality of the food, not the safety of the food
Tracking Codes

• Generally not required on food labels

• Certain high risk foods – acidified foods and low-acid canned foods require tracking codes
Organic

- Not a claim
- Certification that you pay for from USDA or KY Department of Agriculture
Gluten Free

• Less than 20ppm gluten in the product
Value-Added
Packaging and Labeling
Marketing and Economics
Packaging as part of the value-adding function – preserving, distribution, merchandising – adding to value buyer places on the product.
Package Selection

• Buyer packaging preferences – what helps the buyer….what do THEY need the packaging to do for them?

• Buyer at retail
  • inventory turns – attractive, informative packaging, part of sales presentation

• Buyer at foodservice
  • more price sensitive, packaging functionality, bulk ingredients
Links in the value chain

• The buyer chooses your product because it’s the product that helps bring the best value to THEIR customers.

• How does my packaging choice contribute to that?
Plastic retort
Foodservice soup

BBQ sauce jars
Packaging Functionality

• Palletizing, product protection (shrink), traceability (inventory management/recall, SKU), inbound logistics (bulk use)

- Handling instructions
- Weight, handling ease
- Reusable, resealable
- Recyclable
Packaging as a Unit of Measure

• Trade and inventory communication – invoices, recalls, truck shipments.
• Management of sales and physical flow – “measure to manage”
• Industry standards (with room for innovation) – beverages
Economics of Packaging

- **Scale economies** – Lower per unit cost with larger volume. Package delivery in bulk, dies and custom labels

- **SKU proliferation** – product management, retailer partnerships on line extensions – Am I trying to work too many markets?

- **Packaging equipment options** – shared use, own, co-pack. Depends on scale, equipment utilization, equipment cost.
  - Make vs Buy decision – what’s feasible
  - Control, access
Labeling

• The Food Institute
  http://www.foodinstitute.com/
  • Labeling Requirements
  • Nutrition
  • Identity
  • Ingredients
  • Content Claims

• UPC Codes

0 123456 789012
Q&A

• What are some of the food safety certifications available?
• What is *Better Process Control School*?
• What is *Hazard Analysis and Critical Control Points* Training?
• What is a process authority?

• How important is tractability to value-added producers?
• What needs to be traced throughout the supply chain?
• What are some suggestions to help them navigate?
• What are the regulations surrounding the value-added industry?
• What's the Cottage Food Bill?
• What about the different House Bill?
• What are the different regulations around packaging for value-added products?
• What information should be displayed on your packaging and labels?
Q&A Continued

• What are the main food safety functions as it relates to packaging?
• What about labeling?
• What are some of the basic economic considerations for packaging and labeling for value added products?
• How can producers mitigate some of those expenses?
• What are some economic considerations for traceability of value added products?
• Are there things producers have done to cut costs that actually jeopardized the safeness of the product?
Please contact us if you need help!

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Thank you for joining us!