Food Preservation & Shelf Life Extension: Optimizing Flexible Packaging Opportunities in Retail Sales

Presented by Paula M. Kalamaras & Paul T. Kraly
Scribes Unlimited, LLC
authors of
Adding Life to Foods: Trends Techniques & Opportunities in Foods Preservation and Shelf Life Extension,
Business Communications Company, Inc
Who we are...

- We are Paula M Kalamaras and Paul T Kraly, a research and writing team from Scribes Unlimited, LLC in Cleveland, Ohio.

- We thank the FPA for inviting us here to share with you our assessment on how the food preservation and shelf life attributes of flexible packaging are affecting the retail food market.
This past spring

- Business Communications Company, Inc. commissioned us to research and write a report on

Adding Life to Foods:
Trends, Techniques and Opportunities in Food Preservation and Shelf Life Extension

This report, published in September, proffers a wide-ranging look at both the preservative additives market and packaging as key to preservation and shelf life extension of foods and beverages.
Today’s focus

- Consumer trends
- Retail Trends
- Flexible Packaging Strategies and Opportunities
Consumer Trends
Consumer Trends

- **Aging Population**
  - by 2010 more than 43% over 45
  - control over 50% of income
- **More women in workforce**
  - over 45% of total employment
- **Single or two person households**
  - (73% with no children under 18)
- **Single parent households** (13 million and rising)
Current Realities

- More work means less time to shop
- Eating fast foods vs. home preparation
- Need for healthier eating habits
- Less desire for chemical additives
- More flexible packaging being used to private label processors
Additional realities

- Consumers seek:
  - price breaks - the less expensive, the better
  - no desire to pay for excess packaging
  - prepackaged convenience - prepared foods (salads, fruits, cooked entrees, sides, etc.)
Even with the realities of:
- less time for preparation
- less disposable cash
- smaller family units
- single or two person households

Consumers desire a wider range of choices at their retailers:
Choices

- More organic and exotic foods
- Non-seasonal foods
- Cheap, reasonable prices for name brands
- Foods lasting for weeks instead of days with less waste and spoilage
- Less wrapping under packaged foods
- Lower cost in-store packed or self-branded products
- Longer ambient shelf time for non-perishables (for retailers, at least a year)
What this translates to ...

- More organic and exotic food & non seasonal foods =
  - longer transportation time
  - more flexible-active packaging solutions
    - oxygen scavengers, ethylene absorbers in palleted fruits, gas permeable films
    - moisture controllers in films, MAP/CAP containers

- Consumers are not interested in over-packaging
  - not environmentally friendly
  - frustrating to open
  - feel that cost is raised due to packaging, even on private label brands

- Consumers dissatisfied with premature spoilage
  - flavor loss
  - texture or taste changes
  - ambient temperature products that do not retain quality
Retail Trends
Some Facts...

- Retail food sales = $425 billion global industry or $265 billion in U.S. alone
- @20,000 new food products introduced each year
- 50% of all food sales coming from products introduced in the past five years
- There are over 32,981 supermarket chains and independent grocery stores with annual sales over $2 million, 132,000 grocery/convenient/gas station stores, and nearly 1000 warehouse club/hyper-mart stores (and growing)
Retail Sales

- 51% perishable
- 20% non-food
- 29% non-perishable dry foods
Perishables

Meats 17%
Produce 11%
Dairy 6%
Frozen foods 7%
In store bakery 4%
Baked goods 3%
Deli 3%
 Produce 11%
Purchasing trends

- As more perishables are sold, flexible packaging becomes the wrap and packaging of choice for both processors and in store brands.

- Fruits and vegetables wrapped in flexible packages (shrink wrapped, gas permeable, etc.) on path to grow to $250 million in next five years.

- 75% of all produce is wrapped with some sort of flexible packaging at some point in the supply and distribution chain.

- 37% of packaged meats are in MAP/CAP packages, representing the largest use of controlled atmospheres.

- Private label store brands, home meal replacements and prepared prepackaged foods are fast growing sectors using that are dominated by flexible packaging materials.
Flexible Packaging Trends & Opportunities
So now that we know what consumers want, what can we give them to meet their preservation needs?

- Review:
  - Consumers seek products that are
    - easy to open and have the option of being re-sealed
    - environmentally friendly
    - safe from antimicrobial and pathogenic infiltration
    - secure against tampering
    - preserves even after package has been opened
    - more types of product choices needing preservation
    - less waste due to spoilage
Food Preservation Goals

• to *inhibit* pathogens (by smoking, salting, pickling, drying, chilling, chemical preservative, etc.)

• to *inactivate* pathogens (by canning, pasteurizing, UHT, high pressure, ultrasound, etc.)

• to *prevent* problems (by good manufacturing practices, active packaging, retort packaging, pouches, converter foils, coated papers, infused plastic mono layers, multilayer packages, etc.).
Flexible Packaging meeting these goals

- Determine the best flexible packaging needs of the processor
- Mix and match technologies that will best provide extended shelf life
  - for instance, mixing an antimicrobial agent into a flexible film:
    - Packagers will need to consider how the film interacts with infused antimicrobial or antioxidant agent and
      - what inhibition mechanism is being used
      - what the chemical nature of the antimicrobial agent is
      - the physical chemistry of the food that will be packaged
      - migration mechanisms of the antimicrobial into food
      - storage environment (refrigerated, dry shelf, freezer, etc.)
      - organoleptic property of the anti-microbial and its affect on the food
      - machinability and processability of the antimicrobial packaging on the packaging line materials
Other flexible packaging considerations to aid in improving shelf life:

- packaging that will survive rough handling in the supply chain
  - strong yet inexpensive packaging that will form the nucleus of in-store brands
  - packaging that won't raise the price of branded products that becomes cost prohibitive
  - packaging that is appropriate to the contents
Flexible Packaging Strategies and Opportunities

- preserve and protect
  - protect product from quality damage
    - infestation
    - contamination
    - fragrance or flavor loss
    - breakage
    - moisture loss or gain
    - oxidation
inform and sell

- graphics and layout that provide
  - nutritional information
  - expiration dates
  - intelligent packaging adhesives (time temperature or freshness indicators, RFID tags, etc.)
  - regulations
  - description of product
  - directions
  - guarantees
  - ingredients
How flexible packaging manufacturers can optimize opportunities:

- **Less packaging = less waste = smaller landfills = cleaner environment = happy consumer! 😊**

- **fewer chemical additives and preservatives in the actual foods:**
  - antimicrobials & antioxidants infused into the packaging
  - improved laminates and coatings to prevent leaching

- **improved closures - easy to close and store**
  - zip-lock type closures to preserve foods for longer times
  - re-closeable packaging for more products - salads, fruits and other gas permeable packages
  - MAP containers that are easier to open and have less injuries (5% of people needed medical attention)
  - Aseptic seals for liquid containers to maintain freshness
Other Trends

- Work with private labels to create flexible packaging options that will:
  - attract buyers
  - be cost-effective
  - provide longevity for both perishables and dry foods
- Determine what degrading action the product is most vulnerable to: light, oxygen, moisture, etc.
  - develop packaging that will become a barrier to these contaminants
Optimizing Opportunities

- Processors seek user friendly flexible packaging that provides protection against
  - Physical changes
    ✦ stand up to the rigors of rough handling in distribution chain
  - Chemical changes
    ✦ chemical reactions (ethylene gas, etc.) that affects make up of the food
  - Biological
    ✦ antimicrobial, antioxidant, infusion in the Flexible Packaging to eliminate preservatives in foods
    ✦ controlled migration to foods to preserve for longer times
Optimizing flexible packaging to enhance food preservation

- With 75% annual sales of value-added prepared salads, lettuce, and raw vegetables, resealable or zip lock closures to keep salads fresher longer are desired
- Stand-up pouches will make it easier for opening and closing
- Biodegradable polymers with a limited lifespan will preserve dry foods until their expiration date and then disintegrate into component parts
- Re-closeable aseptic, retort, and MAP/CAP packaging will enable consumers to keep opened products fresher and safer longer.
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Optimizing Opportunities for Flexible Packaging