Packaging Does Much More than “Contain”
It Defines your 1st Sale

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Consumers buy on the basis of relative perceived quality of products.

Prior to first use this is reputation of the company and presentation on the supermarket shelf.
Packaging Functions

- Contain
- Protect:
  - Chemical *e.g.* moisture, oxygen, flavor loss
  - Physical *e.g.* bruising, crushing, spilling
  - Biological *e.g.* mold, insects, rodents, tampering
- Promote distribution
- Label: company, product, use, legal
DIE for Quality

• Distribution
• Image
• Environment
Distribution

• Grocery
  – Limited manufacture & distribution facilities
  – Relatively long distances and time
  – Requires more protection/shelf life
  – Combination packaging, processing, ingredients

• Frito Lay type
  – Many manufacturing and distribution facilities
  – Short distances/ rapid turnover/ shorter shelf life
Implications on Product/Package

- **Processing** e.g. thermal, encapsulation, drying, separation of components, *etc.*
- **Formulation** – preservatives, antioxidants, humectants, *etc.*
- **Distribution** – length, temperature, hazards
- **Packaging** – barrier, physical protection, relation to processing *e.g.* aseptic, canning

Each impacts others
Packaging as “afterthought”

- Develop product
- Consider packaging

- Over-packaging to prevent failure
- Cost reduce to where you should have been
- No chance for trade-offs
Packaging as co-development

- Consider shelf life/distribution options
- Consider formulation/processing options
- Increase choices for a viable product
- Increase profitability and chance of success
Snack example

- Snack product – goes rancid in glass in dark room
- Project - Package in flexible – cannot use CAP
  Product died

Options to save included: - antioxidants
- Barrier package with nitrogen purge
- Refrigerated distribution
- Frito Lay type distribution
Choices synopsis

• Make less sensitive – preservatives, antioxidants, humectants, processing, encapsulation, separation, etc.
• Protect product - barrier packaging, transportation packaging (e.g. eggs)
• Slow degradation – refrigeration, freezing
• Distribute more rapidly
• Combination of above
Image

- Package material, shape, texture, label, graphics
- Impressions from aisle
- Impressions from shelf
- Company image impact
- Condition of product

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Inexpensive Packages
Spices, U.S.
Matt Bag - Fresh, Deli look
Grocery Competition
Company blocks
Differentiate Individual Flavors
Of course, damaged product on the shelf, even if quality which conforms to company standards, will detract from the perceived image.
Environment

We often package for our perceived Environmental conditions, such as 73°/50%

Protection is designed for expected conditions

What is reality?
U.S. Climate varies in time & locale
Environment effects Shelf Life

If distribution is not temperature/humidity controlled, shelf life is influenced by:

- Where it is produced and warehoused
- When it is produced and warehoused
- Abuses along the way
SHELF LIFE vs. MONTH OF PRODUCTION

- MINNEAPOLIS
- CHICAGO
- CINCINNATI
- LOS ANGELES
- MIAMI

MONTH OF PRODUCTION

90 115 140 165 190 215 240 265 290 315 340 365
Example distribution Environment

- Shipment #1 - normal distribution
- Shipment #2 - normal distribution
- Shipment #3 - marginally abused
- Shipment #4 - abused, overheated

- Normal FIFO suggests shipping in order
  - Shipments #1 and #2 - good condition
  - Shipment #3 could be marginal, #4 shipped last - poor
Products Released On Properties
Obviously Selected for Additional Life

- Record conditions - calculate quality - ship on basis of available shelf life
  - Shipment #4 - good condition
  - Shipment #3 - good condition
  - Shipment #1 - good condition
  - Shipment #2 - good condition

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Computer-Aided Distribution

- Smart terminal with temperature/R.H. probes in each D.C.
- Recording devices in each transport vehicle
- Database consisting of all shipments with dates and destinations
- Computer calculation of pull dates
- Shipments modified to match demand
New Options

• Match distribution to turnover rates
• Vary packaging for cost efficiency
• Package for total market, not worst
• Determine needs for new markets
Possible Responses

• Sell abused product first
• Discount abused product
• Divert abused product to gray market
• Dispose of distressed product
DIE for Quality

Design & package products & observe products in DISTRIBUTION to assure that they present the quality IMAGE after exposure to the ENVIRONMENT through which they traveled.

• Profitability results from the least cost system to deliver quality products which sell.
Thank You!

Any questions?

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