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INTRODUCTION TO FOOD PACKAGE-DISPLAY TECHNIQUES

presented by

Andres Giraldo

has been accepted towards fulfillment of the requirements for

Master of Science degree in Packaging

Bruce Hact

Bruce R. Harte Major professor

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INTRODUCTION TO FOOD PACKAGE-DISPLAY

TECHNIQUES

Ву

Andres Giraldo

A THESIS

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

School of Packaging

ABSTRACT

INTRODUCTION TO FOOD PACKAGE-DISPLAY TECHNIQUES

By

Andres Giraldo

Food displays are prepared as part of the merchandising activity of retail stores. This study concerns the relationship between food displays and package development and selection. The purpose of this study is to prepare teaching materials for classroom use to afford the students an understanding of the direct relationship between package-display system and marketing, and technical and graphic designs. Slides were collected in three countries (United States, England, and France) to obtain a broad range of samples from which to analyze the variations that occur in food display techniques. These variations exist because of the differences in markets, products, consumers, as well as technology available in each of these countries. To "Miss Margaret"--She was always helping me.

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iii

TABLE OF CONTENTS

LIST OF FIGURES
LIST OF APPENDICES vii Chapter I. INTRODUCTION
Chapter I. INTRODUCTION
I. INTRODUCTION
<pre>II. METHODOLOGY</pre>
<pre>1. Sample Collection</pre>
<pre>b. England</pre>
<pre>c. France</pre>
2. Sample Classification
a. Place
a. Flaceflaceflaceflaceb. Type of Storeflaceflacec. Type of Foodflaceflaced. Materialsflaceflacee. Location of the Displayflacef. Position of the Displayflacegflacef. Position of the Displayflacef. Positionflacef. Positionflace<
c. Type of Food
d. Materials9e. Location of the Display9f. Position of the Display9
e. Location of the Display
f. Position of the Display 9
1. Posicion of the Display
III. CRITERIA FOR A GOOD DISPLAY-PACKAGE 11
1. The Market
a. Total Size
b. Regionality
c. Seasonality
d. Wholesale Distribution 12
e. Retail Distribution 13
f. Consumer Profile
2. The Product
a. History
b. Brand Share 14
c. Description and Usage
d. Frequency of Purchase 15
e. Size and Weight
f. Prices
g. Awareness of Competition 15

Chapter

		h.	Regi	ona	lit	У	•	•	•	•	•	•	•	•	16
		i.	Plan	ineć	l Ad	ver	tis	sing	g ar	nd	Pro	mo-			
			tion	1	•	•	•	•	•	•	•	•	•	•	16
	3.	Tech	nnica	1 I)esi	gn	•	•	•	•	•	•	•	•	16
		a.	Tech	nic	al	Čon	sun	ner	Rec	lui	rem	ent	s	•	17
		b.	Esti	.mat	ed	Dis	pla	ay I	Life	è	•	•	•	•	18
		c.	Prot	ect	ion		•	-	•	•	•	•	•	•	18
		d.	Prod	luct	ion	Ca	pac	iti	ies	Av	ail	abl	е	•	19
		e.	Meth	lod	of	Sto	rac	je	•	•	•	•	•	•	19
		f.	Dist	rit	outi	on	Rec	ui	ceme	ent	S	•	•	•	19
		g.	Reta	ile	er R	equ	ire	emer	nts	•	•	•	•	•	20
	4.	Grap	ohic	Des	sign	-	•	•	•	•	•	•	•	•	22
		a. ⁻	Com	nuni	cat	ion	L	•	•	•	•	•	•	•	22
		b.	New	Des	sign	/Re	des	sign	ı	•	•	•	•	•	23
		c.	Cons	sume	er R	equ	ire	emer	nts	•	•	•	•	•	23
		d.	Usac	re I	Inst	ruc	tic	ons	•	•	•	•		•	24
		e.	Posi	tic	on o	fD	isr	lay	7	•	•	•	•	•	24
		f.	Prod	luct	ion	Re	qui	Ire	nent	s	•	•	•	•	25
							-								
IV.	DIS	cussi	LON C)F I	THE	SAM	PLE	E	•	•	•	•	•	•	26
	1.	Mate	erial		•	•	•	•	•	•	•	•	•	•	26
		a.	Corr	tuga	ated	Bc	arċ	1	•	•	•	•	•	•	27
		b.	Plas	stīc	: an	d L	ami	Inat	cior	s	•	•	•	•	28
		c.	Wick	ker	and	ŴC	od	•	•	•	•	•	•	•	34
		d.	Meta	111	CS	•	•	•	•	•	•	•	•	•	35
		e.	Pape	erbc	bard		•	•	•	•	•	•	•	•	39
	2.	Type	e of	Sto	ore	•	•	•	•	•	•	•	•	•	41
		a.	Hype	erma	irke	t	•	•	•	•	•	•	•	•	43
		b.	Conv	rent	ion	al	Sur	bern	nark	et	•	•	•	• ,	43
•		с.	Conv	reni	enc	e S	tor	es		•		•	•	•	43
		d.	Corr	ner	Sho	a	•	•	•	•	•				44
						Γ.	-	-	-	-	-	-	-		
v.	CON	CLUSI	LONS	ANI) RE	COM	IMEN	IDA	LION	IS	•	•	•	•	45
APPEND	DICES	•	•	•	•	•	•	•	•	•	•	•	•	•	50
LIST C	OF RE	FERE	NCES	•	•	•	•	•	•	•	•	•	•	•	63

LIST OF FIGURES

Figur	e	Pag	ge
1.	A display unit should be strong enough to be lifted from both ends	1	17
2.	Displays must be adapted to shelves' condi- tions	-	18
3.	Improper use of tear-tapes is not acceptable in retail stores		20
4.	It is very important that the full depth of the shelves be utilized by the displays	1	21
5.	Multi-layer display units are not readily accepted; the packages should be positioned for each price marking		21
6.	Delivered in cases or throw-away cartons .	•	37
7.	Delivered in metallic-display containers .	•	38
8.	The retailing mix	. 4	42

LIST OF APPENDICES

Append	ix											Page
Α.	Cities Used	in Dat	a C	011	ect	ion		•	•	•	•	51
Β.	Type of Store	e.	•	•	•	•	•	•	•	•	•	53
с.	Type of Food	•	•	•	•	•	•	•	•	•	•	55
D.	Material .	• •	•	•	•	•	•	•	•	•	•	57
E.	Location of 1	D is pla	ıy	•	•	•	•	•	•	•	•	60
F.	Position of	the Di	spl	ay	•	•	•	•	•	•	•	61

CHAPTER I

INTRODUCTION

The purpose of this study is to prepare teaching materials for food packaging display techniques. Through the study of this material, the student will hopefully achieve an understanding of direct relationship between package-display system and marketing, technical and graphic designs, and administration.

According to Siebert and Head (7), the most important aspects to consider in packaging development are:

--The Market

--The Product

--Package Technical Design:

Design Objectives Consumer Requirements

Product Requirements

Legal Requirements

Distribution Requirements

--Package Graphic Design:

Design Objectives

Consumer Requirements

Retail Display Requirements

Production Requirements

Legal Requirements

--Administration

The School of Packaging at Michigan State University attempts to prepare its students to work with all the aspects of packaging mentioned above. An option in Food Packaging is expected to be offered in the near future. One of the most important topics in this area is the food display techniques and their relationship to the merchandising activity.

To enable students to learn the principles of food display techniques, a description of the basic concepts related to the display development will be provided in Chapter III (Criteria for a Good Display). For almost all the concepts discussed in this study, pictures of real life examples should be used to explain the drawbacks, as well as the strong points of specific display situations. Chapter II (Methodology) explains the purpose of gathering samples in three countries and the criteria used to classify the stores. Chapter IV (Discussion of the Sample) deals with the materials and the types of stores where the display are used. As discussed in Chapter V (Conclusions and Recommendations), food display-packages are an area in which constant changes, innovations, and feedback are created. Variations exist because of the different markets, products, consumers, style trends, and technology

available in each country. A large photographic sample is provided so that enough material is available to facilitate class discussion, better comprehension, and application of student's ideas.

For good comprehension of the concepts related to display techniques, the student must have a prior basic knowledge of packaging materials and systems. Basic fundamentals of marketing, and a good knowledge of graphics terminology, are also required for comprehension of the material. The material purports to be an approximation of the real world in which the student is going to work later in his career. After the study of this material, the student will be better able to understand the complexity and importance of many aspects associated with display development. It is important that the instructor place emphasis on continuing research and analysis of the current displays to show how old ideas can be redesigned, developed, or adapted to create new ones.

CHAPTER II

METHODOLOGY

The purpose of gathering samples in three countries was to obtain a broad sample and to ascertain what kinds of variations can occur in food display techniques. The variations exist because of the different markets, products, consumers, style trends, and technology in each of these countries.

To collect a sample that includes every type of food display in the places visited would, obviously, have been impossible. However, the slides that were taken are representative of each city. This selection was made with the knowledge of people with great experience in the packaging and food industry. The London sample was made under the direction of Mr. Frank Paine, Secretary General-International Association of Packaging Institutes, and the Paris sample in collaboration with Mr. Michel Veaux, Director of the Packaging Department, Laboratoire Nationale d'Essais, France.

As explained in Chapter V (Conclusions and Recommendations), the display of food packages is an area in which constant changes, innovations, and feedback are created.

Time is another important aspect in the sample collection: if the sample had been chosen during the winter, some differences would have been apparent.

1. Sample Collection

All the photographic slides used during this study were collected as follows.

a. United States

City: East Lansing, Michigan

Store	Slide Numbers	Quantity	Date
Eberhard's	1 to 23	23	June 1983
Kroger's	23 to 41	18	June 1983
Meijer's	42 to 61 Tot	al: $\frac{20}{61}$	June 1983

b. England

Store	Slide Numbers	Quantity	Date
Small Stores	62 to 86	25	July 1983
Harrods	87 to 106	20	July 1983
Paxton and			-
Withfield	107 to 109	3	July 1983
Fortnum and Mason	110 to 119	10	July 1983
Mark and Spencer	120 to 131	12	July 1983
Selfridges	132 to 139	8	July 1983
Sainsbury	140 to 146	7	July 1983
Spitalfields			
(Market)	153 to 168	16	July 1983
New Covent Garden			
(Market)	169 to 173	5	July 1983
Billingsgate			_
(Market)	174 to 179	6	July 1983
Street Carts			_
Retailer	180 to 181 Tota	1: $\frac{2}{120}$	July 1983

City: London

c. France

City: Paris

Store	Slide Numbers	Quantity	Date		
Small Stores	182 to 190	9	August 1983		
Euromarché	191 to 202	12	August 1983		
Uniprix	203 to 218	16	August 1983		
Prisunic	219 to 232	14	August 1983		
Monoprix	233 to 240	8	August 1983		
Au Bon Marché	241 to 247	7	August 1983		
Samaritaine	248 to 253	6	August 1983		
Fauchon	254 to 259	6	August 1983		
Felix Potin	260 to 263	4	August 1983		
	То	tal: 82	-		

NOTE: Total Sample Size was 263.

2. Sample Classification

As discussed in Chapter IV (Criteria for a Good Display), numerous aspects have to be considered during the display development. Therefore, several manners of classification are described.

a. Place (see Appendix A)

--Michigan

--London

--Paris

b. Type of Store (see Appendix B)

<u>Hypermarket</u>.--Having more than 100,000 sq. ft. of area and handling a whole range of products, they are usually located in an out-of-town area and generally provide ample parking space and aim to sell at lower prices than their competition. Other hypermarket's characteristics are:

--High volume
--Heavy use of warehousing techniques
--Heavy emphasis on large sizes.
--Tendency to shift functions to shoppers or suppliers.
--Sales greater than U.S. \$40 million/year
--Item stocked: 40,000

<u>Superstore</u>.--They are a little smaller than the hypermarkets and have fewer nonfood items, but usually have parking facilities. Other superstore's characteristics are:

--High merchandised specialty departments
--More general merchandise than conventional supermarkets
--Size: greater than 30,000 sq. ft.
--Item stocked: 15,000

--Sales: greater than U.S. \$5 million/year

<u>Conventional supermarket</u>.--Having less area than the superstores; usually have no parking facilities and often sell only food items. They are generally located on the main streets. <u>Convenience stores</u>.--Small stores are found in residential areas, and usually they sell only food products. Other characteristics of the convenience stores are:

> --Emphasis on "time saving" for shoppers --Convenient locations --Strong appeal to men --Limited selection of brands --Broad range of merchandise --Prominent use of leading national brands --Long store hours --Size: 2,400 sq. ft. --Item stocked: 3,000

<u>Market</u>.--The appointed place where goods are sold mainly in large quantities. This is where some stores buy their food products for distribution and retail.

c. Type of Food (see Appendix C)

> <u>Grocery</u>: --Liquor --Beverages --Candy --Spices --Soups --Condiments and Syrups --Others

Meats: --Meat

--Fish

Dairy:

Produce: --Fresh Vegetables

--Fruits

Bakery: --Bakery

--Snacks

Delicatessen

d. Materials (see Appendix D)

> --Corrugated Board --Plastic and Laminations --Wood and Wicker --Metallic --Paperboard

e. Location of the Display (see Appendix E)

--In-shelf

--Out-of-shelf

--Projecting from the shelf

--Counter

f. Position of the Display
(see Appendix F)

--Below

--Eye Level

--Above

See in Appendices A to E the detailed distribution of the slides according to the above classification. The slides forming the sample are numbered from 1 to 263.

CHAPTER III

CRITERIA FOR A GOOD DISPLAY-PACKAGE

A good display must consider the market, the product, an appropriate technical design, and an effective graphic design. Among the criteria for a good display some of the aspects considered overlap. Therefore, they will be dealt with only once under the main area of importance.

1. The Market

The market is comprised of a set of forces that facilitate an exchange process. A market implies a set of conditions--buyers with money and the inclination to spend--that affect the exchange process, thus determining prices and other terms of exchange. As defined by The American Marketing Association (4), marketing is the performance of business activities that directs the flow of good and services from producer to consumer or user. In the more modern and acceptable view marketing is the set of activities by which the demand for goods, ideas, and services is managed in order to facilitate the exchange process satisfactorily.

The most important marketing aspects related to the package-display development are the following.

a. Total Size

The number of display units is directly related to the market size. The number of display units required will determine the materials, process, and type of display.

b. Regionality

The consumer requirements may vary from one region to another; the type of display should be directly geared to these requirements.

> Examples: Slide 235 (Cheese in France) Slide 79 (Eqqs in London)

c. Seasonality

Some products are displayed only at harvest time or during holidays.

> Example: Slide 26 (Squash) Halloween (pumkins), Thanksgiving (turkey)

d. Wholesale Distribution

The steps, process, and handling that are involved in the product fabrication and the distribution system must be considered in the display design. A good display-package should save handling and distribution costs. This is directly related to the unit loads and pallet uses.

Example: Slide 144 (Butter from New Zealand) Slide 193 (Wines in France)

e. Retail Distribution

In the retail store, time and space are extremely costly. A display should make optimum use of time and space. The metal display is a new technique in this area.

Example: Slide 205 (Metalic display)

f. Consumer Profile

An in-depth knowledge of the characteristics and expectations of the consumer is required for the development of an appropriate display. The main aspects related to the consumer profile are:

> --Age. Example: Slide 38 (Cookies for children) --Sex. Example: Slide 156 (Oranges in a market) --Socio-economic Group.

Example: Slide 112 (Fortnum and Mason) Slide 43 (Generic Products)

2. The Product

According to Markin (4), the product is all those things offered to a market including physical objects, services, amenities, and satisfactions not only from the physical product or services offered, but also from personalities, ideas, and organization. The product differentiation is the creation and introduction of differential features, quality, style, or image into a firm's products as a basis for commanding a premium price or inducing a strong preference for the firm's offering.

The most important product's aspects related to the package-display development are the following.

a. History

A familiarization with the product history can be very useful in the display conception. Past experience should be utilized to build on the strong points and correct the weak ones.

b. Brand Share

The market position of the brand dictates the kind of display used.

Example: Slide 46 (Ketchup, traditional)

c. Description and Usage

If special instructions for the consumer are required, the display should serve to reinforce the package instructions.

Example: Slide 76 (Food recipe)

d. Frequency of Purchase

Depending on the shelf rotation of the products, different display concepts should be applied.

Example: Slide 211 (Pop drinks)

Slide 239 (Spices)

e. Size and Weight

The size of the display will often be determined by the size and weight of the product. Normally large products are not placed on displays.

Example: Slide 34 (Car with bread)

f. Prices

The display is a part of the product and is related to the price. High price food items and top gourmet brands do not often employ displays.

Example: Slide 113 (Fortnum and Mason)

g. Awareness of Competition

The knowledge of the competition's display techniques is very useful in display development. These observations can be especially instructive in helping avoid mistakes made by others.

> Examples: Slide 45 (Name in the box) Slide 57 (No name in the box)

h. Regionality

Since the market of some products varies among different regions, this fact should be reflected in the display used.

Example: Slide 222 (Bread in France)

i. Planned Advertising and Promotion

The display must be considered to be an element of the commercial strategies. When used in an advertising campaign or sales promotion, it must be available at the time of the campaign. The message of the display must match that of the advertising or promotion campaign.

Example: Slide 188 ("Coke")

3. Technical Design

Design is a creative activity. As explaned by Parr (6), it is not an exaggeration to say that creative efforts of man have produced that which most distinguishes him from other forms of life. Creativity as it applies to engineering is the ability to conceive basic innovations, to perceive in a given situation those problems that can readily be solved, to devise solutions to new problems, and to combine familiar concepts in unusual ways.

The most important technical designed aspects related to the package-display development are as follows.

a. Technical Consumer Requirements

--Ideal quantities, sizes, net weights.
--Importance of style, shape,
--Importance of style, shape, color, texture, and visibility.
--Requirement of the consumer to inspect and handle prior to sale.
--Easy to deliver.
--Opening, closing, and re-opening requirements.
--Dispensing/extraction.
--Measuring.
Example: Slide 133 (Candy in London)
--Protection against hazard.

Example: Slide (Wines; good)

Slide (Wines; bad)



Figure 1.--A display unit should be strong enough to be lifted from both ends.



Figure 2.--Displays must be adapted to shelves' conditions. Easy to deliver and inspection must be considered.

b. Estimated Display Life

The display life is determined in part by the marketing department's objectives. Its life depends on the materials, location, environment, and how much use it will have.

Example: Slide 31 (Onion soup; short life)

Slide 30 (For several products; long life)

c. Protection

The display must protect against:

--Moisture

Example: Slide 19 (Plastic display; good) Slide 236 (Cheese in paper; bad) --Microbiological Contamination

Example: Slide 130 (Gas flushed meat)

--Mechanical Damage

Must consider protection against crushing, dropping, squeezing, puncture, and other transit hazards.

Example: Slide 75 (Mustard in tubes) Slide 152 (Cake in thermoformed)

d. Production Capacities Available

If the display is assembled and shipped with the product, the plant capacity and the opportunity for introduction of new processes and machinery must be considered. If any extra changes are required to fit the display in the production line, the cost will increase.

e. Method of Storage

Depending on the size, weight, and characteristics of the product, special consideration must be given if the display is to be dispatched with the products. Stacking weight limits, handling equipment and methods, environmental conditions, and length of storage time, are aspects directly related to the technical design.

f. Distribution Requirements

During the display design, the method of transportation, loading, warehousing, wholesale storage, and retail storage must be analyzed. In some situations,

special attention must be paid to anti-pilfering requirements.

g. Retailer Requirements

The display is required to meet the objectives of the retail store by optimizing space use, providing space for coding and pricing, and meeting conditions relative to the shelves.



Figure 3.--Improper use of tear-tapes is not acceptable in retail stores.



Figure 4.--It is very important that the full depth of the shelves be utilized by the displays.



Figure 5.--Multi-layer display units are not readily accepted; the packages should be positioned for easy price marking.

4. Graphic Design

Graphic design which serves advertising-salesservices functions is directly influenced by the demands of the consumer society and has become indispensable to the free enterprise economy. Graphic designers are in a position to contribute to the improvement of the ethical and aesthetic quality of graphic communication. According to Cataldo (1), all communication--verbal and nonverbal--has the capactiy to manipulate, persuade, transform, and educate the public, it follows that graphic design is a social art and by this definition must assume the moral and ethical responsibilities of public service.

The most important graphic design aspects related to the package-display development are the following.

a. Communication

The main purpose of grapic design is to communicate, and communication is one of the main functions of a display. Two aspects must be analyed:

--Legibility: Instant recognition of letters, forms, and symbols.

Example: Slide 45 (good legibility)

Slides 14 and 138 (bad legibility) --Readability: Quick apprehension of the message Example: Slide 194 (good readability) Slides 29 and 51 (bad readability)

b. New Design/Redesign

A good display will not always be used permanently. The display must be continually improved: redesign, updating, and design continuity are essential.

c. Consumer Requirements

--Size

The display is dependent upon the type and size of package it is used for.

--Appropriateness of Display for the Product. Because of certain characteristics of the product/package, a display is sometimes required. For example, in products packaged in pouches, the display is used to keep the products in order on the shelf.

Example: Slide 82 (Coffee in bags) ---Importance of Display Appearance in Use. Problems are often encountered in the use of display, causing the display to lose its original appearance. The knowledge of the future use of a display is very important to avoid problems. The development of a prototype, before the display is produced, can be very useful.

Example: Slide 150 (Milk, contact with floor)

--Preferred/Associate Colors There should be a close relationship between the product and the display; colors must be compatible with the package/product displayed. Example: Slide 188 (Coke; good) Slide 225 (Juice; bad)

d. Usage Instructions

The retail employee will not always know how to assemble, set-up, and fill the display. Therefore, the instructions must be attached. In large displays it is best if they are printed on the back panel, so the retail employee will see them.

Example: Slide 23 (Out-of-shelf, instructions)

e. Position of Display

Several places are available in the retail store to locate the display:

--Shelf. Example: Slide 143.
--Counter Dispenser. Example: Slide 134.
--Window. Example: Slide 108.
--Out of Shelf. Example: Slide 18.

The advantages and disadvantages of each locale must be considered before a type of display is chosen. Consideration must be given to the normal traffic flow in the retail store.

Example: Slide 36 (Do not impede carts traffic flow)

Depending on the type of product, the position of the display may vary:

--Eye level. Example: Slide 210 (Cheese) --Above. Example: Slide 89 (Delicatessen) --Below. Example: Slide 59 (Sugar)

f. Production Requirements

The display design must be directly related to the selection of the materials, number of colors, methods of reproduction, size, and cost constraints.

Sometimes the shipping containers can be used as the display unit.

Example: Slide 148 (Juices in England)
CHAPTER IV

DISCUSSION OF THE SAMPLE

1. Material

According to Gunilla Johnson (3), the cost to a retail store with a typical distribution system may be broken down in the following manner.

Cost	Percentage
Handling and Storage	35
Sale	35
Packaging	25
Transportation	5
	100

This cost distribution demonstrates the importance of packaging, handling and storage as cost factors. These costs are directly related to the appropriate material selection.

The criteria for material selection depend on the type of product, as well as its size, weight and estimated display life, the environment in which it is stored, distribution requirements, retailer requirements, and graphic design objectives. Based on material composition, the displays are classified as follows:

- a. Corrugated Board
- b. Plastic and laminations
- c. Metallics
- d. Wicker and Wood
- e. Paperboard

a. Corrugated Board

With an appropriate design, the corrugated box can be used as a sale pack. Products packaged in sale packs are placed in the display unit are easy to deliver and keep in order on the shelves with little material handling (Slide 145). These sale packs present an attractive display, save space, and reduce residual labor because the display is the package itself.

According to the "Fibre Box Handbook" (2), the sale pack has become a "shopper-stopper" as marketing experts continually develop new ways to make it a powerful sales tool. Graphic design, multicolor printing, and special shapes all lend themselves to motivate buying impulses that sell (Slide 148).

Corrugated boxes can be designed in such a way that they are easily incorporated into displays including tray, base, and header (Slide 17). This merchandiser serves as an attractive display that can help make optimum use of retail space. Corrugated displays require little floor space, which is always at a premium. The inherent strength of corrugated boxes is an advantage, as well as its light weight and appeal to retailers.

Linerboard is available in mottled or bleached white or colors as well as the standard brown (Slide 194). Linerboard, which forms the surface of the box, can accept a wide variety of designs, illustrations, and type for added identification and sales power.

Corrugated boxes readily take line drawings, half tones, dots, and masses of colors. They print well using a variety of methods including flexography (Slide 18), silk screen (Slide 195), and rotogravure (Slide 148). Graphics and printing can be overcoated to resist scuffing and abrasion.

b. Plastic and Laminations

The factors that determine the use of plastics are:
Storage environment (Slide 19).
Humidity does not affect most plastics as
it does other materials as corrugated board,
paperboard, wood, or metals.
Display life (Slides 30 and 32).
A long display can be assured with selection
of resin, thickness, and manufacturing process.
This kind of display can be used for the

promotion of various kind of products. These displays usually belong to the store and are not a product-package display unit. --Distribution Requirements (Slides 74 and 247). The display-package must offer protection against the distribution hazards. The distribution system refers to integrated package and product handling from the factory to point of sale. It is usually understood that distribution packaging means the outer and/or intermediate container which is required for efficient transportation and storage. Foam injected displays can be used with products of any shape: tubes, boxes, eggs, etc.

--Special Packaging Processes (i.e., gas flush, slides 130 and 197). The controlled atmosphere packaging system allows products to be kept under chilled conditions with gas mixtures that both enhance their appearance and help to reduce bacteriological growth and spoilage of the product. The materials used for this system require a reasonably good gas barrier. The packages are usually produced on a twin-web reel fed thermoforming machine. The top web is a PVDC coated polyester laminated

to polyethylene which has an anti-fog property to allow the product to be seen more easily and prevent condensation from forming on the inside of the package. The base web is a lamination of PVC to polyethylene.

--Product shape. (Slides 146 and 152). Thermoforms packages and trays are widely used in display techniques. Trays help to keep order on the shelf, and are particularly useful when product's shape does not permit stacking.

--Merchandising (Slide 134).

The merchandising of some products requires over-the-counter displays. These displays are usually made by injection, have a long life expectancy, and a high cost.

--Transparency-Clarity (Slide 129).

Several film coatings lend have anti-fog properties and are used in controlled atmosphere packaging. The anti-fog works by altering the surface properties of the film in such a way that the water, instead of forming minute droplets, produces a vapor that becomes spread out evenly over the whole film so as not to impair the optical properties of the transparent film. Several processes are used in the manufacturing plastic displays:

--Thermoforming (Slides 28 and 131)

--Injection (Trays and Parts: Slides 19, 30, 134)

--Foam injection (Slides 75 and 137)

--Foam thermoforming (Slide 85)

Most thermoformed parts used in packaging are designed to partially or entirely contain a product, provide a certain degree of protection, and permit visual examination (Slide 126). Recesses can be provided in thermoformed parts. Rather, small, inwardly pointing projections are formed in the recess walls. The latter have an interference fit with the container. Their small combined area is easily deformed as the container is pressed into place and held snugly (Slides 55 and 146). Selection of the plastic material to be thermoformed can range from a fairly simple task to an extremely difficult one that requires many decisions, and judgments in consideration of tradeoffs between price, processability, printability, physical and barrier properties, light and scuff resistance, and any number of additional factors.

Injected parts are not often used in displays because of their high cost. Injection molds are expensive and require a high level of accuracy in their fabrication. Injection machines are also expensive and require a high

production level to assure quality and low prices. Injected parts for displays are thicker than thermoforms, which is another reason for their high cost. High volume and long display life are required for the use of injected parts. Slides 29, 30, and 201 are good examples of standard injection-molded displays used for several products and with a long expected life.

A foamed plastic sheet is just what its name implies: a nonsolid sheet filled with a nearly microscopic air cells. According to "Facts About Thermoforms" (5), the formed sheet is light in weight--usually in the range of 5 to 15 pounds per cubic foot (pcf); solid thermoplastics vary from 60 to 75 pcf. The sheet generally has a pleasing pearlescent appearance because of the air cells, which also are responsible for the sheet's translucency or opacity, depending on thickness, rather than transparency (Slide 85). Formed plastic sheets are thermoformed much like any sheet material. However, some care is required in the heating cycle, and cannot be given as deep a draw as solid sheet. One of the advantages they provide is rigidity or stiffness coupled with light weight. Thickness is also achieved with light weight, which gives the part a more substantial feel. Thermoformed foam sheets are mainly used in meat trays, replacing the widely used pulp trays. Other advantages of

thermoformed foam sheets are that they are nonporous, do not soak up blood, so that frozen meats do not adhere to them.

According to the display function, several properties must be considered in the use of plastic displays:

> --Impermeability (Slides 19 and 210) --Odorlessness (Slide 124) --Tastelessness (Slide 200) --Clarity (Slides 134 and 152) --Sealability (Slide 131) --Hygiene (Slides 129 and 196) --Flexibility (Slide 126) --Rigidity (Slide 30) --Printability (Slide 19) --Brightness (Slide 106) The plastic materials most used in displays are: --Polyethylene (Slide 19) --Polypropylene (Slide 29) --Polystyron (Slides 30, 106, 134) --Polystyron (foam) (Slides 75, 85, 137) --PVDC coated polyester laminated to polyehylene (Slide 131)

Because of their irregular shapes, plastic displays are usually decorated by silk screen process (Slides 29 and 217). Versatility is the principal advantage of screen printing. They lend themselves to printing on any surface--wood, class, plastic, fabric, cork, etc.-of any shape or design, of any thickness or size. Printing is done on the surface under the screen by applying ink with a paint-like, consistency to the screen, spreading and forcing it through the fine mesh openings with a rubber squeeze. Screen printing can usually be recognized by the thick layer of ink and sometimes by the texture of the screen on the printing.

Electronic and jet printing are pressure-less and plateless printing processes which are also used in display decoration (Slide 247). Flat surfaces can be labeled and almost any kind of decoration can be achieved by labeling (Slides 55 and 75).

c. Wicker and Wood

Wicker trays and hampers impart a country ambience to the retail store, and are widely used in Europe mainly with bread, wine, and cheese displays (Slides 221 and 243). Wicker is always used in basket form. Sometimes they are placed on the shelves as trays (Slides 202 and 235), and others are used as hampers containing different products: as part of a promotional package (Slides 94 and 113). Because of their country look, wicker displays are never printed or labeled. A comparison between Slides 243 and 201 provides a good illustration of the wicker appearance.

In display techniques, wood is used in several ways. Vegetables are often packaged in wood containers (Slides 161, 163, 170). The same packages are used as displays by street vendors and retail stores (Slides 180 and 252). Some stores use modular wood trays. They are painted, luxurious, and give a showy ambience to the store (Slide 101). In wine merchandising wood barrels are widely used. This display technique gives an ambience tailored to the product and an appropriate decoration (Slide 104). Furniture and shelves made of wood are used in fashionable stores; high priced products are usually displayed this way (Slides 113 and 114). High quality wood is treated, painted, and carefully handcrafted, making these set-ups an expensive way to display products.

d. Metallics

The metal wire container was invented to simplify handling operations, and conserve raw materials, energy, and labor. Metallic containers stack safely, thanks to their rigid sheet-metal base, their centrally reinforced skids, and their one-piece stacking corners (Slides 251 and 212). Vertical dividers can be installed, making them useful for several product items at one time.

"Manutentions et Magasins" (9) illustrates the advantages of metallic display-containers with a real life example: a store operator receives merchandise which he

must move from the truck to his storage area, and from there to his display area. Two methods are considered.

Method No. 1.--Delivered in cases or throw-away cartons (see Figure 6). This conventional delivery method is disorganized and time consuming. Shelving products, one by one, and on the display floor itself, interfers with sales by blocking the display aisle while the work is under way. The empty cases and cartons must then be disposed of.

Method No. 2.--Delivered in metallic displaycontainer (see Figure 7). As the figure demonstrates, this can be the most suitable method for some products. The task of loading the container is performed by the product manufacturer or by the central warehouse. The products are stored and displayed in the same container. The only investment required is a handling unit, either a transpalette or a manually operated fork lift.

The wire container is a distribution unit that saves in time, handling, labor, and packaging. It is more than just a storage, transportation, and display item: it is also a channel for dialogue with suppliers. If the business transactions between the stores and supplies are viewed in terms of containers, the container becomes the unit for management, for accounting, for orders, and for storage. The small collapsible wire container is well







Figure 6.--Delivered in cases or throw-away cartons. (Method No. 1 [9]).







Figure 7.--Delivered in metallic-display containers. (Method No. 2 [9]).

suited to major discount stores thanks to its size, its folding and stacking features, and its compatibility with other containers (Slide 208). On the sales floor, the metallic wire container makes products visible, while highlighting an impression of volume. Wire containers encourage sales by providing a fixed minimum display space for each item. Even from one side, the container mesh allows a clear view of products (Slide 231).

e. Paperboard

Paperboard displays are broadly used as in-shelf displays; through an appropriate design the unit-sale container becomes an in-shelf display (Slides 73 and 136). The unit sale is the container that carries the product up to the shelf. It does not reach the consumer. Paperboard displays are inexpensive, have a short life, and are almost always thrown away once empty.

Because products are usually stacked on the shelves, paperboard displays are not used with heavy products, i.e., glass bottles and canned products. Product weight is an important constraint in the projected displays form the shelves (Slide 31). By standardizing the unit-sale container display, companies can reduce cost, and material handling. The same unit is used as a unit sale, storage, despatch, and display (Slides 7 and 214). Different colors are also used (Slide 58). Paperboard displays are used with

nonwet products and in dry ambience; high humidity will substantially detract from their mechanical properties and appearance. Slide 236 shows a paperboard display on a refrigerated shelf; the display is broken.

Sometimes the unit-sale display involves a design for two options: products that are sold by box (the display is the box) or products to be sold retail (the box is the display) (Slides 100 and 136).

Flat paperboard "holders" are also used in food display. They must be placed in a corner where their display does not block other products from view. This kind of display is inexpensive, and easy to assemble, but can be used with light products only (Slides 80 and 81).

Paperboard trays are used for light and dry products (Slide 86). Their main advantages over thermoformed trays are their lower price, better printability, and folding properties (less storage space for the display inventory). Multi-pack products are also made of paperboard (Slides 187 and 188). Paper bags and paperboard are used in fruit displays (Slide 258).

Paperboard printing is done mainly by offset lithography (Slide 77). Offset printing can be recognized by its smooth and glib print, as well as by the lack of any impression or ring of ink or serroted edge which are characteristic of letterpress, flexography, or gravure.

2. Type of Store

Retailing is a business activity that brings products to consumers. The basis of retailing is exchange. Exchanging is giving up something with an expectation of receiving something in return.

The retailers' primary job in our society is to satisfy the wants of consumer by exchange. The retailer lets the wants of his customer guide his decisions. His long-run profits are determined by his ability to continue satisfying his customers. According to Spitz and Flaschner (8), the retailer uses four things to satisfy his customers:

- 1. Inventory or stock to be sold.
- Capital, which in addition to money includes physical assets, such as building, supplies, and handling equipment.
- The time, energy, talent, and ability of his employees.
- 4. Information.

The retailer's desire to make a profit by satisfying customers is called the retailing concept. The activities managed by the retailer are known as the retailing mix (Figure 8). They include product, pricing, promotion, and distribution decisions. Each part of the retailing mix calls for different types of decisions.



Figure 8.--The Retailing Mix. (8)

- --Product decisions are based on the satisfaction that products provide: Which products should be carried?
- --Pricing decisions are based on the value placed on products: How much should the product cost the retailer and for how much should it sell?
- --Promotion is based on contracting customers: What should be said about the product? How should it be displayed?

--Distribution decisions are based on location: Where should the store be located? Where should the product be displayed? How much inventory should be carried?

The retailer may decide to create a carnival atmosphere where shopping is a family affair and customers are welcome to spend hours in the store. Interiors, types of merchandise carried, pricing, sales personnel, and advertising must reflect this image. A number of resources are utilized alone, and in concert, to project a specific image: store location, store exterior, personnel, promotion, and merchandise.

According to the store classification given in Chapter II (Methodology), this sample considers the main types of stores:

a. Hypermarket

--Meijer's (Slide 42) --Sainsbury (Slide 140) --Euromarché (Slide 191)

b. Superstores

--Kroger's (Slide 24) --Harrods (Slide 87) --Mark and Spencer (Slide 120) --Selfridges (Slide 132) --Samaritaine (Slide 248)

c. Conventional Supermarket

--Eberhard's (Slide 1) --Europa Food (Slide 64) --Alliance (Slide 63) --Uniprix (Slide 203) --Prisunic (Slide 219) --Monoprix (Slide 233) --Au Bon Marché (Slide 241)

d. Convenient Stores

--Salibas (Slide 65) --Finn and Pierce (Slide 66) --Fruits-Légumes (Slide 183) --Felix Potin (Slide 182) --Le Bienvenu (Slide 186)

The location of the display is directly related to the type of store and space available.

Shelf displays are accepted in every type of store because their main function is to keep the products in order on the shelves and to make optimum use of store space. A good example is products packaged in pouches (Slide 82).

Projected shelf displays can be used when the projected unit does not interfere with cart and client traffic (Slide 68).

Out-of-shelf (self-standing) displays are widely used in hypermqrkets and superstores. The space available, frequency of purchase, and type of product are the main factors considered when using these displays. When a pallet is used, enough space must be available for the fork-lift to handle the pallets (Slides 193 and 213).

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

1. The role played by the food display-package is directly related to merchandising considerations which are determined by the objectives of retailer. The retailing mix is comprised of product brands, prices, distribution, organization, and promotion. Display package functions are closely related to promotion, but also overlap with other components of the retailing mix.

2. The type of display varies as the market changes. A market implies a set of conditions determining prices and other terms of exchange. Displays must meet the marketing objectives in order to facilitate the exchange process satisfactorily. The type of displaypackage to be employed is determined by the market size, consumer profile, region, season, wholesale distribution, retail distribution, and retail merchandising. Displays must also meet the requirements related to the product: brand share, description and usage, frequency of purchase, size and weight, prices, product history, awareness of competition, regionality, and planned advertising and promotion.

3. A good display implies a good design. Design is a creative activity. Technical design seeks to

conceive basic innovations, combine familiar concepts in unusual ways, and solve technical problems. An appropriate technically designed display must take into consideration the technical consumer requirements, estimated display life, protection required, product constraints, distribution requirements, method of storage, and retailer requirements. Graphic design is based on communication; it serves advertising-sales-services functions and is directly influenced by the demands of the consumer society. A good graphically designed display must contribute to the improvement of the ethical and aesthetic quality of communication.

4. The criteria for the display's material selection depend on the type of product, as well as its size, weight, and estimated display life, the environment in which it is to be stored, distribution requirements, and graphic design objectives. The main materials used are: corrugated board, plastic, metallic, paperboard, wicker, and wood. Selection of the display's material can range from a fairly simple task to an extremely difficult one that requires many decisions, and judgments in considerations of trade-offs between price, processability, availability, printability, physical and barrier properties, light and scuff resistance, and any number of factors.

5. Packaging Development deals with developing packaging ideas and coordinating the efforts of various

groups and individuals working on packaging problems. When a display-package is conceived, there are many factors which need to be considered and which limit or dictate the form in which it finally appears. The degree of importance of each factor varies under different circumstances, so that no established procedures can be equally applied in all cases.

6. The type of store is determined by the number and kinds of products carried, location, and space available for retailing. The retailer's desire to make a profit by satisfying customers is directly related to his promotion strategies. Promotion is one of the main objectives of displays. The location of the display is directly related to the type of store and space available.

7. There is no direct relation between the type of food and the type of display, i.e., soup in cans and soup in bags involve different types of displays. There is a greater degree of dependability among the kinds of packages and their displays; i.e., coffee in bags and soup in bags could have similar displays. Canned meat and canned soup also lend themselves to similar types of displays.

8. There is no fixed theory in food display techniques. It is an area in which constant changes, innovations, and feed-back are created. A good display

must consider the market, the product, an appropriate technical design, and an effective graphic design. Variations exist due to the differences in the markets, products, consumers, materials, and technology available in each country.

9. This study must be continued and the range of samples must be broadened in order to keep the information in food display techniques up to date. There have always been students from a great number of countries in the School of Packaging at Michigan State University. Each year the sample can be extended to other countries so that in the future the School of Packaging will have a valuable teaching material important for the students and the industry.

10. For this study the slides were numbered from 1 to 263. If the sample is to be enlarged in the future, a slide storage system must be used so that superior features in utility, flexibility, and expansion can be obtained. The "Abodia" rack system stores, views, and edits slide collections. Slides are stored on metal racks and plastic tracks allow any rack to be easily placed into the illuminated viewing position. Individual slides or entire racks are removable. For more information contact Elden Enterprises, Inc., Box 3201, Charleston, W.V. 25332.

11. All the slides considered in this study were taken without store permission. Proper procedures to

continue this study is to ask the directors of the stores for permission so the slides can be taken in a more favorable situation. APPENDICES

APPENDIX A

CITIES USED IN DATA COLLECTION

APPENDIX A

CITIES USED IN DATA COLLECTION

City	Slide Number
East Lansing	1 to 61
London	62 to 181
Paris	182 to 263

APPENDIX B

TYPE OF STORE

APPENDIX B

TYPE OF STORE

Тур	e of Store	Store's Name	Slide Numbers
a.	Hypermarkets	Meij er's Sainsbury Euromarche	42 to 62 140 to 146 191 to 202
b.	Superstores	Kroger's Harrods Mark and Spencer Selfridges Samaritaine	24 to 41 87 to 106 120 to 131 132 to 139 248 to 253
с.	Conventional Supermarket	Eberhards's Europa Food Alliance Off-Licence Uniprix Prisunic Monoprix Au Bon Marche	1 to 23 64 63 62,80,81 203 to 218 219 to 232 233 to 240 241 to 247
d.	Convenient Stores	Salibas Finn and Pierce Fruits-Legumes Felix Potin Le Bienvenu	65,70,73,78,79 66,68,69,71,74, 75,77 183,189,190 182,185,260,261, 262,263 186,187,188
e.	Markets	Spitalfields New Covent Garden Billingsgate	153 to 168 169 to 173 174 to 179

APPENDIX C

TYPE OF FOOD

APPENDIX C

TYPE OF FOOD

1.	Grocery	
	Liquour	101,102,103,104,105,106,114,115, 192,193,218,240
	Beverages	15,16,17,25,27,37,41,44,51,58, 71,72,82,148,188,194,211,220, 225,226,242
	Candy	56,77,80,81,96,97,98,99,100,133 134,135,151,195,255,261,262
	Spices	32,39,78,85,137,138,239,253,263
	Soups	31,43,50,83,190,214,215
	Condiments and Syrups	2,7,8,9,14,30,35,36,46,47,48,53, 57,69,74,75,113,116,143,205,237, 251
	Others	10,45,59,60,70,76,124,141,142,189
2.	Meats Meat	21,89,90,129,130,131,196,202,221, 224
	Fish	61,88,91,92,125,139,178,179,259
3.	Dairy	4,79,93,94,95,107,108,109,122,123, 126,128,144,145,146,149,150,187, 206,207,209,210,213,217,224,227, 228,235,236,238,245
4.	Produce Fresh Vegetables and Fruits	26,28,29,156,157,158,159,160,161, 162,163,164,165,166,167,168,170, 171,172,173,180,181,200,201,229, 230,232,243,250,258
5.	Bakery Snacks and Bakery	3,11,12,18,20,23,33,34,38,40,54,55, 73,84,112,127,152,208,212,216,222, 223,231,246,247,256
6.	Delicatessen	89,90,93,107,108,109,113,202,235, 259

APPENDIX D

MATERIAL

APPENDIX D

MATERIAL

a.	Corrugated Board	2,3,8,10,11,12,13,14,15,16,17,18, 22,23,25,26,27,33,34,35,37,38,39, 40,43,44,45,46,48,50,51,52,54,57, 70,84,127,141,142,144,145,148,150, 156,157,158,159,160,165,168,173, 193,195,213,218,226,229,230,237, 242
b.	Plastics and Laminations	19,21,28,29,30,36,55,74,75,85,106, 124,125,126,129,130,131,134,137, 138,146,152,196,197,198,200,201, 209,210,217,224,244,247
c.	Wood and Wicker	79,94,95,101,104,105,113,114,115, 116,161,162,163,164,166,167,168, 170,180,202,221,222,223,235,240, 243,252,255,261,262,263
d.	Metallics	4,53,69,78,83,133,135,205,206,207, 208,211,212,216,231,239,250,251, 253
e.	Paperboard	7,9,20,25,31,32,41,47,49,56,58,59 60,71,72,73,76,77,80,81,82,86,96, 97,98,99,100,102,103,122,123,128, 136,143,151,171,172,178,179,187, 188,189,190,192,194,214,215,225, 227,228,232,236,238,245,246,258

APPENDIX E

LOCATION OF DISPLAY

APPENDIX E

LOCATION OF DISPLAY

a.	In Shelf	7,9,10,19,28,29,41,43,44,45,46,47, 48,49,50,51,52,55,56,57,58,59,60, 70,71,72,74,75,76,77,79,82,94,95,96, 97,98,99,100,101,108,109,112,113,116, 118,122,123,124,125,126,127,128,129, 130,131,133,135,137,138,141,142,143, 144,145,146,187,188,189,190,194,196, 197,198,199,201,202,206,207,209,210, 212,214,215,217,220,224,225,227,228, 229,230,232,235,236,238,240,243,244, 245,246,247,250,251,252,256,257,258, 259
b.	Out of Shelf	2,3,8,11,12,13,14,15,16,17,18,21,22, 23,25,26,27,33,34,35,37,38,39,40,54, 78,84,86,89,90,104,105,106,114,115, 148,150,192,193,195,205,208,211,213, 218,221,222,223,226,231,237,239,242, 253,255,261,262,263
c.	Projecting from the Shelf	4,20,30,31,32,36,53,69,80,81,83,85,151, 152,200,216
đ.	Over the counter	73,102,103,134,136,139

APPENDIX F

POSITION OF THE DISPLAY
APPENDIX F

POSITION OF THE DISPLAY

a.	Below	3,8,12,14,18,22,23,33,34,37,38,39,59, 60,67,80,81,86,94,98,101,106,108,109, 133,135,139,144,145,148,159,161,162,163, 171,173,192,193,195,201,205,206,207,211, 212,213,231,232,237,242,243,252,258,262.
b.	Eye Level	2,7,9,10,11,13,15,16,17,19,20,21,25,26,27, 28,29,30,31,32,35,36,40,41,43,45,46,49, 50,51,53,54,55,56,57,58,61,69,70,71,72.73, 74,75,76,77,78,79,80,81,82,83,84,85,95,96, 97,99,100,102,103,104,105,112,113,114,116, 118,122,123,124,128,129,130,131,134,136,137, 138,141,142,143,146,150,151,152,157,158,160, 164,165,166,167,168,174,180,186,187,188,189 190,194,196,197,198,199,200,202,208,209,210, 214,215,217,220,221,223,224,225,226,227,228, 229,230,235,236,238,239,240,244,245,246,247, 253,256,257,259,261,263.
c.	Above	4,44,47,89,90,115,125,126,127,216,218,222.

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