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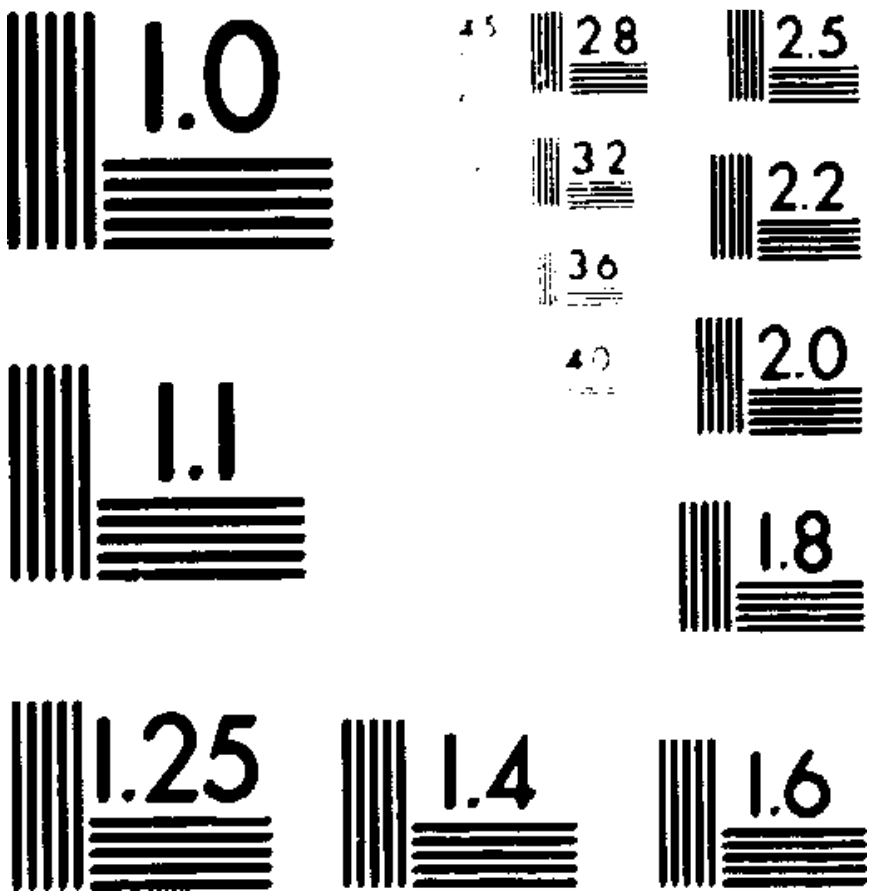

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DP/ID/SER.A/556
7 December 1984
English

ESTABLISHMENT OF THE ARAB REGIONAL PACKAGING CENTRE

DP/RAB/83/020

Technical report: Seminar on Packaging Design and Marketing of Agricultural and Agro-Industrial Export Products*

Prepared for the Arab Industrial Development Organization
by the United Nations Industrial Development Organization
acting as executing agency for the United Nations Development Programme

Based on the work of
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United Nations Industrial Development Organization
Vienna

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V.84-94042

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INTRODUCTION

Mssrs. Blau and Bishop were requested by UNIDO (Vienna) to participate in a seminar on "Package Design and Marketing" to be held in Casablanca at IMEC for representatives of the Arab States. This seminar was in conjunction with long term plans to shift The Moroccan Packaging Institute to a broader based Arab Regional Packaging Centre (ARPAC). It was the understanding of Mr. Blau that the emphasis brought a marketing connection and structured design in food packaging would help to broaden the perspectives of the ARPAC project.

MISSION BACKGROUND

Interest in Mssrs. Blau and Bishop's participation in the seminar by UNIDO was first shown in a telex dated 6/5/84. Possible appointment was indicated in a wire dated 6/25/84. Final confirmation of appointment received 7/5/84 in California. Travel authorization received 7/17/84 through Thomas Cook Travel, Chicago.

Mssrs. Blau and Bishop began preparation on about 7/2/84 for project after discussions with Mr. Mackler of the U.S. State Dept. (Office of Industrial Organizations) and Mssrs. Crooke and Buhlouli of the New York UNIDO office.

A computer search of relevant information was begun at the Chicago Public Library searching various data bases on packaging materials, structure and population trends. This search was quite productive. Less productive were searches for food marketing trends in Africa, Asia and the Middle East. Telephone calls were made throughout the United States to obtain packaging material samples and audio-visual materials as requested. The main effort here was directed at clients and suppliers of Blau/Bishop and Assoc., Inc. because in the short period of time between 7/4 and 7/20 establishing confidence in others to send expensive audio-visual materials would have been difficult.

FINDINGS AND FINAL RECOMMENDATIONS

Attendees at the seminar seemed to be truly interested in the transfer of information that can take place at such an event. Mr. Blau and Mr. Bishop came with the direct purpose of transferring information on two important aspects of export packaging.

1. Information on increasing the effectiveness of export package communication through the use of sophisticated market planning techniques (Mr. Blau).

2. Information on new packaging materials, structures and the techniques of design thinking (Mr. Bishop).

Unfortunatley there were only a few individuals attending the seminar who were either in a position to functionally utilize information in either topic or had the technical background to fully utilize the information. Thus we would respectfully make the following recommendations for your consideration in future seminars of this type.

1. The seminar should start promptly at 0900 and run through 0400 with a light lunch or sandwiches served at lunchtime.

Rationale: Enough time in each day must be provided to intensively examine a topic.

2. Each session (half day or full day) be devoted to one topical area with no more than 2-3 speakers each giving a 20-25 min. paper. The remaining time, 1 1/2 hrs. should be devoted to discussion between the attendees and the speakers.

Rationale: This will allow enough time for the transfer of information even when an attendee is not in a directly related position or does not have enough background to assimilate the content from a topic alone.

3. Amongst each group of 2-3 speakers in each session could be at least one speaker who will present a short, concise case history in the topical area in which he shows what was done in his country and whether it succeeded or failed. For example in the marketing communications section, the gentleman from Algeria had presented the ITC Mejido (canned vegetable) project as a case showing how Algeria worked with ITC, the problems in implementing the solution and the kind of market feedback they received.

Rationale: Case histories show that the topic is not just an abstraction and domonstrate that on the local level these things can be done and where problems may arise.

Relative to more general findings that may be somewhat discolored by the short time available for inquiry we would suggest these ideas.

4. In general terms, for those Arab States that are advanced enough to be considering the export of packaged and even bulk products to international markets, consideration should be given to having available an experienced marketing executive on their trade council or at the enterprise level, with economics, advertising and distribution.

Our observation was that there is a tendency on the part of those Arab States with strong public sector participation in export (through trade monopolies, etc.) to push for local production of all packaging elements in order to build up local capacity. We would see the successful marketing of product lines (i.e. wine, canned fruit, fruit syrups, etc.) to more developed countries as an undertaking totally divorced from the problem of industrial underdevelopment. Thus, for example, if a certain state can produce a superior fruit syrup, they should use the best resource, whether bad or not, for designing a suitable bottle that then would be locally produced. But if local printers cannot do a quality printing job, it is more important to present a quality image for export and achieve success with the exported products then to give a local printer the job and have a low quality product appearance that fails in the marketplace. If this raises the cost of goods then they must develop a marketing program through their exporter that will sustain the price necessary to pay for these ingredients in the "marketing mix."

Rationale: Many of the products currently exported from the Arab countries to Europe and other areas are bulk shipped so that "packaging" in the usual sense is not a factor. Yet several "package marketing" techniques commonly used with other bulk exporters could contribute value added and country loyalty to these exports. For example, the problem of identifying dates was brought up by one of the representatives from Iraq. Two suggestions were made to him.

A. Development of a "date mark" (or product mark) i.e., a symbol with the words "Quality Dates From Iraq". Then in negotiation deals with importers. an advertising allotment is made by the exporting agency for the importer to carry this mark on all packaging and possibly in local print ads. This same concept can apply to certain other fresh bulk shipped products. Essentially Morocco is doing part of this in their "Moroc" mark and promotional program on oranges.

B. In negotiating trade deals on bulk shipped products special allowances can be given if the importer uses packaging and a brand name designed specifically by the exporting country. Thus the product could be shipped in bulk, the packaging printed at the destination market, but a brand loyalty could be developed for adding value and consumer recognition.

ADDITIONAL IDEAS AND COMMENTS

1. Fellowships for study abroad might be more productive for the individuals selected if they could be more business than academic oriented. For example, in the area of packaging design selected individuals should work in a package design firm or with a packaging coordinator in a multi brand company such as Nestle, General Mills, Castle & Cook, etc. This would expose them to real problems and techniques used in business rather than abstract problems.

2. "Documentation" - although this is an area only obliquely connected to our mission, and the translation of Mr. Hammi's talk was rather garbled, we got the understanding that IMEC (ARPAC) is going to develop a "database" in packaging information in their own computer. If this is the case, it is our feeling that this effort would not be cost or time effective and we would suggest an alternative approach. In the U.S. there are large databases available (Predicast, Nexus, Source, etc.) through the public libraries, that for a nominal charge can be resourced. These databases carry abstracts of articles in all aspects of packaging, materials, food processing, etc. The printout is incredibly fast and the information is current within a month of the date of entry.

If Mr. Hammi could research this source, obtain the various database thesaurus, he could telex the code accessing information to a cooperating counterpart in the U.S. and within 3-5 days have a printout of relevant articles in his hands. This might be less time consuming, less costly, and provide more up to date information than trying to enter the data into a computer in Casablanca. Another alternative would be to subscribe to the databases and hood in directly via satellite or long line transmission.

We may not have understood, as mentioned earlier, the intent of this documentation program, but if our understanding was correct, we would strongly recommend assessment of this approach.

THE MARKETING APPROACH TO PACKAGE COMMUNICATION AS A FACTOR IN EXPORT PACKAGING - A paper presented by Mr. William Blau

In the Peoples Republic of China pretzel sales have risen 25% in the last three years. In 1983 chocolate pretzels were introduced and consumer response has been most encouraging. From a thousand years of rice to chocolate covered pretzels! I find this kind of change in food patterns truly phenomenal. A developing nation like China that only in the last ten years has moved decisively into foreign trade is developing a consumer taste for processed foods far removed from their rice culture.

This shift in consumer taste is concurrent with a vast distribution upheaval. Since 1978 about 80% of all new retail shops and restaurants are privately owned.

There is an important lesson to be learned from this for all food exporting nations. Markets and consumer tastes, whether in Asia, Sub Sahara Africa, The Middle East, Europe or the Americas are changing rapidly. Marketing as contrasted with just selling, deals with these changes.

The increasing urbanization of world populations has a profound effect on food use and distribution that will promote a shift from commodity distribution (in bulk) to small packaged foods that offer consumer convenience.

We realize that currently a large portion of foods from the Arab states are exported as fresh commodities, in part because of the limited capital available for package forming and printing equipment, materials, and trained personnel. Yet it is interesting to note that in the U.S. one of the fastest volume growth

has been shown by aseptic packages that have been produced in Europe not in the U.S. This should demonstrate that one can be successful utilization of imported packaging materials.

Small package exports of processed foods offer the exporting nation a much higher return of profit per sales unit. Developing a successful small package export program requires a sophisticated marketing approach because there are many gigantic multi-national companies like Nestle, Beecham, General Foods who are smart and aggressive and will squeeze out national industries of developing nations unless you can and will use the same marketing techniques that they do. Packaging is one of those techniques!

This means that you must shift your thinking from a commodity viewpoint to a marketing outlook. What do we mean by this? Concisely it means measuring export success not in tons but in profitability.

We believe that developing countries will find it more profitable in the long run to invest in developing and promoting national, multi-lingual brands in their strongest product lines. This may mean changing domestic brand names when exporting for names that verbally and visually are comprehensible across broad sectors of the world.

A sophisticated marketer does not rely only on his broker, negociant, or trade representative for information about a market. These sources will most often tell you what may have been true in the past but they will have very little contact with consumers so they will be less likely to be able to provide you

with intelligence on consumer trends in the future. As a marketer you are interested in the future with the past serving only as historical background. To find the information you really need you must gather primary intelligence on consumer behavior and motivation which you should be able to contract for from a local service.

So in its simplest form marketing involves:

1. Developing the right product at the right price for the right market.

2. Assessing the size of the market competitively to see if there is room for your penetration.

3. Emphasizing product uniqueness through:
   - Taste
   - Packaging
   - Advertising and/or promotion

4. Conducting consumer research to determine if your marketing program is meaningful to the consumer.

5. Test your program on a small market first as a way of reducing risk.

6. When everything is right, back the program fully with adequate funds.

ANNEX II

THE OUTLOOK FOR MATERIALS AND STRUCTURAL DESIGN IN FOOD PACKAGING
A paper presented by H. David Bishop

Ladies and Gentlemen, Mr. Chairman: It is indeed an honor to speak to you today. It is also a pleasure to view with you the excellent facilities of the packaging center here in Casablanca. Mr. Blau has lectured on "Package and Label Graphics in Export Marketing." I will limit my discussion to "Packaging Methods and Materials That Provide Aseptic Food Product Protection."

Let me emphasize that the purpose of this resume on package materials is not to recommend one material or one process over another, but rather it is to summerize the package alternatives and opportunities that are or will soon be available.

When we look at today's technological achievements we tend to forget that:

- Glass is the original plastic. Its barrier properties exceed anything that our technology has been able to achieve.
- Its color can be altered.
- Its transparency is crystal clear.
- It can be made as opaque as onyx.
- It is the most inert of all plastics.
- It is the original aseptic package material.

But glass is brittle and glass is heavy. The manufacturing process is also energy intensive. But no more so than alternative materials. It is these drawbacks that have inspired the development of new materials that solve the disadvantages and compromise on the attributes of glass.

Overly simplified, these materials can be subdivided into four broad categories:

1. Metal cans and glass containers - that maintain an aseptic atmosphere by vacuum or brine emersion.
2. Flexible film and sheet combinations - that provide gas and moisture vapor control.

3. Refrigerated and frozen foods - that depend on temperature control.
4. Plastic containers with variable aseptic food protection abilities.

The steel can has been the ultimate aseptic food package for many, many years. It offers the maximum protection for the longest time. At a reasonable cost. Almost any known food product can be successfully contained in steel and high line speeds are cost effective. Evolution of the metal can has not been as spectacular as has other food package materials. It has, however, been sufficient enough to sustain world wide importance in the food field.

The soldered seam can will soon be a package of the past. Within five years it will be completely phased out of world markets. Replacing it will be welded seam cans with or without a "white coat" interior surface. Also the two piece pressure formed tin free steel can with improved surface corrosion resistance is increasingly more evident in the market place.

The world wide demand for metal cans is astronomical. In the U.K. alone 7.5 billion cans are used. This averages out to 375 cans per household per year. Add 150 more cans per household if you include aluminum beverage cans. European market consumption is comparable. The welded seam can and the two piece pressure formed steel can should ultimately boost even these consumption statistics at least until the time that lighter weight counter parts evolve.

As you know the frozen food package does not depend on package materials to sustain the frozen environment. Numerous films and film foil combinations help sustain freezing temperatures (for a short time) out of refrigeration. Suffice to say the frozen food market is huge, particularly in developed nations where the frozen food system is in place. In Western Europe alone, frozen food packaging and equipment sales in 1978 totaled 21.8 billion dollars. Predictions are that frozen food consumption in Western Europe will rise 10-12% per year on average.

Frozen fruit and vegetable consumption will rise 10% per year. Frozen meat and fish consumption will be up 6% per year. Frozen food consumption growth statistics in all the industrialized nations are just as dramatic for the near term being five to ten years. However, growing energy costs, the growth in world population and technical sophistication in processing and packaging will inhibit frozen food growth in the long term, i.e. ten to twenty years. In their zeal to produce ever better packaging films for frozen foods, the plastics industry is on the verge of threatening the frozen food concept. New films and film combinations are so adaptable to food processing techniques (retorting, freeze drying, micro wave sterilization, etc.), that freezing to achieve product stability and quality is no longer necessary.

There is literally a packaging film, or combination of films that can achieve and maintain any type of internal package atmosphere that the food industry might require.

Introduction of new film/foil/board combinations is prolific and rapid.

Alcoa and Boise Cascade Companies in the U.S.A. - have a new aseptic can that is compatable with high temperature sterilization processing using hot air in place of steam.

R.J. Reynolds (U.S.A.) and Jansberg (W. Germany) - have a new aseptic paper bottle that will allow fresh milk storage for 30-40 days without refrigeration.

Alfa Star (Sweden) - a new transparent plastic package called "multi therm" that achieves sterilization of solid foods by micro wave exposure.

Alfa Star (Sweden) - "Achilles", a new composite package that will keep dairy products for extended periods without refrigeration. Purpose: To allow the distribution of locally produced milk in developing nations.

General Electric (U.S.A.) - a new formable retortable pouch using lexan polycarbonate as a barrier for retorting solid foods at normal sterilization temperatures.

This is a direct threat to the metal can!

Aseptic retortable flexible pouches are not in themselves, new. But recent developments are making them more attractive to even the industrialized nations who up to now have not been receptive because of the well established refrigeration system that exists.

Previously there have been other drawbacks. Pre-formed pouches were limited primarily to pumpable foods. Because an aluminum foil barrier does not fold, the interior pouch space is not efficient. And line speeds are slow as compared to metal can lines. Recent developments by companies like G.E. and American Can are revitalizing the "flexible can."

Technology for forming a pocket in each half of the film foil sheet is now possible. This will greatly increase the interior capacity of the pouch.

The most exciting development is the General Electric deep drawn all-plastic tray with a film seal cover that will allow top filling of chunk foods/vegetables, prepared entrees, meat and seafood, and which can be retort processed at 250-275°F. This form-fill and seal aseptic package concept is indeed a "state of the art" package that can well serve all nations - developed and developing alike.

Of all the new aseptic food package concepts, the "paper bottle" or film/foil/board composite package is in greatest distribution. Composites represent over 90% of all aseptic packaging systems. There are currently 25 firms in the U.S. and Canada producing these aseptic package filling equipment and composite blanks. Tetra Pac (a Swedish firm) pioneered the paper bottle concept and continues to dominate the U.S., Canadian and European market with the "Tetra Brick" package. In the U.S. market the primary growth has been in the single serve fruit juice market. This

package concept now represents 25% of the fruit drink market in the U.S. and is growing.

Last year (1983), U.S. aseptic package production exceeded 750 million units. By next year dollar volume is expected to be 1.75 billion dollars. By 1990 aseptic package dollar volume is expected to double at minimum. By 1990 there will be at least 30 contract food firms (in the U.S.A.) that will specialize in irradiation systems to work in conjunction with aseptic packaging to further extend this package's desirability.

The 'paper bottles" advantage in fast sterile fill is exceeded only by its low cost.

The package costs approximately half as much as a 1 litre can and about a third as much as a 1 litre glass bottle. As I mentioned, the U.S. market penetration has been primarily limited to single serve fruit juice packaging, with perhaps 1% use in dairy packaging. In Western Europe 40% of milk sales are in aseptic composites according to "Tetra Pac." Because ultra high steam sterilization temperatures are now required, large food partical sizes cannot be adapted to composite packaging. However, rapid evolution in food processing and packaging techniques is an expected phenomenon today.

The probability of packaging of all food items (now frozen or canned) in low cost, shelf stable paper composite packages is technologically possible and is probable within the next five years depending on competitive aseptic package technologies forcing change.

Technologically speaking, the most exciting aseptic package development is the high density/co-extruded/injection blow bodel "Gama" bottle. The container is produced by American Can Co. It is exciting because the barrier properties almost match those of glass. This high degree of product protection has never been attainable before! This new container is just as protective and it is ten times lighter than a glass container of the same capacity. While the cost is considerably higher than glass, savings in

freight costs bring costs back in balance.

This co-extruded container is ideal for products subject to flavor losses in conventional plastic bottles such as barbecue sauces, catsup, mayonnaise, salad dressings, fruit juices, tomato-based products and wines. It is also excellent for containing chemicals and pharmeceuticals that are sensitive to oxygen.

Available in a variety of shapes, the bottle can be designed for squeezing and dispensing thick products, or made with convenient handles in lightweight jugs for fruit juices or oils. The container is resealable and can be easily affixed with tamper-evident closures.

The bottle was developed through proprietary technology that combines different plastic materials to attain bottle properties not available before.

The technology incorporates unique extrusion, die and mold designs that allow its barrier layer - an ethylene vinyl alcohol copolymer material - to be sandwiched and blow-molded in a controlled density for proper product protection.

The barrier layer provides protection against oxygen migration to the product and helps lock in flavor and aromatics. The material has a strong tolerance to heat and will not lose its properties in elevated temperatures involved in filling operations or on-the-shelf storage.

The co-extrusion allows the combining of lower cost materials such as polypropylene, high density polyethylene or low density polyethylene with the more expensive barrier material. The base materials provide structural strength and a moisture barrier.

The multi-layer technology also allows a variety of materials as alternatives, to tailor bottles to specific product needs.

I have touched on a very small cross section of food packaging alternatives and food processing associated with them, and new and exciting food package techniques, materials and processes.

The package types touched on today will also result in handling ease, improved product protection and less cost.

One thing we know for sure is that evolution in the food industry and evolution in the packaging that serves it is inevitable.

Let us remember though-

Packaging is the immediate answer to current food industry needs. Future package solutions must be based on the future needs and requirements established by the food industry. There are many factors of course that will influence these future needs and requirements. Among these are five that I believe apply the most.

1. ENERGY - Everyone is acutely aware that the cost of energy has increased dramatically in the past decade. The cost of selected raw materials has doubled or tripled since 1970, whereas the cost of energy has increased 13 fold. The high cost of energy has had and will continue to have, profound effects on food processing, product formulation, packaging and distribution practices.

2. LABOR - Industry and government must carefully examine the projected need for appropriate kinds of artisans, then assure that educational institutions of the vocational/technical type help fill these needs.

A second less noticeable, rarely discussed, but perhaps equally important labor problem exists within the food industry. Research and development groups of most large food firms employ many individuals with advanced degrees.

Could it be that the most capable advance degree personnel either are not or are attracted but remain sufficiently unchallenged that all too many eventually migrate to other fields? Over the long term, the food industry cannot afford either of these possibilities.

2. COST AND WASTE DISPOSAL AND POLLUTION CONTROL - This factor is already of considerable importance in industrialized countries and its impact on the food industry is not likely to diminish. A number of management decisions will be influenced by this factor, including the location of new plants, whether to continue operation at a current site, the feasibility of continuing or beginning the manufacture of certain products, and the emphasis given to waste-reduction procedures.

3. GENERAL ECONOMIC SITUATION - The general economic situation, including interest rates, the rate of inflation, and the economic well-being of consumers, has an obvious influence on the kinds of decisions made by managers and on the profitability of their firms. Several knowledgeable individuals have expressed the opinion that recovery from the present recession will, at best, be slow and that a return to the economic good times of the 1950's, 60s and 70s is unlikely.

4. DEMOGRAPHICS - The age group that constitutes the U.S. population and projections as to how these groups will change in size between now and the year 2000. These projections for the U.S. and counterpart projections for other countries are of great importance, since they directly influence the kinds and amounts of food products that the public is likely to buy. Specifically, between now and the year 2000.

URBANIZATION - A well known phenomenon in many countries, both industrialized and non-industrialized is likely to continue. Some of the consequences are certain and prompt. Urbanization increases the distance between area of food production and areas of food consumption, thereby increasing transport time.

5. GOVERNMENT POLICIES AND REGULATIONS - Have profound efects on the food industry, some of which are undesirable when viewed from the public's viewpoint. Thus, serious attention should be given to ensuring that governmental policies and regulations are formulated and administered in a wise and fair manner.

Governmental involvement in operations of the food industry is the incentive that has been provided for improvements in analytical techniques. For example, methods and instruments for measuring contaminants of food, nutrients and the bioavailability of nutrients have greatly improved in recent years. This is attributable in no small part to the existence of government regulations and to governmental support of research in these areas.

In the absence of government research funding, institutions like IMEC can obtain pertinent data from other governments or work independently in procuring desired data for consumer protection and the establishment of desirable packaging standards.

Meaningful quality controls in conjunction with imaginative problem solving food packaging can and will achieve positive consumer response within the Arab States or for trade exchange with other nations.

Thank you very much.