

ASSEMBLY AGRICULTURE COMMITTEE MINUTES

APRIL 8, 1975

267

MEMBERS PRESENT: Chairman Hickey
Vice Chairman Price
Mr. Getto
Mr. Coulter
Mr. Howard
Mr. Jeffrey

MEMBERS ABSENT: Dr. Robinson

GUESTS: S. D. Mastroianni, State Division of Health
James A. Edmundson, Nevada Health Division
Joe Frade, Valley Dairy
Ray Jarman, Meadow Gold Dairy
Clarence J. Cassady, Dairy Commission
John O. Olsen, Associated Nevada Dairymen, Inc.

A quorum being present. Chairman Hickey called the meeting to order for the purpose of hearing testimony on AB 323, AB 401 and SB 23.

AB 323, which deletes exemption of certain vendors from licensing requirements for traveling vendors, was discussed first.

James Edmundson and S. D. Mastroianni from the State Division of Health spoke on behalf of the bill. Mr. Edmundson stated that they had research their statutes, NRS 650.010 and discovered this peddler bill which appears to be in conflict with other existing statutes. They came up these changes to the law which would mean that poultry or livestock would not be exempt from this regulation.

Mr. Getto asked Mr. Edmundson to explain Chapter 650 of the NRS. Mr. Edmundson stated that this was the peddler act which requires those people covered by it to obtain a permit from the city or county where they are selling their products. The conflict was with letting the peddler sell uninspected meat or milk as a vendor, without a permit.

Mr. Price asked if this would mean that the person hauling livestock to the place for sale would have to have a permit. Mr. Mastroianni stated that it only was concerned with the final products of the meat and milk.

Mr. Hickey then read Chapter 650 into the record. A copy of this is attached as Exhibit I and herewith made a part of this record.

Mr. Getto asked if this would include some rancher who butchers his own beef. He would not be allowed to sell this meat unless he went through an authorized plant.

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Mr. Edmundson stated that this was aimed at someone taking that meat into town and peddling it piece by piece. It is not aimed at the rancher selling a side of beef or something like that to someone.

Mr. Hickey asked if they had had any problems of this type in the past. Mr. Edmundson stated that they had not but when they were going through the various statutes which concerned their Division they discovered this one. It is a very small chapter which is completely separated from the rest of the chapters which concern them and it has been overlooked for a long time. However, they feel that should someone really want to they could pick up on this and there could be a real hassle which is what they would like to avoid.

Mr. Edmundson concluded by saying that their main concern was someone coming into town and peddling poultry and livestock which they have butchered from the back of their truck piece by piece.

AB 401, makes various amendments to statutes on meat and poultry inspection.

Mr. Edmundson stated that this bill tightens up the inspection on custom slaughtered meat and poultry. It is aimed generally at the inspection of rabbits which are not covered by USDA or our own state statutes.

Mr. Edmundson went on to explain that their present regulations are quite out of date. They are in the process of rewriting these regulations. At this time they also hope to come up with regulations which would make for mandatory cuts of meat.

At this time Mr. Hickey presented a copy of an article from the Las Vegas Sun which covered the lack of labeling laws in this State. This is attached to these minutes as Exhibit II and herewith made a part of this record.

Mr. Hickey asked if this state would becoming in line with other states inasfar as the labeling of the various cuts of meat.

Mr. Edmundson stated that they hoped to accomplish this. He then went on to explain how they promulgated their regulations. He stated that would define this by regulation which would make it more flexible in order to get along with other states.

Mr. Getto asked if the health division had any regulations on various cuts of meat. Mr. Edmundson stated that they do not at this time.

Mr. Getto then asked if this was accomplished would not they need more personnel to enforce. Mr. Edmundson stated that they had asked for 4 additional men but this had been turned down.

Mr. Mastioanni stated that they were actually short right now and should they draw up these new regulations their men would just have to do extra duty while in the various markets they inspect.

There was then a general discussion on the various types of ground beef and where some of our meat is now coming from outside of the United States.

Upon returning to the discussion of AB 401, Mr. Edmundson stated that this would give them authority over rabbit packing plants and anything that is not covered by USDA would be covered by them.

Mr. Getto stated that he had worked with them on this bill to make sure that it did not cover a person who would want to go out to a rancher and buy a side of beef and butcher it for his own personal use.

Chairman Hickey then stated that he would open this hearing up for discussion of AB 459 even though it had not been on the agenda for this day.

AB 459, allows packaging in 3-quart container to authorized fluid dairy product containers.

Joe Frade, Valley Dairy, presented a sample of a 3-quart container for the committee to see. He listed some of the advantages of this container over the gallon plastic jug which is presently being offered for the consumer and the dairy. These are presented in Exhibit III which is attached to these minutes and herewith made a part of this record.

Mr. Coulter asked why there was no other choice but plastic jugs, could not these containers be in any shape and still hold the gallon. Mr. Frade stated that the plastic jug was all that was available in that size and that the type of carton would lose weight and strength if there were some other shape.

Mr. Price asked if these are being used in some areas of the country. Mr. Frade stated that they are allowed in 25 states in the country.

Mr. Price asked Mr. Frade if they had any type of projections as to whether this would reduce the cost to the consumer. Mr. Frade stated that they did not but this would be up to the Dairy Commission.

Mr. Getto asked about cost comparison with gallon jugs. Mr. Frade

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stated that they cost about the same but as far as he would be concerned he would rather go into these than into the gallon jug business. He stated that these were easier to handle, transport etc.

Assemblyman Dini, sponsor of the bill, then spoke on behalf of the bill. He stated that the main advantage of this container is that it is a space saver both to the distributor and the retailer and may eventually be a savings to the consumer as there is less cost for handling.

Mr. Dini went on to state that he did not really feel that the regulations of the size of the container should even be in the statutes. They should not have to come to the legislature to have to get this type of thing changed.

Mr. Dini went on to read some of the material that has been written on this type of container and the various savings and advantages there are to it. This article and other material is attached as Exhibit IV and herewith made a part of this record.

Mr. Frade then commented that at the present time there is a 7¢ upcharge on plastic jugs which the consumer pays and there would be no upcharge on these containers.

Mr. Price asked what was the original purpose of putting this type of thing under the legislature. Mr. Getto explained that it had come about quite a few years ago and at the time was a political thing.

Mr. Dini commented that he felt that this should probably be under the Weights and Measures. Although it may also fit under the Dairy Commission of the Health Division.

Mr. Hickey asked Mr. Dini if he would have objections to the committee submitted some kind of legislation which would take the control out of the legislature and place it in some department or board.

Mr. Dini stated that he would have no objections but would like to see this particular bill passed as time was getting short and then they could follow through with the rest.

Ray Jarman, Meadow Gold Dairy, stated they opposed this as it would create problems with their inventory and also may force other distributors to have to go in for this type of container. This would cost more for equipment and thus there would be no savings to the consumer or the public.

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Mr. Price asked if they would have any objections to them changing the regulations and placing this under one of the commissions or departments. Mr. Jarman stated that he could see no reason of any objections to that.

Phyllis Berkson, Consumer Representative on the Dairy Commission, stated that she felt that placing another new package on the market shelf would confuse the consumer. There are so many packages available already for so many products. She further stated that she could see no real advantage to it.

Mr. Price asked Mrs. Berkson about the fact that there was a 7¢ upcharge on the plastic jugs. Mrs. Berkson replied that the people are aware that they are paying this upcharge and yet they are still buying these plastic jugs like mad. No one is forcing them to buy them and many people use them for other uses.

SB 23, prohibits use of term "honey" in label or brand name of product unless honey is ingredient in such product.

Mr. Edmondson stated that as far as they were concerned they have no real objections to the bill. It is something that does call attention to the fact that there is a problem. The only problem with the bill is that it is unenforceable. There is no way that it could be enforced. Because of the chemical nature of honey there is no way of testing to make sure that honey does exist. The Federal Food & Drug Administrator has no equipment or technicians that would be able to tell this. The only way would be to have somebody right there all the time checking to make sure there was honey being used.

Mr. Getto asked if this were adopted could the burden of proof be placed on the industry itself. Mr. Edmondson stated that he felt this would be difficult. It would be under the control of the Federal Food & Drug Administration.

Mr. Howard stated that in the case of a franchised label would not there be the possibility of involvement in litigations. Mr. Edmondson stated that was possible as there was no way to prove or enforce this bill. This is an excellent bill except for that one thing and they agree with it's intent.

Mr. Price then presented the amendments to AB 29 which he had had drafted. He explained that the original amendments had not come out of the bill drafters with the wording and intent adopted by the committee. Mr. Price went through the amendments with the committee and Mr. Cassady. A copy of these amendments are attached to these minutes as Exhibit V and herewith made a part of this record.

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Mr. Getto commented that since we are making this a consumer oriented commission that state should probably be appropriating general funds for its operation. It is carrying out a mandate for the public protection and yet the industry is paying for it.

Mr. Price then distributed copies of a proposed resolution he has written which have a comprehensive study conducted by the legislative commission on the dairy industry of this state. He asked the members of the committee to study this resolution and perhaps the committee could action on it at the next meeting. A copy of this resolution is attached to these minutes as Exhibit VI and herewith made a part of this record.

As there was no further business to conduct and because Chairman Hickey had previously been excused to attend another meeting, Vice Chairman Price adjourned the meeting.

Respectfully submitted,

Sandra Gagnier,
Assembly Attache

Also attached to these minutes as Exhibit VII, is a copy of an article presented by Mr. Edmundson on "The Food and Drug Administration's Program for Honey." He presented to the Committee for their information and it is herewith made a part of this record.

AGENDA FOR COMMITTEE ON AGRICULTURE
Tuesday,
Date April 8, 1975 Time 8:00 a.m. Room 240

<u>Bills or Resolutions to be considered</u>	<u>Subject</u>	<u>Counsel requested*</u>
AB 323	Deletes exemption of certain vendors from licensing requirements for traveling vendors.	
AB 401	Makes various amendments to statutes on meat and poultry inspection.	
SB 23	Prohibits use of term "honey" in label or brand name of product unless honey is ingredient in such product.	

RESCHEDULED FROM APRIL 1, 1975

*Please do not ask for counsel unless necessary.

TRAVELING MERCHANTS AND PEDDLERS 650.010

650.010 "Traveling merchant" defined. Whenever used in this chapter, "traveling merchant" shall be taken and deemed to mean:

1. All merchants entering into business at any place within the State of Nevada for a period of less than 6 months.
2. All persons vending from freight cars standing on sidetracks or from motortrucks or other vehicles.
3. All hawkers, street vendors, peddlers and traveling manufacturers.
[Part 1:183:1915; A 1919, 183; 1933, 212; 1931 NCL § 6711]

650.020 Licensing of traveling merchants by county license boards; license fees.

1. Prior to commencing business, each traveling merchant shall take out a license from the county license board of the county wherein he desires to transact such business, and shall pay therefor the sum of \$100 for each month or fraction thereof.

2. A license shall authorize the purchaser thereof to transact the business of traveling merchant within the county designated for the time mentioned therein.

[2:183:1915; 1919 RL p. 3025; NCL § 6712]

650.030 Form of license; duties of county license board; penalties.

1. Licenses shall be issued in the same form as licenses issued under the provisions of NRS 244.345, and the duties of the sheriff and other county officers in connection therewith shall be the same as the duties prescribed by NRS 244.345.

2. The penalties and procedure in case of a violation of this chapter shall be the same as the penalties and procedure in case of a violation of NRS 244.345.

[3:183:1915; 1919 RL p. 3026; NCL § 6713]

650.040 Applicability of chapter. The provisions of this chapter shall not apply to persons engaged in the disposal of products of the soil, poultry, eggs, livestock, honey or dairy products if the vendor is a bona fide producer or grower thereof and transports such products of the soil, poultry, eggs, livestock, honey or dairy products from the place of production or growing to the place of sale in a vehicle owned by and standing in his name.

[Part 1:183:1915; A 1919, 183; 1933, 212; 1931 NCL § 6711]

The next page is 22039

Sun

Apr 6, 1975

LV LACKS LABEL LAW

Beef Prices Dropping

Beef, says the U.S. Department of Agriculture, is in oversupply and retail prices should be dropping. A quick look at the UPI Food Buyers Billboard would indicate the drop is not spectacular.

A survey of Las Vegas and 20 other cities in the United States show ground chuck selling at an average of 94 cents a pound.

The Las Vegas price of \$1.08 per pound was derived from a survey of major chain grocers here. The prices, however, may be misleading when compared with other cities. Nevada is one of the few states without a uniform labeling law, so there is no way of determining what

cuts of beef are used in meat labeled as ground beef.

For our purposes we have used what is generally labeled as lean or extra lean ground beef as being comparable in quality to ground chuck.

Using these standards it appears that Las Vegas paying an average of \$1.08 for lean hamper is slightly above the 20 city average of 94 cents a pound.

Yellow onions at approximately \$1.25 for five pounds here is slightly above the average price of the cities surveyed. On the other hand, Las Vegas pay less than the 20 city average for pork chops,

canned peaches, flour and sugar.

If the outlook for beef eaters is not as good as might be wished, he outlook for vegetarians is excellent. The USDA food marketing alert for April reports an oversupply of dry beans and split peas and plentiful supplies of at least 12 other staples, including protein rich peanuts, almonds and walnuts.

Based on recent prices, the 20 grams of protein in dry beans and split peas cost only seven cents retail, compared with the same amount of protein in ground beef at 24 cents, the USDA said.

In a vegetarian menu, peanuts make a good garnish on salads, vegetables and main dishes. Unsalted ones can be substituted for pecans in traditional southern pecan pie. Or for a novel main dish or snack, you might cook raw peanuts southern-style: boil the shelled nuts in salted water.

For burger, ground chuck was a good buy, ranging between 89 and 99 cents a pound in most of the 24 cities covered in UPI's weekly survey of 17 basic grocery items. It reached a high of \$1.19 in Jacksonville, Fla., and a low of 59 cents for the third week in a row in Los Angeles. It was 69 cents a pound in Phoenix and San Francisco and 79 cents a pound in Buffalo, N.Y. and Chicago.

A pound box of frozen heat-and eat french fries was only 21 cents in a Phoenix supermarket, but a high of 63 cents was reported in Honolulu. Food prices generally are higher there because most products are imported. Elsewhere frozen french fries sold mostly for 39 to 48 cents a pound.

In Birmingham, 39-cent-a-pound broiler-fryers were the lowest for the third successive week, followed by 41 to 49 cents a pound in Dallas, Phoenix, St. Louis, Cincinnati, Jacksonville, Fla., Little Rock and Philadelphia. But they hit a high of 88 cents a pound in Portland, Ore., which also reports the week's high of \$1.88 a pound for loin end pork chops.

Las Vegas Sun 274
April 6, 1975
Exhibit II

The same cut of pork was below \$1 a pound in only four cities — Cincinnati, Dallas, Little Rock and New York. To make it go further, try dried bean casseroles such as a French cassoulet made with one or more kinds of pork and/or sausages, or a German-style casserole of pork chops, sauerkraut and potatoes.

Sugar prices continued to decline slowly. The price of a 5-pound bag was below \$2 in 19 cities on the UPI list and above \$2 in only five. The top was \$2.49 a bag in New York, closely followed by Atlanta, at \$2.39. The low of \$1.69 in Pittsburgh was six cents below last week's low of \$1.75 in Cincinnati.

Frozen orange juice concentrate dropped below 30 cents for a 6-ounce can in Pittsburgh, Phoenix, Los Angeles, Birmingham, Atlanta, Concord, N.Y., and Hartford, Conn., but was generally 30 to 35 cents elsewhere.

Fresh citrus fruits and juices also are plentiful, says the USDA. So is canned non-citrus fruit, but prices tend to remain high, reflecting the price of sugar at the time of the 1974 harvest. A 29-ounce can of sliced yellow cling peaches in heavy syrup was selling for a high of 73 cents in Honolulu and 59 cents or more a can in at least 13 mainland cities, including Buffalo, N.Y., Boston, Chicago, Milwaukee and Grand Rapids.

FEATURES OF THE NEW THREE QUART SPACESAVER

Consumer Advantages

Designed for the consumer who wants a volume package but doesn't like to handle 9 pounds, the approximate weight of a full gallon. The 3 quart weighs 6.5 pounds.

Rectangular shape saves space in refrigerator. Housewives say they can get two three quart cartons in the space of one gallon. The 3 quart will fit on most refrigerator doors.

Narrow panel, same as half gallon, permits holding in one hand.

Small spout, like the half gallon, gives controlled pouring.

Best protective material for flavor and nutrition.

Readily disposable.

Made from a renewable resource.

Uses 10.4 - 18.6% less material than other cartons per gallon of milk.

Dairy Advantages

It is less costly than custom molded plastic gallons.

Offers an excellent graphic panel for prominent display of product identity and brand image.

Geometry of package permits $4\frac{1}{2}$ instead of 4 gallons per case. $12\frac{1}{2}\%$ more milk per case or an 11% saving in cases required.

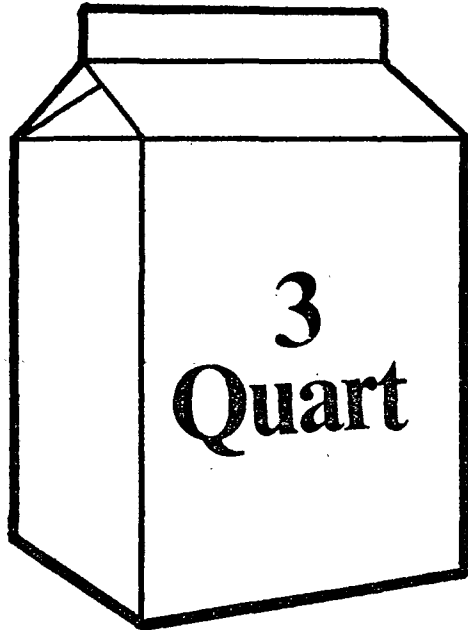
Machinery for 18 to 60 CPM readily available from Hercules, Inc.

At \$56.98/M, three quart carton cost per gallon of milk is .0759. Custom molded plastic gallons with caps and labels range from .10 to .125. Savings of .025 to .05 per gallon over custom molded plastic on packaging alone.

The opportunity to be first in the market with an all new package.

Less warehouse space required for flat 3 quart cartons.

Exhibit IV
Passed in Seals
Working Home
Panel Council
35 states
276
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Milk Packaging—An evaluation of the 3 Quart

Additional Experiment 90-107000.

INTRODUCTION

It is proposed that the 3 quart milk package be adopted as a Standard Package Size by the State of North Carolina. International Paper Company has been involved in the development of the 3 quart package and we are presenting this booklet as evidence for the need for its acceptance.

Each section deals with an area or group that would be affected by the approval of the 3 quart. Each section outlines the specific reasons and/or benefits that the 3 quart package offers in that related area.

<u>Section</u>	<u>Subject</u>
1	Introduction
3	Summary
6	Background Information
8	Consumer
12	Dairy Industry
19	Paper Companies
21	Natural Resources
23	Coble Test
26	Metric Measure
29	Appendix

Should clarification of any statement or if further information is necessary, please contact Joseph Cannon - Product Manager - Dairy Packaging, International Paper Company, 220 East 42nd Street, New York, New York 10017. Telephone 212 - 490-5876.

SUMMARY

This booklet itself is a summary of individual areas that could be affected by the adoption of the 3 quart as a standard size. It is hoped that it will be studied in its entirety.

Background

The 3 quart package is the result of a series of market studies. Several packages including existing gallons, paper and plastic, were evaluated in a "focus panel interview" of approximately 60 housewives who met specific criteria; viz., volume of milk purchases per week, type of container and size, income, family size, etc.

These studies conducted at various parts of the country led us to believe the housewife would like to have the opportunity to purchase the 3 quart carton. Specific reasons were based on size and shape of the package, its pouring features, ecology and other reasons.

The package was then presented to Coble Dairy. After completing their evaluation Coble decided the 3 quart offered many benefits such as product protection, economics and marketability. Coble then requested the North Carolina Board of Agriculture to grant permission to conduct a market test to see if the homemaker would buy a 3 quart package.

Market Test

Any market research firm will state that the best test possible and truly accurate way to determine a package or product's acceptability is to give the housewife the opportunity to purchase the product in her normal purchasing environment. On November 5, 1973 the 3 quart was offered for sale in a specific test area. THE RESULTS OF THIS TEST INDICATED

THAT A SIGNIFICANT PORTION OF HOMEMAKERS PREFER THE 3 QUART OVER EXISTING SIZES. When considering the total volume of milk packaged in the United States, a 21.1% share would mean the 3 quart would account for approximately the combined volume of quarts, pints, 10 oz. and half pint packages.

Dairy Cost

The 3 quart offers a potential savings to many dairies of \$15.50 to \$38.50/M gallons of milk. Each dairy that buys plastic gallons would save a significant sum if he could switch that same business into 3 quart packages. There are savings in labor and handling, all of which makes the 3 quart quite appealing.

Product Protection

Penn State and other universities have conducted studies which show the paperboard package to be far superior in its ability to protect milk and the vitamins it contains. The American Dairy Association promotes these benefits of milk and the homemaker should obtain these benefits when the purchase is made. Throughout many parts of the country the only gallon package available is the all plastic package. Dairies in several states, North Carolina, Florida, South Carolina, Georgia, Kansas, New Hampshire, and New York, to name a few, wish to offer their customers the choice of the 3 quart instead of the plastic gallon.

Packaging Materials

Approximately 80% of the milk packaged for the consumer market is in plastic-coated paperboard packages. This material, as well as glass or all plastic polyethylene is in short supply. The food industry in general now has limitations on its ability to supply the public due to the scarcity of packaging materials. The 3 quart offers a major opportunity to improve the ratio of milk to packaging materials. It offers a 15 - 21% saving in paperboard and a 16 - 37% saving in plastic coatings. The 3 quart is a needed item to help insure the supply of milk packaging materials.

Natural Resources

The basic raw material, approximately 90% of the 3 quart container, is made from a renewable resource. The savings just mentioned mean an increased yield from our forests' resources and savings in our fuel requirements. It takes 13 truckloads of plastic gallons to equal the contents of one truckload of 3 quarts. This is an area of additional fuel savings which is potentially fantastic since over 1500 dairies obtain their plastic gallons by truck.

Because the 3 quart is lighter in total weight, it would also result in a reduction of waste into the solid waste stream. .

BACKGROUND INFORMATION

Of major importance with any package is the reaction of the housewife. The 3 quart package we are now using is the result of a series of market studies. Initially several dozen packages were presented to our internal staff for their evaluation. Through in-house research and our knowledge of dairy operations the total number of package designs were reduced to seven. It was felt that these seven offered possible advantages to the housewife, the dairy and International Paper Company. These seven designs were evaluated in a "focus panel interview" of approximately 60 housewives who met specific criteria, viz; volume of milk purchases per week, type of container and size, income, family size, etc.

These studies were conducted by an independent research firm. The actual interviewing took place in Greensboro, N. C., Atlanta, Ga. and St. Louis, Mo. The results of these tests led us to believe that a significant portion of the housewives would definitely like to have the opportunity to purchase the 3 quart carton over existing packages. Specific reasons were based on the size, shape and weight of the 3 quart package. Housewives stated the rectangular shape of the 3 quart would save space in the refrigerator. Its narrow panel, the same as a half gallon, permits holding in one hand and the small spout provides controlled pouring. In fact, it was interesting to note that almost all of the housewives considered any gallon milk package as "heavy", "too clumsy" and "totally unusable by smaller children." In addition to the pouring and storage features the 3

quart offered, many housewives identified the ecological benefits of this style of container. I have outlined some of these in the "Natural Resources" section.

On the basis of our initial research, this package was presented to Coble Dairy, Lexington, North Carolina for their evaluation. Coble's evaluation led them to believe the 3 quart would offer some efficiencies and other benefits; e. g., $4\frac{1}{2}$ gallons of milk per case versus 4 gallons. They also felt it would provide many housewives with improved convenience in a volume package.

As a result of Coble's findings and those of the consumer research conducted by International Paper, Coble agreed to market test the 3 quart in North Carolina. The results and conclusion can be found in the section "Coble Test."

THE CONSUMER

The following is based on the focus group studies, interviews of actual buyers of the 3 quart container in the test market area and other published data.

Package Sizes and Consumer Needs

Package sizes have been basically designed to meet the specific needs of a group of consumers. The following chart lists the most common size milk packages that are available to the general public in the United States and the approximate volume of the total amount of milk packaged in those sizes.

<u>Size</u>	<u>Estimated Units Sold in 1973</u>	<u>% Total 1973 Volume of Milk</u>
Half Pint	9, 200 MM	9.1
10 oz.	675	.9
Pint	1, 225	2.5
Quart	2, 375	9.5
Half Gallon	5, 900	47.3
Gallon	1, 900	30.7

The 3 quart milk carton is designed for the consumer who wants a volume package but doesn't like to handle 9 pounds, the approximate weight of a full gallon. We consider approximately 78% of the milk sold (half gallons-gallons) as the volume size market. Our projection indicates the in-between 3 quart size should account for 15 - 23% of the total milk packaged for sale at retail. There has and continues to be a trend

towards larger size packages. The volume size market in 1978 is expected to increase to 82% of the total volume of milk packages for consumer use.

With the addition of the 3 quart package, our estimate for 1978 is as follows:

<u>Size</u>	<u>1973%</u>	<u>1978%</u>
Half Pint	9.1	9.5
10 oz.	.9	.5
Pint	2.5	2.2
Quart	9.5	6.0
Half Gallon	47.3	31.0
Three Quart		19.0
Gallons	30.7	31.8
Total quarts of milk	25,000 M	26,300 M

At 19% of the total volume of milk packaged, the number of actual 3 quart and gallon packages would be approximately the same. In other words, nearly as many consumers would be satisfied with the 3 quart as with the gallon. Also, if packages such as 10 oz. which account for no more than 1/2 of 1% total milk packaged necessary to satisfy the needs of a specific group of consumers, then that group who would purchase a 3 quart should be allowed to have the opportunity to make their choice and have their needs met.

Product Protection for the Consumer

A key requirement of any milk package is its ability to protect the nutrient content and flavor of milk. Acceptance of fluid milk by the consumer is determined to a great extent by such quality measures as

nutritional value, flavor and shelf life. The American Dairy Association spends millions of dollars each year promoting these major benefits of fluid milk. As a result the housewife should obtain these benefits when she purchases milk.

Coble Dairy and numerous other dairies, agricultural universities and some doctors realize that one of the major containers used to serve the volume market (all plastic gallon jug) appears to have some serious faults in its ability to protect the nutrients and flavor of milk.

It is a known and proven fact that light, sunlight or fluorescent light, can affect the flavor and nutrients of milk. The appendix contains a copy of an independent study conducted by the Division of Food Service and Industry of the Pennsylvania State University which confirms the fact that the light causes significant destruction of Vitamin B2 (riboflavin) and several other nutrients. Similar tests with similar results have been conducted by Iowa State University, Clemson University and many others.

Dr. J. Mayer, Professor of Nutrition, Harvard University, has written in a syndicated news column an article which basically said:

Vitamin B2-riboflavin is essential to life. It is necessary to the breathing of our body cells. Without riboflavin most of the vital metabolic function would come to a standstill - just as clearly as if you were strangled and couldn't breathe. The foremost supply source of riboflavin is milk.

These studies, such as the one enclosed, continuously have proven that the printed plastic-coated paperboard carton such as our proposed 3 quart package offers consumers far more protection for the milk's nutritional value and flavor than all plastic or glass packages.

Throughout many parts of the country, especially the Southeast, the only gallon package available is the all-plastic package. Dairies in several states - North Carolina, South Carolina, Georgia, Florida and others - wish to offer their customers the choice of the 3 quart instead of the all plastic gallon.

Choice and Consumer

"I would like the opportunity to make the choice", "This package (three quart) is just perfect for my family needs", "It fits great in my refrigerator and takes far less space than the gallon." These were quotes from housewives who had purchased the 3 quart in the Coble test market, individuals who have made repeat purchases of the 3 quart package.

In the volume market there are many for whom a gallon is too much and a half gallon is not enough. Based on the market studies, the size of this specific group warrants the 3 quart package.

DAIRY INDUSTRY

Several reasons have been identified by members of the dairy industry to support the 3 quart package. Each particular reason's importance would depend on the specific circumstances of any individual dairy.

1. Potential Cost Savings
2. Packaging Materials Availability
3. Marketing Identity
4. Natural Resources and Energy Benefits
5. Product Protection

Cost - Dairy Operation

The dairy business like most businesses is faced with continuously rising costs. Coble and other dairies view one of the benefits of the 3 quart to be a potential cost savings compared to plastic gallons with regard to packaging costs.

The all plastic milk package is obtained in one of two ways. The first and most common method is for the dairy to purchase the containers already fabricated from firms traditionally known as custom blow molders. This, as well as being the most common method, is usually the more expensive. To those dairies with limited volumes it is the most convenient method available.

The second method is for the dairy to fabricate their own. This requires a significant investment on the part of the dairy to purchase not only the in-plant blow molding machines but also the storage tanks for the raw material - polyethylene resins - and necessary transfer systems. Various estimates are available on the costs of such a system. Experience indicates that one quarter of a million dollars would not be an unreasonable amount for a complete in-plant system. This is a significant investment for most dairies and can only be justified by the largest volume dairies with significant capital resources.

As a result of this high cost, International Paper was asked by several dairies to develop a package that would present the dairy (and the consumer) with a convenient, volume economy package. We believe that the proposed 3 quart carton has accomplished that objective. The price of the 3 quart package is \$40.50/M. This converts to \$54.00 per thousand gallons.

The cost of purchasing all plastic jugs for volume accounts is generally about \$68.00/M gallons. The \$68.00/M is to the best of our knowledge the predominant price but we have heard as low as \$62 to a high of \$85. To each of these all plastic gallons you must add the cost of a cap. Again, we present the general cost of \$7.50/M. There does not appear to be a significant range on the cost of caps.

	<u>All Plastic Jug</u>	<u>+ Cap</u>	<u>Total Cost All Plastic Gallon</u>	<u>Total 3 Qt. Per Gallon</u>	<u>Savings/ M Gallons</u>
Low	\$62.00	\$7.50	\$69.50	\$54.00	\$15.50
Predominant	68.00	7.50	75.50	54.00	21.50
High	85.00	7.50	92.50	54.00	38.50

With a potential savings in cost of \$15.50 to \$38.50/M gallons of milk, this package is of considerable interest to many dairies.

There are naturally other areas of cost to consider and in general the 3 quart is equal or less expensive. One example is labor. There are about 13,500 empty plastic gallons to a truckload compared to 175,000+ three quart cartons. As a result it could require 13 times as much labor to unload the trucks. Another is that the prefabricated jugs require more storage space and excessive handling.

Another major benefit is that the same case that transports 4 gallons of milk (4 plastic gallons) will accommodate $4\frac{1}{2}$ gallons of milk (6-3 quart packages). This is $12\frac{1}{2}\%$ more milk per case or an 11% savings in cases required.

Since we have mentioned that some dairies are fabricating their own bottles we should mention their cost. Arthur D. Little, Inc. estimated that at 14.5¢ per pound for plastic resin the lowest price a dairy could produce an 80 gram gallon bottle was \$5 1.04/M. To achieve this it required a \$294,500 investment or a typical 8 year lease of \$523,053 and a volume of 16 million gallons of milk per year. The same study showed that a dairy with a volume of only one million gallons per year would have a cost of \$94.92/M.

Packaging Materials

In the consumer market there are glass packages, all plastic packages and plastic-coated paperboard packages. Approximately 80% of the market uses plastic-coated paperboard. This material, as well as glass and all plastic polyethylene bottles are in short supply. A special section "Paper Companies" shows the effect the 3 quart could have on packaging materials

used in the dairy industry. The food industry in general now has limitations on its ability to supply the public due to the scarcity of packaging materials. See appendix.

The 3 quart, as shown in the section entitled "Paper Companies" offers a significant opportunity to improve the ratio of milk to packaging materials. What started as a package development to satisfy the desires of the consumer can also result in a substantial dairy conservation of packaging materials for the dairy industry.

Identity and Marketing

Within the past decade thousands of dairies have gone out of business. Many of those left have lost their identity in the marketplace. The 3 quart package provides a dairy with an excellent billboard for prominent display of product and brand identification. That same billboard provides a superior method of labeling from the standpoint of both the dairy and the consumer.

Natural Resources and Energy Benefit

Several dairies have expressed their view that it is better to use a renewable resource for a base material in packaging than a non-renewable resource. The attached messages have been printed on millions of cartons and have received praise from many areas. The logic behind the conservation claim is discussed in the "Natural Resources and Energy" section.

One specific point is that there are approximately 13,500 empty plastic gallon jugs on a trailer. By comparison, it would take about 13 truckloads of plastic packages to match one truckload of flat 3 quart paperboard containers. This could be a significant benefit in conserving fuels and also could result in a reduction of pollutants. In addition, since the 3 quart uses about 20% less material than other paper packages, there is also a 20%

reduction in the solid waste stream.

Product Protection

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"We also wanted to get away from the oxidation which fluorescent lights can cause in milk in plastic containers" - Food and Drug Packaging-F. Ridge, Coble Dairy.

"... it is probable that the light induced and oxidized flavor may be responsible for limited consumption. Experience has demonstrated that children just reduce or stop their consumption rather than complaining to their parents about a bad tasting product" - North Carolina State University - Agricultural Extension Service. M. E. Gregory, A.P. Hansen and L. W. Aured.

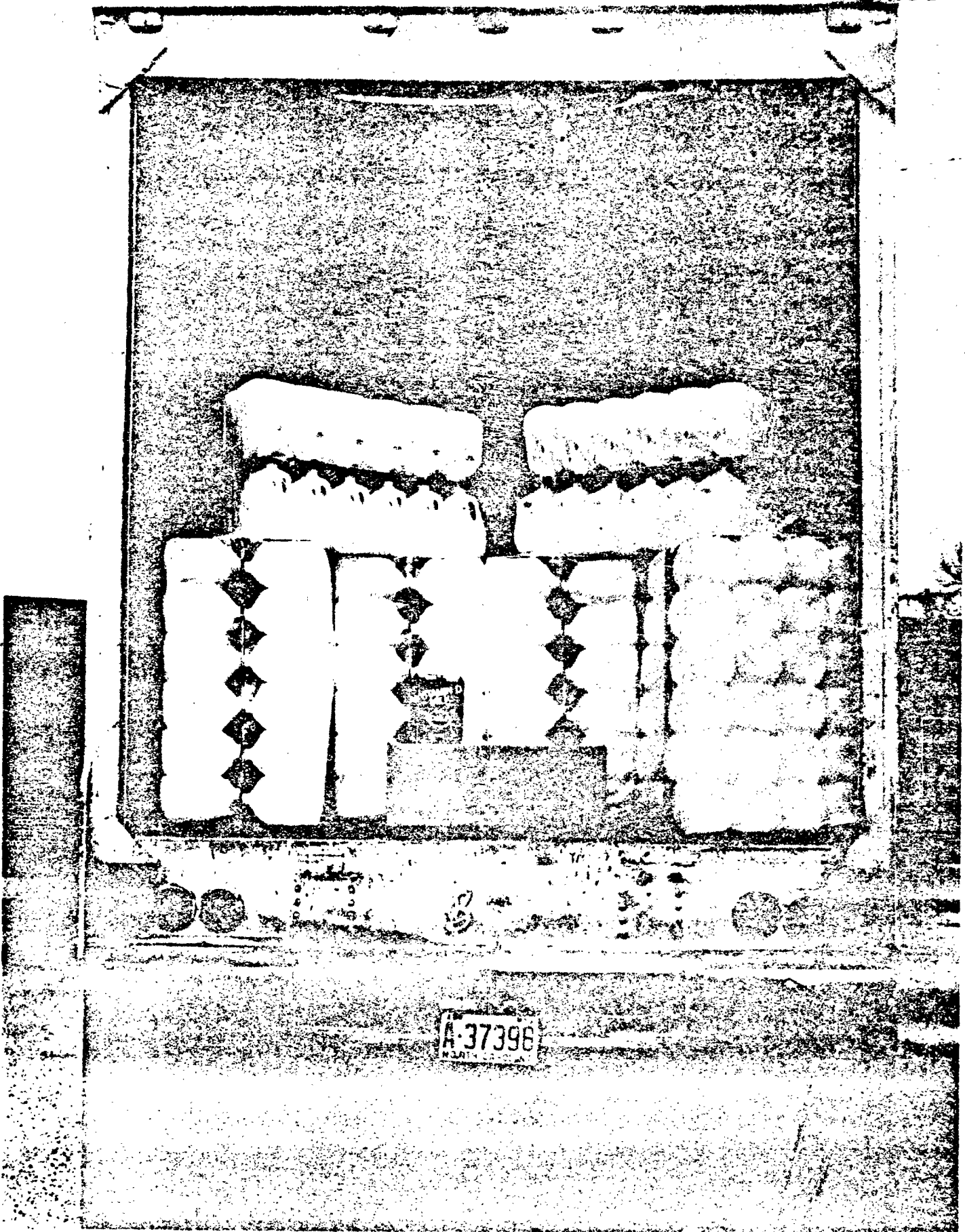
The Florida Times Union quoted Dr. Bronson Lane - University of Florida, associate dairy technologist "that light - especially daylight and artificial light akin to it - induces a chemical reaction in milk which produces the off-flavor taste - the photochemical reaction also causes partial or complete loss of certain vitamins". Vermont, Connecticut, Ohio, Penn State and study after study for the past few years have reached similar conclusions.

Dairies and the plastic companies are aware of this. Some are trying to correct the situation. One such attempt was made by the Borden Company (see Appendix). The headline in their test market ad read:

"FRESH MILK FLAVOR AND VITAMINS
CAN BE DESTROYED BY LIGHT"

"Milk subject to light loses its natural freshness and flavor. This new Light-guard packaging film assures you of the natural freshness and flavor of Borden milk by repelling harmful light rays that destroy vitamins and riboflavin." Our reports indicate Lightguard has been dropped.

The 3 quart is a volume package, which, if adopted as a standard measure, we believe would be used by many dairies to replace all plastic gallons. Many housewives are limited to the plastic gallon because dairies feel the paper gallon is not as easy to handle and from a convenience point of view will not compete with the plastic jug. Our research indicates the 3 quart can, and does, compete and many dairies will use it in the market-place instead of the plastic gallon. Dairies can place the 3 quart in the store at the same price per quart as gallons if not cheaper.



300 flat 3 quarts vs. 288 blowmolded plastic gallons.

PAPER COMPANIES - MATERIALS

Paper Shortage

You are aware of certain shortages that are occurring in the paper industry. The type of paper used to package milk - milk carton stock - is in very tight supply. There are many reasons for this such as mill capacity, wood supplies and plastic coatings.

The 3 quart package offers a significant opportunity to help ease this shortage. The percent of paperboard the 3 quart saves over existing paperboard packages ranges from 15% - 21%. Every homemaker who chooses to buy her milk in the 3 quart instead of a gallon package would conserve about 15% of the paperboard required per gallon of milk.

Plastic Shortage

In addition to the paperboard savings, an equally and possibly more important saving for the present and near future, is the saving in plastic coating materials. That same homemaker, with each 3 quart purchase, helps reduce the volume of LDPE plastic coating by 16 - 37%. Without minimizing the paperboard shortage, the plastic coating situation is far more critical now and the immediate future looks worse. The dairy industry packages about 80% of its total milk volume in the plastic-coated paperboard package. International Paper Company is a major supplier of the dairy industry's requirements. As a result of shortages in the plastic industry, the paperboard package suppliers will have difficulty in meeting the requirements of the dairy industry for the next few years.

Need for 3 Quart

Our original reasoning behind the 3 quart development was that a significant portion of the volume market (half gallon and gallon) would prefer the in-between size. Test market studies have substantiated this theory. We believe this alone should justify the establishment of the 3 quart as a standard size.

In addition, we now have a critical situation of supply and demand. The 3 quart package can help the paper industry meet the requirements of the dairy industry for packaging materials.

Positive Steps

The 3 quart, when developed, did not have as one of its criteria paper or plastic coatings savings. Our efforts were directed at satisfying the needs of a specific market segment. But, those savings are there and they are desperately needed at this time.

The 3 quart is not the only development we have that will save board. Enclosed is a reprint of our January 23, 1974 advertisement announcing the availability of Eco-Pak. Eco-Pak will be a welcome item to our line and offers significant advantages to the consumer, dairy industry and paper industry.

For the consumer it will be easier to handle than existing packages. The dairy industry can possibly save \$9 million annually. The paper companies can save 58,000 tons of paper and large amounts of plastic coating.

We believe the 3 quart package deserves approval as a standard size for it offers similar significant benefits to each of these groups.

NATURAL RESOURCES
ENERGY AND ECOLOGY

This package, as well as all packages, should be considered from an ecological point of view.

In milk packaging there are glass, metal, paper and plastic packages and no package is perfect. Each one of the materials can be recycled. But because of cost, logistics and general lack of concern by the public, recycling of any of these materials for milk packages as well as other packages is virtually non-existent. Therefore, the 3 quart carton, like all other packages, whether they are manufactured from glass, paper, plastic or metal eventually becomes trash. The combination of assets of the paper milk carton stands out as far superior. It offers the consumer, general public and the dairies economy, practicality, disposability and protection for the vitamins contained in milk. The uniqueness of the 3 quart paper package is that it offers one advantage the other packages cannot. The basic raw material, approximately 90% of the container, is made from a renewable resource, trees from managed forests.

This feature exists in the other paperboard packages, but, as previously stated the 3 quart saves 15 - 21% in paperboard and 16 - 37% in plastic coatings over existing sizes.

Wood Resources - Yield of existing timber resources increased by 15 to 21% with 3 quart package.

Natural Gas - Oil - Two of the most critical items now in short supply.

They are the basic ingredients necessary to produce all plastic packages and the plastic coatings to coat paperboard packages. The appendix shows a news article on how this shortage is affecting an Atlanta dairy. Throughout other sections we have shown the overall effect is it having on the entire industry. Each thousand gallons of milk in 3 quart containers saves 16 - 37% in plastic coatings over existing paperboard packages. To package 1,000 gallons of milk in 3 quart cartons requires 89% less plastic than 1,000 - 80 gram plastic gallons.

Energy - By achieving a 15 - 21% improvement in our yield this in fact means a saving in our fuel requirements. In addition, as previously stated, it takes 13 truckloads of plastic jugs to equal the contents of one truckload of 3 quarts. The fuel saving is potentially fantastic since over 1,500 dairies obtain their plastic gallons in this manner.

Waste Stream - Trash - The following is a typical quotation concerning the most frequently mentioned disadvantage of the all plastic gallon by the homemakers who participated in the Focus Panel sessions.

"When you go to throw them away, they take up a tremendous amount of room, and there's nothing you can do about it."

"Takes a lot of room in garbage pail.. it's like a whole big blob and you can't put anything into it... so what I have taken to doing lately is just stomping on it. Otherwise I'd be going to the garbage pail every few hours."

Quite a few women in each city also agreed they feel "guilty" about the ecological implications of plastic jugs which "don't disintegrate" and which "stay around for a thousand years." A few housewives expressed the hope that science "will come up with some way to get rid of them."

COBLE MARKET TESTObjective:

This test was specifically designed to investigate:

1. Consumer interest in the 3 quart paperboard carton.
2. The performance of the 3 quart package in dairy operations and as a package itself.
3. The affect, if any, the 3 quart would have on the sales of other size packages.

Method Used:

A Haskon model #540-U form , fill , seal machine was used to package the product. In addition to the 3 quart this model also fills half gallons and gallons.

Several types of paperboard and coatings were used to determine the most efficient combination.

A specific number of control stores were selected in a variety of separate markets.

A separate analysis was made of the markets which had advertising support and the area which did not receive advertising support.

It should be noted that there were several constraints placed on Coble Dairy for this test by the North Carolina Board of Agriculture and at its introduction several adverse conditions prevailed, i. e., a substantial increase in consumer's price of milk. In addition some of Coble's existing chain store accounts would not allow the 3 quart to be introduced. Since these chain stores have a large investment in milk plants that

process plastic half gallons and gallons which they fabricate themselves and because these same parties publicly voices their opposition at the North Carolina Board of Agriculture public hearing their action was understood.

Results - Consumer Interest - High

During the early test the 3 quart package obtained 18.5% share of the Coble business. During this period the package had less than one half the number of facings given to the plastic gallon package; i. e, five rows of plastic gallons to two rows of 3 quarts.

During the first two months the 3 quart sold 64 packages for every 100 plastic gallons.

In the last control period the 3 quart increased to a 21.1% market share of the total quart equivalents. Coble tried to equalize the facings wherever possible but in most cases the 3 quart had less than the same number of facings of the gallon. In the stores that are largest and accounted for 50% of the control area, the 3 quart achieved 22% of the total quart equivalent sales, the plastic gallon accounted for 26%. To achieve this the 3 quart sold 13.8% more units than the gallon plastic or 113 three quart units for every 100 gallons.

The 3 quart has demonstrated an ability to match the sales of the gallon plastic and to achieve a significant portion of the market.

Package Performance - Good

The package and machinery have performed in accordance with standards established for similar paperboard packages.

The package will offer savings of 15 - 21% in paperboard and 16 - 37% savings in plastic coatings over existing plastic-coated paperboard packages.

Effect on Other Sizes

The 3 quart does affect the sales of both half gallon and gallon packages. The 3 quart size did not have any significant effect on the sale of quart packages.

The following shows the share of the market in 7 representative stores in control area which are typical of the large and small stores in the test area.

<u>Control</u>	<u>Before %</u>		<u>After %</u>		
	<u>HG</u>	<u>Gal.</u>	<u>HG</u>	<u>3 Qt.</u>	<u>Gal.</u>
PWM	60	23	52	25	7
Ky.	42	41	32	22	17
Bs.	49	37	39	24	24
Ba.	43	45	25	22	27
KC	54	31	38	36	13
CJ	35	46	28	28	32
MS	43	48	33	16	41

It is difficult to ascertain the net effects but it appears that generally the 3 quart will reduce the sales of the gallon more than the half gallon.

Advertising

The share of market in the control area with advertising was only slightly higher than that of the non-advertised area (about 3%). The total sales of milk, though, in the control advertised area were up 17% over the control base period. Result - radio and newspaper advertising did more to sell milk than 3 quarts.

METRIC MEASURE - PROLIFERATION OF SIZES

In considering the request to adopt the 3 quart package as a standard size there are specific areas that should be considered:

1. Deceptive Packaging
2. Proliferation of Package Sizes
3. Metric Measure

Deceptive Packaging

The 3 quart carton was designed in accordance with the Fair Labeling and Packaging Act.

On the Coble 3 quart H. V. D. carton the words "three quarts" were clearly indicated in the position that is recommended for milk packages. Product definition was very clear and also in accordance with recommended procedures.

In addition, Coble placed a 3 quart size designation boldly on the shoulder of the package. It was the general feeling that there could be no misinterpretation as to the size and contents of the package. This same opinion has been conveyed to International Paper by several State officials involved in the labeling of milk cartons. As stated earlier, one of the benefits for the homemaker and the dairy is the prominent display panel for product and brand identification.

Proliferation of Sizes

Proliferation on sizes in the milk and soft drink industry, etc. is generally not in the best interest of the consumer. Our milk carton

operation, as well as those of the six other suppliers of milk cartons, operates on a high level of efficiency because of the limited number of package sizes. Even in the existing sizes there are some packages which do not represent 10% of the volume of milk packaged. Quarts, pints, 10 oz. and half pint packages combined represent only 22% of the fluid milk packaged. We realize the need for each of these package sizes even though two of them present from time to time serious production problems to us and our competition. Each of these sizes serves the needs of a specific group of people. This is the same reasoning we are using in asking approval for the 3 quart. Tests have shown that it is not unreasonable to project a 20% share of the total milk packaging market for the 3 quart package. It is a size that meets the demands or needs of a large segment of the population. The volume of milk is projected to be equivalent to the volume packaged in quarts, half pints, pints and 10 oz. packages.

We feel the 3 quart is a logical step in the package sizes as do many homemakers.

During the consumer studies mentioned earlier, there was generally no opposition to the size nor did anyone feel it would be difficult for them to understand the measure. It was felt by the homemakers that they could readily make a comparison on a cost-per-quart basis. Homemakers know a half gallon is 2 quarts and a gallon is 4 quarts.

The fact that it has sold and has maintained a significant market share indicates that these conclusions were right and that homemakers have expressed the need and desirability of the 3 quart package.

Metric Measure

A review has been made of our existing operation concerning the potential shift to the Metric Measure. At this time we feel there is a considerable cost involved but we are capable of converting our existing equipment to manufacture the Metric size packages.

It is our hope, though, that if a decision is made to go Metric that some organized schedule would be issued for the milk industry. If an organized schedule is not developed, we as a manufacturer could conceivably be manufacturing twice as many sizes as we are today. The addition of sizes without good cause is not recommended by International Paper Company. Should Metric Measure become a reality we would like to participate in the development of an organized schedule along with representation of the Milk Industry Foundation and Dairy and Food Industry Supply Association.

The Metric Measure, it is felt, should not be a consideration at this time in approving the 3 quart package. We have already prepared a drawing of the 3 liter as well as the 3 quart and are ready to switch when required.

APPENDIX

1. Shortages of Packaging Materials - Plastics.
2. Atlanta Dairy - Short Packaging Materials.
- 2a. Milk Users Feel Pinch of Tight, Costly Resin Supply
3. Dow Chemical - Drops Out of Plastic Cup Business.
4. Chart - Where Plastics Come From
5. Effect of Fluorescent Light on the Flavor and Selected Nutrients of Homogenized Milk - Penn State University
- 5a. - North Carolina State University
6. Borden Company Tests Black Lined Plastic Bottle - Dairy and Ice Cream Field Magazine
7. Food & Drug Packaging - Reprint - Package of the Week.
8. Benefits of Renewable Resources.
9. South Carolina State Commission of Forestry.
10. Eco-Pak - Wall Street Journal Ad.
11. Other Three Quarts

food product development[®]

December 1973

whither go plastic packages?

An expanded element in package developers' thinking these days is the search for alternate materials. PVC is in short supply. Styrene is short. Resin manufacturers say that ethylene and propylene, backbones of plastic packaging, are short. The sometimes laugh-provoking stories of black market deals and occasional out-and-out thievery of resins serve to underscore the scope of shortages.

Package developers are competing with all other plastic users, and to some degree with all energy users, for the raw materials. The energy crisis will push plastic costs up because of higher energy costs in chemical processing plants. The other edge of the sword is that feedstocks to make plastics will also rise. Conservative estimates have energy costs doubling by 1980. One prediction made at the National Plastics Exposition Conference in Chicago translated the over-all manufacturing cost increase to a rise of about 2.7¢ per pound of plastic.

Added to impending price rises is the very present problem of shortages. Despite government efforts to repeal the law of supply and demand, basic materials are going to the highest bidder. The first food packagers to feel the crunch are those who use blow molded high density polyethylene (HDPE) milk jugs. (Their plight is reported in an item on page 10.)

Shifts in application for HDPE are of both specific interest to food packagers and generally indicative of what can happen to plastic supplies. During times of plenty, basic resin manufacturers sought volume markets to use up the materials which resin plants churned out to run efficiently. Milk jugs were a good application even though they did not command premium resin prices.

Now, however, demand is up for HDPE in uses that bring more dollars to resin manufacturers. (These new applications even involve the food industry, where plastic storage and shipping bins are appearing in plants.) These applications require modifications to the resin, and the "new" resins are not subject to the same price controls as were the milk jug materials. (Suppliers continue to furnish materials for milk jugs in the realization that good will and long-time customers will be worthwhile when the times of plenty return.)

Consequently, prices driven up by increased energy costs also are being pushed higher by competition for materials. Packaging accounts for about one-quarter of plastics' consumption. The building and construction, transportation, electrical and other plastic markets also want their share of the basic materials. The scramble for materials will have users digging deeper into their pockets. Depending on how severe shortages become, some packagers may reach quite deeply into their pockets only to discover that there is still nothing to buy.



JAMES W. PETERS
ASSOCIATE EDITOR

Plastics Shortage Felt

By CLAUDIA TOWNSEND

While some folks are publicly questioning the reality of the "energy crisis," the effects of one of its offspring—a shortage of petroleum-derived plastics—are beginning to be felt in Atlanta.

Atlanta Dairies, one of three milk producers in the city that manufacture their own containers, will have to buy about one-third of its plastic containers in 1974, according to manager Forrest Davenport, because the firm can't get the plastic it needs to make its own jugs.

"We were totally out of the resin used in making the plastic containers for about 10 days last October," he said. "We were finally able to get enough plastic to resume production for the rest of the year, but in the coming year we can only be sure of having enough to meet about two-thirds of our needs."

Atlanta Dairies has signed a contract to buy the additional gallon jugs it needs, Davenport said, and so is assured of having enough containers to distribute its milk for the year, but at the same time the dairy is switching to a heavier emphasis on paper containers for the future.

Other dairies in the area report concern over possible shortages of containers, but no real problems.

A wire cable manufacturer, Essex International, was reported to have closed a new Atlanta plant because it could not get the high-density plastics needed for cable insulation. Officials at the company's home office in Fort Wayne, Indiana, declined to comment on the condition of their Atlanta plant, but acknowledged that cable manufacturers generally are having troubles getting enough cable.

Overall, however, at least in this area, the plastics pinch seems more like a plastics slowdown, coupled with a flurry of gloomy predictions of real scarcity to come.

"Everybody talks about it and nobody knows where it (the shortage) is," said Gene Veal, Georgia regional manager of Pet Dairies. "We're just like anybody else who deals with some phase of the petroleum industry—we don't know where we stand until somebody tells us."

Michael Leff, vice president of Allied Plastics of Atlanta, said his company is experiencing the shortage as a delay in delivery of plastics orders. "The suppliers are taking our orders," he said, "but where delivery used to be a week or two, it's now two to three months."

Leff's company is a plastics fabricating company, which buys sheets and rolls of plas-

tic and makes things from them. Companies like his buy from companies like Piedmont Plastics, an Atlanta area distributor.

Hugh Lewis, manager of Piedmont Plastics, said his firm had been forced to slow delivery to its customers because its suppliers, manufacturers of plastics from raw materials (including petroleum), have cut back production in recent months.

"There's very much less production due to the shortage of raw materials," he said. However, he added, plastics are still available. "All it takes is looking far enough ahead to keep the warehouse full," he said. "It's a question of adjusting the pattern of ordering."

Overall, the problem, at least in this area, seems more one of worry than of actual lack of material. John Martin, manager of the Plastic Container Corporation, said his company had an "operational supply" of the plastic it needs to manufacture containers.

"Our good situation is mainly due to foresight in ordering," he said. "Right now we're meeting our orders, but we are very worried about it."

Martin said his company makes soft containers, which use low-density plastics. Firms that depend on high-

density, harder plastics will probably suffer more from the shortage, he said, because their materials have a higher petroleum content.

Some hospitals in other areas of the country have reported real shortages of plastic pill containers, syringes and similar supplies, but although local hospital officials say they're worried, so far their supplies are normal.

product development news

plastic milk jug users first to feel pinch of tight, costly resin supply

Users of high density polyethylene (HDPE) milk jugs are among the first packagers to feel the squeeze of short resin supplies. Dr. William Nelson, director of marketing for film and blow molding resins, Monsanto Co., St. Louis, predicted that the entire packaging industry would also see high prices, rationing, and allocations during the next three to five years. Milk jugs were first to feel the shortage because they brought the lowest prices for resins. Nelson noted that growth in this market stopped six months ago and said there could be a resurgence of gable-top cartons for milk packaging.

In predicting a two million pound shortfall in production of ethylene, a basic resin component, Nelson advocated an end to price controls. The end of controls would see a surge in resin prices. Exported HDPE commands 33¢ per pound in a free-market situation while the controlled domestic price is about 15¢ per pound, Nelson said. Lifting controls could mean a jump to the export price level.

Nelson also pointed out that glass and metals are not attractive alternates because of similar shortages. On a hopeful note, he forecast an improvement in five to ten years with higher prices but adequate supplies. Nelson spoke before the Chicago chapter of the Packaging Institute.

DOW WILL PHASE OUT OF CONTAINER BUSINESS

Dow Chemical U.S.A. will phase out of the thermo-formed rigid plastic container business in 1974.

Affected will be approximately 260 employees at the Findlay, Ohio, manufacturing facility where Dow manufactures formed containers. Some 210 Dow employees are involved in other production operations at Findlay and will not be affected. The phase-out will be concluded by mid-year.

George O. McDaniel, Findlay plant manager, said Dow was getting out of the formed container business because "this area of our business is not generating enough return on investment to meet our long term growth objective."

Dow has supplied formed containers — principally to the dairy industry — for some 10 years.

"Dow will continue to look for other business opportunities for the Findlay plant," McDaniel said. "Dow currently manufactures Zetabon plastic clad metal products for the wire and cable industry at Findlay as well as polyethylene film and photo resist coated (PRC) photoengraving plate."

Plastics In Short Supply, Too

EARLIER PREDICTIONS OF ADEQUATE SUPPLIES of polyethylene in 1974 for dairies using or converting to the plastic milk bottle were too optimistic. Demand continues to outstrip supply. Ethylene (from which polyethylene is made) is needed for purposes with priorities higher than milk packaging.

The problem is aggravated by the withholding of Mideastern oil by governments of that area that control more than half the world's known petroleum resources. Had this oil not been withheld, shortages would have developed nonetheless because demand for almost everything is proliferating at an accelerated pace.

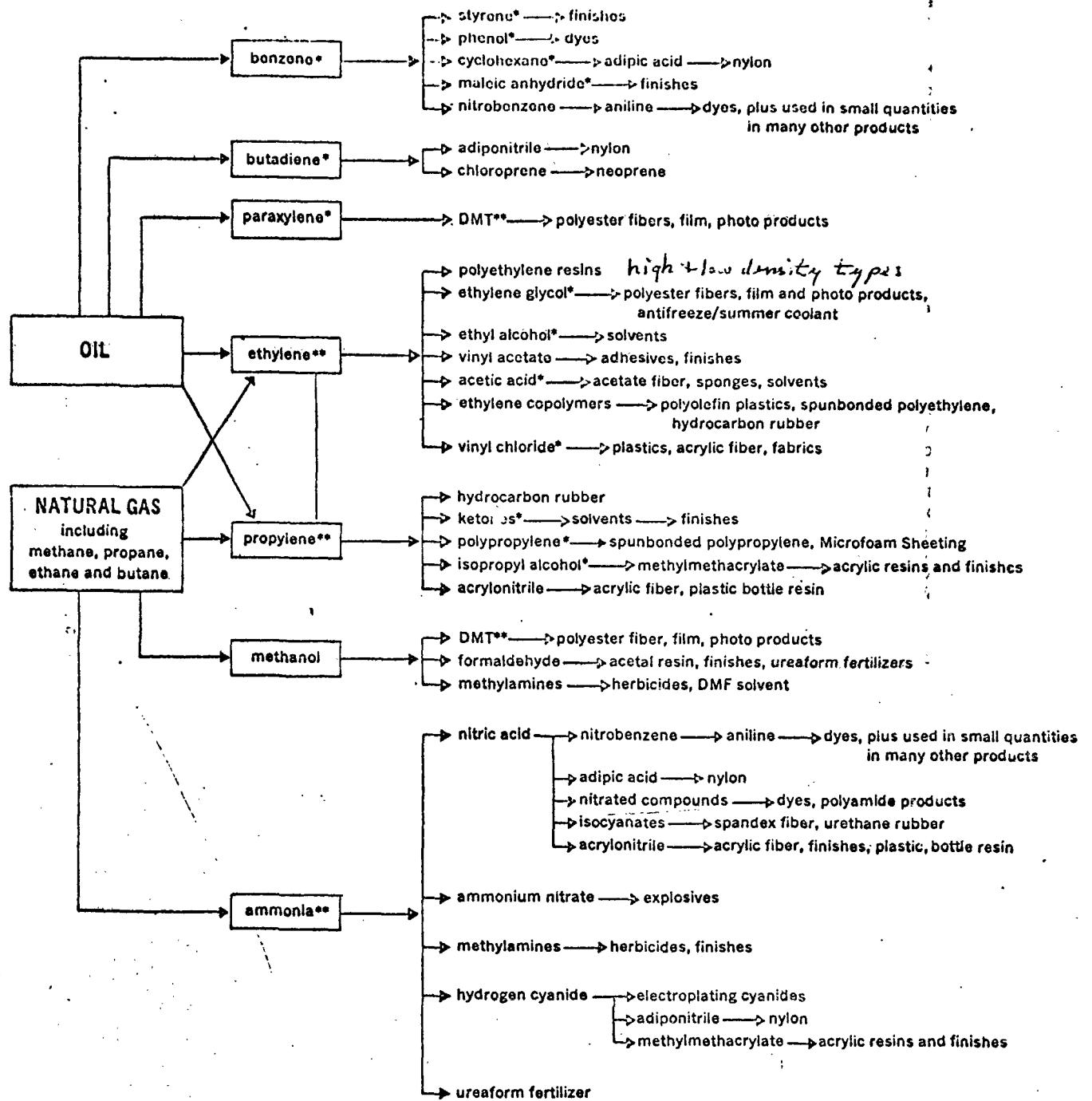
Getting back to the particular problem of dairies: At present, at least, one large supplier of resin has cut back deliveries by 10 per cent to regular dairy custom-

ers and independent blow-molders supplying dairies. Too, this supplier is adding no new customers. Industry sources indicate paper converters, using polyethylene to coat paper, are beginning to feel the pressures of diminishing supply.

At the moment, suppliers of polyethylene film, used in the flexible pouch report adequate supplies. Some dairies are turning to the flexible pouch; as demand increases, there will be strains on this material, too.

In short, the industry in particular, like the country in general, is going to have to cope with scarcities for a long time to come.

Herbert Saal



*Materials purchased by Du Pont
 **Materials purchased and made by Du Pont

Unless otherwise noted, all other materials are primarily of Du Pont manufacture. All items at extreme right are the company's end products.

This very simplified flow chart is designed to show which of the company's major end products depend primarily on raw materials derived from oil and natural gas. In some cases, intermediate steps in the process have been omitted. Also, some lower-volume end products made from petrochemical feedstocks have not been listed, and some low-volume uses of feedstocks in major products are not shown.

EFFECT OF FLUORESCENT LIGHT ON THE FLAVOR AND SELECTED NUTRIENTS OF HOMOGENIZED MILK HELD IN CONVENTIONAL CONTAINERS¹

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ABSTRACT

Homogenized milk packaged in three conventional half-gallon containers, unprinted fiberboard, blown mold plastic, and clear flint glass, was held in a sliding door display case with fluorescent light exposure of 100 ft-c for 144 hr. The fiberboard container afforded protection from the light activated flavor up to 48 hr, whereas milk in plastic and glass containers developed the off-flavor following only 12 hr of exposure. No differences in organoleptic response could be demonstrated between milk held in glass and plastic half-gallon containers. Similarly riboflavin destruction in plastic and glass was not significantly different and amounted to approximately 10-17% loss following 72 hr of exposure. No significant loss in riboflavin could be demonstrated in milk held in fiberboard as compared to the control. Ascorbic acid losses were evident in all milk samples independent of container material, however losses of this vitamin in milk held in plastic and glass were much more rapid than in milk held in fiberboard, decreasing to a minimum level after 48 hr exposure. The TBA values did not parallel the organoleptic response demonstrating that the activated flavor associated with light exposure is differentiated from flavors caused by lipid oxidation.

Exposure of milk in all three containers tested to light had no effect on the amino acid composition as compared to the control milk held in the dark. These studies reinforce present thinking that protection of milk from light during marketing is necessary to assure flavor quality and to a lesser extent nutrient value.

Acceptance of fluid milk by the consumer is determined to a great extent by such quality measures as flavor, shelf life, and nutritional value. Changes in marketing channels have lengthened the time between processing and consumption; for example, it is common for fluorescent lights to illuminate display cases of milk 24 hr per day. It has been realized for some time that milk undergoes flavor deterioration when exposed to light. Much of the work in this area has been concerned with sunlight exposure to milk with the resulting off-flavor classified as "sunlight," "oxidized," or "activated" (16). Another detrimental effect of light exposure is the compositional change which may have importance relative to the

nutritional quality of the product. Several investigations have demonstrated the loss in ascorbic acid and riboflavin upon exposure to sunlight as well as artificial light (2, 7, 12). Analysis of the protein fraction of low density lipoproteins of milk by Finley and Shipe (6) indicated a loss in the amino acids methionine, tryptophan, tyrosine, cysteine, and lysine due to photodegradation. The type of container and its capability of reducing light filtration can greatly reduce the off-flavor associated with light exposure (3, 4, 5).

This investigation was initiated as a result of a flavor survey (3) which demonstrated that the percentage of commercial milk samples rated in the good to excellent category declined from 1967 to 1970 with an increase in the incidence of oxidized off-flavors. The objectives of this study were to evaluate three conventional half-gallon containers, fiberboard, plastic, and glass under controlled conditions of fluorescent light exposure to compare the flavor changes as well as riboflavin, ascorbic acid, and amino acid destruction in homogenized milk.

MATERIALS AND METHODS

Samples and treatment description

Mixed herd milk routinely supplied to the University Creamery was used in this study. The raw milk (up to 2 days old) was pasteurized at 74 C for 16 sec, homogenized at 2500 psig, cooled to 6 C, and transferred directly into 5-gal stainless steel dispenser cans. The milk containers were immediately filled by hand and placed into a commercial double sliding door display case held at 7 ± 1 C. One each of three types of containers was examined for flavor and chemical changes after exposure to fluorescent light for 3, 6, 12, 24, 48, 72, 120, and 144 hr. The milk was not agitated during storage. An unexposed sample from the same lot of milk designated as control was held at the same temperature in a 5-gal stainless steel can. At each time interval a control sample was obtained for analyses. The display case was illuminated by cool white fluorescent lamps (F 40 CW) mounted parallel to the shelves at a distance of 45.7 cm from the containers. Illumination averaged 100 ft-c perpendicular to the light source at the mid-point of the exposed container vertical surface. All light measurements were conducted with a Weston illumination meter (Model 756).

Three conventional half-gallon milk containers were used in this study. The commercial fiberboard container was an

¹Authorized for publication on February 2, 1973 as Paper No. 4386 in the journal series of the Pennsylvania Agricultural Experiment Station.



Timely Tips

FROM YOUR FOOD SCIENCE EXTENSION

November, 1970

CONTROLLING LIGHT ACTIVATED FLAVOR IN MILK

M. E. Gregory, A. P. Hansen, and L. W. Aurand
North Carolina State University

It is paradoxical that the dairy industry should take such elaborate precautions to prevent off-flavors on the farm and at the plant when, in the store, a very serious off-flavor is generally accepted. In many cases, no one seems particularly concerned that the milk becomes oxidized in all-plastic clear containers. A great deal of research has been expended on containers having eye appeal, but little, if any, attention has been directed toward protecting essential nutrients and flavors of milk.

Currently, light induced flavors, created by fluorescent bulbs in the supermarkets has become a significant problem. In Pennsylvania, for example, a recent study showed nearly 80% of the milk in the all-plastic containers had an oxidized flavor. In a North Carolina survey, milk samples obtained from supermarkets across the state showed that nearly all the all-plastic containers checked had some level of light induced and oxidized flavor. Thus, it seems that light induced and oxidized flavors are wide spread and a serious flavor defect.

Since over one-fourth of the milk in North Carolina is now packaged in all-plastic containers, the economic significance is obvious. Many other states are also moving in the direction of an increased use of the all-plastic containers.

In most cases, the off-flavored milk is not returned to the supermarket. This, in part, may be due to the fact that the consumer has become conditioned to the off-flavored milk. From experience, it seems that most of the returns to the stores are a result of the consumer previously using some other type package or perhaps getting home delivery. Then the housewife purchases the all-plastic container and a difference is detected and the milk is returned. Even when the milk is not returned, it is probable that the light induced and oxidized flavor may be responsible for limited consumption. Experience has demonstrated that children just reduce or stop their consumption rather than complaining to their parents about a bad tasting product.

Hand up milk 312

Borden test markets new opaque pouch to overcome effects of light on milk

A new black-lined pouch has been introduced in a move to halt flavour deterioration and nutrient loss caused by exposure to light.

A new milk container called 'Lightguard' which is designed to block out light which robs milk of flavour and vitamins has been announced by The Borden Company Limited.

Developed in Canada, the new container is reported to be a major packaging improvement and is currently being test marketed in the Ottawa area.

In a series of tests conducted at

the University of Guelph 'Lightguard' was reported to be 97 per cent light proof and significantly more effective than its competitors on the average in protecting flavour and vitamins.

Prof J. M. deMan, chairman of the Department of Food Science at the University of Guelph described this particular container as a "major breakthrough, and a great step forward in protecting the quality of milk." Protection for the environment is also built into this opaque film package since it reportedly burns without emitting harmful chemicals.

Damage by light

In the past consumers encountering the characteristic oxidized taste

from milk which has been exposed to light have tended to blame the producer for distributing milk that is less than pure or the storekeeper for inefficient refrigeration.

But the loss of flavour and vitamins actually begins after milk leaves the carefully controlled surroundings of the dairy processing plant and is exposed to light such as the strong fluorescent lights found in typical store dairy cases.

Consumption drop cause

Far from isolated incidents, U.S. studies found light-induced off-flavour in milk was widespread and probably responsible for limiting milk consumption, particularly among children who cut down or simply stop drinking milk rather than complain to their parents.

"It is paradoxical that the dairy industry should take elaborate precautions to prevent off-flavour on the farm and at the plant, while in the store a very serious off-flavour situation is generally accepted," researchers at North Carolina State University noted in a 1970 report.

Problem of design

Gerald J. Ray, a chemical engineer took a new look at this problem when he became president of The Borden Company, Limited last fall.

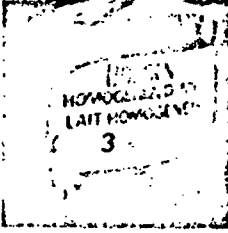
"We ensure that all our products meet the highest standards of freshness and purity before leaving the plant," explains the former president of The Borden Chemical Company (Canada) Limited. "We also have to recognize the consumer's right to expect the same high quality to be present in products when they buy them at the store."

To Ray, it was a problem in engineering design. "If everyone wants well-lit dairy cases, the only way to protect the original freshness is to develop a container that will block out virtually all light."

He threw the challenge to Borden Research. Under his direction, a new milk pouch of co-extruded light barrier film was developed. Extensive testing of this new film in comparison with existing milk containers was conducted at the University of Guelph.

MODERN DAIRY MAY 72

That's why BORDEN bag milk is now protected by "Lightguard" a new package that blocks 97% of the destructive light rays.



97% of the harmful light rays that... blocking the light... 97% of the harmful light rays... blocking the light... 97% of the harmful light rays... blocking the light...

Consumer advertisements such as this one were placed in newspapers to inform the public of the special features to be found in the new opaque, black-lined milk pouch

DAIRY & ICE CREAM FIELD
NEWS

Borden Tests Black Lined Plastic Bottle

Lightguard, a new packaging film which is white on the outside and black on the inside, is being test-marketed by Borden of Toronto for one quart milk bags. The coextruded polyethylene film reportedly lets in less than 3% light—reducing flavor and nutrient loss of the milk caused by exposure to light.

Lightguard film was tested at the Food Science Dept. of the Univ. of Guelph. Other packages reportedly let in various amounts of light: 90 per cent in unprinted areas of a clear three-quart pouch; 60-80 per cent for three-quart polyethylene jugs; and 10-13 per cent for plastic-coated cardboard containers.

Citing the advantages of Lightguard, Gerald Ray, Borden president, says it offers the best milk protection available; individual quarts protect freshness and permit extended storage; it requires minimal storage area since only the unused portion of milk takes up space; there is no investment in returnable containers; and Lightguard containers burn completely.

The new package is being promoted in St. Catharines, Niagara Falls, Hamilton, London, Windsor, Kitchener, Ottawa, Montreal and Quebec City.

Experiments at Guelph

In one set of experiments a panel of 15 to 20 technicians, trained in recognizing light-induced off-flavour, found milk in the new opaque Borden pouch retained its original flavour even after 24 hours under cool fluorescent light of 200 foot candle intensity in a cabinet refrigerated at 38-40° F.

Under the same conditions, milk in cartons developed oxidized or light-induced off-flavour after 12 hours. Milk in clear pouches or plastic jugs developed significant off-flavour after three hours. Exposure times were three, six, twelve and twenty-four hours and for each test an unexposed control sample was kept in a dark refrigerator.

In vitamin tests, the results were also interesting. The opaque pouch was "significantly" more effective than any other current package alternative in retaining Vitamin B¹² (Riboflavin) and Vitamin C.

Light transmittance

Experiments for light transmittance showed the opaque pouch was 97 per cent light proof over the visual light spectrum. The clear pouch let in 90 per cent of the light over practically the whole spectrum.

The test results showed the three-quart plastic jug had a relatively high light transmittance approaching 80 per cent over most of the spectrum.

The plastic-coated paper carton showed a "quite low" transmittance in the lower range but rose to about 13 per cent in the higher range of the spectrum.

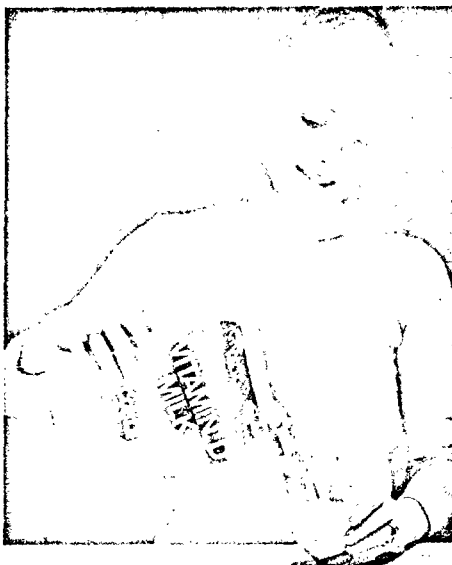
An ISCO model SR spectroradiometer was used in determining the transmission over the visual light spectrum and results were converted to percentage.

Marketing plans

To introduce this new opaque pouch to consumers, Borden has already embarked on a market test in the Ottawa Valley area. The company's marketing experts feel it is necessary to measure several things in the actual retail climate. Among these is consumer purchase reaction to the opaque bag and the fact that the product cannot be seen. Also, the company is interested in measuring consumer re-purchase of milk in a package with a black interior. According to Borden president Ray, "if we obtain the response we expect to the unique characteristics of the 'Lightguard' innovation, we will make milk in this package available throughout Ontario and Quebec as quickly as possible." ■

REPRINTED FROM

FOOD & DRUG PACKAGING



Package OF THE Week

Dairy tests milk in 3 qt. cartons

LEXINGTON, N.C.—Because it believes an “in-between” size will be more convenient and thus fit the demands of many consumers, Coble Dairy Products here is test marketing what is thought to be the world’s first three-quart paperboard milk container.

“We started three years ago to try to find a milk container which was easier to handle,” Fred T. Ridge, Coble Dairy general manager, tells FOOD & DRUG PACKAGING. “We also wanted to get away from the oxidation which fluorescent lights can cause in milk in plastic containers.”

Called the “Space Saver,” the new carton was developed by the Single Service Div., International Paper Co., in co-operation with Coble. Base dimensions are 3¾ by 5¾

inches, giving the carton the depth of a half gallon, the width of a gallon and the height of a quart.

Mr. Ridge says the container is so easy to use that even a child can take it from the refrigerator—the carton’s depth allows storage in most refrigerator doors—and pour his own milk.

The dimensions allow shipment of six three-quart containers in regular cases, totaling four and one-half gallons instead of four gallons per case. This translates to 12½ percent more milk per case or an 11 percent saving in cases required, according to an International Paper spokesman. He also says that the Space Saver is the most efficient way to package milk in paperboard because it uses board better by providing a

higher ratio of milk to paper.

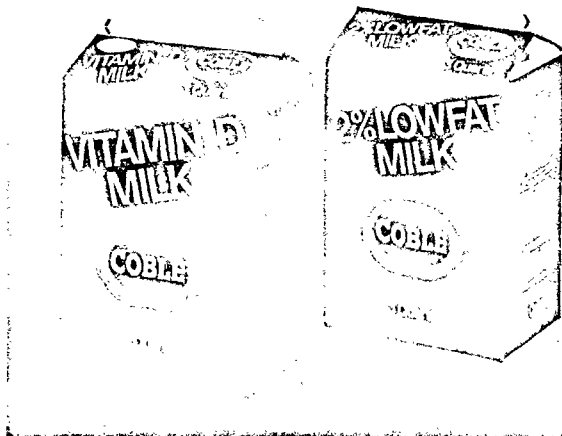
Initially, Coble is testing its regular Vitamin D and 2% Lowfat milk in three-quart containers in Goldsboro, North Carolina. The test marketing, which began in November and was scheduled to continue for six months, has produced such a positive response that Mr. Ridge believes the entire six months may not be necessary.

The dairy sells products on routes and to wholesale and institutional outlets in North Carolina, South Carolina, Virginia, Georgia, Tennessee and Florida, has five processing plants and 50 distribution branches.

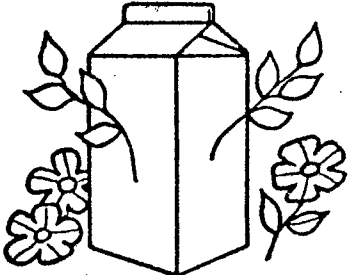
It has applied to Departments of Agriculture in North Carolina, South Carolina and Georgia for approval of state-wide distribution of milk in the new container.

Mr. Ridge says a Haskon machine being used to fill the three-quart containers for the test marketing phase has been able to attain speeds of 22 per minute, which is comparable to its speeds for half gallons. “We plan to get faster machinery when we really get into the three-quart size,” he notes.

In addition to the new container, Coble sells milk in plastic gallons and half gallons, paper half gallons, quarts, 10 ounce containers, pints and half pints. Milk also is packaged in five- and six-gallon bag-in-box containers for dispenser use.



**THE ENVIRONMENT
THIS MILK CARTON
AND YOU**



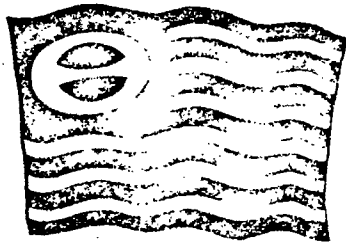
Although there are many areas of our environment which require the attention and concern of us all, the experts tell us that the consumption of natural resources is one of the most critical. Our earth has a limited supply of land, water, air and other resources needed to support life. Depletion of our natural resources is a major threat to the entire life cycle.

Of the materials available to package milk (glass, metal, paper, plastic) no material can match the combination of assets of this paper milk carton. It offers you economy, practicality, disposability and protection for the vitamins contained in milk. In addition this package offers you and mankind a unique advantage which other milk packages can not . . .

THE BASIC RAW MATERIAL (APPROXIMATELY 90% OF THIS MILK CONTAINER) IS MADE FROM A PERPETUALLY RENEWABLE RESOURCE — TREES FROM MANAGED FORESTS

TREES — THERE'S A LOT GROWING — FOR YOU!

IPCO-ENV-1



THE ECOLOGY FLAG

WHAT DOES IT MEAN?

Throughout the world you can find this familiar Ecology Flag. This Flag is the symbol of mankind's commitment to use our natural resources wisely and to restore those resources wherever possible. The Greek letter "THETA," which appears in the Union, is the warning of death and it is used on the flag to symbolize the threat to mankind. The green stripes symbolize unspoiled land and the white ones pure air.

ECOLOGY AND THIS MILK CARTON

Depletion of our natural resources is a major concern to all. We want you to know that approximately 90% of this package is made from a renewable resource, trees from managed forests. Trees can and are being replanted. Year after year, new trees are being planted, grown and harvested just like a food crop.

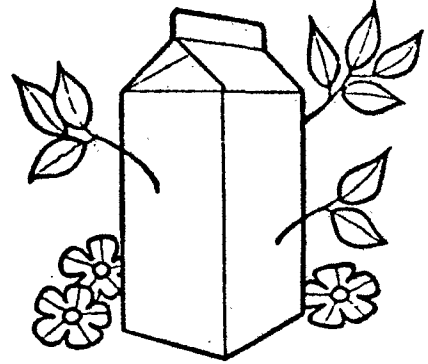
Other milk packages, such as the all plastic package are manufactured from natural gas or oil, the glass package from silica, limestone and soda ash, the metal package from iron ore, tin or aluminum, all natural resources which cannot be replaced by man.

TREES — THERE'S A LOT GROWING — FOR YOU!

IPCO-ENV-3

[This Panel Must Be Run in GREEN]

**Yes our milk cartons
are made
from trees!*** 315



Of the materials available to package milk (glass, metal, paper, plastic) no material can match the combination of assets of this paper milk carton. It offers you **ECONOMY, PRACTICALITY, DISPOSABILITY AND PROTECTION FOR THE VITAMINS** contained in milk. In addition this package offers you and mankind a unique advantage which other milk packages can not . . . *the basic raw material (approximately 90% of this milk container) is made from a renewable resource — trees from managed forests.

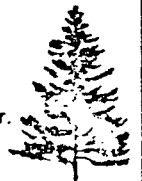
TREES — THERE'S A LOT GROWING — FOR YOU!

IPCO-ENV-2

NATURE'S UNBEATABLE COMBINATION



The cow provides nature's almost perfect food — MILK.



The tree provides nature's almost perfect milk container. This paper carton you are now using . . .

Milk is often credited as "nature's most nearly perfect food," basically because it is a highly nutritious combination of proteins, fats, carbohydrates, minerals and vitamins. As a result milk and other dairy products are usually recommended in any balanced diet program.

WHY IS THIS PURE-PAK MILK CARTON THE ALMOST PERFECT MILK CONTAINER?

No package is perfect. This milk carton, like all other milk packages whether they are manufactured from glass, paper, plastic or metal eventually becomes "trash." This paper milk carton you are now using offers the best combination of benefits to mankind. It offers **ECONOMY, PRACTICALITY, DISPOSABILITY AND PROTECTION FOR THE VITAMINS** contained in milk. In addition, this package offers a unique advantage which other milk packages cannot . . . the basic raw material (approximately 90% of this milk container) is made from a renewable resource — trees from managed forests.

TREES — THERE'S A LOT GROWING — FOR YOU!

IPCO-ENV-4

990-7



Walter T. Ahearn

**South Carolina
State Commission of Forestry**

December 4, 1973

JOHN R. TILLER
STATE FORESTER

P. O. BOX 287
COLUMBIA, S. C. 29202

Mr. John R. Cobb, Manager
Coble Dairy Products, Inc.
Box 5284
Columbia, South Carolina 29250

Dear Mr. Cobb:

I have been interested in seeing the public service messages your company prints on your paper milk cartons from time to time.

I was particularly interested in the message "Yes our milk cartons are made from trees!" Of the materials available to package milk (glass, metal, paper, plastic) no material can match the combination of assets of this paper milk carton. It offers you ECONOMY, PRACTICALITY, DISPOSABILITY AND PROTECTION FOR THE VITAMINS contained in milk. In addition this package offers you and mankind a unique advantage which other milk packages can not...*the basic raw material (approximately 90% of this milk container) is made from a renewable resource--trees from managed forests. TREES-- THERE'S A LOT GROWING--FOR YOU!"

At a time when so many people profess interest and concern about environmental quality, our natural resources, the energy crisis, etc., this message should be particularly appealing. We of the S. C. State Commission of Forestry appreciate this message pointing out that our forest resources are a renewable resource.

Incidentally, there are several additional reasons why I consistently buy our family's milk in paper cartons. Taste tests conducted by Clemson University some time ago disclosed that milk in paper cartons maintained its taste better during shelf life than milk in plastic containers. I also understand paper cartons are substantially lower in cost than plastic cartons, so it would be better economically for all concerned if consumers choose milk in paper cartons in preference to milk in plastic cartons.

Very truly yours,

Walter T. Ahearn

Walter T. Ahearn
Assistant State Forester
Information & Education



International Paper shows how much paper kids could save everyday with a tiny change in an 8-oz. milk container.

The familiar 8-ounce milk container kids use is almost as American as Mom's good old apple pie.

It's the squat paper carton with the peaked top that your teacher handed out with cookies when you were a kid — and that kids, by the millions, still guzzle milk from today.

Could anyone improve on this commonplace item? Was

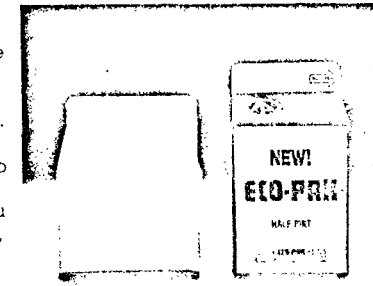
there even any reason to try? At International Paper, we thought so.

Announcing Eco-Pak™

We made a few slight changes in shape, trimming a nip here, shortening a tuck there. And what we ended up with is Eco-Pak — a slightly taller, slightly skinnier container that uses substantially less paper.

Enough to save the dairy industry \$9 million a year.

In fact, if every dairy distributor were



Both containers hold 8 oz. But Eco-Pak, right, could save 318,000 lbs. of paper a day.

to switch to our new Eco-Pak, America would save more paper each day than you see in our photograph. A paper-scarce America would save 58,000 tons of paper a year. That's enough to stack those paper rolls over five times taller than the tallest mountain in the United States.

A better gallon package, too

Another milk-packaging innovation from International Paper can help the housewife who buys milk by the gallon, but has problems keeping the

opened container fresh.

We've developed a gallon package called Fresh-Pak™.

It consists of four individual quart containers that can be opened one at a time while the others stay fresh in the refrigerator.

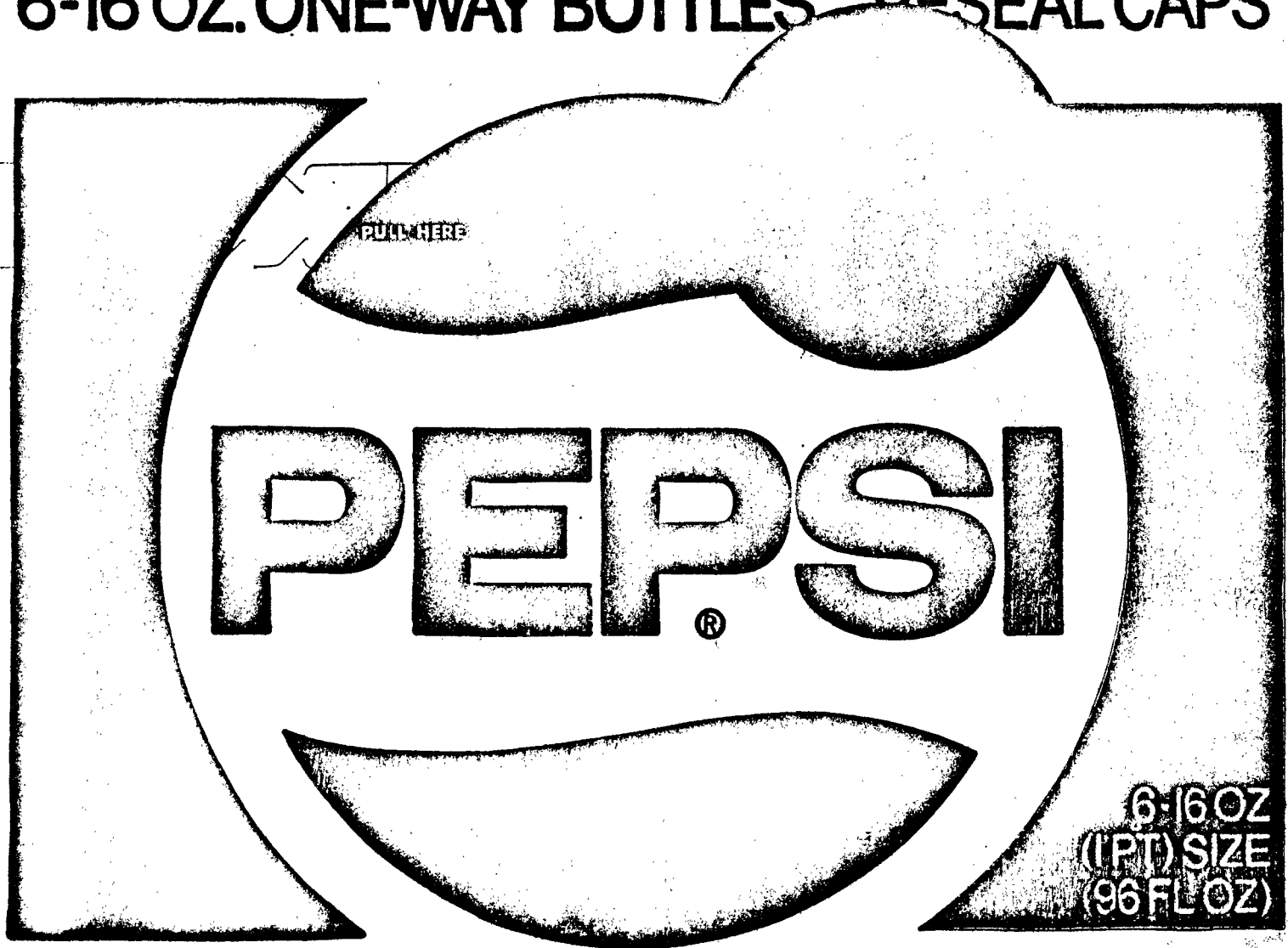
The containers are even bound together with a plastic wrapper for easy carrying.

Fresh-Pak does even more than help milk stay fresh. It also allows for easier refrigerator storage once the quarts are separated.

Eco-Pak and Fresh-Pak. Two more examples of International Paper Company's innovative leadership in packaging, paper, pulp, building materials and non-woven and health products.

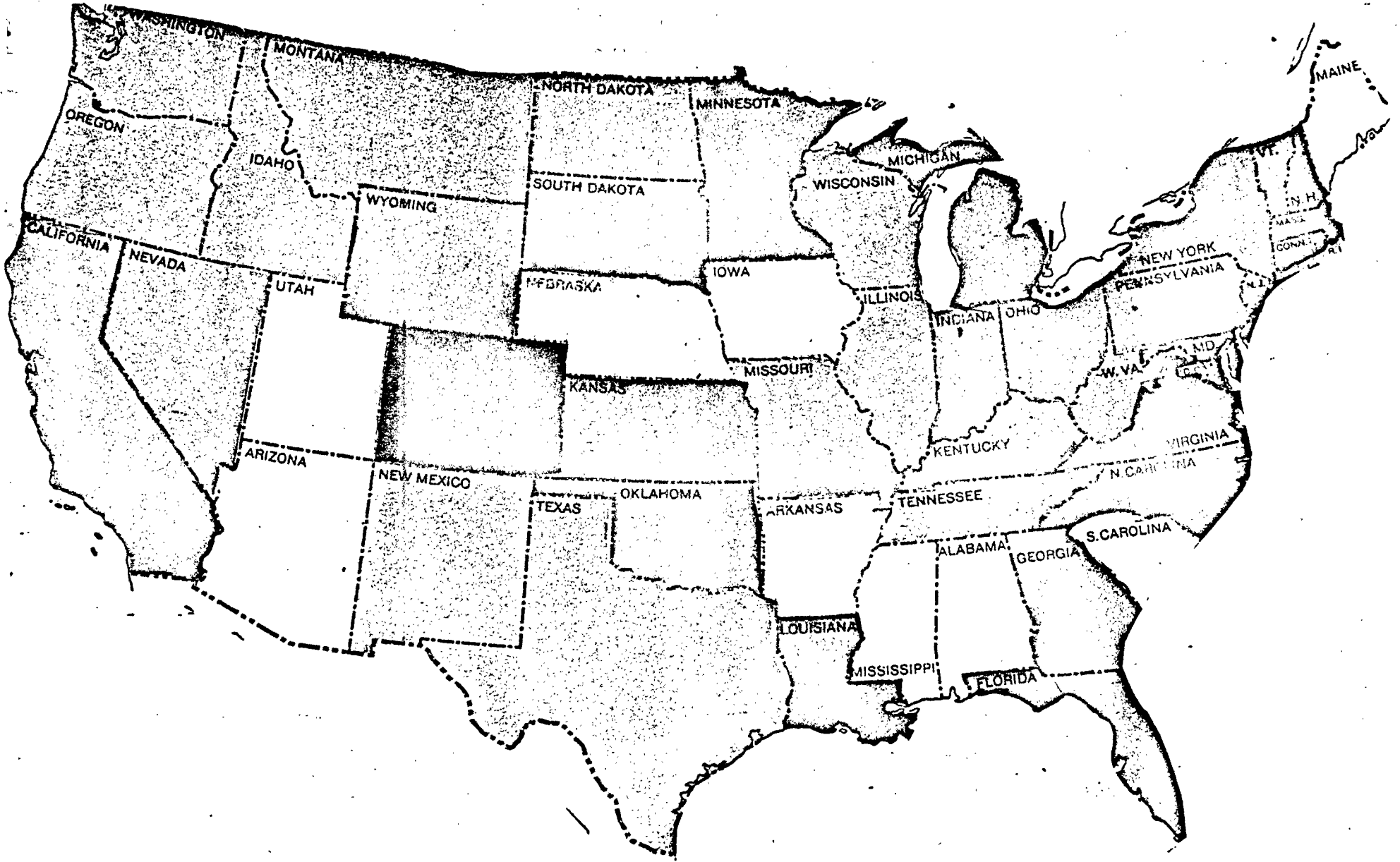
 **INTERNATIONAL PAPER COMPANY**
220 EAST 42ND STREET NEW YORK NEW YORK 10017

6-16 OZ. ONE-WAY BOTTLES RESEAL CAPS

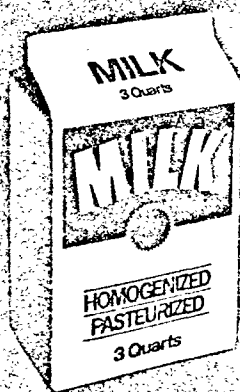


MATERIAL REQUIRED TO PACKAGE 1,000 GALLONS OF MILKIF PACKAGED IN 3 QUART PACKAGES

<u>CARTON SIZE</u>	<u>NUMBER OF CARTONS REQUIRED</u>	<u>POUNDS OF PAPER</u>	<u>POUNDS OF POLY</u>	<u>TOTAL WEIGHT OF MATERIAL</u>	<u>TOTAL 3 QUART MATERIAL SAVINGS</u>	<u>%</u>	<u>%</u>	<u>%</u>
							<u>PAPER</u>	<u>POLY</u>
GALLON	1,000	252.43	25.71	278.14	28.85	10.4	9.2	21.7
HALF GALLON	2,000	267.78	24.04	291.82	42.53	14.6	14.4	16.3
QUART	4,000	273.03	32.12	305.16	55.87	18.3	16.1	37.3
THREE QUART	1,333.3	229.15	20.13	249.29				

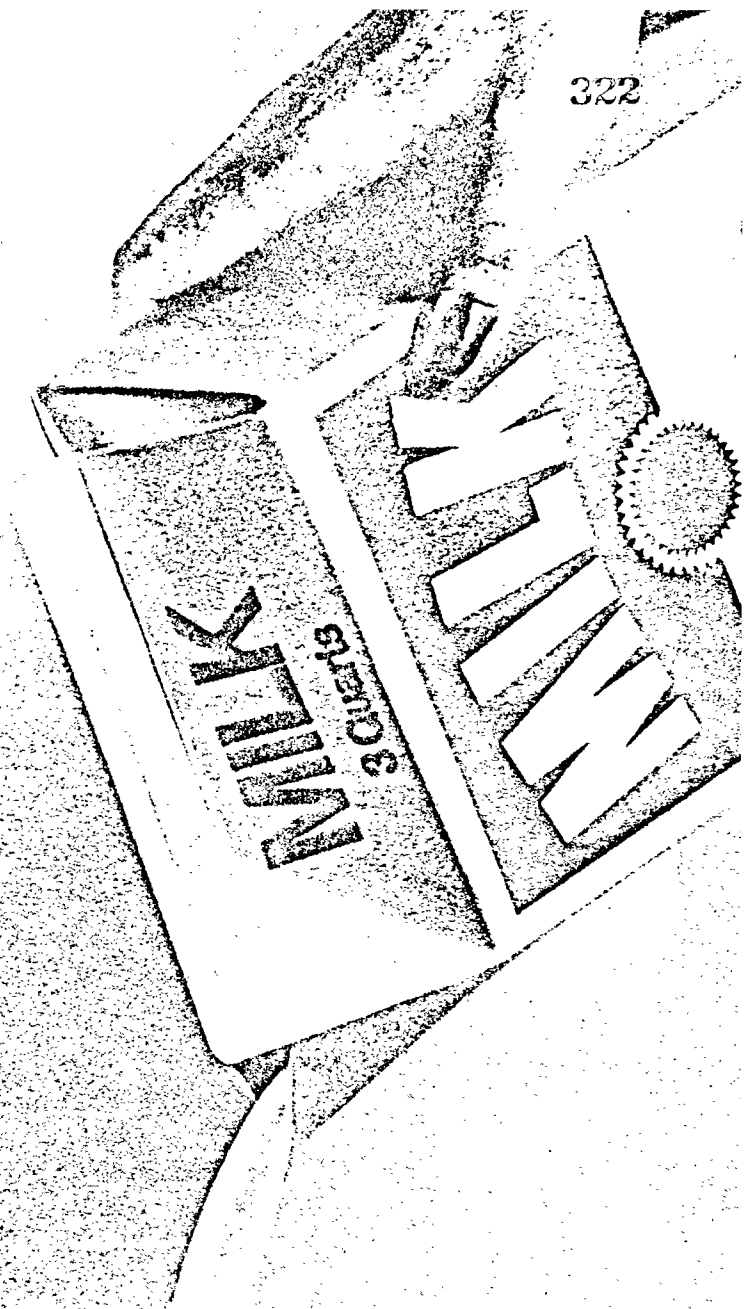


Good things
come
in threes!



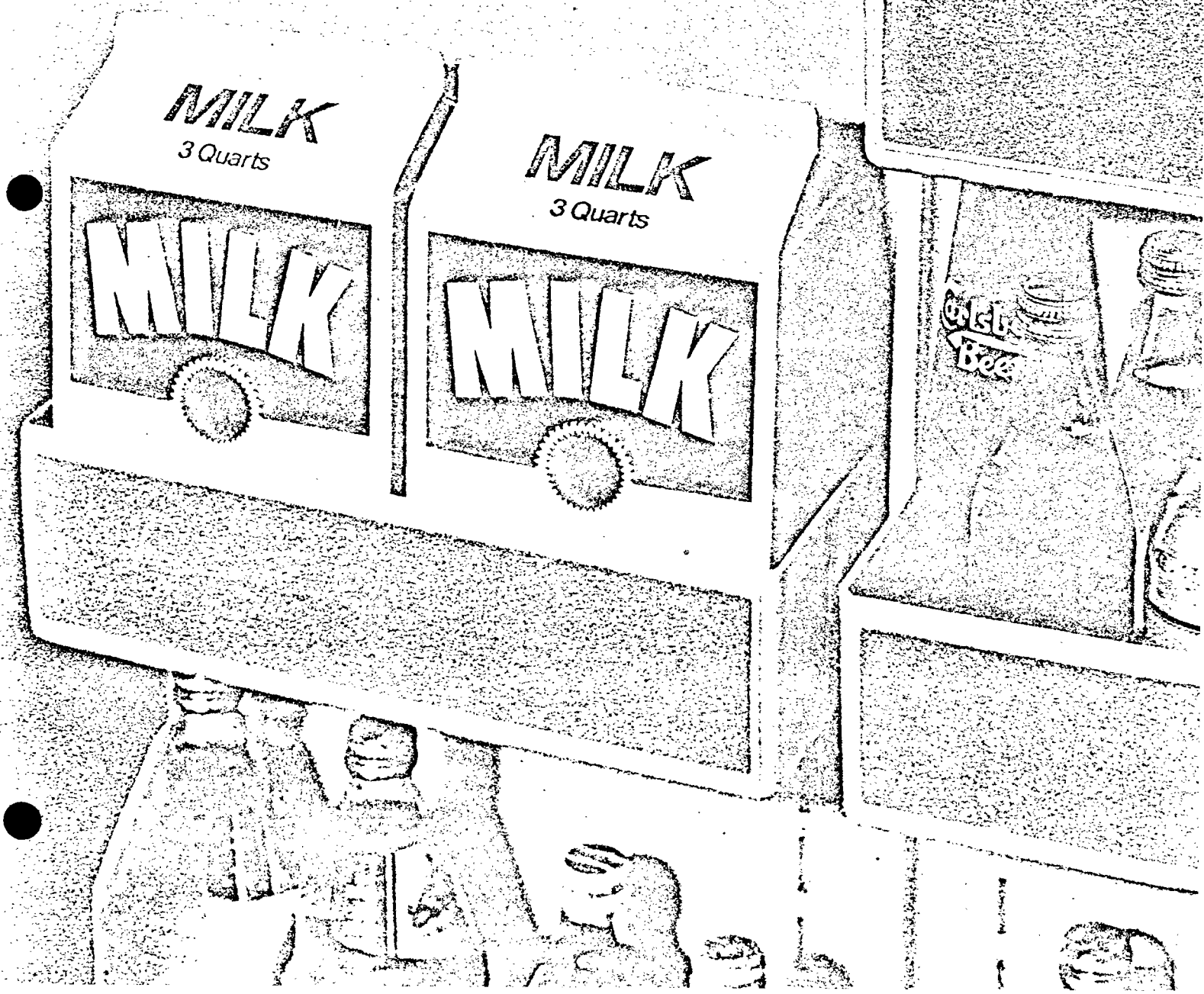
Easier to use

Now you can have a volume size milk package that combines all the advantages of paperboard with unique ease in handling. We designed the side panels of the three quart space saver to be the same width as the familiar paperboard half-gallon. And with the same size spout as a half-gallon. All this means easy one hand lifting *and* pouring your customers can really control. Your customers get a lot of milk, but a lot of convenience too.



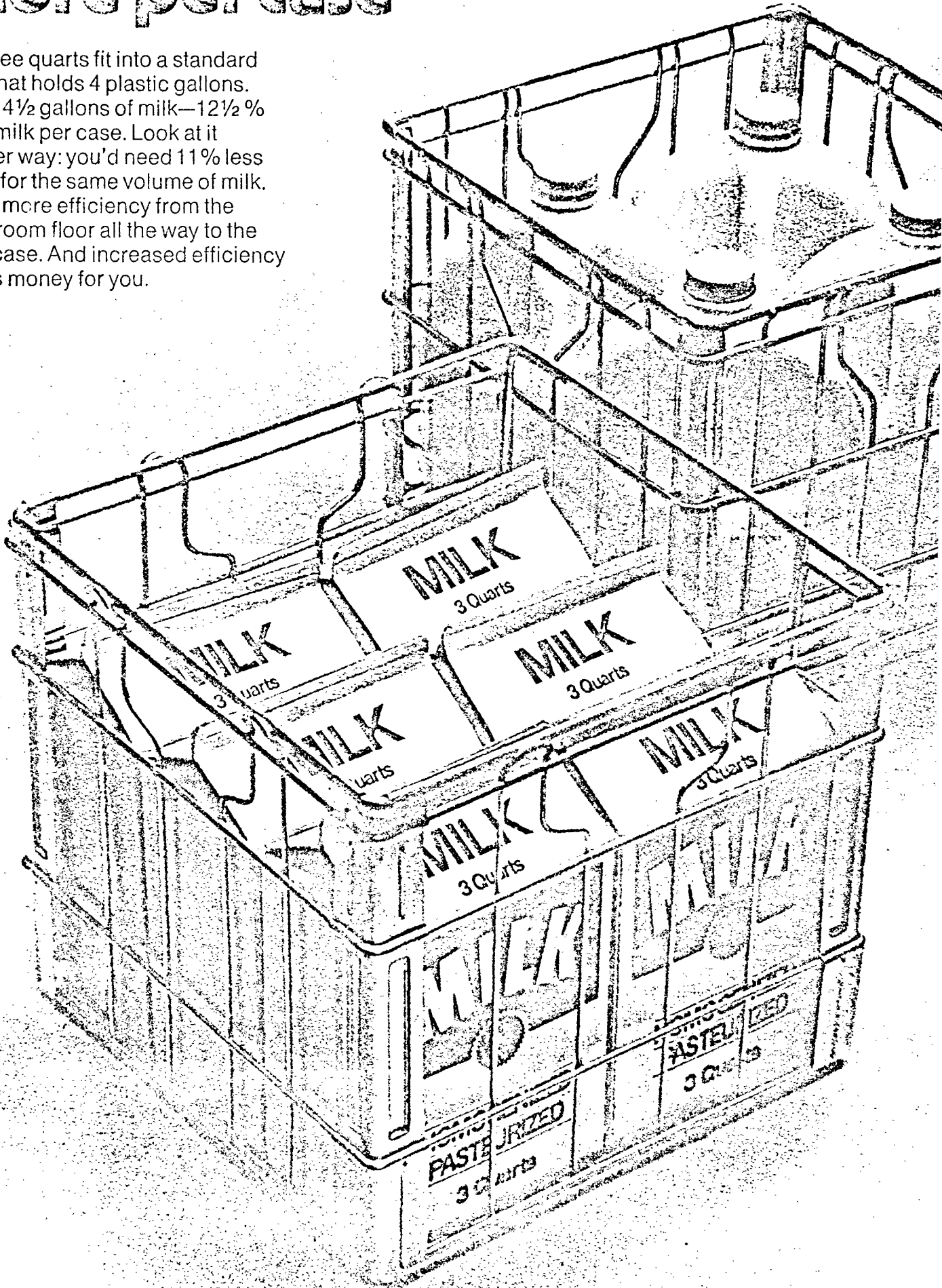
Improved storage

More convenience. The three quart is also shaped —by design—to take up minimum space in the refrigerator. It even fits into refrigerator door shelves. And two space savers don't take up much more room than one paperboard gallon. (That also means you've just sold 6 quarts of milk instead of 4). And the rectangular design of the space saver is more compact than any large, rounded package.



More per case

Six three quarts fit into a standard case that holds 4 plastic gallons. That's 4½ gallons of milk—12½% more milk per case. Look at it another way: you'd need 11% less cases for the same volume of milk. That's more efficiency from the filling room floor all the way to the dairy case. And increased efficiency means money for you.



International Paper's three quart

325

the right package at the right time.

The new three quart space saver package has a lot going for it—and your business.

1. It's the size and shape customers want.

Before it was put on the market, we did extensive research among housewives about the kind of milk packaging they liked—and disliked. (We tested existing gallon and half-gallon packages as well as many new configurations and sizes.) The space saver came out a winner with the women who wanted a volume size package. They liked its compactness, pouring control and easy disposability.

The same thing happened in the marketplace itself.

NOTE: Housewives find nothing "odd" about a three quart package. They feel it's just right.

Women think it's not as heavy and hard to manage as a gallon. They also feel that the space saver gives them *enough* milk in one package. Often the space saver is more economical than half-gallons.

2. Let's talk about your costs.

Costs vary, of course, from dairy to dairy. But generally the total packaging costs of the space saver are less than custom molded plastic gallons.

Talk it over with us and we'll work it out for your operations.

3. Marketing advantage.

The three quart gives you the printability only paperboard has. This means you get high brand and product identity in the dairy case. And you can tie in *all your products* with good, consistent design.

4. Nothing protects like paperboard.

It's a fact that nothing on the market protects milk against oxidized flavor caused by light as well as paperboard. And there's a lot of evidence that paperboard gives the same protection to major nutritional elements in milk that also are affected by light. Consumers are becoming more and more aware of this—as we found out in our research.

5. Renewable resource.

The space saver is 90% paper, paper from managed forests where we plant more than we harvest. You can't replace oil or gas once it's been used for packaging! But we've got a lot of trees growing for you!

*"We put a lot into your packaging
before you do."*



INTERNATIONAL PAPER COMPANY

SINGLE SERVICE DIVISION

220 EAST 42ND STREET,

NEW YORK, NEW YORK 10017

Exhibit 376

ASSEMBLY ACTION

SENATE ACTION

ASSEMBLY / SENATE AMENDMENT BLANK

Adopted
Lost
Date:
Initial:
Concurred in
Not concurred in
Date:
Initial:

Adopted
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Date:
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Concurred in
Not concurred in
Date:
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Amendments to Assembly / Senate:

Bill / Joint Resolution No. 29 (BDR 51-106)

Proposed by Mr. Price

Amendment No 5969

Consistent with Amendment No. 7560.

Amend sec. 2, page 5, by deleting lines 2 through 4 and inserting:

"4. In determining cost in the case of a retailer, the following factors shall be considered:

(a) The invoice price paid by the retailer or, in the case of a retailer who processes or manufactures fluid milk, fluid cream, butter or fresh dairy byproducts, the transfer price; and

Amendment No. 5969 to Assembly Bill No. 29 (BDR 51-406) Page 2

Blank (b) The retailer's cost of doing business.

For purposes of this section the "transfer price" shall be determined pursuant to the factors contained in subsection 2. For purposes of this section the "retailer's cost of doing business" means all overhead costs incurred by the retailer in operating his retail business. A retailer's cost of doing business shall be presumed to be equal to 10 percent of the invoice price or transfer price paid by such retailer for his dairy byproducts unless he can substantiate a lower price.

5. Each [manufacturing] distributor who processes or manufactures fluid milk, fluid cream, butter or fresh dairy byproducts shall file with the commission a".

Amend sec. 8, page 5, by deleting line 11 and inserting:

"[5.] 6. Each [manufacturing] distributor who processes or manufactures fluid milk, fluid cream, butter or fresh dairy byproducts and each peddler-distributor".

Amend sec. 3, page 5, by deleting line 23 and inserting:

"[manufacturing distributor or] distributor who processes or manufactures fluid milk, fluid cream, butter or fresh dairy byproducts, any peddler-distributor or any retailer relating to cost and".

Amend sec. 11, page 6, by deleting line 4 and inserting:

"584.690 [NRS 584.325 to 584.685, inclusive, shall apply to retail".

Amend sec. 11, page 6, line 9, by deleting the open bracket.

Amend sec. 11, page 6, by deleting line 10 and inserting:

Amendment No. 5969 to Assembly Bill No. 29 (BDR 51-405) Page 3

"includes retailers.] The provisions of paragraphs (a), (b) and (c) of subsection 2 of NRS 534.570 apply to retailers."

Amend sec. 14, page 6, by deleting lines 40 through 43 and inserting:

"Sec. 14. It is unlawful for any distributor or retailer to manipulate the prices of fluid milk, fluid cream, butter or fresh dairy byproducts for the purpose of injuring, harassing or destroying competition."

RESOLUTION

WHEREAS the Legislature recognizes that the production, transportation, processing, storage, distribution or sale of fluid milk and fluid cream in the State of Nevada is vital to the public health and welfare of the people of Nevada; and

WHEREAS prices of fluid milk, fluid cream and dairy by-products have greatly increased in the past two years; and

WHEREAS the efficiency and accountability of dairy producers, distributors and retailers is vital to the consumers of the State of Nevada; and

WHEREAS the dairy industry has been subject to considerable public concern;

NOW, THEREFORE, BE IT

RESOLVED by the Assembly of the State of Nevada, the Senate concurring that the Legislative Commission is directed to make a comprehensive study of the problems confronting the dairy industry and the effects such problems may have on the consuming public, such study shall include but not be limited to the following:

a) The operation of dairy cooperatives and the handling and transporting of fluid milk or other dairy products as such movement affects Nevada marketing areas;

2) the efficiency and operational procedures of the producers, distributors and retailers and their accountability to the people of the State of Nevada;

c) the methods of furnishing milk to schools and the possibility of lowering the total expense to schools by alternate means of the purchasing of such milk; and be it

RESOLVED that the legislative commission report the findings of the directed investigation, with recommendations for any necessary and appropriate legislation, to the 59th session of the legislature.

THE FOOD AND DRUG ADMINISTRATION'S PROGRAM FOR HONEY

by

Sam D. Fine

Associate Commissioner for Compliance

Food and Drug Administration

Public Health Service

Department of Health, Education, and Welfare

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Bureau of Environmental Health

It is indeed a pleasure for me to once again speak at your annual convention in the great State of Texas. If memory serves me right, I last talked with you at a meeting in College Station in the 60's, when I was the Director of our Dallas District. I have been asked to speak on FDA's program for honey. In describing such a program, I will first discuss foods in general, and then refer specifically to honey. My remarks will be confined primarily to the adulteration of foods, including honey.

As most of you are aware, one element of the overall mission of the Food and Drug Administration is to protect the public from adulterated foods. The 1906 Food and Drugs Act was the first step taken by this nation to prohibit the sale of adulterated or misbranded foods in interstate commerce. The Food, Drug, and Cosmetic Act of 1938 defines a food as adulterated, among other things, if any valuable constituent has been in whole or in part omitted or abstracted therefrom, or if any substance has been

Presented at the Sixth Annual Convention of the American Honey Producers Association, San Antonio, Texas, on January 16, 1975

substituted wholly or in part therefor. It makes no difference what the substance is that has been added to or taken from the product. The substance may be as beneficial or more beneficial than the original article. The point to remember is that a substance recognized as a valuable constituent in a food cannot be omitted, abstracted, or substituted for, in whole or in part.

The Act aims at guaranteeing consumers that when they purchase a certain article they know that they are getting what they pay for. Our regulatory programs are geared to ensure that foods are safe, pure, wholesome, unadulterated, and honestly and informatively labeled.

Our effectiveness in protecting the consumer depends to a large extent on our ability to identify and remove from the market place those products suspected or known to be violative. In our surveillance of the food industry for adulterated foods, we rely heavily on factory inspections and the examinations of products. Factory inspection is the basic tool used by FDA to determine whether goods are in compliance with the Act, and also to obtain evidence to support legal action when violations are found. Our factory inspection program keeps tab on the industry to determine the status of compliance with the law.

Although inspectional observations often provide the basic evidence if any violation exists, most of our legal actions are associated with the collection and analysis of official samples. Additionally, investigational samples are collected during the course of an inspection to demonstrate the type of violation noted or suspected. Samples of raw materials and finished products provide the necessary key to establish routes of adulteration.

Since FDA cannot give equal attention to all of the products subject to the laws we enforce, we have to develop programs to give attention to those products, or categories of products, which in our opinion are of the most importance to the consumer from the standpoint of health, public decency and the pocket book. Often it is a monumental task just to acquire enough information to make such a decision.

In administering those sections of the law that deal with economic frauds or cheats, there are a great many judgmental factors which must be applied, such as determination of the seriousness of the violation to the consumer, validity of analytical methodology, and the likelihood that we can present convincing testimony in a court of law should our actions be contested. The institution of legal action by FDA is not a hit or miss operation, but rather is a carefully planned program.

The problem of adulterated honey which presently is of concern to your industry is not a new one. Near the turn of the century, Dr. Harvey W. Wiley of the old Bureau of Chemistry in the Department of Agriculture, and the father of the 1906 Food and Drugs Act, directed a group of scientists that carried out an extensive series of analyses to determine the extent of adulteration of honey. They found that three types of sirups were commonly used in the adulteration process in those days. These were commercial glucose sirup or solutions of commercial grape sugar, cane sugar sirup and invert sugar sirup. Methodology was subsequently developed by Dr. Wiley and his team to allow the agency to cope with that type of adulteration. In fact, in 1913 we fought and won a case in the District Court of the Eastern District of Pennsylvania, which involved a contested seizure of honey which had been adulterated with invert sugar.

Today we are faced with a situation where modern manufacturing technology can produce sirups very similar to honey. This technology appears to be more advanced than the current analytical methods known to us, although work is being carried out on the development of more sensitive methodologies.

FDA considers that honey is the nectar and saccharine exudations of plants gathered, modified, and stored in the comb of honey bees.

Honey is levorotary, and contains not more than 25% water, not less than 0.25% ash, and not more than 8% sucrose. The carbohydrate composition of American honey has been reported as containing an average of: 334

dextrose (glucose)	31%
levulose (fructose)	38%
maltose	7%
sucrose	1.3%
other sugars	1.5%

It is evident that the most likely adulterants we would expect to find in honey based on this carbohydrate composition are sirups that contain both dextrose and levulose, which are naturally present in honey at 31% and 38%, respectively.

Invert sugar is a mixture of dextrose and levulose in equal amounts produced by the hydrolysis of sugar (sucrose) by treatment with an acid or an enzyme. Commercially, the hydrolysis is usually not carried to completion, and the final product is a sirup consisting principally of sucrose, dextrose, and levulose in the approximate proportions of 2:1:1. Honey adulterated with significant amounts of commercially prepared invert sugar can be identified by the high sucrose content and the dextrorotary optical activity as opposed to the levorotary activity of natural honey. On the other hand, completely inverted sirup in which all of the sugar (sucrose) is converted to dextrose and levulose can be added to honey without appreciably changing the composition or the optical activity.

When invert sirups are prepared by acid hydrolysis they contain appreciable amounts of hydroxymethylfurfural (HMF). The HMF content of good quality honey is low; however, it increases when honey is exposed to heat or prolonged storage. Our Bureau of Foods is currently working with Dr. Jonathan W. White, Jr., USDA, in exploring the possibility of establishing an action level for HMF in honey, which will provide us one more regulatory tool in dealing with the problem of adulterated honey.

Glucose sirups are principally mixtures of dextrose, maltose, dextrans and other polysaccharides in varying proportions. Honey adulterated with significant amounts of glucose sirup can be identified by the optical rotation activity, since dextrorotation would be indicative of adulteration with glucose sirup.

Dextrose-levulose sirups are a relatively new type sirup in which dextrose from corn sirup is converted by an isomerization process to levulose. They are sometimes referred to as high-fructose corn sirups or invert sirup from dextrose. The carbohydrate constituent levels of honey are quite similar to the carbohydrate constituent levels of dextrose-levulose sirup. The extent of isomerization can be varied to yield sirups with varying proportions of dextrose and levulose. Consequently, a sirup having approximately equal amounts of dextrose and levulose can be added to honey without making any significant change in composition or optical rotation.

The results of a preliminary investigation at the New York State Agricultural Experiment Station at Cornell University indicate that analyses for sodium and potassium ion content may be useful for detecting adulteration of honey with dextrose-levulose sirup. The ratio of sodium to potassium was found in this study to be much higher in dextrose-levulose sirup than in honey. Limited analyses have indicated that the sodium content of honey is approximately 1/40th the potassium content, whereas dextrose-levulose sirup contains 10-20 times as much sodium as potassium. It is our understanding that the Fitelson Laboratory in New York is pursuing this approach under contract with the honey industry. If these findings can be validated, a high sodium/potassium ratio would be considered indicative of adulteration of honey with dextrose-levulose sirup.

We are also working with the Department of Agriculture to determine what progress USDA scientists may be able to achieve in the near future toward a solution of the problem of detecting adulteration with dextrose-levulose sirup, and whether Dr. White and other experts can support regulatory action against the adulterations with sucrose, corn sirup and invert sugar, using a combination of currently available analytical methods.

As with any adulterated food product, FDA will take regulatory action against adulterated honey anytime we are able to develop sufficient evidence to sustain our position in the event of a court contest. In this regard, I would urge each of you here to report to us any specific instances of suspected adulteration of honey which comes to your attention. We are prepared to follow-up on such information and will take action where it is warranted.

I would be pleased to answer any questions which you might have at this point. Thank you.

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Bureau of Environmental Health

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Rectangular shape saves space in refrigerator. Housewives say they can get two three quart cartons in the space of one gallon. The 3 quart will fit on most refrigerator doors.

Narrow panel, same as half gallon, permits holding in one hand.

Small spout, like the half gallon, gives controlled pouring.

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Uses 10.4 - 18.6% less material than other cartons per gallon of milk.

Dairy Advantages

It is less costly than custom molded plastic gallons.

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Geometry of package permits $4\frac{1}{2}$ instead of 4 gallons per case. $12\frac{1}{2}\%$ more milk per case or an 11% saving in cases required.

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