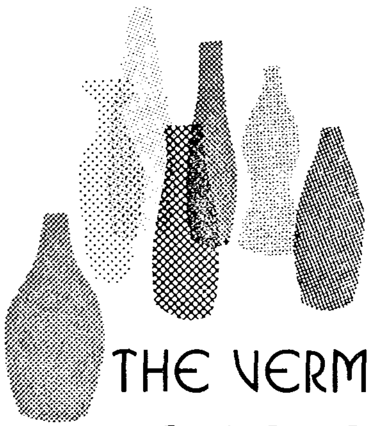
# BEVERAGE CONTAINERS: THE VERMONT EXPERIENCE

An environmental protection publication (SW-139)
in the solid waste management series

# BEVERAGE CONTAINERS:



# THE VERMONT EXPERIENCE

by Michael Loube

## The Vermont Law

An act to control the use of beverage containers was signed into law in Vermont on April 10, 1972. Provisions relating to beverage container deposits were scheduled to be effective on July 1, 1973, but certain administrative rules and guidelines were not finalized by that date, and the effective date of the law was thus delayed until September 1, 1973.

---

Mr. Loube is with the Resource Recovery Division, Office of Solid Waste Management Programs, U.S. Environmental Protection Agency.

The Vermont legislation provides for:

(1) A minimum deposit of 5 cents for all beer and soft drink containers.

(2) A handling charge of 20 percent of the deposit to be paid by the manufacturer or distributor to the retailer.

(3) A label on each container clearly indicating the amount of the deposit and naming the State in which the deposit is valid.

(4) The ability to establish (by any person) a centralized deposit collection facility away from a retail store. These facilities can be either deposit exchange operations or complete recycling centers.

(5) A penalty for violation of the law, to be not more than $1,000 per violation.

This report examines the impacts in Vermont from this particular legislation. It should be noted, however, that a new beverage container law, amending and extending the authorities of the original act, was passed by the Vermont Legislature, and was signed by the Governor on April 30, 1975. The new legislation became effective on July 1, 1975.

The new law contains the same provisions as the first law, plus some significant additional provisions. The Vermont Senate passed this revised legislation by a vote of 29 to 1. The Vermont House passed the bill on first reading by a vote of 110 to 31. Final action in the House was by voice vote.

The new provisions in the Vermont law are:

(1) Labels on beverage containers shall clearly state the amount of the deposit and carry the word "Vermont" in not less than one-quarter-inch type size. Labels on metal cans must be on the top of the container. Refillable containers are exempted from the labeling requirements. This section became effective September 1, 1975.
(2) Nonrefillable glass containers are banned, as are detachable parts of metal cans (pull tabs) and containers connected to each other by plastic rings or similar nonbiodegradable devices. This section becomes effective January 1, 1977.
(3) An educational program for the public is established. Store redemption hours can be posted. These provisions became effective July 1, 1975.

The provisions of the original 1972 act remained in effect.

## Impact on Litter

The Vermont State Highway Department conducted a special litter survey starting in June 1973 and continuing through November 1973. After November, snow removal work took the place of litter pickup. The litter survey resumed in June 1974 and continued through September 1974. Since the law went into effect in September 1973, by comparing the survey data for the months of June, July, and August 1973 with data for the same months in 1974, the initial impact of the law on beverage container litter can be discerned. This comparison reveals that the law had a definite impact on beverage container litter in Vermont (see table). In both years, the June litter pickups removed waste discarded throughout the winter.

For the 3 months before the law was instituted in September 1973, beverage container litter averaged 45 percent of the total litter volume. For the same months, in 1974, beverage container litter dropped to 18 percent of the total litter volume. The actual number of littered beverage containers declined from a monthly average of 12,721 before the law to 4,191 after the law, a decrease of 67 percent or more than 8,500 containers per month. Of the beverage containers in litter since enactment of the law, 26 percent were deposit containers. The remainder were nonreturnables, presumably purchased outside the State or before enactment.

## Impact on Prices

*Soft Drink Prices.* Initially, soft drink prices did not change. Price increases of 20 to 40 cents per case were later passed on to consumers (one distributor increased prices by 35 cents per case on February 21, 1974, 5 months after implementation of the act, and others followed soon thereafter). The increase is said to cover: (1) the 24-cents-per-case handling charge that distributors must allow, by law, to retailers (to pay for their increased handling costs) and (2) an additional 6 to 16 cents per case to cover distributors' increased handling costs. Additional increases may also occur at the retail

## VERMONT LITTER DATA BEFORE AND AFTER MINIMUM DEPOSIT ACT*

| | *Before enactment* | | | | *After enactment*† | | | | Average change (%) |
|---|---|---|---|---|---|---|---|---|---|
| | June 1973 | July 1973 | August 1973 | Average | June 1974 | July 1974 | August 1974 | Average | |
| Total beverage containers (number) | 19,446 | 8,525 | 10,192 | 12,721 | 8,796 | 1,648 | 2,129 | 4,191 | −67.1 |
| Beer containers | 15,538 | 6,058 | 7,337 | 9,644 | 6,759 | 1,191 | 1,521 | 3,157 | −67.3 |
| Cans | 9,384 | 3,694 | 4,304 | 5,794 | 3,596 | 778 | 872 | 1,749 | −69.8 |
| Bottles | 6,154 | 2,364 | 3,033 | 3,850 | 3,163 | 413 | 649 | 1,408 | −63.4 |
| Soft drink containers | 3,908 | 2,467 | 2,855 | 3,077 | 2,037 | 457 | 608 | 1,034 | −66.4 |
| Cans | 2,679 | 1,636 | 2,025 | 2,113 | 1,252 | 353 | 380 | 662 | −68.7 |
| Bottles | 1,229 | 831 | 830 | 963 | 785 | 104 | 228 | 372 | −61.4 |
| Total litter volume (barrels) | 142.1 | 74.1 | 74.4 | 96.9 | 152.0 | 47.2 | 49.2 | 82.8 | −14.6 |
| Beverage containers | 67.4 | 29.1 | 35.2 | 43.9 | 31.0 | 5.5 | 7.6 | 14.7 | −66.5 |
| Other litter | 74.7 | 45.0 | 39.2 | 53.0 | 121.0 | 41.7 | 41.6 | 68.1 | +28.5 |
| Beverage containers as % of total | 47.4 | 39.3 | 47.3 | 45.3 | 20.4 | 11.7 | 15.4 | 17.8 | −60.7 |

*Source: Vermont State Highway Department Litter Survey. The survey covered 35 roadway sections of approximately 5 miles each, or a total of 175 miles.

†After enactment approximately 74 percent of all beer and soft drink containers littered were out-of-state no-deposit containers. No data are available on percentages of deposit and non-deposit containers in 1973.

level. However, given that during this period the prices of sugar, containers, and labor also increased, the price increase cannot be attributed solely to the deposit law.

*Beer Prices.* Price increases occurred as soon as the legislation became effective. Wholesalers increased prices from 40 to 60 cents per case. This increase was said to cover: (1) the 24-cents-per-case handling charge paid to retailers and (2) an additional 16 to 36 cents per case for cost of handling by the wholesaler. Retail stores added up to 15 cents per case as a handling charge (above the 24 cents per case required by the law from the wholesaler). The State's attorney investigated the reasons for these price increases; no charges were filed in court.

As in the case of soft drink prices, various costs were increasing during this time, and therefore the price increase could not be attributed to any single cause.

In summary, price increases occurred both for beer and soft drinks; the prices of soft drinks increased 20 to 40 cents per case, while the price of beer per case jumped almost immediately (September 1, 1973) by around 60 cents per case. This is in addition to the 5-cents-per-bottle deposit (or $1.20 per case) consumers must initially give.

For those consumers who switched from one-way containers to returnable containers, however, a portion of this general price rise was eliminated. The potential cost savings to the consumer is indicated, for example, by the report from one major soft drink distributor that his wholesale cost of beverages in returnable bottles shipped from Maine was 50 cents less per case than the wholesale cost of comparable beverages in nonreturnable bottles shipped to a distributor in New Hampshire from Maine.

## Impact on Sales

Only preliminary data are available concerning the impact of the law on beer and soft drink sales (beer sales figures for September 1973 through June 1974 are based on tax receipts; soft drink sales are only estimated). There are at least two major factors other than the law that might have had an impact on sales. These are: (1) a decline in tourism (summer season–May through October–down 8 percent; winter season–November through April–down 28 percent); (2) a change in New Hampshire's legal drinking age (from 21 to 18 years old, in September 1973) that allowed some individuals to drink legally in that State who previously might have driven across the Vermont border to purchase beer. A third factor is the overall health of the economy. The State of Vermont has had about a 10-percent decline in projected overall tax receipts for fiscal year 1974.

*Soft Drink Sales.* Coca-Cola and Pepsi Cola each has about one-third of the Vermont market. All others (Cott, store brands, etc.) share the other one-third. Springfield Sugar Company, Windsor Locks, Connecticut, and some low-volume brands have withdrawn from the Vermont market.

Data on sales specifically since September 1973, when the law went into effect, were not generally available. An exception was data from the Coca-Cola Bottling Company of Barre, which accounts for slightly more than one-fourth of Coca-Cola sales in Vermont or about one-twelfth of the total soft drink market. Their sales for September through August, 1973-74, show a 3.1-percent decline compared with sales for the same months in 1972-73. For the year 1973, the company reported a 10.8-percent sales increase. The Coca-Cola Bottling Company of Burlington, accounting for slightly less than half of Coca-Cola sales, reported a 6-percent sales decline for the year 1973.

*Beer Sales.* Tax receipt data were used to gauge the impact on beer sales. Three year-to-year comparisons have been made. In each case the comparison is between a 12-month period during 1972-73 and the comparable period during 1973-74. Sales for the period July 1973 to June 1974 (the fiscal year) show a 9.7-percent reduction compared with the previous fiscal year. The period September 1973 to August 1974 (first year under the law) shows an 11.6-percent reduction as compared with September 1972 to August 1973. The period December 1973 to November 1974 (first year after period of transition) shows an 8.3-percent reduction in sales as compared with the same months in 1972-73. It is obvious that beer sales in Vermont declined about 10 percent in the first year of the law. Sales have risen again, however, and as of May 1975 were about 3 percent higher for the fiscal year to date as compared to the same period of the previous year.

On May 1, 1973, four brewers, representing eight brands, chose not to renew their certificates of approval for Vermont sales. Some minor sales loss may have been caused by their departure from the market. Their total sales equaled 2.6 percent of the market in 1972.

*Liquor and Wine Sales.* Although liquor and wine containers were not included under the deposit law, sales of liquor and wine were also examined to assess whether other factors may have caused sales declines. Tax receipt data were used to estimate the sales trends. Comparing fiscal year 1974 (which covers a period of 10 months under the law) to fiscal year 1973, liquor and wine sales showed a 3-percent decline. This decline followed an 8-percent increase in fiscal year 1973. (Beer sales had a 1-percent increase in fiscal year 1973 followed by a 9.7-percent decrease in fiscal year 1974.)

In summary, preliminary data on beer, soft drinks, liquor and wine sales are available. Beer sales declined substantially, although total sales may have been affected by factors other than the deposit law. Other beverage sales also declined somewhat. Distributors of both soft drinks and beer agreed that case sales were affected more than smaller volume sales at most locations within the State.

One final comment is required concerning the impact of the price increase on the sales of beer. Even before the law, due to Vermont taxes, beer was cheaper in the adjacent States. The Vermont tax per case was about 57 cents compared with about 10 cents for New York, 17 cents for Massachusetts, and 27 cents for New Hampshire. Vermont retailers by law cannot sell beer below their cost as a loss leader to bring people into their stores. New Hampshire retailers near the border can and do run specials on beer. In fact, one survey (the only one) showed a 47-percent decline in Budweiser brand beer sales at Vermont stores near the New Hampshire border during the first 4 months the law was in effect compared to the previous year.

## Impact on the Distribution System

Because of the law there have been additional costs for distribution and return of beverage containers. The extent of these costs and the ultimate net cost are not known at this time. An efficient return and reuse system, fewer types and sizes of containers, and improved truck delivery and return routes are some factors that could help restrain cost increases.

*Return Ratios.* The percentage of beverage containers returned will have a significant impact on the distribution system. The economics of a refillable bottle system improve dramatically as the number of refills per bottle increases. If a refillable bottle is not returned, the distributors tend to lose money; the bottle is worth more than the deposit. If a nonrefillable container is not returned, the distributor acquires the deposit without incurring return handling costs, hence a profit gain. If a nonrefillable container is returned, the container must either be disposed of or recycled (most of these containers are currently landfilled in Vermont).

The return rates for three distributors providing data (containers returned in month versus containers sold) averaged above 90 percent for the first 4 months of the law. This is true for both one-way containers and reusables and for both beer and soft drink containers. In fact, several distributors reported that in January (the 5th month) their return rates were 100 to 105 percent, i.e., their sales may have gone down, but they seem to have received last month's bottles. One distributor estimated that he was getting an average of 8½ to 9 trips per bottle. This same individual indicated that, because of substantial reductions in container costs with a refillable system, if he gets 4½ trips per bottle he can break even on costs.

During June, July, and August of 1974, some soft drink bottlers experienced a decline in their return rates. This is considered normal since returns are usually slow in the summer and some local bottlers had only recently switched over to systems relying entirely on refillables. In fact, return rates in late fall 1974 returned to their presummer high rates of 90 percent and above.

High return rates do not always translate into a high number of trips per bottle, since bottles may be chipped or otherwise unusable even after a single use.

*Container Mix.* Soft drink distributors switched to refillables more rapidly than beer distributors. Before the law went into effect, 2 percent of the containers distributed by Coca-Cola in Burlington were refillables; by April 1, 1974, 80 percent were refillables, and in July 1975, 100 percent were refillables. Coca-Cola in Rutland probably will follow the Burlington pattern.

Coca-Cola in Barre was switching to refillables before enactment of the law and is now using all refillables. Pepsi Cola in Burlington, with over 60 percent of the Pepsi Cola market in Vermont, rapidly switched to refillable glass (from one-way glass) and is now using almost 100 percent glass refillables, although cans continue to be sold. Cott Bottling Company is reported to be switching to refillables. There has also been some elimination of different sizes as most stores did not wish to handle more than two or three sizes of containers. Coca-Cola in Barre reported shipping mostly 10-ounce and 32-ounce bottles instead of a mix of 6½-, 10-, 16-, 32-, and 48-ounce cans and bottles as in the past.

Beer wholesalers generally stayed with the pre-law container mix until mid-1974. There seems to have been some shift out of cans into nonreturnable glass. Carling, Schaeffer, and Pabst began marketing a refillable bottle statewide in late 1974. They have been followed by other brewers, including the Canadian imports Labatts and Molsan. The extent of the switch is still unclear, but it appears that a greater share of the beer market will be packaged in refillable bottles in the near future.

*Retailers.* Due to the high return rates, all retailers have had storage space problems. This is very important in Vermont. Independent stores (mostly small "mom and pop" outlets) still account for about 53 percent of sales of typical retail food merchandise while supermarkets account for 47 percent. In the smaller stores, beverage sales account for 24 to 30 percent of total sales, while only about 12 percent are beverage sales in larger stores. No information was available on the additional dollar costs experienced by retailers. Some stores had substantial sales declines. All sources agreed that the small stores had greater problems with storage and handling of returns than supermarkets. A court case by some retailers challenging the law was decided in favor of the State.

Initially there were numerous complaints to the State government (about 2,000 phone calls and 1,600 letters) concerning store requirements for returning containers. Complaints included return hours set at inconvenient times, children being required to accept candy rather than money for deposit refunds, children not allowed to return beer containers, acceptance of case lots only, requirements to bring back the same container carton, caps must be on bottles, etc. One store placed its own "label" on beverage containers and would accept back only containers that were so labeled. All complaints were turned over to the State legal officers. Usually a telephone call sufficed to correct the situation.

*Soft Drink Distributors.* Two distributors (Coca-Cola Bottling Companies in Barre and Burlington) provided data concerning the impact of the law on employment and equipment. Discussion of that data follows.

Case loads per truck were down 30 to 40 percent because of the space required to load the returns and also because of some shift from cans to glass—both refillable and nonrefillable (glass bottles take up more space per ounce than do cans). These distributors have ordered a total of five new trucks (one had six and ordered two new trucks, the other had four and ordered three new trucks). Each new truck will cost approximately $12,500.

Coca-Cola in Burlington initially added two employees in the warehouse to sort containers and crush nonrefillables to ship to Orangeburg, New York. One additional person is required to help load and unload trucks, and three new drivers were hired. With their recent shift to refillable containers, the crushing task has been discontinued. However, six additional employees have been hired to handle the returnable bottle flow. Investment decisions, especially regarding warehouse needs and new production equipment, have been accelerated due to the impact of the law on the mix of containers desired.

Coca-Cola in Barre estimated a need for four additional employees: two in the warehouse and two drivers. This distributor also estimated a net savings of 54 cents per case at a 90-percent return rate using returnable glass bottles rather than cans. They have shifted to all returnable glass bottles. Some additional costs were identified in relation to vending machines. Costs to switch from cans to bottles run approximately $30 per machine. A conversion to a cup dispenser will run $2,000. No data were available on the number of such conversions required.

*Beer Wholesalers.* There are 15 to 18 beer distributors serving Vermont. One distributor (James B. Flanagan Co., Inc.) provided data. He estimated that they would need six extra employees when they switched to returnable bottles. They were ordering three new trucks, but two are replacements for obsolete equipment. The representative of several other brewers estimated increased handling costs and increased gasoline usage of 15 to 30 percent, although actual data were not available.

*Container Manufacturers.* No significant impact has been felt by the container manufacturers since the volume of sales in Vermont is relatively small. Also the gradual shift into refillables by different companies at different times minimized even this small change. A problem with the labeling requirement is that the Vermont volume may not justify container manufacturing changes. New glass bottle molds cost approximately $15,000, although stenciling on paper labels can be used and is relatively inexpensive.

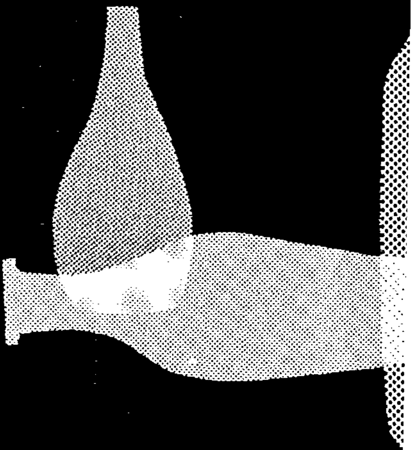
## Summary

As of this writing the Vermont bottle bill has been in effect for over a year and a half and the 1975 amendments a few months. While complete data are not available, certain trends have emerged that allow an assessment of the effects of the law. The following results can be noted at this time:

- The beverage container portion of highway litter decreased by about 67 percent between 1973 and 1974.
- Sales of beer have declined by about 10 percent, although factors other than

the deposit law probably accounted for an undetermined portion of that decline.

- Prices of beer and soft drinks have risen, although increases in materials (sugar, grain, containers) and labor probably accounted for a portion of that price rise.
- There has been a significant shift toward use of refillable bottles for soft drinks. Some soft drink bottlers are now using only refillable bottles. Container usage for beer appears to be shifting toward greater use of refillables.
- During the transition to a soft drink container system based largely on refillables, the return rates for bottles have been reasonable; bottlers are generally obtaining 8 to 12 trips per bottle.
- Increases in employment to handle and transport returnable bottles were reported by several soft drink distributors and beer wholesalers. No significant sales or employment impacts were experienced by container manufacturers since the sales volume in Vermont is relatively small. In more highly populated States both increases and decreases may be more significant.



U.S. ENVIRONMENTAL PROTECTION AGENCY
1975