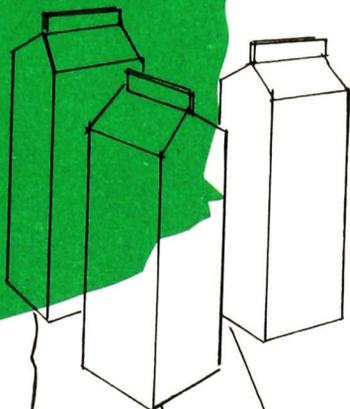


# **THE ECONOMIC IMPACT OF EXPANDING THE FEDERAL MILK ORDER INTO NORTHERN NEW ENGLAND**

by  
Homer Metzger  
and Fred Webster



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# THE ECONOMIC IMPACT OF EXPANDING THE FEDERAL MILK ORDER INTO NORTHERN NEW ENGLAND

Homer Metzger<sup>1</sup> and Fred Webster<sup>2</sup>

## SUMMARY

Extension of the Boston Regional Federal Order would have increased blend prices to producers shipping milk under the order in February 1974 by the following amounts per hundredweight, under three alternative extension situations:

- 7 cents by including only Maine
- 13 cents by including all of northern New England
- 21 cents by including all of New England

Merger of the Boston Regional and the Connecticut federal orders would have resulted in a decrease in price to the Connecticut producers of 12 cents and an increase in price to Boston producers of 6 cents per cwt.

The economic impact on producers shipping milk under state orders in Maine and Vermont would depend upon the assigned zone location of the plant receiving their milk, zone pricing arrangements specified under the extended order, the local dealer's milk utilization (i.e. blend price) and potential adjustments in hauling charges. The estimated average impact for these local producers (variations are substantial) would be to change blend prices by these amounts per hundredweight under three extension situations:

	Maine	Vermont
by including only Maine	-54¢	-
by including all of northern New England	-48¢	-13¢
by including all of New England	-40¢	- 5¢

Adjustments in hauling charges will be a prime concern for state order dealers and producers in any order extension. Hauling charges for shipping milk from farm to plant were significantly higher for state order than for federal order producers in February 1974. Adjustments to reflect volume, distance and base rate factors may lower hauling charges to state order producers from 46 cents to 30 cents per hundredweight in Maine, and from 23 cents to 16 cents per hundredweight in Vermont.

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If hauling charge adjustments as indicated were made, then the average impact on producers for local markets of the expansion of the federal order would be to change blend prices f.o.b. farm by these amounts per hundredweight:

	Maine	Vermont
by including only Maine	-40¢	-
by including all of northern New England	-34¢	-6¢
by including all of New England	-26¢	+2¢

While the financial impact on producers is the major impact of extending the federal order into northern New England, other implications include: substantial adjustments in hauling operations, less incentive to minimize Class II purchases by dealers, more thorough accounting of milk utilization by dealers, with a higher percentage assigned to Class I uses, possible loss of resale price protection for dealers resulting in wider variations in prices to consumers and fewer distributors, potential for somewhat higher prices to consumers in some states and lower prices in others.

## INTRODUCTION

Both federal and state regulation of milk marketing have been a part of the milk industry in New England for about 40 years. Major changes in regulation during this period have been the increased use of federal orders and the elimination or curtailment of state orders regulating milk prices. The principal causes of these changes have been economies of scale in processing and an improved transportation network. This has enabled handlers to move milk long distances (especially across state lines) and to buy milk at blend prices in one state or area and sell it in another state or area in competition with dealers required to purchase milk on a utilization basis. In 1975 two large federal orders existed in New England. One order covered the state of Connecticut and the other most of the states of Massachusetts and Rhode Island and the southern part of New Hampshire and Vermont, Figure 1. Three states—Maine, Vermont and Massachusetts—had state milk control agencies.

The merger of the present federal orders and extension of the merged orders into all of northern New England became the goals of several milk marketing cooperatives in 1974. Merger was sought to reduce the problems of dealer involvement in both markets and to achieve more equitable sharing of the Class I sales among all producers. Merger of the orders was recommended by the U.S. Department of Agriculture in the fall of 1975. Extension of the order was desired primarily to achieve a more equitable sharing of all Class I sales and to obtain for

producers the fullest use value of all milk sold for fluid purposes. It also was sought to eliminate what some view as nearby differentials received by Maine, Vermont, and some Massachusetts producers. Nearby farm location differentials under federal orders were discontinued several years ago after federal court action. No formal action was taken during 1975 by cooperatives to obtain an extension of the orders.

This study was undertaken to (1) gather data on current marketing situations including milk volume and utilization, prices paid to producers, and rates charged for hauling milk in the federal order and state order areas, and 2) to determine the economic and related impacts of expanding the Boston regional order into Northern New England. Emphasis was placed upon the expected impact on producers but implications for milk dealers and consumers also were considered. The main focus was on Maine and Vermont situations but some data were also collected on the non-federal order markets of New Hampshire and Massachusetts.

### METHOD AND SCOPE OF STUDY

Information was obtained from a sample of milk plant operators in Maine and Vermont, from state milk control agencies in Maine and Massachusetts, and from the Department of Health in New Hampshire. Plant operators provided prices paid milk producers, charges for hauling milk from farm to milk plant, and volume of milk shipped per farm for February 1974. In addition, the town location of the farm and its distance from the milk plant was reported. Three federal order plants serving producers in Maine, four federal order plants in Vermont, 22 state order plants in Maine and 12 state order plants in Vermont were included in the analysis. In Maine, information was obtained for 485 producers shipping to federal order plants and 515 producers shipping to state order plants. In Vermont, information was obtained for 265 producers shipping to federal order plants, and 169 producers shipping to state order plants. No individual producer data were obtained for Massachusetts or New Hampshire shippers.

State agencies provided information on volume and utilization of milk for plants and markets for February 1974. Similar information was obtained for federal order markets from publications of the Market Administrator of Federal Orders No. 1, No. 2 and No. 15.

All volume and hauling charge data for each farm were obtained from producer payrolls for February 1974. Total hauling charges were divided by total volume of milk delivered to obtain calculated hauling charges per hundredweight. Using prices paid f.o.b. plant and subtracting hauling charges prices f.o.b. farm were determined for each pro-

ducer. Tabulations and cross tabulations were made using the IBM 360 computer and the Statistical Package for the Social Sciences. These tabulations related prices and hauling charges to the shippers market, plant zone location, county location, and town location. Tabulations and regression analyses also were made relating hauling charges to volume of milk delivered and distance milk was hauled.

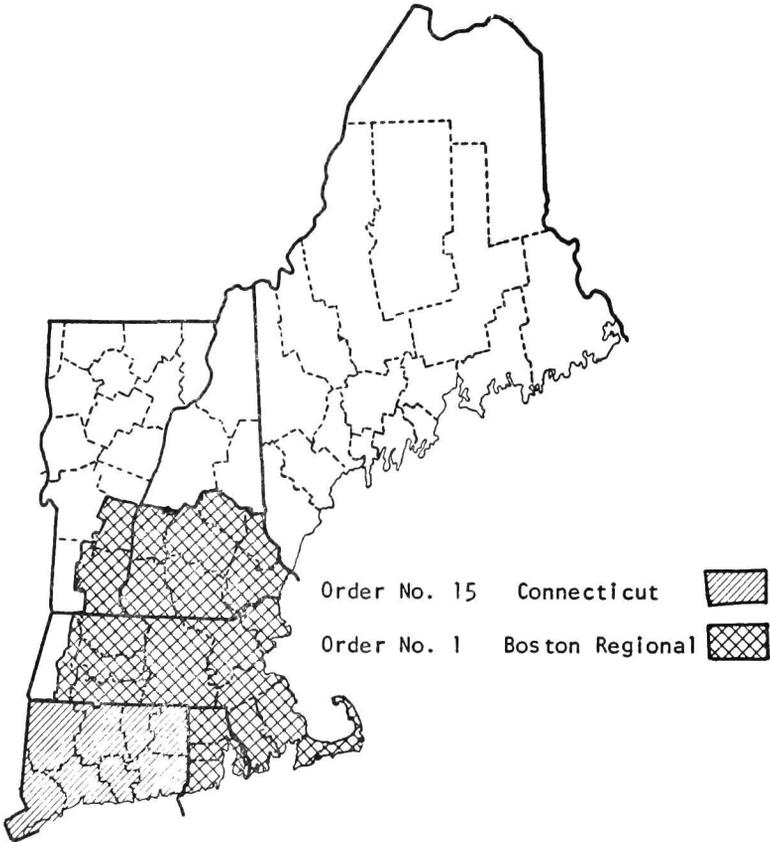


FIGURE 1. BOSTON REGIONAL AND CONNECTICUT FEDERAL MILK MARKETING AREAS, JULY 1975.

### MARKETING SITUATION

In 1973 about 60 percent of the milk marketed by Maine producers was sold in local markets while 40 percent was sold under the Boston regional order. Most milk marketed in local Maine markets was regulated by the Maine Milk Commission. About 85 percent of the population in Maine resided in the controlled markets.

In Vermont about seven percent of the milk was sold in local markets not under any federal milk marketing order in 1973. All of this milk was controlled by the Vermont Milk Marketing Board. The other 93 percent of Vermont's milk was sold under the Boston Regional, Connecticut, or New York-New Jersey federal orders.

In New Hampshire and in Massachusetts nearly 10 percent of the milk produced was sold in local markets not subject to control by federal agencies. Slightly more than 90 percent was regulated under Boston or Connecticut federal orders. In New Hampshire, the non federal order milk was not subject to price control. In Massachusetts, milk sold in Berkshire County and a few isolated towns in the center of the state was priced by the state. Of an estimated total of 600 million pounds of milk not currently under federal regulation, about 65 percent was produced in Maine, about 5 percent in Massachusetts, about 5 percent in New Hampshire and about 25 percent in Vermont. (For quantities of milk by states, see Appendix Table 1)

### Utilization

The Boston Regional Federal Order had annual milk receipts from producers of about 3.5 billion pounds in recent years. Of these receipts, about 2.1 billion pounds or 60 percent were used for Class I outlets, Table I. The annual receipts and Class I sales in state controlled markets in Maine were .35 billion and .28 billion pounds, respectively, or a Class I utilization of 78 percent, Table 2. The annual receipts in state controlled markets in Vermont were about .13 billion pounds with an estimated 90 percent Class I utilization.

The higher utilization in the state order markets was a major factor resulting in substantially higher blend prices being paid producers in these markets than in the Boston federal order market.

**Table 1**  
**Receipts and Sales in Boston Regional Federal Order Markets, 1966-1974\***

Year	Milk Receipts from Producers (million pounds)	Class I Sales (million pounds)	Percent Class I
1966	3,204	1,961	61.2
1967	3,219	1,957	60.8
1968	3,447	2,148	62.3
1969	3,569	2,149	60.2
1970	3,617	2,129	58.9
1971	3,551	2,032	57.2
1972	3,529	2,102	59.6
1973	3,321	2,091	63.0
1969-73 Ave.	3,517	2,101	59.7
1974	3,320	1,975	59.5

\*Massachusetts-Rhode Island 1966, 1967.

Massachusetts-Rhode Island-New Hampshire 1968, 1969, 1970.

Boston Regional 1971, 1972, 1973, 1974.

Source: Milk Market Statistics Prepared by Market Administrator, Federal Order No. 1 (annually).

**Table 2**  
**Receipts and Sales in State Controlled Markets of Maine 1966-1974**

Year	Milk Receipts from Producers (million pounds)	Class I Sales (million pounds)	Class I
1966	359.4	275.8	76.7
1967	358.1	273.7	76.4
1968	359.7	276.3	76.8
1969	366.1	274.5	75.0
1970	355.7	275.8	77.5
1971	355.8	277.4	78.0
1972	357.0	281.6	78.9
1973	346.1	280.6	81.1
1969-73 Ave.	356.1	278.0	78.0
1974	339.0	266.0	78.5

Source: Maine Milk Commission Receipts and Sales Controlled Markets of Maine (unpublished).

### Classified Pricing

Producers shipping to the Boston or Connecticut Federal orders received a blend price adjusted for Class I and Class II milk utilization in each order. Prices were adjusted by zones in accordance with the distance of the receiving plant from Boston or Hartford.

Under Maine state control, each handler paid producers a separate dealer pool price. Buying plans included a flat price for all milk (Class I price), utilization pricing (blend price) and a base rating system.

Class I prices for milk under state control in Maine were the same as the city Class I prices established by the Boston Regional Federal Order (40 cents above the Boston 21st Zone Country Price). The Class II price established in all markets by the Maine Milk Commission was the Boston Order city plant Class II price (about 6 cents over the 21st zone price). An exception was that for Class II milk disposed of in designated manufacturing plants, a 26 cent reduction in the producer price was authorized. The higher Class II price to non specified Class II markets appears to assume that some of this milk may go to higher value uses at locations or in situations which the Commission is unable to adequately audit.

Vermont producers associated with the state order were not paid on a utilization basis. They received 40 cents per hundredweight over the 21st zone blend price of the Boston order for all milk, regardless of the location of the plant within the state or the final use of the milk. This pricing scheme recognizes the high Class I use of milk in local plants but minimizes the need for detailed audits.

The Massachusetts producers not under a federal order were paid on a dealer pool basis with options similar to those used in Maine. Northern New Hampshire producers not under a federal market order sold to producers on a negotiated basis.

### **Pooling and Blend Prices**

Prices paid producers in state-controlled Maine markets varied considerably in relation to prices paid producers in the Boston order because of the operation of dealer pools. Some dealers paid the Class I price for all milk received because they had no Class II utilization. The average of blend prices f.o.b. plant paid by 29 dealers to Maine producers shipping to state-controlled local markets was about 85 cents per hundredweight above the Boston 21st Zone pool price for 3.5% milk over the past ten years, Table 3.

February 1974 blend prices of 22 Maine dealers were compared with Boston blend prices for comparable zones. Maine State Order plants estimated to be in Boston Zone Eleven paid prices 8 to 25 cents above the Boston price for this zone. Other plants paid blend prices which ranged from 40 cents to \$1.50 per hundredweight over comparable zone prices, Figure 2. Several plants paying the Class I price for all milk, paid from \$1.83 to \$1.93 per hundredweight over Boston prices f.o.b. plant. The price differences were for February 1974 and would vary somewhat from month to month.

The fixed differential price (Boston 21st zone plus 40 cents) paid all Vermont producers in state-controlled markets, until mid-1974, re-

sulted in varying differentials above the various Boston zone prices. These differentials ranged from 14 cents at Zone 13 to 42 cents at Zone 23, Figure 2. These differentials would not vary from month to month. After mid-1974, this pricing policy was modified slightly to compensate local producers for the over-order prices generally being received by producers supplying the Boston market.

**Table 3**  
Blend Prices Paid Producers (f.o.b. Plant, 3.5% Milk),  
Boston Regional Federal Order (21st Zone) and  
Local Maine and Vermont Dealers, 1965-1974

Year/Month	Boston Regional Order 21st Zone <sup>2</sup>	Local Vermont Dealers <sup>3</sup>	Local Maine Dealers <sup>4</sup>	Local Over	
				Boston 21st Zone	
				Maine	Vermont <sup>6</sup>
				\$	\$
1965	\$4.47	\$4.72	\$5.28	+ .81	+.25
1966	4.99	5.39	5.85	+ .86	+.38
1967	5.25	5.65	6.11	+ .86	+.40
1968	5.59	5.99	6.37	+ .78	+.40
1969	5.79	6.19	6.65	+ .86	+.40
1970	6.12	6.52	6.92	+ .80	+.40
1971	6.26	6.66	7.18	+ .91 <sup>5</sup>	+.40
1972	6.56	6.96	7.41	+ .85 <sup>5</sup>	+.40
1973	7.63	8.03	8.43	+ .80	+.40
1974 <sup>1</sup>	8.60	9.22	10.10	+1.50	+.62
1973 Feb.	7.10	7.50	7.96	+ .86	+.40
1974 Feb.	9.19	9.59	10.25	+1.06	+.40

<sup>1</sup> Because of wide-spread use of over-order pricing, the Boston Regional price understates producer prices in federal orders and overstates local prices relative to the Boston price during 1974.

<sup>2</sup> Weighted average of monthly pool prices.

<sup>3</sup> Flat differential over Boston 21st Zone Price.

<sup>4</sup> Simple average of monthly prices for  $\pm$  29 dealers.

<sup>5</sup> February 71 = 94¢; February 72 = 87¢.

<sup>6</sup> Vermont Control Board Prices:

1965—Feb. 1966: Boston blend (21st zone) plus 25¢

Mar. 1966—July 1974: Boston blend (21st zone) plus 40¢

Aug. 1974 to date: Control board formula based on Boston regional order utilization and adjusted class prices.

Sources: Maine Milk Commission (unpublished data).

Market Administrator Federal Order 1—Boston Regional Milk Market Statistics

Vermont Milk Control Board

### Seasonal Pricing

Maine milk prices were not subject to seasonal variation except due to the seasonal variation in the percentage of milk used in Class I

and Class II outlets. In the Boston Regional Order a seasonal take out pay back plan existed wherein the blend price was reduced in March, April, May and June by established amounts per hundredweight with these values plus interest returned to producers by established percentages in August, September, October and November. Because of this plan, differences between local Maine state controlled market prices and Boston prices widened substantially in the four spring months and narrowed substantially in the four summer-fall months. Because the local Vermont state controlled price was related to the final Boston blend price, this widening and narrowing of price due to differences in the seasonal pricing method did not exist.

### **Milk Movements**

Milk marketing in the northern New England region was influenced by two situations wherein milk was moved across state lines and the full use value of that milk was not being returned to producers. Benefits accrued primarily to dealers. While the magnitude of the movement was not determined and operations apparently were of insufficient volumes to cause undue producer concern, there was evidence of some price inequalities which state orders were unable to correct. Milk was apparently being purchased from Maine producers at or above competitive blend prices for the appropriate Boston country zone, and moved to an out-of-state fluid milk packaging plant. This milk could be sold for fluid use in state controlled markets outside of Maine or brought back into Maine without its price being regulated simply because it moved across state lines.

In another situation, milk which was apparently being purchased from Maine producers as Class II milk was moved out-of-state to a fluid milk packaging plant for processing, packaging and distribution as Class I milk.

Such milk movements prevent producers from receiving the full value of the milk and give the dealer a substantial competitive advantage in raw product cost. The principal reasons for continuance of these situations to date are: 1) Maine produces some milk in excess of in-state fluid requirements. 2) prices received by producers for local markets are above those offered by alternative market outlets, 3) correction would involve acceptance of federal order regulation which would destroy a preferred market and premium market price for a large number of producers. Loss of the local markets has been considered too high a price to pay by producers supplying these local markets.

### **ALTERNATIVE SITUATIONS INFLUENCING IMPACT OF FEDERAL ORDER EXTENSION**

The impact on the non-federal order producer, as well as the federal order producer, of an extension of the federal order into northern New England will depend upon these factors:

- 1) The federal order situation at the time of extension—whether from a merged Boston and Connecticut order or from the Boston Regional Order.
- 2) The attraction of milk from areas outside of New England which might occur as a result of raising the blend price under an extended federal order.
- 3) The area covered by the extension. The amount of milk added to the pool will influence the pool blend price. The more local milk included the higher the blend.
- 4) The zone prices (Class I, Class II and Blend) which apply to the local market plants included in the expanded order. These might vary from city plant prices to widely different country plant zone prices.
- 5) The milk utilization by dealers which influences the current blend price received by producers supplying state controlled markets in Maine and Massachusetts. Prices vary widely in these states because of dealer pooling. In Vermont all local dealers pay the same price to producers. New Hampshire has no regulated pricing scheme outside of federal order areas.
- 6) The current hauling charges for transporting milk from the farm to the plant. High and variable producer prices tend to be associated with high hauling charges. With similar blend prices for all producers, hauling rates more nearly reflecting distance and volume factors would be expected.

Each of these factors needs to be examined and comparisons made between local and federal order producer situations.

#### **Federal Order Situation at Time of Extension**

The financial impact of any extension of the federal order into northern New England markets would be influenced substantially by the federal order situation at the time of the extension. Two prime alternatives existed when this study was undertaken:\* 1) an extension

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\* A third alternative is generally regarded as impractical. It is a separate federal order for northern New England or for Maine.

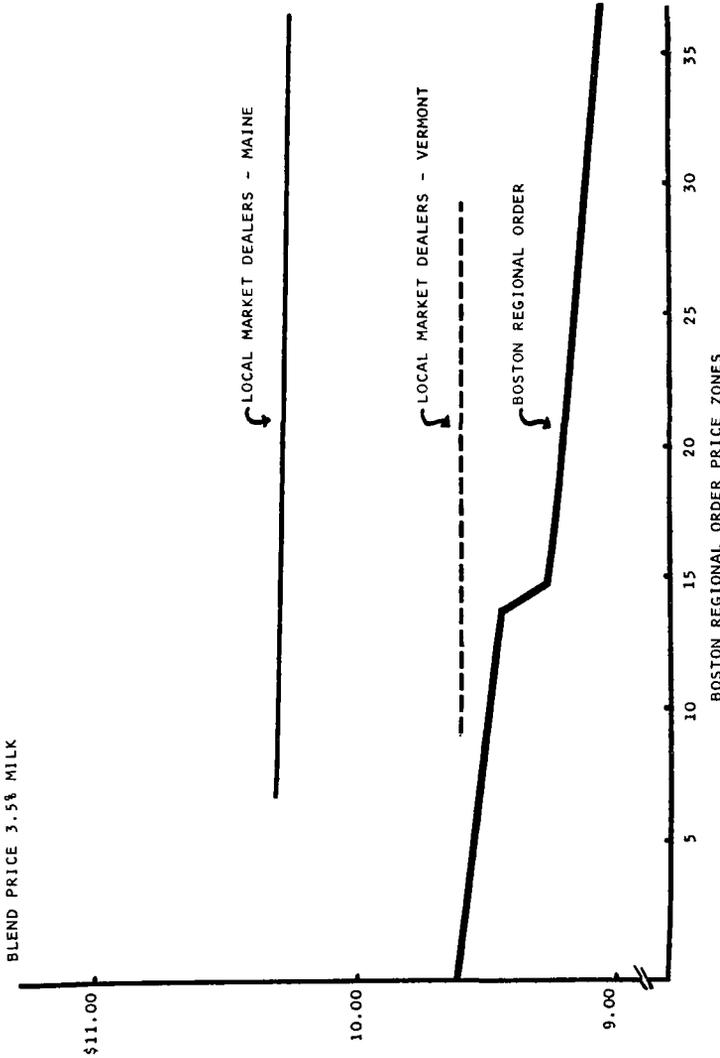


FIGURE 2. BOSTON REGIONAL FEDERAL ORDER, VERMONT AND MAINE STATE ORDERS, PRODUCER BLEND PRICES, F.O.B. PLANT, BY ZONES, FEBRUARY 1974.

of the present Boston Regional Order and 2) an extension of the merged Boston Regional and Connecticut orders—a modified New England order. Since that time, hearings have been held and a recommended decision favoring the merging of the two orders has been issued. While an extension of the Boston Regional Order was less likely to occur, provisions of the order were known and impacts could be analyzed objectively. Both alternatives will be discussed but major emphasis will be placed on the impact of an extension of the Boston Regional Order, with

the expectation that similar conclusions could easily be reached for an extension of a merged order by building on this analysis.

Merger of the Boston Regional and Connecticut orders would cause producers now under the Boston Federal order to receive an increase in blend price, while those under the Connecticut order would receive a lower blend price than under separate orders. Such a price adjustment would mean that producers under Maine and Massachusetts milk control pricing would probably have less relative price advantage. The result of the merger would be to reduce the amount of the drop in price which most non-federal order producers must expect with extension of the federal order system. Extending the federal order system will have less of a price impact on state order producers if done after a merger of the two orders rather than by extending the Boston Regional order alone.

The magnitude of the price adjustment resulting from a merger will be determined by the relative amount of milk in the two markets and their respective blend prices. Annual data provide the best estimate of differences in market prices, while monthly data provide information on the current situation. Both situations are presented below using annual data for 1973 and monthly data for July 1974 and April 1975.

Market	TOTAL RECEIPTS (million pounds)			BLEND PRICE (city plant)		
	1973	July 1974	April 1975	1973	July 1974	April 1975
Connecticut	1,368	110	130	\$8.34	\$8.77	\$8.53
Boston Regional	3,321	295	290	8.03	8.36	8.35
Total/Weighted Ave.	4,689	405	420	\$8.12	\$8.47	\$8.41

Annual blend prices in the two markets differed by 31 cents per hundredweight in 1973, with the Connecticut market having the higher price. Weighting prices by receipts gave an estimated merger price of \$8.12. The Connecticut market producers, with 30 percent of receipts, would anticipate a decline in price of 22 cents while the Boston market producers with 70 percent of receipts would expect a modest increase in price of 9 cents per hundredweight. Information for July 1974 shows a level of price and price differentials somewhat higher than for the year 1973. Had a merger taken place in July 1974, Boston market producers would have received 11 cents more in their blend and Connecticut market producers 30 cents less than under separate orders. A difference of 41 cents in the market blend prices was shown for July. By April 1975 prices in the two markets were more closely aligned, differing by 18 cents. Had a merger taken place in April 1975 Boston producers would have received 6 cents more in blend price and Connecticut

producers 12 cents less. It is evident that under a merger of Connecticut and Boston federal orders, Boston Order producers and producers who are under state orders, or are unregulated and subsequently become federal order producers, would benefit from a higher federal order price. The magnitude of the price adjustment, however, has narrowed over time.

### Areas Added in Extension

Portions of the states or all of the states of Maine, Massachusetts, New Hampshire and Vermont could be included in an expanded federal order, depending upon marketing conditions, administrative problems, and the volume of milk supplies. Testimony at public hearings must justify any extension; producers in the marketing area must approve the expansion. Justification and approval would probably require evidence of unstable marketing conditions and interstate commerce in milk. Another important consideration justifying extension might be the degree to which dealers currently regulated under a federal order are doing business in the areas considered for inclusion. This is a matter of equality of raw milk costs among dealers competing in common markets. Finally, government support for or opposition to extension of a federal order is based on the attitude of producers, their cooperatives, handlers, and the general public.

#### *Situation #1—Maine*

Of the New England states, Maine has the largest amount of milk not subject to federal regulation. Including Maine in the Federal Order would therefore have the greatest impact on price of any single state. The entire state could be included or any portion of it. Various considerations to determine how much of Maine may be included are: volume of milk, geographic area in which dealers compete, marketing conditions and number of dealers to be regulated.

By extending the order into Cumberland and York Counties, it is estimated that 44 percent of Maine's local milk would be regulated or about 150 million pounds, Appendix Table 2. This could be accomplished by auditing 8 dealers. It might solve the inequities of interstate movement of milk. However, Portland based dealers are in competition with dealers North to Augusta. This tends to define a common marketing area and could be a major justification for order extension into central Maine. Extending federal regulation to include Augusta south (Cumberland, York, Oxford, Kennebec, Waldo, Knox, Lincoln, Sagadahoc and Androscoggin Counties) would account for 65 percent of the local milk supplies (225 million pounds) and would regulate 25

dealers. There are two reasons for going beyond Augusta. One reason is it would add another 30 percent of the milk supplies and bring the total milk regulated to 93 percent of all local milk. The other reason is the competition between Bangor based dealers and southern based dealers, particularly in Waldo and Knox Counties. A careful delineation of regulated areas by towns, rather than delineation by a county would be needed to isolate the southern based dealers from competition from northern based dealers in the Coastal areas. Should regulation be extended to include Bangor south (adding southern portions of Penobscot, Somerset, Franklin and Hancock Counties), the entire state could be seriously considered as the regulated area. There is not much additional milk involved, (7.0 percent), and only a few dealers, but some Bangor area based dealers are competing throughout Northern and Eastern Maine. This could justify the extension into the Northern portion of Penobscot County, Aroostook and Washington Counties.

For purposes of this analysis the assumption of statewide inclusion of Maine was made. From these results conclusions may be readily drawn with respect to price levels under assumptions which include portions of Maine's milk markets. For example, if an expansion into the Portland south area were assumed, pool price increases would be 44 percent of those projected for expansion into all of the state.

The total amount of milk in the state which would be subject to regulation is estimated to be about 350 million pounds, Appendix Table 3. This would include milk outside as well as within Maine Milk Commission control areas, but would recognize exemption of producer distributor milk and the duplication of milk receipts from Boston order plants in the controlled markets.

#### *Situation #2—Northern New England*

This analysis assumed the complete inclusion of Northern New England as the second alternative in expanding federal regulation. The major considerations in a decision to extend into the states of Massachusetts, New Hampshire, and Vermont are: 1) equity in producer prices and 2) similarity in dealer costs for milk. Other considerations are centered on the need to obtain full use value on all interstate movements of milk now going at cut prices, and to include a large quantity of milk utilized as Class I in a market-wide pool.

There are no large population centers in counties not now under federal regulation in New England. Thus it becomes a matter of no extension into New Hampshire or complete coverage, particularly in view of the small total volume of milk involved. In Vermont, the major population center is Burlington, located in Northern Vermont. Because the volume of milk associated with this market is the major portion of the

total volume of milk in the state, including all or none of Vermont markets not now under regulation are the logical choices. In Massachusetts, Berkshire County would be considered in an expansion because of the substantial volume of milk remaining under state regulation. There has been relatively little pressure for federal regulation in the recent past in this area, but aggressive marketing and purchasing policies of handlers serving the area in 1974 have shown the situation to be somewhat unstable.

The total quantity of milk added to an expanded pool was estimated to be about 600 million pounds based upon milk sales from farmers as reported by the U.S.D.A. and receipts at federal order plants, Appendix Table 1. After adjustment for exempt producer distributed milk, (estimated as about 5 percent of the total) the net milk pooled would be about 570 million pounds. Estimates of Class I milk sales outside federal regulations were made based upon a population of 2.0 million persons outside the federal order markets and annual per capita consumption of 308 pounds Class I milk. These estimates would indicate a volume of about 600 million pounds of Class I milk consumed outside federal order markets. Of this, perhaps 10 percent would be milk distributed by producers or consumed on farms. Thus approximately 540 million pounds of Class I milk could be added to the federal order pool extended to include all of northern New England.

### **Zoning Pricing Alternatives**

Class I, Class II and Blend Prices for milk received under the Boston regional order are established at the 21st zone (201 to 210 miles from the city of Boston). Additions to the prices are made for each 10 miles distance toward Boston and subtractions are made for each ten miles distance out from the 21st zone. These zone prices reflect transportation and handling costs to the center of the market. Milk delivered directly to plants 140 or less miles from Boston receive an added premium because the cost of handling through a country receiving station is avoided. Established prices are intended to provide equal cost of milk at Boston whether received via a country station or delivered directly from farms.

A major issue in pricing, as market areas are expanded, is how to achieve proper price alignment. Reducing prices as distance increases from Boston, means prices for milk used in outlying markets at large distances from Boston will be depressed. Yet some of these markets—particularly those in Maine—are farther from major mid-western sources of milk supplies than any eastern seaboard market north of North Carolina. Federal order pricing policy has been to increase prices for

Class I milk as the distance from Wisconsin, the market center of the U.S., increases. Within each market, prices decline outward from the market center. In markets with multiple population centers or uneven production sources, prices within each market are often modified to reflect the ratio of milk production and milk consumption in various geographic sectors of the market.

*Alternative #1—Current Boston Regional Order Zone Prices*

The easiest method of establishing prices under an expanded order would be to simply apply the present Boston Regional Order zone pricing system to plants associated with markets in the annexed areas. Thus plants in Portland, Maine which likely would be assigned to Zone 11, would pay producers the Zone 11 price. Plants in Burlington, Vermont, and Bangor, Maine likely would be assigned to Zone 22, and Zone 23, respectively, and would pay producers the Zone 22 or 23 prices. The price impact on producers whose milk becomes regulated under the expanded federal order would vary depending upon their location and prior pricing system. As distance from Boston increased, prices would decline. The comparative price situation in February 1974 was examined using current Boston Zone prices applied to Maine and to Vermont market plants.

*Alternative #2—Direct Delivery Differentials*

An alternative pricing procedure would provide a means of paying all producers in the expanded order area the city plant price for milk which was delivered directly to a fluid milk packaging plant. This might be accomplished by adding a differential to existing zone prices. The amount should reflect costs and alternative market opportunities. The present Boston order builds about 16 cents per hundred pounds of milk into the price for milk delivered directly to fluid milk processing plants in the nearby area, or to plants within 140 miles of Boston.

*Alternative #3—Expansion of Nearby Plant Area*

The nearby area under the present Boston Regional Order covers the entire states of Connecticut and Rhode Island, and all of Massachusetts except for certain towns in Berkshire County. Since some of these plants are more than 100 miles from Boston, it is obvious that "nearby" is defined primarily on the basis of population concentration. It would appear that a good case could be made for including southeastern New Hampshire and southern Maine in a nearby area based on population concentration in contiguous areas. Seven counties are contiguous with the nearby plant zone of the present Boston Order and all have populations in excess of 100 persons per square mile. No milk

is produced on the east (Atlantic Ocean) in nearby areas and little to the north and west (poor land for agriculture). Comparisons of population concentrations of these counties and present order counties are given below.

State or County	Range in number of persons per square mile by county (1970 census)	
	Low County	High County
Present Boston Order:		
Connecticut	156	1,266
Massachusetts	59	13,128
Rhode Island	267	1,837
Possible added counties (over 100 persons/square mile)		
New Hampshire		
Hillsborough	252	
Rockingham	201	
Strafford	187	
Maine		
Androscoggin	193	
Cumberland	219	
Kennebec	109	
York	111	

Source: County and City Data Book, 1972. Bureau of Census, U.S. Dept. of Commerce (1973).

### Milk Utilization

Producers currently outside federal regulation receive prices based upon utilization of milk receipts in Class I outlets which are nominally to substantially above that of producers under federal regulation. This better utilization will be shared with all producers in an expansion of the federal order area. In addition, the pooling of milk at Class I prices which formerly was paid for at blend or Class II prices will increase the percentage of Class I milk for the expanded order. The impact for individual producers coming under the federal regulation will be a combination of two things: (1) substantial to nominal decline in their prices due to marketwide pooling and (2) a small increase in price because all handlers would be required to pay the full use value of all milk. The resulting blend price received by individual producers brought under an expanded order would be lower than before expansion for most but higher for some.

Producers currently within federal order regulations will receive some price increase resulting from additions of more Class I milk than Class II milk from the non federal order markets.

### Hauling Charges

Substantial differences which exist between federal order and state order blend prices *f.o.b. plant* may not accurately reflect farm prices because of differences in hauling charges. By subtracting hauling charges paid by producers from *f.o.b. plant* prices, a price *f.o.b. farm* is obtained. This price gives a better indication of real differences in present milk prices among producers.

An examination of these hauling charges is needed to ascertain if there is any basis for expecting high hauling charges to be adjusted if high *f.o.b. plant* prices are reduced. In this study, extensive comparisons were made between hauling charges for federal order producers and those for state order producers. Relationships also were determined between rates charged and distances milk was trucked and the volume of milk hauled. Because of changed competitive relationships, reductions in hauling charges would be anticipated, especially if volume and distance variables were related to rates charged to federal order producers and not related to rates charged state order producers. It is expected that changes in hauling charges may be a major impact on Maine producers of extending the federal order into Northern New England.

A basic reason for hauling rates to decline is the change from a variable and relatively high blend price to a lower more nearly equal price to be paid by all dealers under a federal order. This means that producers will be less able to offset a high hauling charge with a high blend price and will seek low cost hauling methods. The small-size distributors and independent haulers with high hauling costs and justifiable high rates, will need to meet this inevitable competition, or stop hauling.

An analysis of farm to plant hauling charges was made for 1,000 Maine producers and 434 Vermont producers for the month of February 1974. Both state order and federal order producers were included in the analysis.

#### *Variations in Hauling Charges by Market Order*

A frequency distribution of calculated hauling charges<sup>1</sup> indicated that the most common charges were 36 to 40 cents per hundredweight for Maine state order shippers and 26 to 30 cents for Maine federal order shippers. More than half the state order shippers paid 41 cents or more to have milk hauled from farm to plant. Only thirty percent of federal order shippers paid charges this high, Table 4.

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<sup>1</sup> Total hauling charges, including stop charges and minimum charges, divided by pounds of milk.

Table 4

Frequency Distribution of Calculated Hauling Charges, by Market,  
1000 Maine Producers, February 1974

Hauling Charge (cents/cwt.)	Maine State Order		Boston Regional Order	
	No. Farms	Percent	No. Farms	Percent
10 or less	2	*	1	*
11—15	2	*	15	3
16—20	1	*	49	10
21—25	2	*	67	14
26—30	46	9	138	28
31—35	31	6	34	7
36—40	153	30	28	6
41—45	126	24	27	6
46—50	82	16	50	10
51—55	31	6	14	3
56—60	3	1	16	3
61—65	5	1	12	2
66—70	21	4	3	1
Over 70	12	2	31	6
<b>TOTAL</b>	<b>515</b>	<b>100</b>	<b>485</b>	<b>100</b>

Less than 0.5 percent

Chi square = 373. with 20 d.f.

Sixty percent of Vermont state order shippers had hauling charges between 16 and 20 cents per hundredweight and some charges of 15 cents or less, Table 4a. Only 35 percent of federal order shippers in Vermont had charges this low. Most had charges of 46 cents or more. These higher charges reflected the movement of milk long distances for delivery to city plants in Massachusetts and Connecticut. When charges were analyzed for shipping to country points only (either transfer point or plant) 90 percent of the federal order shippers had rates between 11 and 20 cents, Table 4b.

The average hauling charge paid by Vermont state order shippers was 23 cents per hundredweight compared with 38 cents for Vermont federal order shippers. State order shippers' milk was moved an average distance of only 8 miles compared with 98 miles for federal order shippers' milk. The volume of milk shipped per month was about 20 percent more for the state order shippers, Table 5a. The average hauling charge for shipping to a country point was 18 cents for Vermont federal order shippers as compared to 23 cents for state order shippers.

The average hauling charge paid by Maine state order shippers was 46 cents per hundredweight compared with 39 cents for Maine federal order shippers. The average hauling charge for federal order ship-

pers delivering to country points was 37 cents per hundred. This difference between state and federal markets was particularly significant in view of the differences in two major factors which influence hauling rates—volume delivered and distance. Milk was moved an average of 35 miles from farm to state order plant and 51 miles from farm to federal order plant. In addition, the volume of milk hauled per farm was substantially greater for the farms under the state order, Table 5. The hundredweights of milk delivered per mile was twice as great for state order as for federal order shippers, amounting to 28 cwt/mile and 14 cwt/mile, respectively. Based upon volume and distance factors, Maine state order shippers should have had lower rather than higher hauling charges than Maine federal order shippers.

Table 4a

Frequency Distribution of Calculated Hauling Charges, by Market,  
434 Vermont Producers, February 1974

Hauling Charge Cents/Cwt.	Vermont State Order		Federal Orders <sup>1</sup>	
	No. Farms	Percent	No. Farms	Percent
11—15	11	7	50	19
16—20	103	60	42	16
21—25	14	8	5	2
26—30	30	18	8	3
31—35	10	6	3	1
36—40			3	1
41—45			1	*
46—50			63	24
51—55			69	26
56—60			11	4
61—65			5	2
66—70			0	
Over 70	1	1	5	2
All Farms	169	100	265	100

\*Less than 0.5%

<sup>1</sup> Connecticut and Boston Regional.

#### *Comparisons of Hauling Charges by Zone Location of Plant*

The analysis of charges by zone location of plants gives some insight into the effect of area density of production as a factor affecting charges. (State order plants were assigned an estimated zone location as though in the federal order). Comparisons were available for two zone groups for Maine shippers, and one zone group for Vermont shippers. In Maine, hauling charges were higher for state order shippers by an amount of 13 cents per hundredweight in each of two zone groups, Table 6. In Vermont, the charges averaged two cents higher, at one zone

Table 4b  
 Frequency Distribution of Calculated Hauling Charges  
 (Farm to Country Transfer Point or Plant)  
 By Market, 434 Vermont Producers, February 1974

Cents/Cwt.	Vermont State Order		Federal Orders <sup>1</sup>	
	No. Farms	Percent	No. Farms	Percent
5—10			1	*
11—15	11	6	122	46
16—20	103	61	110	42
21—25	14	8	10	4
26—30	30	18	10	4
31—35	10	6	5	2
36—40			3	1
41—45			2	1
46—50			1	*
61—80	1	1	1	*
Total	169	100	265	100

\*Less than 0.5%

<sup>1</sup> Connecticut and Boston Regional.

Table 5  
 Comparison of Volume of Milk Per Farm, Distance Farm to Plant  
 Hauling Charges, Blend Prices and Value of Milk Per Farm,  
 by Market, 1000 Maine Producers, February, 1974

Item	MARKET	
	Maine State	Boston Regional
Number of Producers	513	484
Volume Delivered Per Farm (cwt.)	416	268
Distance Farm to Plant (miles)	35	51
Volume Delivered Per Farm Per Mile (cwt.)	28	14
Hauling Charges Per Farm (total)	\$ 182	\$91
Calculated Hauling Charges (per cwt.)	\$ .46	\$ .39
Blend Price f.o.b. Plant (per cwt. 3.5% milk)	\$9.95*	\$ 9.24*
Blend Price f.o.b. Farm (per cwt. 3.5% milk)	\$9.50*	\$ 8.85*
Value of Milk Per Farm	\$4,129	\$2,491

\* These prices are not for comparable zone locations but represent what a substantial percentage of producers received who shipped milk under the orders.

location, Table 6a. This indicated that with the same area density of production, hauling charges were substantially higher in Maine and slightly higher in Vermont for the state order shippers.

#### *Rationale for differences in hauling charges*

Distance, volume, and density factors did not explain the wide differences in hauling charges between federal and state order shippers. Frequency of pick-up was not a factor since every-other-day pick-up

prevailed in both situations. The explanation for the higher charges in the state order markets appears to rest largely on the less efficient types or uses of hauling equipment and/or the assessing of charges which reflect higher than average profit margins. In any event, most state order shippers could absorb a higher hauling charge than federal order ship-

Table 5a

Blend Prices, Hauling Rates, Hauling Charges, and Volume of Deliveries, by Market, 434 Vermont Producers, February 1974

Item	Market		
	State	Federal	All
Number of Producers	169	265	434
Volume delivered per farm (cwt)	582	463	509
Distance Farm to Plant (miles)	8.3	98.1	63.1
Volume Delivered Per Farm Per Mile (cwt)	127	29	67
Hauling Charges Per Farm (total)	\$130	\$164	\$151
Calculated Hauling Charges (per cwt)	\$.225	\$.379 <sup>1</sup>	\$.319 <sup>1</sup>
Blend Price f.o.b. Plant (per cwt. 3.5% milk)	\$ 9.61*	\$ 9.56*	\$ 9.58*
Blend Price f.o.b. farm (per cwt. 3.5% milk)	\$ 9.38*	\$ 9.18*	\$ 9.26*
Value of Milk, Per Farm	\$5,630	\$4,395	\$4,876

<sup>1</sup> Includes hauling charges for transfer to city plants; for country point charges see Table 4b.

\*See footnote Table 5 for interpretation.

Table 6

Calculated Hauling Charges by Zone Location of Plant and by Market, 997 Maine Producers, February 1974

Zone Locations	Maine State Order		Boston Regional Order	
	No. Farms	Charge/ Cwt.	No. Farms	Charge/Cwt.
City Plant			47	\$.54
6—8	2	\$.30		
9—11	245	.42		
12—14	80	.52		
15—17	11	.56		
18—20	30	.45	143	.32
21—23	81	.52	294	.39
24—26	13	.43		
27—29	3	.70		
30—32	8	.44		
33—35	18	.40		
36—38				
39—41	22	.47		
All Zones	513	.46	484	.39

pers and receive a higher price f.o.b. farm because of the wide price differences f.o.b. plant. This competitive situation was felt to be a major factor in determining hauling charges.

Table 6a

Calculated Hauling Charges by Zone Location of Plant and by Market,  
434 Vermont Producers, February 1974

Zone Locations	Vermont State Order		Federal Orders	
	No. Farms	Charge/ Cwt.	No. Farms	Charge/Cwt.
City Plant			152	\$.524
7—11			9	.28
12—14	47	\$.27		
15—17	34	.19		
18—20	41	.20	104	.18
21—23	47	.23		
All Zones	169	.23	265	.38

*Variations in hauling charges by county location of farm*

Average hauling charges for state and federal order shippers by county location of Maine farms are reported in Appendix Table 5. In nine Maine counties for which comparisons were available, charges for state order compared with federal order shippers were higher in seven counties and lower in two counties. In Vermont, hauling charges for state order shippers averaged higher than for federal order shippers in each of five counties, when comparisons were based on delivery to country points. As indicated previously, the long haul to city plants largely explained the overall higher hauling charges incurred by federal order shippers, except for Chittenden County.

*Relationship of hauling charges to distance and volume factors*

The relationships between hauling charges and distance milk was hauled and volume delivered were analyzed by cross tabulation. In both Maine and Vermont, relatively little relationship existed between rates and volume delivered, either for state order or federal order shippers. Both groups showed higher rates for monthly deliveries of less than 100 hundredweight. Rates dropped with volume for Boston order shippers until deliveries were 500 cwt. per month and then tended to increase, Appendix Tables 6 and 6a. For both Maine and Vermont state order shippers rates showed little difference between 100 and 1000 hundredweight volumes.

There was a close relationship between hauling charges and distance milk was hauled for Boston order shippers but little or no relationship for state order shippers. For Maine federal order shippers charges per hundredweight increased almost regularly from 17 to 82 cents, for distances of less than 1 mile to distances of 90 miles, Appendix Table 7. For Vermont the relationship was equally direct but the charges per hundredweight were lower and distances longer, Appendix Table 7a.

When the distance and volume factors were combined into one factor—volume per mile (cwts. delivered per month per mile distance to the milk plant)—a rather consistent inverse relationship was shown between volume per mile and hauling charges per hundredweight for federal order shippers but little or no relationship for state order shippers. In Maine, charges declined for Boston order shippers from 45 cents per hundredweight for 10 or less cwt. per mile to 17 cents for 100 or over cwt. per mile, Table 7. Comparable charges in Vermont were 51 cents and 15 cents, Table 7a. The state order shippers in both Maine and Vermont showed declines only for the first three volume per mile groups, going from 50 cents to 41 cents and from 51 cents to 26 cents, respectively.

Table 7

Hauling Charges by Volume of Milk Delivered Per Mile by Market,  
997 Maine Producers, February 1974

Volume per Mile (cwt.)	Maine State Order		Boston Regional Order	
	No. Farms	Charge/cwt.	No. Farms	Charge/cwt.
1—10	239	\$.50	331	\$.45
11—20	95	.42	70	.28
21—30	58	.41	30	.24
31—40	33	.44	16	.25
41—50	24	.42	6	.21
51—60	9	.44	3	.20
61—100	30	.43	20	.20
101—500	24	.44	8	.17
501—1000	0	—	0	—
Over 1000	1	.25	0	.16
All Producers	513	.46	484	.39

The comparison of hauling charges for state and federal order producers, by volume per mile groups provides a good basis for predicting a decline in charges per hundredweight for state order producers when they receive payment for milk under the federal order. About half the producers—those shipping 10 cwt/mile or less would have little or no change in charges. The difference in hauling charges for these groups was interpreted as potential for a decline of 5 cents per cwt. for Maine

and 0 cents for Vermont producers, Tables 7 and 7a. As volume per mile increased, larger hauling charge differences between groups were observed. Thus potential for larger reductions in hauling charges were indicated. These reductions ranged upward from 14 cents to 27 cents per hundredweight for Maine producers, and two to 12 cents for Vermont producers, as volume per mile increased from 20 to 100 or over hundredweights.

*Potential changes in hauling charges*

Regression equations were developed to more precisely determine the relation of distance and volume to hauling charges. These equations were used in developing estimates of hauling charges in estimating f.o.b. farm prices under an expanded federal order. The following equations indicate the distance-volume-rate relationships for shippers to Maine State and federal order plants. Equations for Vermont shippers, and Maine and Vermont shippers combined, are shown in Appendix Table 11.

Table 7a  
Hauling Charges by Volume of Milk Delivered Per Mile, By Market,  
434 Vermont Producers, February 1974

Volume Per Mile (cwt.)	Vermont State Order		Federal Orders	
	No. Farms	Charge/ cwt.	No. Farms	Charge/cwt.
1—10	2	\$.51	162	\$.51
11—20	8	.26	16	.24
21—30	8	.26	20	.18
31—40	10	.27	15	.16
41—50	12	.24	19	.16
51—60	17	.20	5	.15
61—100	46	.21	11	.15
101—500	60	.21	15	.15
501—1000	5	.24	2	.12
Over 1000	1	.15	0	—
All Producers	169	.23	165	.38

$$Y_{sm} = .463 + \$.00083(X_1) - \$.00008(X_2)$$

(.23)      (.00037)      (.00003)       $r^2 = .023$   
n = 512

$$Y_{fm} = .334 + \$.00224(X_1) - \$.00023(X_2)$$

(.20)      (.00019)      (.00003)       $r^2 = .253$   
n = 479

Y = hauling rate, sm = state market, fm = federal market

$X_1$  = distance farm to plant,  $X_2$  = hundredweight milk delivered per month

Standard errors of coefficients and of estimates are shown in parentheses

Regression analyses indicated that coefficients for distance and volume variables were significantly different from zero. However, these factors explained 25 percent of the variation in charges for federal order shippers and only 2 percent for state order shippers.

The equations developed from federal order hauling charges were applied to state order shippers' distance and volume data to obtain estimated hauling charges. Hauling charge estimates were based upon the average volume delivered and the average distance milk was hauled to plants in each zone location group. These data are reported in Tables 8 and 8a.

Maine producers, shipping to plants which would be located in zones 7-11 under a federal order, were paying a hauling charge averaging 41 cents. Based upon the 399 hundredweight volume shipped per farm per month and the 46 miles milk was hauled from farm to plant, the estimated hauling charge under federal order expansion would be 34 cents per hundredweight. In zones 24-39 where volume shipped was 267 hundredweight and the distance 25 miles, the estimated charge would be 33 cents, down from an actual charge of 46 cents. For all Maine producers the weighted average estimated hauling charge would be 32 cents, compared with an actual charge of 46 cents, Table 8.

For all Vermont producers the weighted average estimated hauling charge would be 16 cents compared with an actual charge of 23 cents, Table 8a. Similar differences in the estimated and actual charges were indicated in the computations for the various zone locations.

Confidence levels for estimates of hauling charges using the regression equation for the Maine situation were relatively low. There was one chance out of three that estimated charges would vary by more than 20 cents from actual charges.

In the Vermont situation, confidence levels were high. Only five percent of the estimates would vary from the actual charges by more than 12.5 cents.

#### *Prices, F.O.B. Farm Prior to Order Expansion*

Because of the differences in hauling charges paid by federal and state order shippers, the f.o.b. farm price was a more accurate indicator of comparative prices received by milk producers in the two markets. An examination of the price relations which prevailed without regard to expansion illustrates this.

Differences in prices paid Boston Order and Maine State Order producers were less when compared on a farm rather than a plant basis. After deducting hauling charges, 515 Maine State Order shippers received an average price of \$9.50 per cwt. for 3.5% milk in February

Table 8

Actual and Estimated Hauling Charges and Volume and Distance Factors  
by Zone Location of 22 State of Maine Plants, 515 Maine Producers,  
February 1974

Zones	Number of Farms	Number of Plants	Actual Hauling Charges Cents/cwt.	Volume Shipped per farm per month cwt.	Miles farm to Plant	Estimated <sup>1</sup> Hauling Charge cents/cwt.
7—11	247	5	\$.41	399	46	.34
12—17	91	4	.52	354	21	.30
18—23	111	8	.50	591	29	.26
24—39	64	5	.46	267	25	.33
All	515	22	.46	416	35	.32

<sup>1</sup> See Appendix Table 14 for regression equation used to estimate charges. (Maine Federal Order)

Table 8a

Actual and Estimated Hauling Charges and Volume and Distance  
Factors by Zone Location of 12 State of Vermont Plants,  
169 Vermont Producers, February 1974

Zones	Number of Farms	Number of Plants	Actual Hauling Charges Cents/cwt.	Volume Shipped per farm per month cwt.	Miles farm to Plant	Estimated <sup>1</sup> Hauling Charge cents/cwt.
12—17	81	6	\$.24	525	7	\$.16
18—23	88	6	.22	634	9	.15
All	169	12	.23	582	8	.16

<sup>1</sup> See Appendix Table 14 for regression equation used to estimate charges (Vermont federal order).

1974. This compared with \$8.85 per cwt. for 485 Boston Order shippers, or a difference of 65 cents. This price difference was 72 cents when computed on an f.o.b. plant basis, Table 9. These comparative price differences also existed in Vermont but were substantially influenced by high hauling charges for moving milk to city plants under the federal orders. On the basis of plant prices, 169 Vermont state order producers received 5 cents more than 256 federal order producers. On the basis of f.o.b. farm prices, however, state order producers netted 20 cents more.

When prices f.o.b. farm were averaged by estimated plant zone location, Maine State Order producers in zones 18-23 received \$9.43 compared with \$8.83 for Boston Order Shippers, or a difference of 60

cents per hundredweight. Comparing average prices f.o.b. plant in these zones, this difference was 73 cents, Table 9. Thus differences in hauling charges substantially changed prices received for milk, and altered comparisons of prices between markets significantly.

Table 9  
Average Blend Prices F.O.B. Farm and F.O.B. Plant,  
by Zone Location, and by Market,  
1,000 Maine Producers, February 1974

Zone Location	No. of Producers		Maine State Order		Boston Regional	
	State	Federal	Farm	Plant	Farm	Plant
			— price per hundredweight —			
City Plant		47			1	1
7—11	247		\$9.30	\$ 9.71		
12—17	91		9.85	10.37		
18—23	112	438	9.43	9.93	\$8.83	\$9.20
24—39	65		9.88	10.34		
All Zones	515	485	9.50	9.96	8.85	9.24

<sup>1</sup> Data for one plant only; thus not reported.

The prices received f.o.b. farm by most state order shippers in Maine were between \$9.11 and \$9.30 with most of the producers shipping to plants located in zones 7 to 11. The prices received by most federal order shippers located in Maine were from \$8.71 to \$8.90 for shipments to plants located in zones 18 to 23. The range in prices for state order shippers in *all* zones was from \$6.23 to \$10.61 compared with \$7.05 to \$9.21 for federal order producers, Appendix Table 8.

The prices received f.o.b. farm by most state order shippers in Vermont were between \$9.31 and \$9.40. The prices received by most federal order shippers were between \$9.01 and \$9.10, Appendix Table 8a.

### IMPACT OF EXTENDING THE FEDERAL ORDER

Two situations were examined. One was an extension to include only the State of Maine. The other was an extension to include all of Northern New England.

#### Situation #1—Extension Into Maine

In this situation Boston Regional Order price levels and zone price differentials for February 1974 were used in computing a pool price. Quantities of milk pooled were those reported by the federal Market Administrator and the Maine Milk Commission for February 1974.

*Prices, F.O.B. Plant*

Milk received at plants regulated by the Maine Milk Commission was assigned to zones and priced at Boston Regional Order zone prices for February 1974. Quantities assigned to Class I and Class II milk uses were those reported under the state order. The volume of receipts and utilization of milk are shown by groups of zones with associated town locations in Table 10.

The values of the Maine milk were adjusted to reflect plant location differentials and combined with similar values from the Boston Regional blended price computation for February 1974 to arrive at a Boston and Maine pool value for the 21st Zone. Quantities of milk were combined and a blended value per hundredweight computed. The resulting pool price was \$9.26 per hundredweight (21st zone 3.5% milk), Table II. This compared with the Boston Regional pool price of \$9.19 per hundredweight. Thus adding the State of Maine to the federal order marketing area would increase producer prices to those producers already under the order by 7 cents per hundredweight. This increase would apply at all zone locations. It would be the principal impact on producers currently under the federal order of an extension of the Boston Regional Order into Maine.

Table 10

Assignment of Milk by Estimated Boston Regional Order  
Zone Locations of Plants, Maine Markets, 1973

Location Zone	Location <sup>1</sup> Town	Plants <sup>2</sup> Number	Class I	Class 2 Utilization	Total	of Total Percent
—million pounds—						
7—9	Eliot-Sanford	7	10.68	.96	11.64	3.4
10—12	Portland-Biddeford	7	113.58	32.23	145.81	42.3
13—15	Auburn-Steep Falls	19	29.82	4.26	34.08	9.8
16—18	Augusta-Rumford	8	14.57	2.50	17.12	4.9
19—21	Waterville-Skowhegan	7	25.54	4.20	29.74	8.6
23	Bangor	6	63.44	18.01	81.45	23.5
27	S.W. Harbor—Dover	6	9.69	.87	10.56	3.0
39	Presque Isle	5	13.28	2.39	15.67	4.5
All	Total	65	280.60	65.42	346.02	100.0

<sup>1</sup> Plants in adjacent towns are included in all locations.

<sup>2</sup> Includes both dealers and producer distributors.

For producers in Maine marketing under the state order, the impact was determined by 1) compiling prices paid producers by dealers according to the estimated federal order zone location of their plants and 2) comparing these prices with federal order prices under the expanded situation. Estimates of zone locations of Maine plants were obtained from the Boston Regional Market Administrator. Compilations

Table 11

Blended Price Computation, 21st Zone, Combined Boston  
Regional and State of Maine Controlled Areas, February 1974

Item	Boston Regional	Maine	Boston & Maine
Total Values of Milk	\$22,809,419	\$2,873,038	\$25,682,457
Unobligated Balance of Cash	129,137		129,137
Plant Location Differential	— 462,254	— 33,098	495,352
	\$22,476,302	\$2,839,940	\$25,316,242
Divided by Total Pool Milk <sup>1</sup>	243,298,198 lbs.	28,830,000 lbs.	272,128,198 lbs.
Blended Value for 3.5% Milk	\$ 9.238	\$ 9.851	\$ 9.303
Deduction to Retain Cash Balance	.048	0	.048
	\$ 9.190	\$ 9.851	\$ 9.255

<sup>1</sup> Pool milk for Maine is annual deliveries in controlled markets for 1973 divided by 12.

were based upon individual producer blend prices for 515 producers shipping to 22 Maine dealers. Thus the zone location prices were weighted by the number of producers receiving each dealer's price. Computations were made by zone groups to obtain average prices with reasonably wide applications. However, for one zone group, producer prices within the zone group would vary as much as 22 cents per hundred-weight.

Results of this analysis indicated that producers in zone group 7-11 received an average blend price of \$9.71, f.o.b. plant, under the state order. This compared with \$9.54 which it was estimated would be received under the expanded federal order, Table 12. Producers in zone group 18-23 received an average price of \$9.93 and would, under the expanded order, receive an estimated price of \$9.25. Producers delivering to plants in these zones received substantially less for their milk, under the state order, than the average of prices received by producers in other zones. The change in prices for producers in zone group 12-17, for example, would be from \$10.37 to \$9.49 or a reduction of 88 cents per hundredweight, f.o.b. plant. Producers in more distant zone groups would be faced with an average price adjustment of \$1.20 per hundred-weight, Table 12.

These examples show that the impact on individual producers' prices of an expanded federal order will vary substantially depending upon a producer's geographic location and dealer utilization. The overall impact on producers was estimated by averaging the zone prices under the federal order, using the number of producers in each plant zone as weights. The average price reduction for producers newly subject to the

Table 12

Comparison of Average Blend Prices, F.O.B. Plant (3.5% Milk) for 22 State of Maine Plants, and Boston Regional Order (with and without all Maine Milk) by Estimated Zone Locations of Maine Plants, 515 Maine Producers, February 1974

Zone Locations	No. of Plants	No. of Farms	Maine State Order <sup>1</sup>	Boston	Boston Regional
				Regional Order	Expanded to Include Maine <sup>2</sup>
(Estimated)					
—price per hundredweight—					
7—11	5	247	\$ 9.71	\$9.47	\$9.54
12—17	4	91	10.37	9.42	9.49
18—23	8	112	9.93	9.18	9.25
24—39	5	65	10.34	9.07	9.14
All Zones	22	515	9.96	9.35	9.42

<sup>1</sup> Weighted by number of producers receiving each dealer price.

<sup>2</sup> Weighted by number of producers in each zone price group.

expanded order would be 54 cents per hundredweight *f.o.b. plant*. The average price received by all producers under the Maine State Order was \$9.96 and the average price estimated for the expanded Federal Order was \$9.42.

*Prices, F.O.B. Farm with No Hauling Charge Adjustment*—Average farm prices for producers in the various estimated zone locations were computed by subtracting average hauling charges paid under the State Order by producers shipping to plants in these zones. The resulting farm price (average for all 515 producers) was \$8.96 per hundredweight. This compared with the average farm price received under the state order of \$9.50, Table 13. Thus the initial impact of the expanded order would be to reduce the net price to producers by an average of 54 cents per hundredweight. The average price reduction would vary by zone location groups from 17 cents to \$1.20, Table 13. Individual producer prices would show greater variability, because of varying zone prices and individual dealer pool blend prices.

*Prices F.O.B. Farm with Hauling charge adjustment*—Differences between net farm prices currently received by state order producers and those anticipated under an expanded federal order are expected to be influenced by adjustments in hauling charges. These adjustments in charges were estimated using regression analysis. Regression equations were computed using federal order shippers' hauling charges, and distance and volume data.

The *f.o.b.* farm price under an expanded federal order was estimated by subtracting the estimated hauling charge from the estimated *f.o.b.* plant price. The results are shown in Table 14, along with comparisons with prices paid under the state order in February 1974. Re-

Table 13

Comparison of Average Blend Prices, FOB Farm, Actual Maine State Order and Estimated Boston Regional Order Expanded to Include Maine 515 Maine Producers, February 1974

Zone Location	Maine State Order <sup>1</sup> (actual)	Boston Regional Order		Difference (estimated)
		Expanded <sup>2</sup> (estimated)		
—Per Hundredweight—				
7—11	\$0.30	\$9.13		\$.17
12—17	9.85	8.97		.88
18—23	9.43	8.75		.68
24—39	9.89	8.68		1.20
All Zones	9.50	8.96		.54

<sup>1</sup> From Table 11

<sup>2</sup> FOB Plant Price (Table 10) less current hauling charges (Table 6).

sults indicate that the average f.o.b. farm price for 515 Maine producers would be \$9.10 per hundredweight. This compared with \$9.50 under the state order. The difference of 40 cents per hundred reflects the estimated changes in utilization, class prices, and hauling charges which the federal order would bring to local dairymen. The price differences varied substantially by zone locations. It was estimated that producers shipping to plants in zones 7—11 would receive a blend price, f.o.b. farm, of \$9.20 under an expanded federal order, compared with \$9.30 received under the state order. However, producers shipping to plants in other zone locations would have price reductions averaging as much as \$1.07 per hundred pounds Table 14.

Table 14

Blended Prices (f.o.b. Farm and f.o.b. Plant) and Hauling Charges (current and estimated) for Maine State Order and Extended Boston Regional Order To Include all Maine Plants by Estimated Zone Location, 515 Maine Producers, Feb. 1974

Esti- mated Zone Lo- cation of plant	Num- ber of Farms	STATE ORDER			EXPANDED FEDERAL ORDER		
		F.O.B. Plant Price (Actual)	Hauling Charge (Actual)	F.O.B. Farm Price (Actual)	F.O.B. Plant Price (Estimated) <sup>1</sup>	Hauling Charge= (Estimated) <sup>2</sup>	F.O.B. Farm Price (Estimated) <sup>3</sup>
7—11	247	\$9.71	\$.41	\$9.30	\$9.54	.34	\$9.20
12—17	91	10.37	.52	9.85	9.49	.30	9.19
18—23	111	9.93	.50	9.43	9.25	.26	8.99
24—39	64	10.34	.46	9.88	9.14	.33	8.81
All	515	9.96	.46	9.50	9.42	.32	9.10

<sup>1</sup> From Table 10.

<sup>2</sup> See Appendix Tables 9, 10 and 14 for data and regression equations used to estimate hauling charges.

<sup>3</sup> Weighted by number of producers in each zone price group.

**Situation #2—Extension Into Northern New England**

This situation considers the impact of the federal order extension under two alternatives: 1) from the merged Boston Regional and Connecticut Orders and 2) from the Boston Regional Order alone. In each alternative the quantities of milk which comprised the expanded milk pool were those reported by: 1) the federal market administrator for the Boston Regional Order, and/or the Connecticut Order, 2) the Maine Milk Commission for controlled areas of Maine, 3) the New Hampshire Department of Health for uncontrolled areas of New Hampshire, 4) the Massachusetts milk Control Board for state controlled areas of Massachusetts, and 5) dealers in the state controlled markets of Vermont. Quantities were reported for the month of February 1974 and/or the year 1973. Appendix Table 1 shows the annual quantities of milk marketed by farmers in the New England states broken down by federal orders, by state order, by uncontrolled areas, and unaccounted. For 1973, these data indicated that 588 million pounds of milk were marketed other than under federal orders. In addition, 20 million pounds of milk reported marketed were unaccounted for either in federal or state order reporting or in estimates of marketings in uncontrolled areas. Milk marketed by producer distributors probably accounts for some of the statistical differences.

The quantities of milk marketed in each of the New England federal order Markets, and quantities estimated available outside federal orders in each of the New England states as compiled for February 1974 were combined to show estimated pool receipts, prices and utilization as follows:

- 1) Boston and Connecticut Orders merged
- 2) Boston and Connecticut Orders merged and extended throughout northern New England
- 3) Boston Regional Order extended throughout northern New England.

Utilization percentages were estimated for all milk outside federal orders in arriving at the quantity of Class I milk in the expanded pool. These percentages ranged from 80 to 90 percent of receipts.

In February 1974, a total of 390 million pounds of milk were estimated to comprise a New England wide pool representing the extension of the two merged federal orders, Table 15. Of this total, 266.5 million pounds, or 68.4 percent, would have been utilized as Class I. If the pool were an extension of the Boston Regional order alone, a total of 287 million pounds of milk would have comprised the February pool, 66.1 percent of which would have been utilized as Class I.

Table 15

Receipts, Utilization and Blend Prices, by Federal Order,  
States Outside Federal Order, and Combined Federal  
Order and Outside Areas, New England,  
February 1974

Order	Total Receipts million pounds	Utilization		Percent Class I	Blend Price <sup>1</sup> (City Plant)
		Class I	Class II		
<b>Federal Order</b>					
Boston Regional	243.1	153.3	89.8	63.1	\$9.59
Connecticut	102.3	76.8	25.5	75.1	9.95
Boston-Conn. Merged	345.4	230.1	115.3	66.6	9.73 <sup>E</sup>
<b>Outside Federal Order</b>					
Maine	27.6 <sup>E</sup>	21.8 <sup>E</sup>	5.8 <sup>E</sup>	80.0 <sup>E</sup>	
Massachusetts	3.6 <sup>E</sup>	3.1 <sup>E</sup>	.5 <sup>E</sup>	87.5 <sup>E</sup>	
New Hampshire	2.4 <sup>E</sup>	2.0 <sup>E</sup>	.4 <sup>E</sup>	85.0 <sup>E</sup>	
Vermont	10.6 <sup>E</sup>	9.5 <sup>E</sup>	1.1 <sup>E</sup>	90.0 <sup>E</sup>	
<b>Combined Federal Order &amp; Outside</b>					
Boston Regional, Maine Mass., N.H., Vt.	287.3 <sup>E</sup>	189.5 <sup>E</sup>	97.5 <sup>E</sup>	66.1 <sup>E</sup>	9.72 <sup>E</sup>
Boston Regional-Conn. Maine, Mass., N.H., Vt.	389.6 <sup>E</sup>	266.5 <sup>E</sup>	123.1 <sup>E</sup>	68.4 <sup>E</sup>	9.80 <sup>E</sup>

E = estimated

<sup>1</sup> Except for Connecticut, computations based upon 21st zone prices  
(Class I = \$10.52; Class II = \$6.97) then adjusted to city plant prices by adding 40 cents.

#### Prices, F.O.B. Plant

Blend prices for both the extension of the two merged orders and the extension of the Boston Regional Order were determined by computing the blend price at the 21st zone, then adding the nearby (city) plant differential. A simplified procedure of weighting the class prices by the percentage of Class I and Class II milk was used in the calculations. The results indicated that a price of \$9.80 per hundredweight would have resulted under the combined extension and merger of both federal orders, Table 15. This compared with \$9.59 as the city blend price for the Boston Regional Order and \$9.95 for the Connecticut Order. If only the Boston Regional Order had been extended into Northern New England the result would have been a blend price of \$9.72. Thus adding all of New England to existing federal orders would have increased prices to those producers in the Boston Order by 13 or 21 cents depending upon whether or not the Connecticut Order was included. For Connecticut order producers, a merger and extension would have decreased prices by 15 cents and a merger alone would have decreased

prices by 22 cents. The merger and extension of the orders would be more advantageous to present federal order producers than merger alone.

For Maine and Vermont producers marketing under state orders, the impact of the expanded federal orders would vary by state, by zone location of their plant, and by dealer utilization. These producers might also be affected by rules set up under an expanded order and any adjustments in hauling rates which might occur.

Comparisons of February 1974 producer prices for state order producers and estimated prices under the expanded federal orders were made by zone location groups. Results of this analysis indicated that Maine producers in zone group 7-11 received an average blend price of \$9.71 f.o.b. plant under the state order. This compared with an estimated \$9.60 which they would receive under the expanded Boston Regional Order and an estimated \$9.68 under an expanded Boston-Connecticut merged order, Table 16. Other Maine producers would receive substantially less. Variations in price reductions were from 64 cents for producers in zone group 18-23 to \$1.14 for zone group 24-38. The average reduction in prices f.o.b. plant for all producers would be 48 cents and 40 cents under Boston and Boston-Connecticut order expansion, respectively.

Producers under state orders, shipping to Vermont plants in zone group 12-17, received \$9.63. This compared with prices of \$9.56 and \$9.64 estimated under the Boston and Boston-Connecticut expanded federal orders, respectively. Other Vermont producers would incur price changes varying between an increase of one cent and declines up to 28 cents, depending upon zone location and whether or not the Connecticut order was included in the extension, Table 16. The average reduction in prices for all Vermont producers would be 13 cents and 5 cents for the respective order expansions.

#### *Prices, F.O.B. Farm*

Because of differences in hauling charges between federal and state order shippers, the f.o.b. farm price is a better basis for comparing returns between producers under state and federal orders. Comparing farm rather than plant prices also provides a better measure of the impact of extending the federal orders into northern New England. In arriving at farm prices under an extended order, a principal issue for non-federal order producers is the extent of potential changes in hauling charges which might accompany the change to blend pricing on a marketwide basis.<sup>1</sup> Estimated changes in hauling charges for state order shippers were assumed to reflect the volume of milk shipped and the

<sup>1</sup> For federal order shippers, changes in plant prices indicate the impact on them, as hauling charges likely would not change.

Table 16

Blend Prices, F.O.B. Plant (3.5% milk) Paid by 22 Maine and 12 Vermont Dealers and Estimated to be paid Under Boston Regional and Connecticut Orders Extended to Include Unregulated Milk in Maine, Massachusetts, New Hampshire, and Vermont, by Estimated Zone Locations of Dealer Plants, 515 Maine Producers and 169 Vermont Producers, February 1974

Zone Locations	STATE ORDER (Actual) <sup>1</sup>		EXPANDED FEDERAL ORDER (Estimated) <sup>2</sup>	
	Maine	Vermont	Boston Regional and Me., Mass., N.H., Vt.	Boston Regional, Conn. and Me., Mass., N.H., Vt.
	—price per hundredweight—			
City			\$9.72	\$9.80
7—11	9.71		9.60	9.68
12—17	10.37	9.63	9.56	9.64
18—23	9.93	9.59	9.31	9.39
24—39	10.34		9.20	9.28
All Zones	9.96	9.61	9.48 <sup>3</sup>	9.56 <sup>3</sup>

<sup>1</sup> Weighted by number of producers receiving individual dealer prices.

<sup>2</sup> Weighted by number of Maine producers who would receive the estimated price in each zone price group.

<sup>3</sup> For comparisons with Vermont State Order, the weighted average prices were \$9.40 and \$9.48, respectively (weighted by number of Vermont producers who would receive the estimated price in each zone price group).

distance it was hauled. Subtracting the estimated hauling charges from plant prices estimated for the expanded orders provided a farm price estimate to compare with farm prices actually received under the state orders.

*Maine State Order Producers*—Maine producers shipping to plants assumed to be in zone location group 7-11 received \$9.30 f.o.b. farm under the state order and would receive an estimated \$9.26 under the expanded Boston regional order and \$9.34 under the expanded Boston-Connecticut Order, Table 17. This assumes a hauling charge reduction from 41 cents to 34 cents per hundred pounds. Thus, depending upon the hauling charge adjustment, the producers shipping to dealers in this zone group could receive nearly as good or better net prices under a New England wide pool as under the state order. However, producers in all other areas of Maine could expect price reductions. Based upon averages for zone location groups, such reductions would be 30¢ to \$1.01 per hundredweight, depending upon the zone group and federal orders expanded.

The average f.o.b. farm price received by all Maine producers under the state order was \$9.50 per hundredweight. It was estimated these producers would receive an average of \$9.16 under the expanded

Boston Regional Order and \$9.24 under the expanded Boston-Connecticut Order, Table 17. This compares with an estimated price of \$9.10 under an expansion of the Boston Regional Order to include only the state of Maine (Situation #1), Table 14. Thus the maximum price impact for Maine producers would be an order expansion to include only the Boston Regional Order plus Maine, and the minimum impact would be from the merger of both federal orders and its extension to all of New England. The magnitude of average price change for Maine state order producers through inclusion in a federal order would range from declines of 54 cents to 40 cents, with no changes in hauling charges, to an average of 40 cents to 26 cents per hundredweight, assuming a downward adjustment of 14 cents per hundredweight in hauling charges.

Table 17

Blend Prices (Actual and Estimated) F.O.B. Farm (3.5% milk) and Hauling Charges (Actual and Estimated) for State Order and Boston Regional and Connecticut Federal Orders Extended to Include Unregulated Milk in Maine, Massachusetts, New Hampshire and Vermont by Estimated Zone Location of Dealer Plants. 515 Maine Producers, February 1974

Zone Location	EXPANDED FEDERAL ORDER				
	MAINE STATE ORDER		Hauling Charge (Estimated)	F.O.B. FARM PRICE <sup>2</sup>	
	Hauling Charge (actual)	F.O.B. Farm Price <sup>1</sup> (actual)		Boston Regional Me., Mass. N.H., Vt. (Estimated)	Boston Regional Connecticut Me., Mass. N.H., Vt. (Estimated)
7—11	\$.41	\$9.30	\$.34	\$9.26	\$9.34
12—17	.52	9.85	.30	9.26	9.34
18—23	.50	9.43	.26	9.05	9.13
24—39	.46	9.88	.33	8.87	8.95
All	.46	9.50	.32	9.16	9.24

<sup>1</sup> From Table 14.

<sup>2</sup> Derived by subtracting hauling charge from plant prices in Table 16.

*Vermont State Order Producers*—Dairymen shipping to state order plants in Vermont which were assumed to be in zone group 12-17 received \$9.39 f.o.b. farm under the state order and would receive an estimated \$9.40 under the expanded Boston Regional Order and \$9.48 under the expanded Boston-Connecticut Order, Table 17a. Thus producers in this zone group would receive a better price under either of the expanded federal order situations, provided an adjustment was made in hauling charges from an average of 24 cents to an average of 16 cents

Table 17a

Blend Prices (Actual and Estimated) F.O.B. Farm (3.5% Milk) and Hauling Charges (Actual and Estimated) for State Order and Boston Regional and Connecticut Federal Orders Extended to Include Unregulated Milk in Maine, Massachusetts, New Hampshire and Vermont by Estimated Zone Location of Dealer

Plants, 169 Vermont Producers, February 1974

Location	VERMONT STATE ORDER		EXPANDED FEDERAL ORDER		
	Hauling Charge	F.O.B. Farm Price <sup>1</sup>	Hauling Charge	F.O.B. Farm Price <sup>2</sup>	F.O.B. Farm Price <sup>2</sup>
	(actual)	(actual)	(Estimated)	Boston Regional	Boston-Connecticut
12—17	.24	9.39	16	9.40	9.48
18—23	.22	9.37	15	9.16	9.24
All	.23	9.38	16	9.32	9.40

<sup>1</sup> From Table 11a.

<sup>2</sup> Derived by subtracting hauling charges from plant prices in Table 16.

per hundredweight. However, producers shipping to plants in zone group 18-23, would expect price reductions averaging 13 cents to 21 cents per hundredweight, depending upon the federal order included in the expansion.

The average of prices received by all Vermont producers under the state order was \$9.38 f.o.b. farm. All producers were estimated to receive an average of \$9.32 under the expanded Boston Regional Order and \$9.40 under the expanded Boston-Connecticut Order, Table 17a. Thus, the minimum average impact on Vermont producers added to the federal order would be from the merger of both federal orders and its extension to all of New England. The magnitude of average price change would range from declines of 13 cents to 5 cents (with no change in hauling charges) to an average reduction of 6 cents to an average increase of 2 cents per hundredweight (assuming a downward adjustment in hauling charges averaging 7 cents per hundredweight).

*Federal Order Producers*—All producers under the Boston Regional Federal Order at the time of expansion, whether in Maine or Vermont, or elsewhere, would receive an increase in blend prices. These increases would be: 7 cents for an expansion to include only Maine, 13 cents for an expansion to include all of Northern New England. Should the Boston Regional and the Connecticut Federal Orders be merged and this new order expanded to Northern New England, Boston order producers would receive an increase in blend price of 21 cents. Of this increase 14 cents would be attributed to the merger and 7 cents to the expansion.

With the expansion of a merged Boston Regional and Connecticut order, Connecticut producers would receive a reduction in blend price of 15 cents. The merger would reduce the blend price by 22 cents and the expansion would restore 7 cents to the blend price.<sup>1</sup>

### **SOME IMPLICATIONS OF FEDERAL ORDER EXTENSION**

Producers, dealers and consumers all will feel some impact from an extension of the federal order system into northern New England. Some of the implications are discussed in the following sections.

#### **Producers**

The financial impact on producers will be the major impact of extending the federal order. In Maine it will be a substantial impact. For Maine producers under the Boston order, gross incomes would increase from \$500 to \$1,000 per farm. For those under the state order, annual incomes would be reduced by \$1,500 to \$3,000 per farm. The net impact on Maine dairy farmers likely would be an income loss of from \$500,000 to \$1,000,000 or more. In Vermont, Massachusetts and New Hampshire, the net effect would be to increase dairy income somewhat as most dairymen market under the federal order and gross increases in their income would more than offset losses of income to state order dairymen. Connecticut dairymen would also gain from extension of the federal orders into northern New England but probably not enough to offset losses incurred by merger with the Boston Order. New England dairymen in total would benefit from an overall increase in Class I milk utilization which would increase their blend price.

Substantial shifts in dealer affiliation may take place in Maine since price will be less of an incentive to ship to other than the nearest processor. Blend prices will vary primarily by distance from Boston, not by dealer utilization. Thus some incentive will exist to shift to processors to the south. Variations in net farm prices will be largely determined by hauling charges. Producers may find it advantageous to become more involved in hauling through cooperative efforts.

#### **Processor—Distributors**

Some of the incentives which dealers experience under most state orders would disappear under federal orders since individual handler utilization would not affect the price they pay producers. Since their

<sup>1</sup> Between February 1974 and July 1975 shifts in milk supplies between markets resulted in price adjustments which essentially accomplished much of the indicated impact from actual merger; further impact would come largely from order expansion.

ability to select distant producers by offering a higher blend price would be reduced their milk supplies would probably be obtained nearer their plants. A major realignment of milk suppliers is likely.

Dealers engaged in hauling operations may suffer a loss of income from reduced hauling rates as lower hauling charges become a critical issue in producer returns. Some dealers may find it necessary to abandon hauling entirely if more efficient operations are not possible. It may force some out of milk distribution.

Because of the likelihood that fluid (Class I) milk will carry a somewhat lower price in northern Maine and Vermont, dealers in these areas will have a slight competitive advantage in product cost over dealers in southern Maine and Vermont. Under state order pricing a single price prevailed throughout the states. This has some implications for interdealer competition.

Federal regulations will initiate a more thorough accounting of milk utilization characterized by the need for processors to prove the disposition of milk in Class II outlets or have it charged to them as Class I. This is in contrast to proving Class I sales and having the balance of receipts charged at Class II prices in Maine, and no auditing of utilization in Vermont.

With producer prices better protected by federal than state regulation, less reason exists to maintain resale price controls. Should this loss of resale price protection occur, dealers could face severe price competition and some might be forced out of business.

Levies for federal order administration, and accounting and reporting costs to comply with federal order regulations, will increase dealer costs of operation as compared with state order regulation.

### **Consumers**

Consumers would experience little direct effect from extension of the federal order. In Maine, prices could decline slightly, particularly in northern markets where northern dealers would pay producers slightly less for milk. In Vermont and northern New Hampshire, adjustments in dealer costs of milk for Class I use should be largely offset by other factors. In western Massachusetts potential declines in Class I prices under a federal order likely would not affect consumer prices.

The federal control of producer prices as indicated above could lead to elimination of resale price control. Should this occur, consumers might initially benefit from price wars. Ultimately they might be faced with wider variations in milk prices, less choice of brands in stores, and milk processed by centralized plants from the lowest cost raw milk available.

APPENDIX TABLE I

Milk Marketed by Farmers in New England, 1973

State	State Market- ed*	Federal Order		State Order	Uncon- trolled	Unac- counted <sup>8</sup>
		Boston <sup>1</sup> Re- gional	Conn. <sup>2</sup> New York			
		—million pounds—				
Connecticut	602	75	512 <sup>2</sup>	0		-15
Maine	600	254	0	346 <sup>3</sup>	35 <sup>6</sup>	+35
Massachusetts	580	361	173	45 <sup>4</sup>		- 1
New Hampshire	328	287	4	0	30 <sup>7</sup>	- 7
Vermont	1924	1608	152	132 <sup>5</sup>	0	-32
Rhode Island	63	60	3	0		
Total	4097	2645	844	523	65	-20

\*Source: Milk Production, Disposition and Income 1971-1973.  
Crop Reporting Board, U.S.D.A. April 1974.

<sup>1</sup> Source: Boston Regional Milk Market Statistics for 1973, Market Administrator Federal Order No. 1, March 1974.

<sup>2</sup> Sources: Boston Regional Order Market Administrator's Review, July-August 1974.

<sup>3</sup> Source: Maine Milk Commission Receipts and Sales in Controlled Markets Year 1973. Unpublished.

<sup>4</sup> Source: Massachusetts Milk Control Commission; Letter to Gene Engel, January 31, 1975, Quantity for February 1974 x 12.48.

<sup>5</sup> Source: Survey of 12 dealers and 4 producer dealers by Webster. Quantity for February 1974 x 12.48.

<sup>6</sup> Source: Estimate based upon 15% of population outside controlled markets.

<sup>7</sup> Source: New Hampshire Department of Health; Letter to Fred Webster, December 31, 1974, Quantity for February 1974 x 12.48.

<sup>8</sup> Assumed to be primarily producer distributor milk exempt from federal order control.

APPENDIX TABLE 2  
Annual Milk Receipts and Utilization in Controlled  
Maine Markets, by Multi-County Areas—1973

Area	Receipts <sup>1</sup>	Class I Sales <sup>1</sup>	Class II Sales	Utilized as Class I	Accumu- lative Percent of Class I
	—million pounds—			—percent—	
<b>PORTLAND SOUTH</b>					
Cumberland and York Counties	157.5	124.3	33.2	78.9	44.3
<b>AUGUSTA SOUTH</b>					
Cumberland, York, Oxford, Kennebec, Waldo, Knox, Lincoln, Sagadahoc, Andros- coggin Counties	223.9	182.0	41.9	81.2	64.8
<b>BANGOR SOUTH</b>					
Cumberland, York, Oxford, Kennebec, Waldo, Knox, Lincoln, Sagadahoc, Androscoggin, Southern Penobscot Somerset, Franklin, Hancock Counties	323.2	261.0	62.2	80.8	93.0
<b>FORT KENT SOUTH</b>					
All Counties	346.0	280.6	66.4	81.1	100.0

<sup>1</sup> Includes out-of-state receipts of milk for Class I uses, both from instate and out-of-state federal order plants.

## APPENDIX TABLE 3

Estimated Additions of Milk Supplies and Class I Sales  
to Boston Regional Order Pool from Expansion  
to Include State of Maine, 1973

Item	Sales Class I	Total Receipts	Percent Class I
	—million pounds—		
Controlled Areas (MMC)	280.6	346.0	81.1
Uncontrolled Areas (Estimated 15% of Population)	28.4	35.0	
<b>TOTAL SUPPLIES</b>	<b>309.0</b>	<b>381.0</b>	
<b>LESS EXEMPT OR DUPLICATION</b>			
Boston Outside Market	9.7	9.7	
Producer-Distributors (1,000 qts. daily sales or less)	17.5	17.5	
Controlled markets	4.3		
Uncontrolled markets	21.0		
(Estimated 50% of Total)			
<b>TOTAL EXEMPT</b>	<b>27.2</b>	<b>27.2</b>	
<b>NET ADDITIONS TO POOL</b>	<b>281.8</b>	<b>353.8</b>	<b>79.6</b>

## APPENDIX TABLE 4

Number of Audited and Unaudited Dealers  
in Controlled Areas. Maine Milk Commission, 1974

Area	Audited Dealers	Unaudited Dealers			All Dealers
		Producers	Sub Total		
Portland South	8	9	7	16	24
Augusta South	25	22	20	42	67
Bangor South	33	33	23	56	89
<b>All Areas</b>	<b>37</b>	<b>39</b>	<b>25</b>	<b>64</b>	<b>101</b>

## APPENDIX TABLE 5

Calculated Hauling Charges by County, and by Market, 997 Maine Producers, February 1974

County	State of Maine		Boston Regional	
	No. Farms	Charge/Cwt.	No. Farms	Charge/Cwt.
Androscoggin	70	\$.375	19	\$.477
Aroostook	48	.484	43	.562
Cumberland	65	.442	0	—
Franklin	5	.700	27	.490
Hancock	4	.480	0	—
Kennebec	69	.441	81	.302
Knox	0	—	11	.347
Lincoln	10	.491	8	.306
Oxford	64	.517	1	.500
Penobscot	60	.511	74	.341
Piscataquis	*	—	24	.357
Sagadahoc	16	.434	0	—
Somerset	21	.472	105	.366
Waldo	17	.464	81	.351
Washington	9	.442	*	—
York	50	.433	8	.858
New Hampshire (State)	4	.385	0	—
<b>ALL COUNTIES</b>	<b>513</b>	<b>\$.459</b>	<b>484</b>	<b>\$.386</b>

\*Less than three farms.

## APPENDIX TABLE 6

Calculated Hauling Charges by Volume of Milk Delivered, and by Market 997 Maine Milk Producers, February 1974

Hundredweight per Month (Feb.)	State of Maine		Boston Regional	
	No. Farms	Charge/Cwt.	No. Farms	Charge/Cwt.
1— 99	54	\$.68	135	\$.53
100—199	95	.43	120	.36
200—299	84	.44	95	.32
300—399	74	.42	53	.30
400—499	63	.43	20	.28
500—599	32	.44	13	.33
600—699	32	.42	19	.33
700—799	19	.40	14	.30
800—899	16	.42	*	—
900—999	9	.47	*	—
1000 or over	35	.45	11	.38
<b>All Producers</b>	<b>513</b>	<b>.46</b>	<b>484</b>	<b>.39</b>

\*Less than three farms.

## APPENDIX TABLE 6a

Calculated Hauling Charges by Volume of Milk Delivered and by Market,  
434 Vermont Producers, February 1974

Volume Delivered per Month (Cwt.)	State of Vermont		Boston-Conn. Federal Orders <sup>1</sup>	
	No. Farms	Charge/Cwt.	No. Farms	Charge/Cwt.
1— 99			16	\$.55
100—199	5	\$.32	39	.40
200—299	9	.20	41	.39
300—399	21	.19	34	.39
400—499	46	.24	39	.36
500—599	30	.20	34	.30
600—699	25	.27	19	.34
700—799	10	.20	9	.36
800—899	6	.22	9	.42
900—999	4	.19	7	.50
1000 and over	13	.20	18	.29
All Producers	169	.23	265	.38

<sup>1</sup> Includes charges for milk delivered to city plants in Boston and Connecticut Orders.

## APPENDIX TABLE 7

Calculated Hauling Charges by Miles Farm to Plant and by Market  
997 Maine Milk Producers, February 1974

Distance Miles	MARKET			
	State of Maine		Boston Regional	
	No. Farms	Charge/Cwt.	No. Farms	Charge/Cwt.
Under 1 mile	*	—	10	\$.17
1— 5	36	\$.43	15	.19
6— 10	57	.43	47	.25
11— 15	69	.51	35	.26
16— 20	31	.43	39	.30
21— 25	23	.46	50	.32
26— 30	22	.42	35	.41
31— 35	29	.44	34	.33
36— 40	42	.45	42	.46
41— 45	41	.43	20	.41
46— 50	38	.44	19	.40
51— 60	48	.47	15	.44
61— 70	25	.44	20	.60
71— 80	15	.57	4	.48
81— 90	16	.54	3	.82
91—100	8	.48	*	—
101—150	8	.46	60	.49
151—200	3	.70	34	.58
All Producers	513	.46	484	.39

\*Less than three farms.

APPENDIX TABLE 7a  
 Calculated Hauling Charges by Miles Farm to Plant,  
 and by Market, 434 Vermont Producers, February, 1974

Distance farm to plant (miles)	State of Vermont		Boston-Conn.	Federal Orders
	No. Farms	Charge/Cwt.	No. Farms	Charge/Cwt.
1— 5	48	\$.21	11	\$.16
6— 10	76	.21	26	.17
11— 15	17	.26	34	.17
16— 20	5	.33	27	.21
21— 25			8	.23
26— 30	3	.27	*	—
31— 35	7	.27	*	
36— 40	*	—		
41— 45				
46— 50	12	.21	6	.23
51— 60				
61— 70				
71— 80				
81— 90				
91—100				
101—150			21	.54
151—200			131	.52
201—250				
251—300			—	
All Producers	169	.23	265	.38

\*Less than 3 producers.

APPENDIX TABLE 8  
 Number of Producers by Blend Price Received (f.o.b. Farm) by  
 Plant Zone Location of Receiving Milk Plant and by Market Order,  
 1000 Maine Producers, February 1974

Blend Price/Cwt. f.o.b. Farm	Zones				All Zones	
	0	6 - 11	12 - 17	18 - 23		24 - 39
	—state order—					
\$6.23—\$ 8.71		4	1	0		5
\$8.71—\$ 8.90		1	0	11		12
\$8.91—\$ 9.10		14	0	34		48
\$9.11—\$ 9.30		101	1	8	13	123
\$9.31—\$ 9.50		98	1	17		116
\$9.51—\$ 9.70		11	5	17	1	34
\$9.71—\$ 9.90		16	45	8	8	77
\$9.91—\$10.61		2	38	17	43	100
Total		247	91	112	65	515
	—federal order—					
\$7.05—\$ 8.71		2		72		74
\$8.71—\$ 8.90		2		202		204
\$8.91—\$ 9.10		21		163		184
\$9.11—\$ 9.21		22		1		23
Total		47		438		485

APPENDIX TABLE 8a

Frequency Distribution of Blend Prices F.O.B. Farm,  
by Market, 434 Vermont Producers

Blend Price F.O.B. Farm	State Order		Federal Orders <sup>1</sup>	
	No. Farms	Percent	No. Farms	Percent
\$ 8.31— 8.40			1	.4
8.61— 8.70	8	4.7		
8.71— 8.80			3	1.1
8.81— 8.90	1	1.5	4	1.5
8.91— 9.00			7	2.6
9.01— 9.10			125	47.2
9.11— 9.20			27	10.2
9.21— 9.30	18	10.7	5	1.9
9.31— 9.40	109	64.5	20	7.5
9.41— 9.50	23	13.6	73	27.5
10.11—10.20	10	5.9		
All Farms	169	100.0	265	100.0

<sup>1</sup> Boston Regional and Connecticut.

APPENDIX TABLE 9

Number of Producers, Number of Plants, and Milk Delivered  
February 1—28, 1974, by Estimated Zone Location of Plant,

State Order, Vermont

Zone	No. Producers	No. Plants	Milk Delivered	
			Cwt.	Percent
13—17	81	6	42,512	43
18—19	41	3	20,265	21
22—23	47	3	35,535	36
TOTAL	169	12	98,312	100

## APPENDIX TABLE 10

Estimated Zone Locations of Selected Maine Milk Plants Assuming  
They Were in the Boston Regional Federal Milk Marketing Order, 1974

Zone	Name of Dairy	Plant Location
7	Third Hill Farm	Eliot
9	Sanford Dairy	Sanford
10	Cole Farm Dairy	Biddeford
11	H. P. Hood Inc.	Portland
11	Oakhurst Dairy	Portland
12	Old Tavern Farm Dairy	Yarmouth
13	Locust Farm Dairy	Steep Falls
14	H. S. White & Sons	Auburn
14	Cote's Allstar Dairy	Lewiston
15	Hemond's Dairy	Mechanic Falls
17	Brewer's Dairy	Augusta
18	Ferland's Dairy	Mexico
18	Breau's Dairy	Rumford
18	Titcomb's Dairy	Farmington
19	Fitzpatrick's Dairy	Waterville
19	Smiley's Dairy	Winslow
20	Hunt's Dairy	Skowhegan
20	Maple Lane Farms	Madison
23	Footman's Dairy Inc.	Brewer
23	Grant's Dairy	Bangor
23	Pleasant Hill Dairy	Bangor
25	Hancock County Creamery	Ellsworth
27	Clark's Southwest Dairy	Southwest Harbor
31	Schoppee's Dairy	Machias
35	Houlton Farms Dairy	Houlton
39	M P G Dairy	Presque Isle

## APPENDIX TABLE 10a

Estimated Zone Locations of Selected Vermont Milk Plants Assuming  
They Were in the Boston Regional Milk Marketing Order, 1974

Zone	Name of Dairy	Plant Location
13	Billings Dairy	Hartford
14	Fairdale Farms	Bennington
16	Rowden's Dairy	Wells River
16	Seward's Dairy	Rutland
16	Sprague's Dairy	Randolph
17	Maplewood Farms	Fair Haven
18	Booth Brothers Dairy	Barre
18	Kilfasset Dairy	Barnet
19	Palmer's Dairy	Middlebury
22	H. P. Hood Inc.	Burlington
22	Borden Inc	Burlington
23	Elmwood Dairy	Derby

APPENDIX TABLE 11

Regression Equations: Relation of Distance from Farm to Plant ( $X_1$ )  
and Hundredweight Delivered per Month ( $X_2$ ) to Hauling Rate, ( $Y$ )  
State and Federal Order Producers, Maine and Vermont, Feb. 1974

Location	Order	
	State	Federal
Maine <sup>1</sup>	$Y_{sm} = \$ .46279 + \$ .00083(X_1) - \$ .00008(X_2)$	$Y_{fm} = \$ .33369 + \$ .00224(X_1) - \$ .00023(X_2)$
Vermont <sup>2</sup>	$Y_{sv} = \$ .19837 + \$ .00443(X_1) - \$ .00002(X_2)$	$Y_{fv} = \$ .19117 + \$ .00162(X_1) - \$ .00008(X_2)$
All	$Y_s = \$ .38816 + \$ .00230(X_1) - \$ .00012(X_2)$	$Y_f = \$ .28366 + \$ .00261(X_1) - \$ .00021(X_2)$

$X_1$  = Distance,  $X_2$  = Hundredweight,  $Y$  = Hauling Rate S = state, f = federal, m = Maine, v = Vermont

<sup>1</sup> 515 State Order Producers; 485 Federal Order Producers

<sup>2</sup> 169 State Order Producers, 226 Federal Order Producers

	Standard	Standard Error of		R Square	Standard	Standard Error of		R Square
	Error of	Coefficients			Error of	Coefficients		
	Estimate	$X_1$	$X_2$		Estimate	$X_1$	$X_2$	
Maine	.226	.00037	.00003	.023	.196	.00019	.00003	.253
Vermont	.058	.00063	.00063	.235	.062	.00060	.00056	.167
All	.212	.00031	.00002	.107	.168	.00014	.00002	.373

## APPENDIX TABLE 12

Calculated Hauling Charges Per Hundredweight by Volume Shipped per Month,  
Miles from Farm to Milk Plant and Market Order, 997 Maine Producers  
February 1974

Volume Shipped Cwt./Month	MILES FARM TO PLANT				
	Under 11	11-20	21-40	41-60	Over 60
	—State Order—				
Under 200	.44	.63	.44	.57	.59
200—399	.40	.43	.43	.43	.48
400—599	.42	.41	.44	.40	.54
600—799	.44	.40	.45	.37	.44
800 & Over	.44	.46	.46	.36	.46
	—Federal Order—				
Under 200	.26	.30	.46	.48	.63
200—399	.22	.25	.30	.33	.47
400—599	.20	.25	.26	(.34)	.42
600—799	.21	.25	.23	(.33)	.44
800 & over	.20	.17	.20	(.34)	.48

( ) Calculated by averaging adjacent mileage group rates.

## APPENDIX TABLE 12a

Calculated Hauling Charges Per Hundredweight by Miles Farm to Plant or  
Transfer Point, Total Hundredweight Volume Delivered per Month, and  
Market Order, 434 Vermont Producers, February 1974

Volume Shipped Cwt./Month	MILES FARM TO PLANT		
	Under 11	11-20	21-40
	—State Order—		
Under 200	.190	.235	.767
200—399	.190	.230	.270
400—599	.202	.296	.270
600—799	.253	.255	—
800 & Over	.192	.210	.270
	—Federal Order—		
Under 200	.210	.290	.210
200—399	.171	.175	.177
400—599	.158	.150	.173
600—799	.141	.150	.192
800 & Over	.141	.128	.170

APPENDIX TABLE 13  
 Zone Prices for 3.5 Percent Milk,  
 Boston Regional Marketing Area  
 February, 1974

		Class I Price per Cwt.	Class II Price per Cwt.	Blended Price per Cwt. Payable to Producers
For milk received at nearby plants		\$10.92	\$7.028	\$9.59
For milk received at country plants:				
Zone	Miles			
4	31-40	10.884	7.015	9.554
5	41-50	10.872	7.012	9.542
6	51-60	10.860	7.010	9.530
7	61-70	10.848	7.007	9.518
8	71-80	10.836	7.005	9.506
9	81-90	10.824	7.002	9.494
10	91-100	10.812	7.000	9.482
11	101-110	10.800	6.999	9.470
12	111-120	10.788	6.996	9.458
13	121-130	10.776	6.994	9.446
14	131-140	10.764	6.991	9.434
15	141-150	10.592	6.986	9.262
16	151-160	10.580	6.983	9.250
17	161-170	10.568	6.982	9.238
18	171-180	10.556	6.976	9.226
19	181-190	10.544	6.974	9.214
20	191-200	10.532	6.971	9.202
21	201-210	10.520	6.970	9.190
22	211-220	10.510	6.964	9.180
23	221-230	10.500	6.963	9.170
24	231-240	10.490	6.961	9.160
25	241-250	10.480	6.961	9.150
26	251-260	10.470	6.958	9.140
27	261-270	10.460	6.957	9.130
28	271-280	10.450	6.955	9.120

Source: Blend Price Announcement Market Administrator Federal Order #1