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milk - marketing

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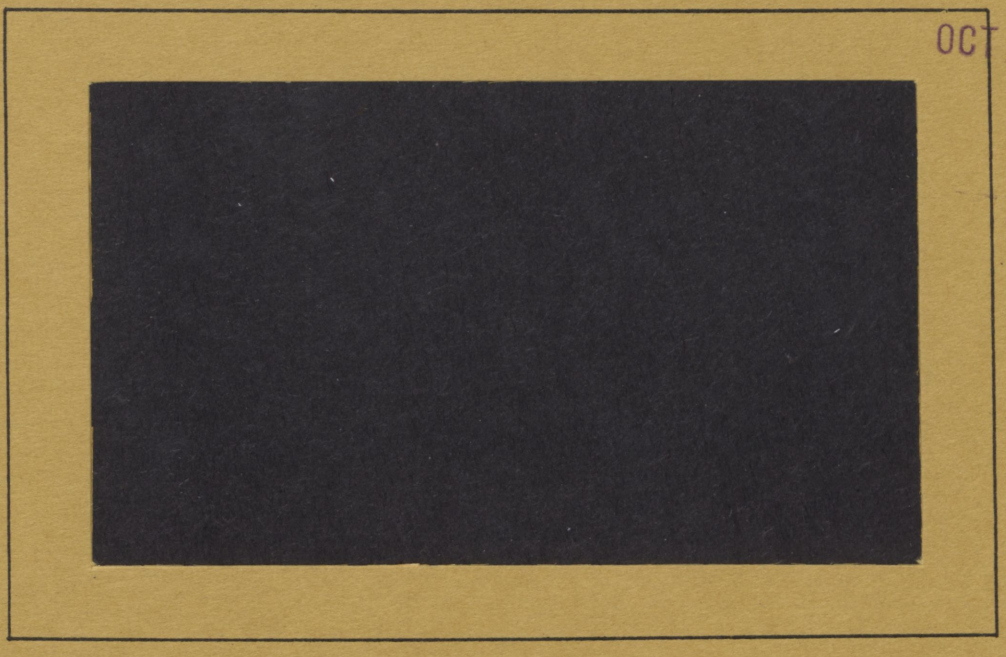

SCHOOL OF AGRICULTURAL ECONOMICS AND EXTENSION EDUCATION

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MARKETING CAN MILK IN ONTARIO

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Introduction

The conversion from can to bulk handling of milk at the farm level began in Ontario in 1953 when a few milk producers shipping to an Oshawa dairy installed bulk milk tanks. Prior to that time all milk delivered to market in Ontario was shipped in cans. Since then there has been a gradual conversion to bulk handling until, at the present time, virtually all milk destined for the fluid market and over two-thirds of the industrial milk supply is delivered in bulk. Nevertheless, in terms of numbers of milk shippers, can shippers still represent over 60 per cent of the Group II Pool producers and supply roughly 50 per cent of the milk entering the Group II Pool.

During the past 20 years all fluid plants have converted to bulk and none is now equipped to receive milk in cans. The majority of the industrial plants still have can receiving facilities, including can washers, but the number that do not is growing steadily and several have indicated that they will not continue to receive milk shipped in cans. Apart from the additional costs and inconvenience involved in handling milk in this manner it is not reasonable to expect plants to replace can equipment since it is becoming increasingly difficult for them to obtain repairs for their present can washers or to obtain new equipment. It is also becoming more difficult to replace or "retin" milk cans.

This situation has arisen at a time when industrial milk production in Ontario is at a low level and the main thrust of provincial dairy policies and programs has been toward increasing the milk supply. Is this situation to be further aggravated by existing can producers being forced to discontinue milk production or will they convert to

bulk, step up their production, and thereby relieve the situation? This is a crucial question, the answer to which poses a host of other questions related to the economic and other considerations which a can milk shipper must weigh in deciding whether to convert to bulk and continue in dairy farming or cease milk production entirely and pursue some other line of activity. Answer to these questions would indicate how many producers would likely remain as dairy farmers and convert to bulk and what the impact would be on the total milk supply. Similarly it would be useful to know what inducements (subsidies,etc.) need to be offered to can shippers to convert in order to realize the milk production goals established for the province.

Although it is conceivable that the continuing subsidization of can shipments (at either the producer or plant level, or both) might stimulate and maintain sufficient milk production it seems unlikely that this possibility should be given serious consideration because it would likely be very costly. In the not too distant future the complete conversion to bulk would seem necessary and inevitable if for no other reason than that the equipment required to maintain the can system will simply not be available.

The central objective of this study is to estimate the probable effect on the supplies of industrial milk in Ontario of the situation described above. This will involve:-

a) estimating the number of existing can producers who are likely to convert to bulk,

b) evaluating the kind and amount of financial inducement necessary to encourage existing can producers to convert to bulk.

To appraise these possibilities it is necessary to put the present situation in perspective.

The Current Situation

Structure

Table 1 indicates the source of industrial milk supplies in Southern Ontario during the calendar year 1972.

Table 1. Industrial Milk Supply - Southern Ontario 1972

Annual Shipments (000 lbs.)	Seasonal No.of Producers	Seasonal Pounds (000)	Non-Seasonal No.of Producers	Non-Seasonal Pounds (000)	Total No.of Producers	Total Pounds (000)
			Can Shippers - Group II Pool			
<192	613	44,581	4,129	454,176	4,742	498,757
192-360	25	5,589	1,237	303,611	1,262	309,200
>360	-	-	119	50,557	119	50,557
Total Can	638	50,170	5,485	808,344	6,123	858,514
Per Cent	10.4	5.8	89.6	94.2	100	100
			Bulk Shippers - Group II Pool			
Total Bulk	62	9,030	3,140	866,880	3,202	875,910
Per Cent	2.0	1.1	98.0	99.0	100	100
Total Group II Pool	700	59,200	8,625	1,675,224	9,325	1,734,424
Per Cent	7.5	3.4	92.5	96.6	100	100
			Group I Pool Shippers			
Total Group I Pool (Classes 3-6)	-	-	10,334	1,177,983	10,334	1,177,983
Total Industrial Milk Supply	700	59,200	18,959	2,853,207	19,659	2,912,407
Per Cent	3.6	2.0	96.4	98.0	100	100

Source: Ontario Milk Marketing Board.

NOTE: Group I Pool shippers are those who have qualified to share in the returns from fluid milk sales (i.e., Classes 1 and 2). That portion of their shipments which is in excess of fluid requirements is used for manufacturing purposes, (i.e., Classes 3 - 6 incl.). Group II Pool shippers are not eligible to share in the returns from the fluid market. Group II Pool Shippers - Seasonal shippers are those who did not deliver some milk during each month of the year.

It will be noted that about 40 per cent of the total industrial milk supply (i.e., Classes 3-6) was supplied by Group I Pool producers and 60 per cent by Group II pool producers. Of the latter, about half that volume was supplied by can shippers. In other words, about 30 per cent of the industrial milk supply in Southern Ontario in 1972 was marketed in cans.

In terms of number of producers almost two-thirds of the Group II Pool producers shipped their milk in cans. In 1972, there were 6,123 producers who at some time during the year shipped can milk as compared with 3,202 Group II Pool producers who shipped bulk milk.

Can milk shippers, on average, shipped smaller amounts than did bulk shippers. In 1972, can shippers averaged 140,000 pounds per year as compared with almost double that amount, (277,000 pounds) from Group II Pool bulk shippers. Most of the can shippers were small producers shipping less than 192,000 pounds annually. Over three-fourths of the can milk shippers were in this category and they supplied about 60 per cent of the milk marketed in cans or 17 per cent of the total industrial milk supply. Thus, both in terms of numbers of producers and volume of milk, these small shippers still represented a significant segment of the industrial milk industry in Ontario.

The number of can producers and the volume of milk supplied by them has, of course, been declining. These trends are shown in Table 2.

The number of can producers has been declining at a remarkably steady rate over the past 3 years. The number of can producers in any given month expressed as a percentage of the number of can producers in the same month of the previous year has only varied between 82.2 and 85.7 per cent. Over the three-year period the average rate of decline has been about 1400 producers per year but during the past year the rate of decline has been somewhat slower. At the current rate of decline of 1200 shippers per year all can shippers will have disappeared by 1978.

Table 2. Number of Can Milk Producers and Milk Production
Ontario - April 1970 - August 1973

Month	Can Producers		Total Can Production	
	Total No.	Per Cent of Previous Yr.	('000 lbs.)	Per Cent of Previous Yr.
April,'70	10,358		120,478	
May	10,249		152,180	
June	10,023		177,187	
July	9,878		160,936	
August	9,782		149,933	
September	9,660		126,723	
October	9,537		108,988	
November	9,356		76,437	
December	8,984		65,475	
January,'71	8,465		57,382	
February	8,121		51,302	
March	8,279		71,265	
April	8,540	82.4	95,554	79.3
May	8,483	82.8	118,375	77.8
June	8,379	83.5	144,209	81.4
July	8,223	83.2	130,848	81.3
August	8,081	82.6	119,592	79.8
September	7,961	82.4	108,552	85.7
October	7,837	82.2	97,516	89.5
November	7,717	82.5	69,447	90.8
December	7,471	83.2	59,587	91.0
January,'72	7,126	84.2	53,599	93.4
February	6,853	84.4	48,594	94.7
March	7,096	85.7	64,540	90.6
April	7,195	84.3	87,117	91.2
May	7,171	84.5	108,339	91.5
June	7,089	84.6	127,616	88.5
July	6,967	84.7	118,508	90.6
August	6,866	85.0	110,967	92.7
September	6,762	84.9	97,191	89.5
October	6,675	85.2	78,292	80.3
November	6,548	84.9	52,227	75.2
December	6,241	83.5	46,436	77.9
January,'73	5,883	82.6	42,110	78.6
February	5,654	82.5	37,496	77.2
March	5,915	83.3	50,509	78.2
April	6,075	84.7	67,224	77.2
May	6,001	83.7	85,039	78.5
June	5,861	82.7	99.7	78.1
July	5,760	82.7	89.9	75.9
August	5,710	83.2	83.3	75.1

Source: Ontario Milk Marketing Board.

The amount of milk produced by can shippers has also declined but at a less even rate than the number of producers. Since October 1972, the decline in the amount of milk shipped in cans has been at a faster rate than the decline in number of can producers. This could indicate that more of the larger can shippers are either ceasing to ship milk or are converting to bulk. During the twelve months April 1, 1972 to March 21, 1973, 507 applications for capital grants to instal bulk tanks were approved. This compared with 333 approved applications during the previous 12-month period.* This would also suggest that an increasing number are converting to bulk.

Seasonality

Bulk milk shippers tended to have less seasonal fluctuation in their milk supplies than did can milk producers. In 1972, 2 per cent of the bulk shippers did not market milk at some time during the year and were thus classed as seasonal shippers. However, their shipments accounted for only 1 per cent of the milk supplied by Group II Pool bulk shippers. In contrast, over 10 per cent of the can shippers were classified as seasonal and they contributed about 6 per cent of the total can milk supply. It should be noted in passing that seasonal fluctuations in supply aggravate the problem of achieving efficient processing plant operations.

Regional Aspects

The regional distribution of can shippers of industrial milk is also of interest. Table 3 provides some information on this aspect.

The regions referred to in this table are those designated by the Ontario Milk Marketing Board for the administration of its Plant

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* O.M.A.F. correspondence.

Supply Quota Policy. Of the 6,123 can shippers in Southern Ontario in 1972, about 42 per cent were located in the Western Region, 43 per cent in the Eastern Region, and 15 per cent in the Central Region. The total supply of can milk produced by these shippers was distributed among the regions in the same proportion indicating that there was no significant difference in the average size of shipments per producer from one region to another (i.e., approximately 140,000 pounds per year).

The shippers were classified as seasonal shippers if they did not have milk shipments in every month of the year. Since this group included some producers who ceased milk production or transferred to the Group I Pool, the figures tend to overestimate the number of producers who make a practice of drying up their herd for a portion of the year. Nevertheless, these data indicate that seasonal production is a much more common practice in Central and Eastern Ontario than it is in Western Ontario. The percentages of can shippers that were classified as seasonal producers in these three regions were 24.5, 13.3, and 3.1 respectively.

Seasonal shippers, on average, shipped about 79,000 pounds of milk per year or slightly more than half the amount shipped by the non-seasonal can shippers (147,000 pounds). This varied from an average of 49,000 pounds per seasonal shipper per year in the Western region to 72,000 pounds in the Eastern region and 97,000 pounds in the Central region. The combinations of a larger proportion of seasonal shippers but with somewhat higher average annual shipments in the Central and Eastern regions than in the Western region resulted in the average annual shipment of can producers being about the same in each of the three regions.

Of the total milk supplied by Group II Pool shippers in Southern Ontario, 50.5 per cent was delivered to the plants in bulk and 49.5 per cent in cans (see Table 4). However, this proportion varied significantly from region to region. In the Western region 58 per cent was

Table 3. Regional Distribution of Can Milk Shippers in Southern Ontario by Type and Size of Shipments** 1972

Region*	Seasonal						Non-Seasonal					
	Small		Medium		Large		Small		Medium		Large	
	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)
Western	60	2,952	--	--	--	--	1,896	207,660	542	131,459	47	19,827
Central	207	17,810	17	3,852	--	--	522	56,814	154	38,233	14	6,624
Eastern	346	23,819	8	1,737	--	--	1,711	189,702	541	133,919	58	24,106
TOTAL	613	44,581	25	5,589	--	--	4,129	454,176	1,237	303,611	119	50,557
					-- Per Cent --							
1	9.8	6.6	--	--	--	--	45.9	45.7	43.8	43.3	39.5	39.2
2	33.8	40.0	68.0	68.9	--	--	12.6	12.5	12.5	12.6	11.6	13.1
3	56.4	53.4	32.0	31.1	--	--	41.5	41.8	43.7	44.1	48.7	47.7
	100	100	100	100	--	--	100	100	100	100	100	100

* Region

Western - includes the counties of Brant, Bruce, Dufferin, Elgin, Essex, Gray, Haldimand, Halton, Huron, Kent, Lambton, Lincoln, Middlesex, Norfolk, Ontario, Oxford, Peel, Perth, Simcoe, Waterloo, Welland, Wellington, Wentworth, and York.

Eastern - includes the counties of Carleton, Dundas, Glengarry, Grenville, Lanark, Leeds, Prescott, Renfrew, Russell, Stormont, and that portion of Frontenac County east of County Road No.10.

Central - includes the counties of Durham, Haliburton, Hastings, Lennox and Addington, Northumberland, Peterborough, Prince Edward, Victoria, and that portion of Frontenac County west of County Road No.10.

** Size of Shipments

Small - Annual shipments of less than 192,000 pounds.

Medium - Annual shipments of between 192,000 and 360,000 pounds.

Large - Annual shipments in excess of 360,000 pounds.

NOTE: Since Frontenac is divided between the Central and Eastern region the number of producers and volume of shipments reported for this county were divided equally among these two regions for purposes of this study.

Table 4. Group II Pool Shippers by Type and Region
Southern Ontario 1972

Region	Can Shippers				Bulk Shippers				Total	
	Seasonal		Non-Seasonal		Seasonal		Non-Seasonal			
	No. Prod.	Vol. (000 lb.)	No. Prod.	Vol. (000 lb.)	No. Prod.	Vol. (000 lb.)	No. Prod.	Vol. (000 lb.)	No. Prod.	Vol. (000 lb.)
Western	60	2,952	2,485	358,946	13	1,910	1,802	496,600	4,360	860,408
Central	224	21,662	690	101,671	17	2,773	333	86,154	1,264	212,260
Eastern	354	25,556	2,310	347,727	32	4,347	1,005	284,126	3,701	661,756
TOTAL	638	50,170	5,485	808,344	62	9,000	3,140	866,880	9,325	1,734,424
					-- Per Cent --					
Western	1.4	0.3	57.0	41.7	0.3	0.2	41.3	57.8	100	100
Central	17.7	10.2	54.6	47.8	1.4	1.3	26.3	40.7	100	100
Eastern	9.6	3.9	62.4	52.6	0.8	0.6	27.2	42.9	100	100
TOTAL	6.8	2.9	58.8	46.6	0.6	0.5	33.8	50.0	100	100

delivered in bulk compared with 42 per cent in the Central region and 43.5 per cent in the Eastern region. In the Central region where 58 per cent was delivered in cans, 10 per cent was supplied by seasonal can shippers.

In summary, it has been shown that can milk shipments are a significant feature of the industrial milk industry in Ontario. Over 60 per cent of the Group II Pool shippers and about 50 per cent of the milk supplied by them in 1972 were identified with farms that did not have bulk tank facilities. Furthermore, about 7 per cent of Group II Pool shippers did not produce milk for market on a year-round basis. The amount which they did deliver represented 3.4 per cent of that supplied by Group II Pool producers. These seasonal shippers were, on average, small producers marketing less than 100,000 pounds per year. In fact, all can shippers, whether they were seasonal or regular shippers, were on average small shippers averaging about 140,000 pounds per year, and over three-quarters of them shipped less than 192,000 pounds of milk per year.

On a regional basis, 40 per cent of the milk shipped by Group II Pool producers in the Western region was delivered in cans. This compared with 58 per cent in the Central region and 56 per cent in the Eastern region. This coupled with a greater incidence of seasonal shippers in the Central and Eastern regions must have aggravated the problems of achieving operational efficiencies in the processing plants in these regions.

The number of can shippers has been declining at the rate of about 1200 per year and at this rate would disappear completely within five years. However, during even this relatively short period of time it is doubtful whether a satisfactory market could be found for all remaining can shippers. Plants will face increasing difficulty in maintaining their can receiving facilities, and transportation costs can be expected to escalate as the number of can shippers become fewer and more scattered and the plants equipped to receive milk in cans become more remote.

The merits of taking action to accelerate the conversion to bulk would appear obvious. How could this best be achieved?

Programs to Encourage Conversion To Bulk

One approach would be for the O.M.M.B. to announce that at some future date, say June 1, 1975, that can milk shipments will no longer be purchased by the Board. The actual date established should be based on the feasability of farmers converting to bulk prior to that time and the availability of a market outlet for can milk during that period. An advantage of this approach would be that it would give all producers reasonable notice of the change so that they could adjust to it on a planned and orderly basis. In making the announcement, the Board should make as clear as possible the reasons why this change was necessary. Nevertheless, regardless of how thoroughly and effectively this might be done it would seem reasonable to expect that there would be considerable resistance from those who object to authoritarian decrees concerning what they may or may not produce and how they might market their milk. Given the current situation in Ontario where every effort is being made to expand industrial milk production it would seem prudent to avoid any action that would generate unfavourable reaction within the dairy industry. However, this is not to suggest that the seriousness of the situation facing can milk shippers can be disregarded or avoided or that every effort should not be made to encourage a rapid and complete conversion to bulk.

Another approach would be to provide incentives to can milk producers to convert to bulk. This is already being done through the Capital Grants Program and the Industrial Milk Production Incentive Program. The probable effectiveness of this approach becomes more obvious when the economic costs and benefits of a can milk shipper converting to bulk are analyzed.

Table 5. Number of Years to Retire a Loan of $3,400* at Selected Interest Rates From an Additional Revenue of 23 Cents per Cwt.

Annual Production lbs.	Additional Income @ 23¢/cwt.**	Interest Rate 8%	10%	12%
		No.of Years		
200,000	$460	11+	14	19
250,000	575	8+	9+	10+
300,000	690	6+	7+	7+
350,000	805	5+	5+	6+
400,000	920	4+	4+	5+
450,000	1,035	3+	4+	4+
500,000	1,150	3+	3+	3+
550,000	1,265	3+	3+	3+
600,000	1,380	2+	2+	3+

* Assumed to be the net cost of a milk house and bulk tank after deducting a capital grant of $1600.

** The net difference in returns between can and bulk industrial milk made up of 10¢ price differential and 13¢ difference in transportation rate, (i.e. bulk 30¢, can 43¢)

the current can shippers ship less than 200,000 pounds of milk per year it is likely that only a small proportion of these shippers would convert to bulk.

Assuming all can producers shipping over 192,000 lbs. in 1972 converted to bulk and that in making the changeover these producers increased their production by 25 per cent this would result in 1383 producers shipping a total of 450,256,000 lbs. of milk. If all the other can shippers ceased shipping milk the total amount of milk shipped by 1972 can shippers would be reduced to about 48 per cent of the 1972 level.

If the volume of milk supplied by can shippers in 1972 were to be maintained and those shipping over 192,000 pounds annually were the only ones to remain in the industry, these producers would have to increase

their production by 140 per cent over the current level. Stated another way, this would mean increasing the average herd size from 26 60 62 cows. This prospect seems neither probable nor feasible, at least in the short run.

The main conclusion to be drawn from the foregoing is that there is insufficient economic incentive to encourage at least three-fourths of the existing can producers to instal bulk handling facilities. Withdrawal of these producers from the industry would reduce the industrial milk supply by some 500 million pounds which, in 1972, was equivalent to about 60 per cent of the can milk supply, 28 per cent of the milk supplied by Group II Pool producers and about 17 per cent of the total industrial milk supply. Since the loss of this milk would be contrary to the provincial objective of expanding industrial milk production, effective incentives to either maintain or replace this production would appear to be necessary.

Industrial Milk Production Incentive Program

In June 1973, the provincial government introduced the Industrial Milk Production Incentive Program (I.M.P.I.P), the stated purpose of which was to increase the production of industrial milk and cream. The main features of the program are*

i) five-year term guaranteed bank loans,

ii) no repayment of principal in the first year,

iii) twenty per cent refund of principal available if all commitments met,

iv) amount of loan determined through consultation and based on repayment capacity and milk production program of borrowers.

v) can shippers of industrial milk must convert to bulk to obtain loans.

Using the same assumptions as those in the previous illustration, i.e., that a capital grant of $1600 for a milk house and bulk tank was available to the farmer thereby reducing the net cost to him to $3400, and, that through IMPIP he obtained a loan of this amount, 20 per cent of which was forgiven, what would be the payback period?

Table 6. Number of Years to Retire a Loan of $2720 at Selected Interest Rates from an Additional Revenue of 23 Cents/Cwt.

Annual Production lbs.	Additional Income @ 23¢/cwt.	Interest Rate 8%	10%	12%
		No.of Years		
200,000	$460	8+	9+	10+
250,000	575	6+	6+	7+
300,000	690	4+	5+	5+
350,000	805	4+	4+	4+
400,000	920	3+	3+	3+
500,000	1,150	2+	2+	2+
600,000	1,380	2+	2+	2+

As indicated in Table 6, a producer would have to be marketing about 300,000 pounds of milk per year in order to be able to repay the IMPIP loan within five years from the additional revenue he received from converting to bulk. Less than 10 per cent of the present can shippers are at this volume of production. To reach this level, those shipping 200,000 pounds or less would have to increase their shipments by 50 per cent or more.

Approval of an IMPIP loan is contingent upon the applicant undertaking to increase his production of industrial milk. Of the applications approved to date (September 1973) the applicants have estimated that by the end of the second year of the program they will have increased their output by an average of 129,152 lbs. per applicant*.

* OMAF correspondence.

These projected increases are not a true reflection of the increase in milk production that can be expected since some of loans will be used to purchase cows from milk producers going out of the business. Also, these figures reflect the anticipations of all industrial milk suppliers, both Group I and Group II Pool, and do not reflect the plans of can milk shippers only. Indeed, it is unlikely that a large number of can producers would be interested in or qualify under the IMPIP program. What IMPIP is likely to do is minimize, but not offset entirely, the reduction in milk supply resulting from the withdrawal of can shippers (and other milk producers) from the industry.

Revenue Incentive

Another approach would be to widen the revenue differential between can and bulk milk. The present differential is 23 cents per cwt. based on a 10 cent differential on price and a 13 cent differential on transportation charges. The difference between the revenue earned by can shippers and bulk shippers could be increased by increasing either or both of these differentials.

It would appear that increases in these differentials could be readily justified as time proceeds. Transportation charges for can milk can be expected to increase more rapidly than bulk transport charges as the number of can shippers decrease, as the number of plants receiving can milk declines, and as the distances the milk has to be hauled increase. Similarly a widening of the price differential would appear to be justified in the future as it becomes more costly and relatively less efficient for plants to handle the declining volume of can milk.

Given that a widening revenue differential input be justified, the important policy question that needs to be answered is how wide does it need to be in order to provide the necessary incentive for a sufficient number of can producers to convert to bulk so that there is no drop in the volume of output presently coming from these farms.

In other words, what size of revenue differential would be required in order to encourage a sufficient number of can producers to convert to bulk, expand their production, and produce a total of some 860 million pounds of milk for the market.

D.H.I. records of industrial milk farms in Ontario suggest that a herd of 30 cows producing 300,000 pounds of milk per year would be about the minimum size required to provide the operator with a reasonable return for his labour and investment. It is interesting to note, as shown in Table 7, that if the differential were increased by 5 cents to 28 cents a producer would be able to repay a loan of $2720 in less than 5 years at interest rates up to 12 per cent if he were shipping 300,000 pounds of milk annually. In other words, it would be economically feasible for him to take advantage of the Capital Grant program and take out an IMPIP loan for a bulk tank and milk house.

Table 7. Number of Years to Retire a Loan of $2720 at Selected Interest Rates from an Additional Revenue of 28 Cents/Cwt.

Annual Production lbs.	Additional Income @ 28¢/Cwt.	Interest Rate 8%	10%	12%
		No.of Years		
200,000	$560	6+	7	7+
250,000	700	4+	5+	5+
300,000	840	3+	4+	4+
350,000	980	3+	3+	3+
400,000	1,120	2+	2+	2+
500,000	1,400	2+	2+	2+
600,000	1,680	1+	1+	1+

As stated previously the average annual shipment from some 1100 can producers in 1972 was about 140,000 pounds. If this average were to be doubled (280,000 pounds), about 3000 producers would be required to produce the same volume of milk. As demonstrated in Table 7, increasing

the differential between can and bulk milk by 5 cents per cwt. would provide a can shipper with the economic incentive required to justify converting to bulk provided he was shipping in excess of 250,000 pounds of milk per year. However, less than 10 per cent of the present can shippers are this large. Hence to retain 3000 of them in the industry would mean that almost all of these would need to double their production. Apart from the problems of acquiring the necessary capital, livestock, feed, etc., to bring about an expansion of this magnitude, the ability of the producers concerned to upgrade their management skills so as to cope with the additional risks and complexities involved in managing the larger herds would appear to be a major obstacle. If a significant number of the can milk shippers are to be retained in the industry the need for an extension program focusing on the management problems inherent in rapidly expanding the size of the dairy herd is clearly indicated.

Sharing the Costs

It should be apparent from the foregoing that, on economic grounds alone, the possibility of converting to bulk is not an attractive prospect, even given the financial assistance available by way of capital grants and the forgiveable features of an IMPIP loan. To make it attractive it would be necessary to widen the differential by at least 5 cents per hundredweight. However, it is questionable just how effective this might be. If the differential were to be widened by increasing the transportation charge for can milk this would have the effect of increasing the costs and decreasing the returns of the can milk shippers. This action might well have the effect of hastening the departure of these shippers from the dairy industry, a result which would be contrary to the provincial objective of expanding the industrial milk supply. If the differential were widened by raising the price of bulk milk relative to can milk this undesirable effect might be avoided, or at least minimized. However, there are many other factors that must be taken

into account in adjusting the price of industrial milk which might militate against using this means of inducing conversion to bulk. It can be argued that since the industry as a whole would benefit from maintaining or expanding the supply of industrial milk while effecting a complete conversion to bulk shipments, then the industry as a whole should share in the costs of conversion. The processing industry would benefit by virtue of the elimination of the high costs and inefficiencies associated with handling can milk. The present price differential of 10 cents per cwt. is an indicator of the minimum magnitude of these costs. The benefits to the processing industry would be in excess of this amount if, in the process of conversion, the total industrial milk volume were expanded or even maintained. Exactly how great this benefit would be is difficult to quantify but it is clear that a benefit would accrue to the processing sector. Similarly, the producing sector would benefit from the elimination of costly can transportation charges, charges which are bound to increase sharply as the phasing out of can shippers proceeds. In addition, the industry as a whole would benefit from having a less seasonally variable and possibly larger supply of industrial milk.

What this line of reasoning suggests is that the costs of conversion to bulk should not be borne solely by can shippers since other sectors of the industry can be expected to benefit from the elimination of can shipments if at the same time the volume of milk which is presently being marketed by can shippers is at least maintained and hopefully expanded. The "just and proper" share of the total cost of conversion that should be borne by each of the parties concerned, i.e., the can milk shipper, other producers, the processing industry, and the government, would need to be determined by negotiation based on a careful assessment of the benefits likely to accrue to each sector. The smaller the share of the costs that have to be borne by the can shipper the more likely he is to convert to bulk and thereby contribute to the industrial milk supply.

Summary and Conclusions

This study has attempted to estimate the number of present can milk shippers that are likely to convert to bulk and, the kinds and amount of financial inducements that would be most appropriate in encouraging them to do so.

It was found that more than 75 per cent of the can milk producers shipped less than 200,000 pounds of milk in 1972. Under today's conditions these cannot be considered economically viable enterprises. Furthermore, this size of operation could not justify the investment cost of a bulk tank and milk house even assuming that capital grants were available and that an additional 20 per cent of the loan principal was forgiven.

It was concluded that if the rate at which the can shippers were to convert to bulk were to be accelerated then it would be necessary to widen the differential in the net revenue earned for can vs. bulk milk. Increasing it by 5 cents per cwt. to 28 cents was sufficient to make it worthwhile for the can producer to convert provided he was producing about 280,000 pounds of milk or more per year. This figure happened to be about double the average production of present can shippers. Thus, if half of the present shippers remained in the industry and they doubled their output on average, the volume of milk supplied by the can milk sector of the industry could be maintained. This consideration is significant because of the provinces stated intention to expand industrial milk production. To achieve such a major adjustment, however, would require an intensive extension program oriented toward assisting the dairy farmer in meeting and solving the management problems he would be confronted with as he doubled the size of his dairy herd.

If a sufficient number of the present can milk shippers were to convert to bulk so as to maintain (or even increase) the volume of milk currently being supplied by this sector of the industry it is apparent

that benefits would accrue to the processing sector and to other milk producers as well. Therefore it is argued that the costs of converting to bulk should not be borne solely by the can shipper who converts but should be shared among all those who stand to benefit. Ideally each sector should bear a share of the total cost which is proportional to the share of the total benefits which it receives.

Failing the introduction of adequate economic incentives to accelerate the rate of conversion to bulk it may be necessary to arbitrarily establish a date beyond which the Ontario Milk Marketing Board is no longer prepared to market milk shipped in cans. Such a development could arise because of the lack of facilities at the plants to receive can milk and the excessive transport costs involved as can milk shippers become fewer in number. This course of action would likely result in a reduction in the industrial milk supply. Hopefully the conversion will take place as a result of adequate incentives rather than because of an edict.

APPENDIX A. TOTAL MILK PRODUCTION BY COUNTIES — SOUTHERN ONTARIO - 1972

	Industrial Can Production										Total Production									
	Seasonal				Non-Seasonal						Industrial Can				Industrial Bulk				Group I Pool	
	Small		Medium		Small		Medium		Large		Seasonal		Non-Seasonal		Non-Seasonal		Seasonal			
	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)	No. Prod.	lbs. (000)
BRANT	1	16	--	--	60	5,957	5	1,103	--	--	1	16	65	7,060	21	5,146	--	--	152	62,536
BRUCE	9	495	--	--	188	21,988	46	10,783	8	2,979	9	495	242	35,750	208	59,173	--	--	163	69,816
CARLETON	17	808	--	--	101	10,318	22	3,594	--	--	17	808	123	15,912	96	25,528	1	89	297	128,279
DUFFERIN	--	--	--	--	1	28	--	--	--	--	--	--	1	28	56	13,533	1	173	68	27,655
DUNDAS	24	1,351	--	--	228	25,590	53	12,720	7	2,846	24	1,351	288	41,157	168	48,176	6	792	182	71,951
DURHAM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12	2,013	--	--	135	55,024
ELGIN	1	75	--	--	80	8,572	10	2,675	2	1,020	1	75	92	12,267	42	10,923	--	--	163	67,765
ESSEX	44	3,425	--	--	103	11,513	31	7,973	5	2,321	--	--	--	--	--	--	--	--	178	51,127
FRONTENAC	52	3,716	1	213	191	22,082	45	10,672	2	951	44	3,425	139	21,807	34	8,564	--	--	116	43,861
GLENGARRY	18	1,060	--	--	124	11,915	17	3,925	--	--	53	3,929	238	33,705	96	24,338	5	827	91	33,627
GRENVILLE	2	69	--	--	152	15,825	43	9,888	--	--	18	1,060	141	15,840	29	7,939	--	--	82	32,263
GREY	--	--	--	--	84	7,217	3	609	1	377	2	69	195	25,713	152	41,740	2	35	110	45,160
HALDIMAND	--	--	--	--	--	--	--	--	--	--	--	--	88	8,204	47	10,102	2	18	271	88,618
HALTON	98	9,639	12	2,828	98	11,054	56	13,691	2	946	--	--	--	--	14	3,129	1	135	114	42,576
HASTINGS	11	381	--	--	281	31,191	108	27,048	11	4,605	110	12,467	156	25,691	91	24,546	12	1,995	152	59,948
HURON	--	--	--	--	--	--	--	--	--	--	11	381	400	62,845	238	74,177	1	232	220	97,840
KENT	3	157	--	--	62	6,731	8	1,857	--	--	--	--	--	--	--	--	--	--	40	15,888
LAMBTON	17	1,072	--	--	131	14,389	38	9,589	4	1,518	3	157	70	8,588	21	4,985	--	--	148	57,083
LANARK	57	3,504	--	--	328	33,983	88	22,014	6	2,755	17	1,072	173	25,496	69	19,988	--	--	68	26,332
LEEDS	34	1,814	7	233	143	13,568	16	3,797	3	1,326	57	3,504	422	58,752	55	13,141	3	229	126	48,824
LENNOX & ADD.	--	--	--	--	14	817	--	--	--	--	35	2,047	162	18,685	39	1,001	1	230	100	38,380
LINCOLN	5	335	--	--	165	17,152	50	12,517	3	1,353	--	--	14	817	17	4,595	--	--	190	68,129
MIDDLESEX	2	74	--	--	59	4,880	5	1,168	--	--	5	335	218	31,022	73	19,222	--	--	350	15,454
NORFOLK	35	3,443	4	791	79	9,194	34	8,547	4	1,923	2	74	64	6,048	15	2,939	--	--	84	33,636
NORTHUMBERLAND	--	--	--	--	--	--	--	--	--	--	39	4,234	117	19,664	98	26,329	2	394	158	59,031
ONTARIO	12	567	--	--	256	30,285	87	21,143	--	--	--	--	--	--	12	1,950	--	--	241	105,595
OXFORD	--	--	--	--	--	--	--	--	--	--	12	567	353	55,795	208	59,054	--	--	568	238,914
PEEL	7	389	--	--	315	37,652	132	31,941	12	5,126	--	--	--	--	3	771	--	--	173	80,513
PERTH	--	--	--	--	6	689	1	205	--	--	7	389	459	74,719	320	97,206	1	324	364	154,743
PETERBOROUGH	59	5,145	5	1,048	188	23,020	117	29,449	13	5,589	--	--	7	894	20	4,632	1	46	151	52,375
PRESCOTT	17	1,201	--	--	145	16,553	32	8,007	3	1,275	64	6,193	318	58,058	173	50,825	9	1,402	95	37,061
RENFREW	14	1,071	--	--	71	8,072	28	7,109	1	376	17	1,201	180	25,835	49	12,919	1	108	96	36,317
RUSSELL	37	2,717	1	205	120	15,285	69	17,397	14	5,035	14	1,071	100	15,557	30	7,833	3	438	124	43,220
SIMCOE	--	--	--	--	--	--	--	--	--	--	38	2,922	203	37,717	157	47,989	5	570	181	69,569
STORMONT	30	1,663	1	271	177	19,291	48	11,463	8	3,875	--	--	--	--	48	12,159	--	--	293	118,177
VICTORIA	--	--	---	---	--	--	--	--	--	--	31	1,934	233	34,629	115	34,087	--	--	94	37,394
WATERLOO	2	196	--	--	82	9,698	14	3,537	--	--	--	--	--	--	7	1,432	--	--	101	35,965
WELLAND	--	--	--	--	2	114	--	--	--	--	2	196	96	13,235	97	23,951	--	--	228	96,216
WELLINGTON	4	193	--	--	71	8,089	28	6,532	--	--	--	--	2	114	12	2,940	--	--	115	38,603
WENTWORTH	1	5	--	--	24	1,464	3	658	--	--	4	193	99	14,621	175	44,745	5	993	331	143,774
YORK	--	--	--	--	--	--	--	--	--	--	1	5	27	2,122	20	3,651	--	--	215	77,585
											--	--	--	--	3	599	--	--	206	85,926
TOTAL	613	44,581	25	5,589	4,129	454,176	1,237	303,611	119	50,557	638	50,170	5,485	808,344	3,140	866,880	62	9,030	10,334	2,692,750

NOTE: Small - producers shipping less than 192,000 pounds of milk.
Medium - producers shipping between 192,000 and 360,000 pounds of milk.
Large - producers shipping in excess of 360,000 pounds of milk.