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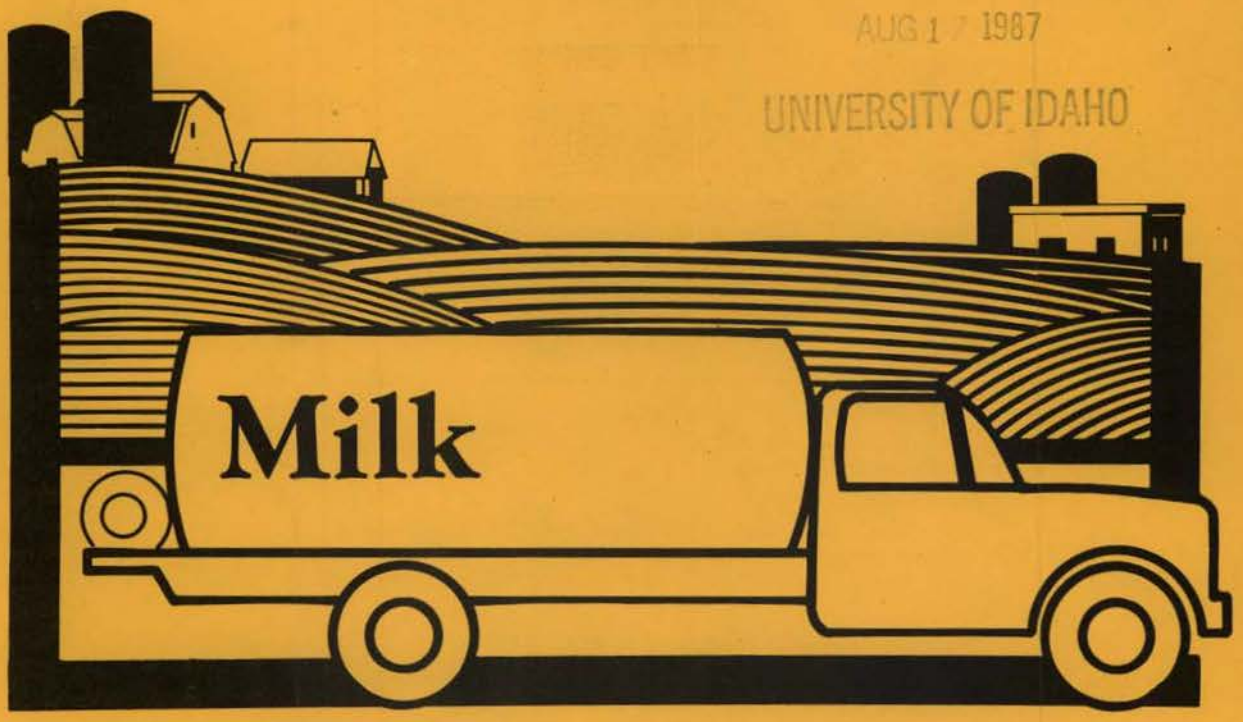
Milk Hauling Costs in Idaho

Russell V. Withers and Dan T. Noble



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The dairy industry is a significant contributor to Idaho agriculture. Farm milk receipts accounted for 12 percent of all farm commodities sold in 1984. Additional farm income was derived from the sale of dairy cows and dairy calves.

The dairy industry is widely dispersed throughout Idaho, but most of our milk is produced in the irrigated agricultural areas of the Snake River Plain. The Boise and Treasure Valleys of southwestern Idaho, Magic Valley in southcentral Idaho, the Upper Snake River Valley and the portion of Cache Valley that extends into Idaho from northern Utah are all important dairy regions. Dairy farming in northern Idaho has been declining for several years.

An important activity in the dairy industry is transporting milk from the farm to a processing plant or receiving station. Milk hauling expenditures are about 4 percent of a dairy farmer's total production cost. Transportation costs are also prominent in moving milk between processing plants and marketing the finished products.

This report summarizes the findings of a study of milk hauling costs in Idaho. The objectives of the study were to determine typical hauling rates for Idaho milk, to identify possible areas of cost reduction and to suggest procedures that may have the potential to increase milk hauling efficiency.

Sources of Data

During the summer and fall of 1984, milk hauling firms in Idaho were surveyed to determine fixed and operating costs of hauling milk from the farm to the processing plant or loading station. Sixteen firms responded with information on operating costs, investment costs, labor used, rates charged and related items. These firms hauled about 65 percent of all milk produced on Idaho farms. The survey form used was adapted from one used in a Cornell University study of milk hauling in New York state (Anderson 1981).

Results of Survey

Data were obtained for 69 trucks. The number of trucks per firm varied from 1 to 12 with an average of 4.3 trucks per firm. Each truck made an average of 10.3 farm stops per day. Stops per day per truck ranged from 3 to 15. Trucks traveled an average of 164 miles per day, and the time in use averaged 8.4 hours per day. Time per truck ranged from a low of 4 hours to a high of 12. The average weight of milk hauled per truck per day was 55,220 pounds with a range of 22,500 to 106,400 pounds. No attempt was made to analyze data by geographic area because of the limited number of firms in each area.

Hauling Costs

About half of the haulers interviewed had a written contract with a processor; the other half had less formal agreements. Twenty-five percent of the haulers adjusted rates when fuel costs changed and 27 percent adjusted rates when labor costs changed.

The rate the producer was charged for milk hauling varied considerably but the average in 1984 was 41.2 cents per hundred pounds of milk. Several factors determined the rate charged an individual farmer. The most common factors included location of the farm relative to the processing facilities or market shipping point, volume of milk produced, frequency of milk pick-up and ease of access to the milk holding tank on the farm.

Methods for charging for milk hauling relative to location depended on the company. One method used was to charge a flat rate with an increase based on miles from the processing plant. Another common method was to set a specific rate for all milk collected from a particular geographic area with possible adjustments for volume differences.

Most processors reduced hauling rates as volume increased. The greater the volume of milk the hauler can receive per stop, the fewer stops per load of milk and the less time and mileage expended per unit of milk

hauled. Reduced hauling costs per unit for larger volume producers reflects this cost saving to the hauler. Volume rate adjustments varied by area and hauling firm.

Most milk haulers levied a stop charge or a fixed charge for each stop to pick up milk. The stop charge was the same for all producers in an area who sold to the same company regardless of the volume of milk handled. Milk is commonly picked up on an every-other-day schedule. Stop charges for every-other-day pick-up varied from $1 to several dollars. If the producer's bulk milk tank was too small, the hauler needed to stop every day. Usually a higher stop charge was made to farmers for picking up milk on the odd days, or days not on the every-other-day schedule. Odd-day stop charges ranged from $1 to $20 or more per stop, depending on company policy. About one-fourth of the stops made by haulers were for producers with every day pick-up.

Some hauling firms reduced the hauling rate by a small amount for farms with circular driveways. Such driveways added to the convenience of hauling because it was easier and quicker to get back on the road.

The processor or handler deducted the hauling charge from the producer's milk check. The hauling rate deducted often included an amount necessary to pay for bookkeeping and office fees, laboratory fees for sampling and testing milk, and for other expenses incidental to the hauling function. This part of the hauling fee ranged from about 5 to 10 cents per hundredweight of milk handled.

All of the haulers interviewed received payment from the processor or handler, rather than directly from the producer. Payments were made every 2 weeks for 65 percent of the haulers. Most others received payments monthly.

Average capital investment per firm was $241,406 or $65,422 per truck (Table 1). Annual fixed costs averaged $13,055 per truck with variable cost amounting to $51,823. The average annual cost for owning and operating a bulk tank milk pick-up truck was $64,878. Average hauling cost was 32.2 cents per hundred pounds of milk, not including the cost to the milk buyer for laboratory expenses, accounting, testing and other activities associated with getting the milk into the plant (Table 2). These miscellaneous costs are added to the hauler's costs to calculate the total hauling rate to the producer.

Table 1. Average total investment by milk hauling firms, Idaho, 1984.

Item	Investment	
	Per firm	Per truck
Trucks, pumps and tanks	$206,456	$55,950
Fuel tanks	5,800	1,572
Tools	5,960	1,615
Buildings and office	15,450	4,187
Other improvements	7,740	2,098
Total investment	$241,406	$65,422

The average hauling rate charged to milk producers in this survey during 1984 was 41.2 cents per hundred pounds of milk. Rates varied between 28 cents and 90 cents, with the higher rates being charged to those producers located greater distances from the processor, and those who had small quantities of milk per stop.

Most hauling firms are small businesses in terms of dollars invested, making it easy for new firms to enter the industry. Because of this, competition among truckers who haul milk is quite keen in areas where there are many dairy farmers. This keeps the rates that producers are charged for milk hauling close to the actual cost of performing this service. It also means that a hauler who wishes to remain in business must be efficient in order to realize a return above costs.

If the business is competitive and hauling rates are in line with costs, how might costs be reduced? Several areas of cost reduction in milk hauling are possible. They include production of a single grade of milk, avoiding route duplication between competitive haulers, organizing hauling routes to minimize miles traveled and eliminating every day pick-up.

Table 2. Average annual cost of owning and operating a milk tank truck.[1]

Fixed costs	Costs per truck	
Depreciation[2]	$5,895	
Insurance	2,507	
Interest[3]	4,318	
License	335	
Total fixed costs		$13,055
Variable costs		
Labor[4]		
Driver	$18,960	
Other	2,531	
Fuel	10,797	
Repairs and maintenance	14,039	
Accounting, bonding, legal	700	
Utilities	397	
Road taxes	2,250	
Other taxes	2,149	
Total variable costs		51,823
Total annual cost		$64,878

[1]Costs for average tank truck used for hauling milk from farm to processor.

[2]Depreciation for trucks is straightline, 10 year life and 10 percent salvage. Office and building depreciation was as given in survey.

[3]Interest was 12 percent of the average investment cost (opportunity cost).

[4]Labor cost includes fringe benefits of $736 per truck.

Production of a single grade of milk is achievable where economic incentives are provided. Noble and Withers (1986) concluded that many Grade B producers could convert to Grade A production for an added cost of 18 to 23 cents per hundred pounds of milk produced for an average 80-cow herd.

However, because most milk produced in Idaho is used for manufacturing purposes, little increase in producer prices would result from shifting to Grade A. As more Grade A milk is used for manufacturing purposes, the blend price will decrease, reducing the economic advantage of converting to Grade A production. Class I utilization of milk in the Southwest Idaho, Eastern Oregon Federal Milk Order has fluctuated between 15 and 20 percent since the order was established in 1981.

Currently, Grade A milk to be used for fluid purposes cannot be mingled with Grade B milk unless all of the milk is to be used for manufactured products. Haulers need to keep these two grades separate by picking up the milk in separate trucks, separate tanks or on different days. A reduction in hauling costs would be possible with a single grade of milk because separate handling would be eliminated.

While the potential for cost saving exists, no estimate of possible cost savings was made because of the highly variable circumstances of milk haulers. The opportunity for cost saving depends on the degree to which firms now coordinate hauling efforts and on the geographical dispersion of producers.

Route duplication occurs primarily in areas where two or more processing firms buy milk. Two or more trucks may serve the same area because they haul for different companies. This is a difficult problem to solve because these companies are competitors. If the processing plants are near each other, one solution would be for one company to pick up all of the milk in an area and work out a trade agreement with another company which picks up all of the milk in another area. This arrangement would be made only if considerable savings could accrue to the processors involved. Many legal and management problems may be associated with this approach.

Elimination of every day pick-up for some producers may not be feasible because of seasonal changes in production and the cost to the producer of getting a larger milk tank. However, some reduction in every day pick-up could occur and may be eliminated in some areas. If stop charges on the extra day pick-up reflected the true cost, producers could then decide whether it would be economical to get a larger tank or make other arrangements to eliminate extra day pick-ups.

The effects of improved hauling efficiency and lower cost would depend upon the circumstances of each producer. Location, volume, scheduled charging procedures and efficiency of the hauling firm each play a part in the hauling cost. As an example of the effects of hauling cost, consider a 100-cow dairy with an average of 14,000 pounds of milk sold per cow each year. If this producer were paying an average hauling cost of 41.2 cents per hundred pounds of milk sold, his annual hauling expense would be $5,768. If his hauling cost could be reduced by 5 percent, the annual saving for the farm would be nearly $300. Cost reductions are possible in some circumstances, with the amount of reduction depending on individual farm conditions and the efficiency and methods used by the milk hauler.

Changes That Affect Milk Hauling Costs

Many changes have occurred over a period of several years that have affected the efficiency of milk hauling. For the past 40 or 50 years the trend has been to fewer and larger dairy farms. Larger farms and bulk milk tanks on the farms have made hauling more efficient. Refrigeration on the farm and in trucks has increased the time period that milk can be held before processing, making it possible to pick up milk less frequently and to reduce the cost per unit hauled.

Ultrafiltration on the farm has the potential to further reduce milk hauling costs. This process removes water from milk, reducing the volume to be transported from the farm to the processing plant. If, for example, the amount of product were concentrated to half of its original bulk, considerable cost saving could result. Work by Robert Zall at Cornell indicated the costs of ultrafiltration and cost savings to the farmer were about in balance. The largest single item of cost saving was from reducing hauling costs (SRI 1986). Benefits would come from possible cost reductions in processing the milk into cheese or other products.

Summary and Conclusions

Milk hauling from the farm to the processor or handler in Idaho is done by contract haulers and by processor-owned trucks. Hauling costs for those surveyed in 1984 averaged 32.2 cents per hundredweight of milk. Rates charged the producer for hauling, including the hauler's cost plus charges for testing, bookkeeping and other services by the processor, averaged 41.2 cents.

The most feasible avenue for reducing hauling costs is increased efficiency of hauling. Possible areas of cost decrease include production of only one grade of milk (Grade A), reduction of every day pick-up and reduction or elimination of route duplication by two or more milk buyers.

Dairies will probably continue to increase volume by increasing cow numbers and increased production per cow. The trend toward fewer dairies over time will increase the distance traveled by haulers between farms. Both of these changes will have an effect on hauling costs. Ultrafiltration or other innovations may reduce hauling costs in the future.

Literature Cited

Anderson, Bruce L. 1981. The structure and characteristics of the milk assembly system in New York State. Dept. of Ag. Econ. Rep. 81-16, Cornell Univ. Exp. Sta.

Noble, D. T., and R. V. Withers. 1986. Economic considerations in changing to Grade A milk production. Univ. of Idaho CIS 775, Moscow.

SRI International. 1986. The economic benefits of on-farm ultrafiltered milk for cheese manufacture. Unpub. report for DRINC and others.


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