MILK TRANSPORTATION in the Stillwater Area

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Getting milk to market despite tire, gasoline, and labor shortages is part of the problem of meeting wartime dairy production goals. This bulletin describes a survey made in Stillwater to determine the possibility of transportation economies. It has suggestions for use in other areas.

Milk Transportation in the Stillwater Area

By ADLOWE L. LARSON
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The necessity of getting milk to market in this nation is threatened by a shortage of transportation facilities. This shortage is of trucks and tires, coupled with labor scarcity. The purpose of this study was to determine how the milk might be more efficiently hauled from the farm to market. The job was in finding the least number of truck miles which would bring the milk to market. While Stillwater was the market analyzed, the results are likely applicable to many other areas of the State.

The information used was secured in interviews* with those hauling milk into the two Stillwater creameries.** From them were secured data on miles traveled, trucks, and the number of cans of milk collected; and the route of each truck route driver was mapped.

Payne County, from which Stillwater gets its milk, is in a general farming area having considerable amounts of cotton, livestock, dairy, and poultry production. The bulk of the milk comes from a circle of 10 miles radius having its center 3½ miles east and one mile south of Stillwater. A major part of the production is therefore located east of the town. The milk included is Grade A, Grade B, and cheese milk.

At present this milk is hauled to market in two different ways: (1) by truck route operators and (2) by milk producers individually. At the time the survey was conducted,† milk was being hauled to Stillwater by 11 milk collection routes (operating 12 trucks), and by 25 individual producers.

Adequacy of Trucks

Most of the trucks used on the collection routes were in good condition. Of the 12 trucks operated, however, three were rated fair and one poor. Although four of the trucks were new in 1941, the others were spread evenly over the years back to 1932. These trucks at the time of the survey had been driven an average distance of 50,000 miles—22,000 to 90,000 miles. The average distance driven per year in the collection

*The writer is very appreciative of the willingness of the truckers in giving the information and for the aid of the two creamery managers, Mr. E. S. Larrabee and Mr. R. L. Pitts.

**Producer distributors were not included.

† Most of the schedules were secured November 18 through 21, 1942.

of milk alone* (based on daily collections) was 11,894 miles per truck. Use of the trucks for other purposes brought the average of miles driven per truck in the year up to 16,925. With one or two exceptions, the average condition of trucks should permit their use for several years more if repairs and tires can be obtained.

The average percentage of truck capacity used was 71 percent (323 cans of 440-can capacity), although the seasonal range was from about 58 to 94 percent.** Several truckers had capacity to haul larger quantities of milk—one as much as 21 additional 10-gallon cans. The trucks used on collection routes not only have several years of use remaining but also have some unused capacity.

Thirteen of the 25 individual producers bringing in milk use trucks and the other 12 use passenger automobiles. All except two of these trucks are one-half ton pickups. On the whole, the trucks used are of newer models than the passenger cars, as six of the trucks were of 1939 or later models while all of the passenger cars were of older models. The condition of 18 of the 25 was good or better. The average mileage of 22 of these vehicles was 62,000 miles, and the average mileage driven per year 13,500 miles. As the total distance traveled per day by the 25 haulers was 222 miles, the total for 365 days would be 81,030 miles, or 3,241 miles per vehicle. This mileage for milk hauling is approximately one-fourth of the total driven by these pickups and cars during the year.

Considerably more milk could be hauled by these producers. Although the total capacity of the trucks and passenger cars was 325 cans, the average amount hauled was 97 cans, and the high amount hauled was 132 cans. Peak use was therefore just 41 percent of capacity.

Truck Routes

There was practically no duplication nor overlapping among the 11 milk collection routes (Figure 1, pages 4 and 5.) This is partially a result of the fact that the truckers haul for both creameries. As a whole, the routes of these truckers are well organized, so very little mileage could be saved by rearranging the route of any one of them. This is a logical condition, too; for truckers paid a flat rate per hundred pounds of milk cannot be expected to drive unnecessary mileages.

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* Based on length of route.

** Rated capacity of the 12 trucks was:
6½ ton
3 ¾ ton
2 1 ton
1 1½ tons

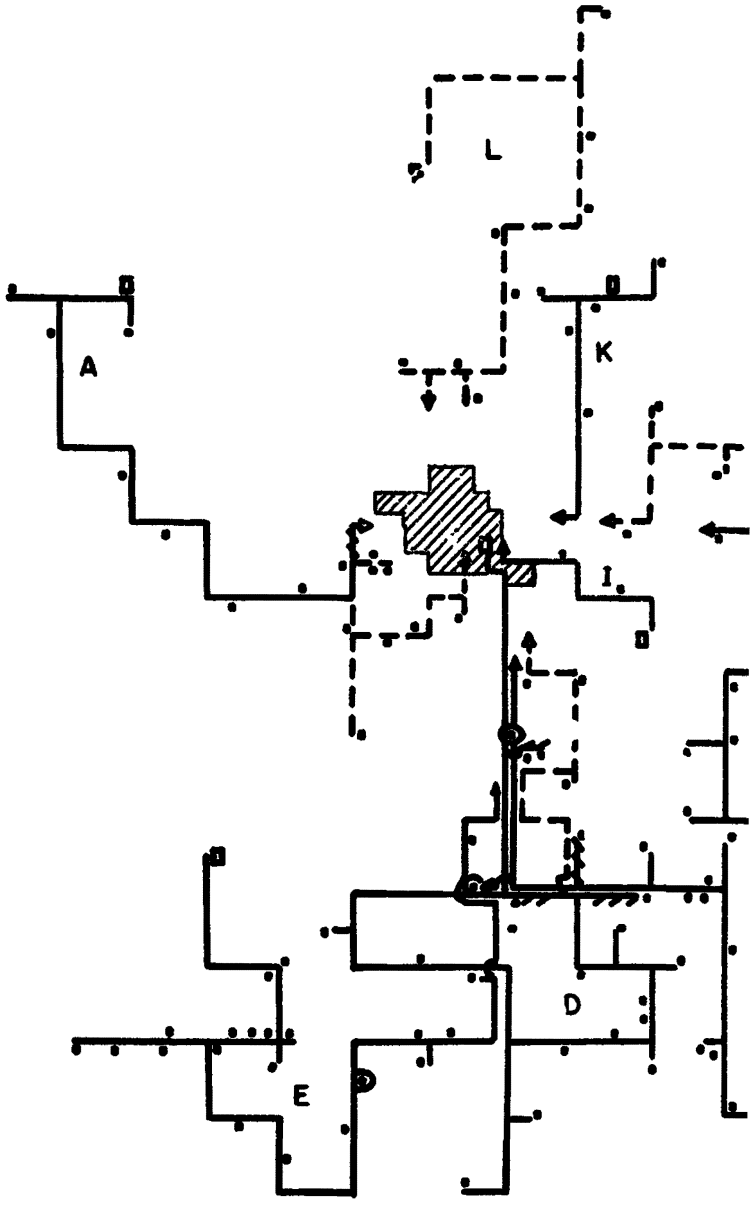
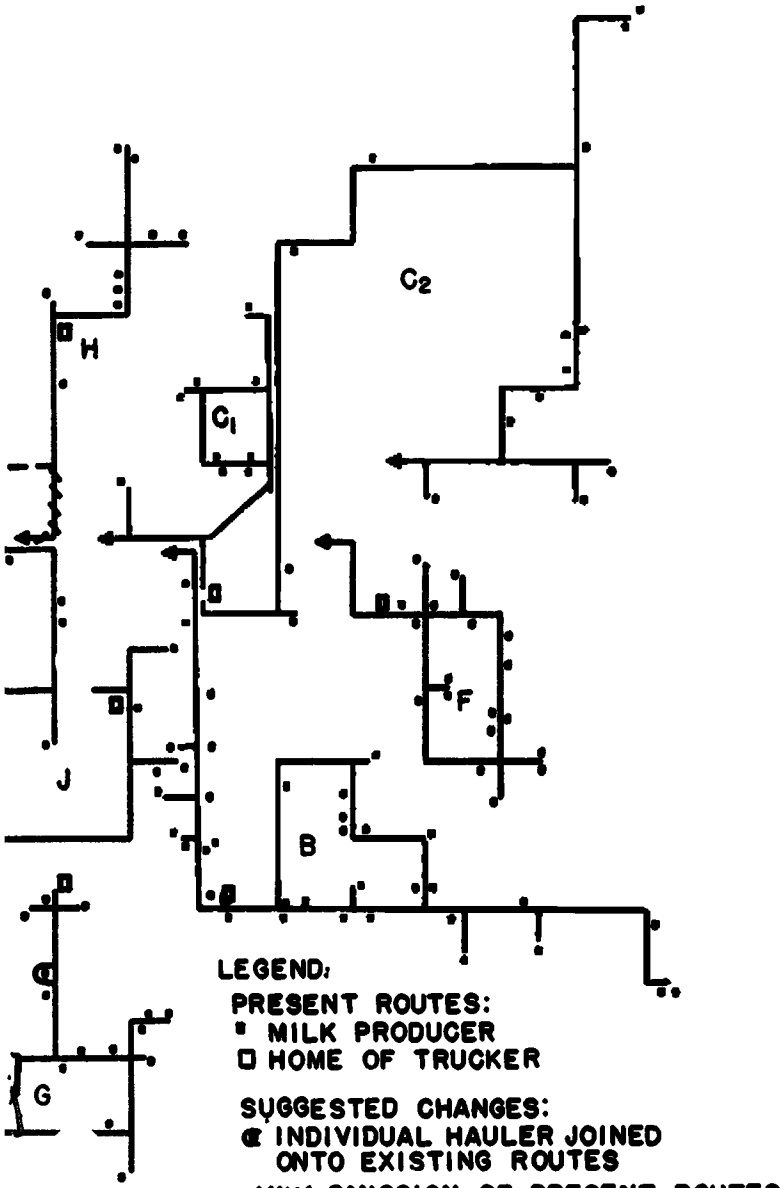


Figure 1.—Milk Transports



ıtion Routes in Stillwater Area.

The 11 truckers on the average collect a total of 323 cans* of milk per day (Table I). In doing this, they drive 391 miles of which 115½ miles are on pavment, 86 miles on gravel, and the remainder on dirt roads. The average distance of driving for the collection of one can of milk was, consequently, 1.2 miles. Since the number of stops made was 190, the average number of miles per patron was 2.1 miles. An average of 1.7 cans was collected at each stop.

TABLE I.—Number of Haulers, Number of Cans Hauled, and Mileage Driven Per Day by Truck Operators and by Individual Haulers.

	Truck Routes	Individual Haulers	Combined
Number of haulers	11	25	36
Cans milk hauled per day	323	97	420
Miles per day	391	216	607
Number of patrons	190	29	219
Miles per can of milk	1.2	2.2	1.4
Miles per patron	2.1	7.5	2.8

Individual Producer Delivery

Of the 25 milk producers who hauled milk to town, only four transported additional milk not produced on their farms. In many cases existing truck routes were not far away and sometimes even went past the farm.

These 25 producers on an average day bring in 97 cans of milk while driving 216 miles. This means that the average distance driven in delivering one can of milk was 2.2 miles—almost twice that driven by route truckers. As milk was collected from only 29 farms by these 25 haulers, the average distance driven for each collection was 7.5 miles and the average number of cans collected at each farm was 3.3 cans.

Suggested Method of Collection

There are several possibilities of improvement in collection routes, including (1) elimination of overlapping with routes from competing consuming centers (2) lengthening of routes, and (3) placing of individual haulers on collection routes. As the first two are relatively insignificant in the Stillwater milk shed, the third was given major attention in this discussion.

The suggested modification of present hauling methods is shown in Figure 1 (pages 4 and 5) by the dotted lines

* Amounts collected were considered in numbers of 10-gallon cans only as they, more than pounds of milk, determine the extent to which capacity is used.

which mainly show routes suggested for collecting milk from producers now delivering their own. Several conditions might prevent adoption of the plan. Important among these is the extent to which milk transportation is incidental to other driving. Other conditions which might affect it include: personal wishes against extending or modifying routes, flat-rate payments for transportation,* and impassable roads in some seasons.

These individual producer haulers deliver both Grade A and cheese milk, although a larger proportion of the milk is Grade A than is true for the collection routes. The suggestion that these haulers be placed on established routes and the routes be somewhat modified is based upon the assumption that Grade A milk will reach the creamery on time and in condition. If in some cases this is not possible, the remaining milk at least could be hauled by collection routes.

The routes presented in Figure 1 are suggestive only, for many modifications of plans could be used.

The plan suggested does give savings in the use of transportation equipment. The changes include the joining of eight patrons to route A west of Stillwater, the formation of a new route (L) of nine patrons north of Stillwater, and the addition of isolated haulers to several of the other routes. This would be possible on the basis of the information available.

Through this modification in hauling, a saving of 179 miles a day could be made. Instead of the present mileage of 216 miles for individual haulers, the extra mileage required by route truckers would be just 37 miles (Table II).

On the basis of 365 days, the annual saving in truck use would be 65,335 miles, a major purpose; and if truck costs were five cents a mile the saving would be $3,266.75. In addition, not far from 30 man-labor hours per day** would also be saved. This is equivalent to 1,095 10-hour days, or at $4.00 per day a saving of $4,380. On the basis of these cost estimates, the total

*Producers living near to town may wish to haul their own milk if allowed 26 cents per hundredweight and if they figure their costs of hauling are less than that. They may not want to change to truck routes unless charges for hauling are made lower for the shorter distances.

**The time required per producer-hauler for the trip to town averaged 1.5 hours or 37.5 hours per day for the group. Subtracted from this were 7.5 hours, an approximation of extra time required by the route truckers. The average time required by a trucker is less than 4 hours.

TABLE II.—Suggested Changes in Lengths of Truck Routes Resulting from Hauling of Milk Now Trucked Individually, with Total Miles Saved.

Route	MILES		
	Present	Suggested	Increase
Route changed			
A	25	31½	6½
D	40	40½	½
G	40	37½	−2½
H	30	32	2
L	0	30½	30½
Total	135	172	37
Routes not changed*	256	256	0
Individual haulers	216	0	−216
Total	607	428	−179

*Includes B, C, E, F, I, J, and K.

savings would be in the neighborhood of $7,600 a year. There is a real possibility that cost figures will become higher, so that the possible savings may be greater.

Value of the Study

What use may be made of this type of investigation? There is little question but that new trucks are difficult to secure. Repair parts will likely become more scarce and there is definitely a shortage of mechanics. Drivers in some areas will probably move to other jobs. All of this suggests that, if possible, more effective use will need to be made of trucking facilities to conserve trucks, tires, and labor. A milk marketing organization will be better able to meet possible restrictions in transportation by planning for the change, through analyzing its milk collection routes and rearranging them for minimum mileage.