TANK TRUCK PICK-UP FOR BULK MILK COOLING TANKS AT FARMS

H. Clifford Goslee
Chief, Dairy Division, Department of Farms and Markets

The two tank truck pick-up routes which have been operating in Connecticut during the last three years can attribute much success from very frequent fieldmen’s visits to the farms, which sampling of the milk and many improvements in methods and equipment.

Four new routes have been started and three more will be operating in a few weeks. The present interest by both dealers and producers is so ravenous that milk control is imperative. Fortunately, the 1951 Connecticut legislature gave the Commissioner of Farms & Markets authority to establish rules and regulations to control all phases of the project.

Already, methods have been established for the sampling and testing of the farm milk for butterfat, utilizing “standard methods” with a few supplementary requirements.

The Department is now working on methods and standards to ensure high quality milk. In addition to our present code requirements, consideration will be given to all of the newer methods of milk production not now specifically covered in existing codes (state or U.S. P.H.S.)

TANK-TRUCK pick-up is so closely related to new methods of milk production that it is almost impossible to disassociate TTPU from bulk cooling of milk at the farm, and even straining and pouring of freshly drawn milk in stables, pipe line milking (within or without milking parlors), in-place cleaning of milk handling equipment, mixing warm and cooled milk, and all the other factors among which should be recognized in the control of the health of the producing animals, including as it does today, the use of antibiotics and not overlooking the inclusion, for shipment, of milk from animals immediately after freshening as well as late in lactation. There are many other factors which must be considered in their environmental position.

During the last four years the TTPU project of collecting milk from New York State farms for delivery into central Connecticut has furnished evidence of the need for basic regulations which can be accepted and enforced by any and all of the interested control agencies. The need for regulations has also been rather vividly displayed by the manner in which equipment manufacturers preferred to use the producing farms as proving grounds rather than carry on sufficient experimental work in laboratories. Unless otherwise indicated, succeeding comments will refer to the TTPU project just mentioned.

The tank truck used is a conventional type, 300-can, single compartment tank with a positive pump and tygon hose assembly for drafting milk. The pump is enclosed and affixed to the truck and used from that position. The hose is approximately nine feet long and carried in a straight cylindrical tube. The tanker, pump, and hose are washed and sterilized at the receiving plant; the hose is filled with lye solution which is withdrawn until time for drafting at the first pick-up point on the route, at which time it is rinsed with clean, cool water, and a chlorine solution.

 Upon arrival at a pick-up farm, the truck operator measures the milk in the bulk cooling tank, then starts the agitator; makes the necessary hose connection; takes samples of the milk as soon as sufficient agitation has been obtained, then starts the drafting operation. The tank truck hose is capped between farms and carried in a protective tube. The only washing operation enroute is a cold water rinse which the truck operator applies to the farm cooling tank. The samples for butterfat testing are built up in accordance with standard methods. The truck operator must hold a license for this phase of the project.

Recently, Connecticut has set up the following rules:

“Methods of sampling and testing of producers’ milks in farm cooling tanks when such milks are transported to plants in tank trucks.”

(a) The milk sampling to be done by a person holding a sampling license from the Department of Farms and Markets.

(b) Building up of daily samples for ten-day composite samples.

(c) Providing for a duplicate sample (producer and dealer).

(d) Permission for transportation of dealer samples.

(e) Samples to be taken according to Standard Methods, after sufficient agitation, and the milk so sampled shall be free from churning, excessive foaming, and visible fat globules.

(f) All samples shall be held under suitable refrigeration.

(g) All samples shall at all times be protected from tampering.

(h) All samples not taken, built up, handled, and stored in compliance with these regulations, shall be deemed unsatisfactory for official testing.

(i) Any licensee employed in this project failing to comply with these regulations shall be subject to suspension or revocation of license after hearing before the Commissioner.

At the farms, various types of equipment are utilized. The cooling tanks are all stainless steel inside, and for the most part, have their special refrigerated units serving the bottom area of the tank and further equipped with slow-speed agitators. Sanitary lines and fittings are stainless steel. Hot water is supplied from water heaters located in, or near, the milk rooms.


Mr. H. Clifford Goslee is Division Chief, Clerk of Milk Regulation Board, and Secretary of the Connecticut Association of Dairy and Food Sanitarians.

In 1927 he joined the State Dairy and Food Commission. For several years he was in charge of the field laboratory. Then in 1937 he became supervising inspector, and in 1951, Executive Assistant.

In 1948 he was honored by the University of Connecticut for “outstanding service in the field of Dairy Manufacturing and to collegiate training.”
Electricity is obtained from public utility lines and only a very few farms have any auxiliary generating equipment; and this is chiefly limited to tractor power take-off being applied to the compressor motor. This very briefly sketches the project.

**Basis of Regulations**

In some states, regulations have included, in addition to the sanitary control, several economic factors dealing with cooling tank calibration and installation, method of measuring milk volumes, sampling procedure, and various methods of recording and reporting. Consideration here will be limited to basic factors of sanitary control. Obviously, this should extend from the cow to the receiving plant, both inclusive.

Established requirements for milk production should be supplemented, wherever necessary, to insure a daily flow of milk from clean, healthy cows through clean equipment into bulk milk cooling tanks which will adequately cool and store all the production on hand at any particular farm. While equipment must be clean as measured by physical inspection, it may be necessary to require it be clean as indicated by bacteriological examination. A special bacterial standard may be necessary for milk handled in such a project. Only limited permission should be granted for the use of new types of equipment which have not been approved by recognized authorities. The quality of the water supply becomes vastly more important because of the possibility of greater volumes of residual water getting into the milk. By the same token, the use of certain chemicals in washing operation and germicidal treatments becomes more important.

**Problems in Control Routine**

Will control agencies be given additional staff sufficient to make the time consuming inspections of a selected group of producers while the producers operating in the conventional manner are not inspected with the same frequency?

<table>
<thead>
<tr>
<th>TANK TRUCK PICK-UP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the value of deck inspection completely lost?</td>
</tr>
<tr>
<td>Will the science of bacteriology and chemistry bring forth tests which will have far greater sensitivity in identifying the presence of cells, coli, anti-biotics, toxins, and various other deleterious materials?</td>
</tr>
<tr>
<td>Will the truck operator be expected to qualify as a milk sanitarian?</td>
</tr>
<tr>
<td>Will the truck operator or the farmer reject a tank of milk at the farm?</td>
</tr>
<tr>
<td>When would the sanitarian be justified in rejecting milk in such a project?</td>
</tr>
</tbody>
</table>

Can a control agency prescribe that a truck tank have several compartments; that the farm cooling tanks have recording thermometers that producers subsidize the agency for the additional inspection expense incurred?

**Comments and Conclusions**

Casual observers have received the impression that if one company can operate a TTPU project without losing a single tank of milk, in fact, they have received a very high quality milk, that anyone else can do the same thing with equal success. Such an impression is dangerously erroneous. Company field men visited the farms in this project more frequently than once each week. Frequent equipment service was maintained. Very high type truck operators were employed. Leading company officials took personal interest and pride in the project. The project was sufficiently successful so that the company publicized the project extensively. Unfortunately the "economic values" received the greatest publicity.

**Recommendations**

Control agencies should take a positive position and hasten to establish basic regulations. Only by such action will the milk industry, at large, realize the necessity of extensive quality control. For your information, during the last fiscal period four more TTPU projects have been put in operation in Connecticut.

Mr. J. H. Shrader, Editor
Journal of Milk and Food Technology
23 East Elm Avenue
Wollaston 70, Massachusetts

Dear Mr. Shrader:

I have read with interest your editorial in the last issue of the journal regarding "Affiliation of our organization with the food law institutes. I know nothing of this relatively new organization other than the information given in your editorial. However, it would appear that the milk and food sanitarians would stand to gain from such a relationship. Certainly I can not see how we could lose. Personally, I am in favor of such an affiliation and hope that you may have other such expressions from the members of our organization.

Yours very truly,

Theo. R. Freeman
Associate Dairy Manufacturer
University of Kentucky