

# PSU Develops Truck-Mounted Metering for Farm Bulk Milk

A new truck-mounted metering system for farm bulk milk, the first of its kind in the nation to commercially measure milk, was described October 3 at a joint convention of milk and ice cream industry personnel in Atlantic City, N.J.

Developed by dairy scientists at The Pennsylvania State University, the new milk metering system has been approved by the Pennsylvania Bureau of Standard Weights and Measures, announced Dr. Edward D. Glass of the Agricultural Experiment Station at Penn State. He addressed the annual meeting of the Milk Industry Foundation and the International Association of Ice Cream Manufacturers.

Industry officials said the system could well-nigh revolutionize the collection of

bulk milk. The changeover to such meters may take several years, they indicated, but they said meters will replace the present use of calibrated gage rods immersed in milk.

Prior to the National Conference on Weights and Measures in July of this year, there were no legal specifications and tolerances covering the application of sanitary metering systems to commercial measurement of milk. Now Handbook 44 of the National Bureau of Standards provides the framework within which any state can officially accept or reject vehicle-mounted sanitary metering systems.

Dr. Glass said the primary problem in accurately metering milk from farm bulk tanks is to eliminate air. Normally, a volumetric meter will measure

passage of air in the same manner as it measures liquid. Mounted on a bulk tank truck, the metering system includes sanitary milk pump, air elimination equipment, sanitary meter, and sanitary piping and valves.

Development of the prototype equipment at Penn State culminates nearly 10 years of experiments. The meter has been tested with standard volumes of milk ranging from 100 to 300 gallons. It was found repeatable at plus or minus 0.3 per cent.

A working prototype of the milk metering system has been field

tested for 15 months following examination by the National Bureau of Standards, Dr. Glass stated. The system is being used as a basis for commercial payment to farmers selling milk to the University Creamery.

Research currently underway is comparing accuracy of the Penn State prototype metering system with a series of calibrated farm bulk tanks. Several licensed milk weighers and samplers independently determine the gage rod volume of milk in specific tanks. For comparison, the volume is then measured by the new metering system.

Interest in an improved method of measuring milk at the farm has existed for years among farmers and milk buyers, as well as weights and measures officials. Like industry representatives, Dr. Glass says that gage rods for measuring milk will not become

obsolete for some time. Manufacturers with an approved prototype system will first need to make the transition from prototype to mass production.

In addition, weights and measures agencies will have to become familiar with a new series of test procedures, Dr. Glass observed, and must purchase the necessary sanitary proving equipment. Moreover, the dimensions of the prototype system, about 3 feet by 3 feet by 1½ foot, will require some modifications in most existing tank pickup trucks.

Dr. Glass and associates also plan to examine the potential for stationary large capacity, sanitary milk metering systems with flow rates ranging from 150 to 250 gallons per minute. These will be evaluated as an alternative to the vehicle-scale for measuring over-the-road tank truck shipments of milk.

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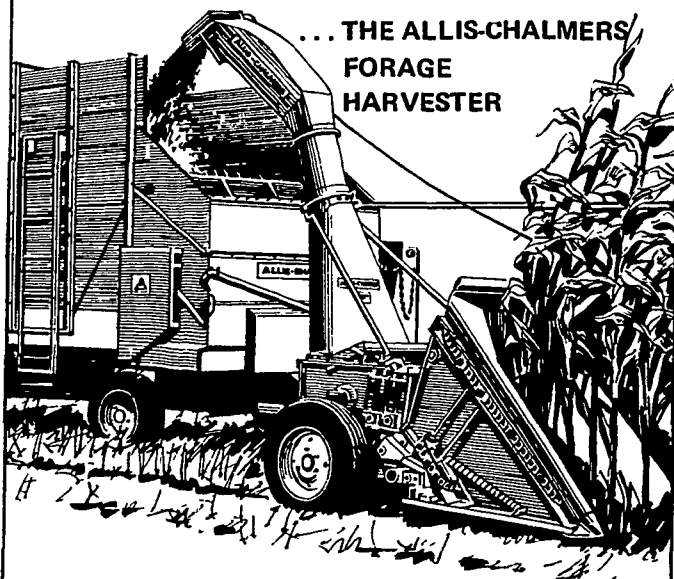
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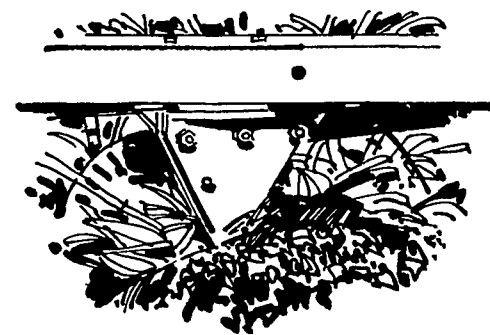
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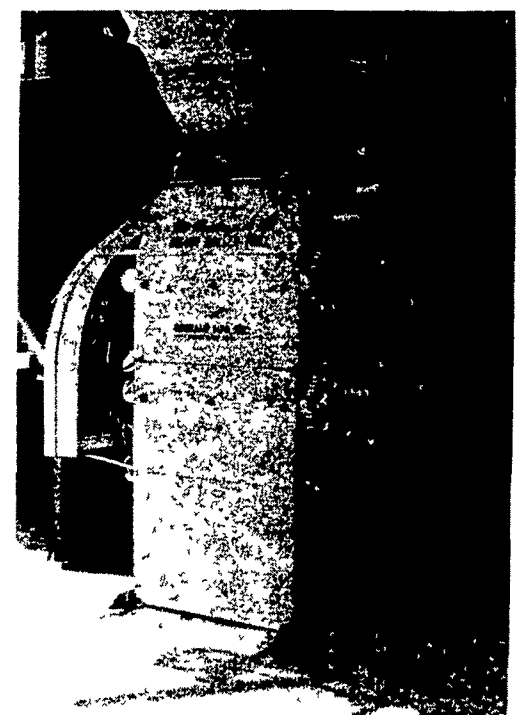
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