Appendix

Procedures for Sampling Milk at the Plant

OCTOBER 2007
SAMPLING PROCEDURES

I. Application by a Processor for Authorization to Purchase Milk Using a Plant Sampler

a) Processors must apply to the Board for sampler authorization if they wish to use their sampler for the purpose of purchasing milk based on the composition of the milk received at the plant.

b) Application for authorization should be made to the local Regional Marketing Officer.

c) Processors meeting the "Authorization" and "Sampler/Sampling" Requirements will be required to participate in a six-month period of introduction before they are operationally on the program.

II. Requirements for Authorization

a) The use of a sampler is optional for all processors in Ontario and a processor may continue to use the weighted-average of the producers' test results as the basis for invoicing by Dairy Farmers of Ontario.

b) The requirements for metering milk at the plant must be in place for a processor to utilize automatic samplers at the plant for payment purposes, subject to proper installation and operation.

c) The Food Inspection Branch (F.I.B.) shall approve all samplers prior to a plant officially participating in the plant-sampling program and subsequently, upon the replacement of any sampler at a plant which is participating in the program. The plant is responsible for contacting, in writing, the Food Inspection Branch to arrange for sampler approvals, as well as Dairy Farmers of Ontario.

d) The sampler at the plant shall be approved when the analysis of the butterfat content of a sample taken by the sampler (according to the adopted procedures) is no greater than +/- 0.06 kg/hl from a sample taken manually from an agitated holding tank. The sample(s) from the sampler and the manual sample(s) must be tested on the same milk analyzer in order to determine the comparison between the two for approval purposes.
III. Sampler Requirements

a) In order for a processor to purchase milk based on the milk composition of a tank truck sample taken at the plant, the sampler must be of a positive displacement, piston-type.

b) The sampling system must include a sampler with an automatic start/stop control, frequency and discharge control and a one way flow valve.

c) The sampling system must be installed directly after the meter.

d) The sampler must have a fixed pulse size of between 1 ml and 3.5 ml.

e) The sampler must be equipped with a vent.

Sampling Requirements

a) The sampler must be capable of producing a sample size of between 500 ml (minimum) and 2 litres (maximum) for load sizes above 12,000 litres; thereshall beno minimum sample size for loads below 12,000 litres with the sampler being allowed to default for such loads to a fixed pulse rate of at least one pulse for every 30 litres.

b) The sampler must be programmed to utilize a variable pulse rate to produce a standard sample size (between 500 ml and 2 litres) or a fixed pulse rate to produce a variable sample size that conforms to an established chart that shall be posted in the receiving area. The chart shall show various tanker load sizes and the expected sample volume, given the fixed pulse rate and pulse size.

c) There must be no fewer than 400 discrete pulses per load for load sizes between 12,000 litres and 18,000 litres; no fewer than 500 discrete pulses per load for load sizes between 18,000 and 24,000 litres; and no fewer than 600 discrete pulses per load for load sizes above 24,000 litres.

d) The sampler must be functioning as soon as milk begins flowing in the line, be operational only when milk is flowing in the line and remain in operation until all milk has been unloaded.

e) Plants must have a minimum of three, uniform sample containers per sampler which must be large enough to collect the size of sample required for the largest load received at that particular plant. The sample container must not be filled over 75% of its capacity (to allow airspace for mixing) and must also be calibrated in gradations of 100 mls.
f) The sample container must be clean and dry before connecting to the sampler.

g) The sample container must be kept in place until all milk has been unloaded from the tank truck and remain closed and/or covered during the taking of the sample.

h) Plants must demonstrate that any flushing of milk from the tanker, following the reception of milk, is carried out such that the volume of flush is not sampled.

i) For those processing facilities that receive a combination of trailer/pup, the entire train must be considered as one unit for the purposes of the load sample. If the trailer and pup are sampled separately at the plant, then the milk in the two sample containers must be combined in a larger sample container before mixing and splitting of the sample to be sent to the laboratory for testing. Sub-sections (m) and (n) of the next section must be followed.

IV. Operational Procedures

1. Plant Milk and Cream Grader (Receiver)

   a) The person responsible for taking, mixing, and transferring the load sample (Receiver) shall be licensed as a Plant Milk and Cream Grader by the Food Inspection Branch of the Ontario Ministry of Agriculture, Food and Rural Affairs. The Receiver shall be either a licensed Plant Milk and Cream Grader or an apprentice Plant Milk and Cream Grader.

   b) The Receiver shall have overall responsibility for the plant sampler(s) and the integrity of the load sample.

   c) The Receiver shall adhere to the established procedures regarding the taking, mixing, and transferring of a load sample, as well as the cleaning of sample and these procedures shall be posted in the receiving area.

   d) The Receiver shall attach a clean, dry sample container to the sampler prior to unloading the truck and remove the container after the unloading of each truck.
e) After removing the sample container, the Receiver shall mix the sample by first capping the sample container and then inverting it slowly for no fewer than eight times.

f) The Receiver shall use a paper-wrapped single-service plastic sanitary straw to transfer the sample into a plastic vial, which shall go to the University of Guelph Laboratory Services Division (UGLSD), for analysis. In order to avoid overfilling, the sample shall not exceed the line on the vial.

g) The Receiver shall cap the vial immediately and ensure the tamper-evident mechanism on the vial is in place.

h) The mixing and transferring of the sample into the vial shall take place in the receiving area in the presence of the Bulk Tank Milk Grader/Driver.

i) The sample container shall, immediately following use, be rinsed with lukewarm water and dried prior to its next use. The use of air blow-drying is the required method of drying.

j) The Receiver shall ensure that the sample container is rotated with the other sample containers so that each container is not used more than once in every three loads of milk arriving at the plant, in order to give the container the opportunity to dry.

k) The Receiver shall ensure that the sample containers are thoroughly washed and dried at the end of the day.

l) The Receiver shall label the load sample that is to go to the UGLSD by affixing one of the bar code labels printed by the UGLSD onto the vial. The bar code labels shall be kept in the receiving area.

m) The Receiver shall immediately, after being taken, place the load sample(s), for testing at the UGLSD, in the appropriate sample rack in an UGLSD approved refrigerator at the plant or sample depot. Coloured transporter labels, a different colour to denote each day of the week, shall be placed or located on the sample rack. Load samples shall be placed in the rack according to the day the load was picked up from producers (the oldest milk on the load will determine the date). The date the load was sampled and the plant name shall be written on the transporter label. The coloured transporter labelsshall be kept in a dry, warm location and the sample racks shall be kept dry.
n) The Receiver shall affix a second bar code label (with the same bar code as that placed on the load sample vial) to the Milk Collection Report that is to go to DFO.

2. Processor

   a) The processor shall ensure that the sampler is installed according to the requirements in Section III b) (Sampler Requirements).

   b) The processor shall ensure that the sampler is, at all times, operated in accordance with the approved procedures.

   c) It is the processor's responsibility to ensure that the sampler is maintained in good working condition at all times and that maintenance is carried out in accordance with the manufacturer's instructions. A predetermined maintenance schedule must be developed for each sampler as a condition for starting the trial.

   d) The processor shall ensure that the procedures for sampling, including mixing, transferring and cleaning of containers are posted in the receiving area.

   e) The processor shall inform DFO of any problems with the sampler on the same day of the problem and within seven working days by written notice.

   f) The processor must pay any costs of inspections that DFO requests where it is found that the sampler is operating outside the allowable tolerance of +/-0.06 kg/hl for butterfat.

   g) The processor shall maintain an up-to-date log of all repairs and maintenance performed on the sampler. The log should also contain daily records for each load received at the plant with details on load size, sample size taken, pulse rate used, etc.

3. DFO

   a) DFO shall have the right to inspect the sampler.
b) DFO shall keep records of the differences between the weighted-averages of the producers on a particular load and the sample taken at the plant for the same load.

c) DFO shall establish a 'reference tolerance' to be used as part of its monitoring process.

d) Where differences occur between the weighted average of producer samples and the load samples, based on monitoring of the established reference tolerance, D.F.O. may request that the plant sampler be checked for calibration and if found to be within the allowable tolerance of +/-0.06 kg/hl (for butterfat), shall continue using the plant samples as the method of invoicing the processor.

e) DFO shall pay any costs of calibrations that it requests where the sampler is found to be within the +/-0.06 kg/hl (for butterfat) tolerance.

f) Where the plant sampler is found to be operating outside of the allowable tolerance of +/-0.06 kg/hl (for butterfat), or it is determined that the plant has not been adhering to the requirements of the Sampling MOU and Procedures, the weighted average of producers' test results shall be used by DFO for billing purposes. The weighted average of producers' test results may be applied retroactive to the time that it was determined that the sampler was operating outside of the allowable tolerance or that the plant was not following the proper procedures. This substitution will be in effect until it is determined that the sampler and/or the plant is operating in accordance with the Sampling MOU and Procedures.

g) If after any investigation of a situation where DFO has suspended the processor's right to purchase milk on the basis of the plant sampler, and it is found that the cause of the problem is not the sampler, the plant billing will be adjusted retroactively for the difference between the weighted average of the producer test results and the plant sampler results.

h) Plants that have been disqualified for failure to comply with the requirements of the Sampling MOU and Procedures will be required to re-apply to DFO before being re-instated into the program. At that time, the applicant will be required to pay an administration fee of $1,000.00.
i) The sample results at a plant will be disallowed during any period that the approved metering system is not functioning properly.

j) DFO may utilize a substitution policy whenever the difference between the butterfat test result for a load sample and the weighted average producer’s test result for the same load is greater than or equal to \( \pm 5\% \) of the weighted average producers’ test result. In such situations, the test result for the load sample may be substituted with the weighted average producers’ test result for the same load. Prior to the substitution policy being used, DFO may investigate the reasons for such differences and may use plant test results for the same load if deemed appropriate in the circumstances. Inspection and review of the sampling procedures at the farm may be required where load differences are regularly identified.

k) Further to actions taken under Section 3(j) above, if the total number of load substitutions at a plant during the month is 10\% or greater, that plant will be disqualified from the sampling program for the entire month. In such instances, the weighted average of the producers’ test results for all loads received, will be utilized until the plant re-applies under the terms outlined in Section IV, subsection 3(h). The first opportunity for re-instatement will be the first day of the month following disqualification.

V. **Sampler Inspections and Verifications**

All samplers will be monitored on a constant basis by DFO. The need for verifications of the sampler at regular intervals will be monitored during the trial run. If, after the trial period, it is felt that additional verifications are needed, the Task Force will determine the follow-up verification procedures.

VI. **UGLSD Considerations**

a) Tanker load samples shall be picked up from the designated depots and tested for components according to the schedule developed by the UGLSD.

b) In the event that a UGLSD component testing equipment is identified as outside of the calibration limits, the tanker load samples from that day shall be adjusted according to the amount determined and verified by the UGLSD that the instrument was out of calibration, (the same as producer samples).
c) The UGLSD shall not analyze a tanker load sample that is overfilled, underfilled, incorrectly labelled, unsecured or is determined to be compromised in terms of integrity.

VII. Records

a) DFO will need to determine the kinds of forms, if any, that will be required for their records regarding sampling.

b) All records pertaining to sampler operation and maintenance will be available for inspection by DFO appointed personnel at all times during normal working hours, or as may be otherwise agreed to.