Alarm rings true

Monitoring device is helping improve milk quality, say researchers

Time temperature recorders [TTRs] are alerting producers to potential problems and helping improve Ontario's raw milk quality, according to University of Guelph research.

Prof. David Kelton and master's student Nicole Perkins, department of population medicine, recently completed a study of 1,000 dairy farms to see how effective the newly installed monitoring devices really are.

They found milk bacteria counts were lower on farms that had installed a TTR.

"Time temperature recorders are making a difference," says Perkins.

In the study, the researchers compared 500 farms with TTRs installed before March 2005, early in the provincial rollout, with 500 that hadn't yet installed the devices.

They found the TTR group's average Bactoscan count was 1,000 individual bacteria cells per millilitre [IBC/mL] fewer than the non-TTR group. The same bacteria reduction was found when Bactoscan records for the TTR farms were compared before and after installation. Perkins says these reductions may be especially significant for producers near the 121,000 IBC/mL penalty range.

The milk quality improvements may be due to TTRs alerting producers to milk storage or pipeline cleaning issues before they became bigger problems, she says.

In a second part of the study, the research team studied the most common types of regulatory alarms on TTR farms. They collected the TTR memory cards from 230 farms, which included all date, time, temperature and alarm data recorded for an entire year.

Farms with time temperature recorders installed had average Bactoscan counts 1,000 IBC/mL lower than those without, say Guelph researchers.

They found farms averaged one alarm per month, with the most common being insufficient pipe cleaning. Other common alarms included high blend temperature, insufficient tank cleaning and slow cooling.

Not surprisingly, cooling alarms were more prevalent in summer when the weather is hotter, and insufficient wash temperature alarms were higher in winter when it's harder to keep wash water hot.

The researchers didn't find any patterns as to when the alarms occurred. There didn't appear to be any "settling period" to debug problems such as false alarms following a new TTR installation, says Perkins.

"We hoped TTRs were improving milk quality and alerting producers before big problems occurred," she says. "We're finding this is the case."

TTRs are expected to be mandatory for all Ontario bulk milk tanks starting April 1, 2007.

Kim Waalderbos is a writer with the University of Guelph's office of research. Also involved in this project are Prof. Ken Leslie of the department of population medicine, Dr. Karen Hand of CanWest DHI, and technicians Sheila Davie and Jessie Smitham. *This research is funded by Dairy Farmers of Ontario.*