

Biosystems & Agricultural Engineering

Michigan State University

Department

Newsletter



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Electrical Safety Check

A Department of Biosystems & Agricultural Engineering, Michigan Department of Agriculture and Michigan Agricultural Electric Council Outreach Program

Farmers have grown accustomed to a reliable supply of electricity to accomplish their tasks. However, when a problem in the distribution of electricity occurs, it can cause loss of production as well as a potential safety hazard to animals and humans. The electrification of farms has spawned many innovations that are considered standard features on farms today. In particular, a dairy farm is a good example of where a reliable energy source and mechanization makes many difficult tasks routine. Two of these tasks, refrigerated on-farm milk storage and the milking machine, were recently ranked as "Outstanding Agricultural Engineering Achievements of the 20th Century" by the ASAE. Refrigerated on-farm milk storage reduces the risk of pathogens in the milk supply as well as prolonging the shelf life of dairy products resulting in improved farm income and improved public health security. The milking machine has improved the labor efficiency of milking by as much as ten-fold*. On a typical dairy farm, these tasks take place every day, 24 hrs per day.

Like most mechanized systems, electrical distribution systems on farms are subject to potential damage and corrosion and thus, need to be maintained. Otherwise, animals and humans may be exposed to an unintended electrical shock. The Electrical Safety Check program is a joint outreach program by the Michigan Agricultural Electric Council (MAEC) based in the Department of Biosystems & Agricultural Engineering and the Michigan Department of Agriculture Food and Dairy Division. The goal of the program is to help ensure the safety of dairy farmers and their livestock by making a simple electrical measurement and by increasing farmer awareness of possible electrical problems.

This free service, which is conducted by Michigan Department of Agriculture Food and Dairy Division milk inspectors, is slated to run between July 15, 2008 and September 15, 2008. During this time it is estimated that about 900 Michigan dairy farms will be checked. The program is supported by MSU and MSU Extension as well as industry groups such as Michigan Farm Bureau, Dairy Farmers of America and the Michigan Milk Producers Association. Milk inspectors from the Michigan Department of Agriculture Food & Dairy Division will make a simple electrical measurement on various dairy farms visited. The role of the Michigan Agricultural Electric Council in this program is to deliver technical assistance as well as supply the necessary test equipment.

A simple electrical measurement in the milk house can be a quick and easy way to identify some potential electrical problems. In this case, the milk inspector will take a reading of the open circuit AC voltage (VAC) measured between the milk bulk tank and the floor drain or floor adjacent to the drain. The milk inspector will then record the reading and report it to the farmer using a form created within a new informative brochure.

What does the reading mean? A reading of one volt may be an expected reading. It is typical to have a small voltage present when 120 VAC loads are running. If the reading is greater than two volts or if the farmer is concerned about a potential voltage condition, the farmer is encouraged to contact their power supplier for a free evaluation. The customer service phone numbers for electrical power suppliers in Michigan are also contained within the new brochure. If the reading is greater than ten volts, it is likely there is an electrical ground fault or wiring problem. In this case, the farmer should contact a licensed electrician and their power supplier immediately to correct a potential electrical safety hazard.

The Electrical Safety Check program is intended as an annual campaign to remind dairy farmers to be vigilant regarding the need for electrical safety on their farm. If anyone wishes further information regarding the program, please contact Aluel Go (goaluel@msu.edu) at (517) 353-0643. Visit our MAEC web site for other publications at <http://www.egr.msu.edu/age/MAEC/>.

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