FARM ENERGY

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Livestock Watering Systems Energy Efficiency Checklist and Tips

Livestock Watering Systems is part of a series of Efficiency Checklists and Topics that can help you assess your farming operation for energy efficiency and identify strategies to save energy and reduce costs.

For links to other articles in the Efficiency Checklists and Topics series, see Additional Resources at the end of this article.

Livestock Watering Systems

Livestock water fountain.
Photo: Carl Pedersen, North
Dakota State University Extension

A dependable supply of drinking water is essential in any livestock production facility. During the winter it it is important to keep the water from freezing. Most of the energy used by a livestock water fountain is used to keep the water from freezing. Insulation around an automatic waterer or water tank and protection from the wind will help curb heat loss and thereby reduce the energy needed.

Keeping float valves in good condition so they don't stick open or leak will reduce water losses and save energy by reducing the amount of water that must be pumped or heated. If leaks are eliminated, there will be less ice and mud around waterers.

Questions to ask

- Are you using a water fountain with a covered water surface?
- Do water bowl covers fit snugly, but are easily opened by livestock?
- In northern climates is the thermostat set so that the water does not freeze but not so high that the heater turns on when livestock drink (32 to 34 degrees F.)?
- Is the thermostat working properly?
- Is there good wind protection around the water fountain?

- Do float valves leak?
- Would extra insulation be beneficial? Can it be installed?
- Is the waterer the right size for the number of animals?

Facts and Actions: Livestock Watering Systems

- Make sure that water fountains don't overflow. Pumping the excess water or purchasing the water from a rural water supplier can be costly.
- Improperly working thermostats are a common problem. Test to make sure the thermostat is functioning correctly.
- Adjust thermostats to maintain frost-free water. Groundwater temperatures are generally between 42 degrees F. and 52 degrees F. Make sure the setting is below that level so the heater does not turn on when animals drink. Thermostat settings from 32 to 34 degrees F. will provide frost-free water.
- Energy-free or frost-free water fountains are available and can be operated without the need for a heater even in areas where winters are harsh. These types of water fountains cover the water surface with balls, lids, or small openings to reduce heat losses. They don't need supplemental energy but require a minimum number of animals drinking from the fountain freezing and/or direct contact with the ground to keep the water from freezing. They can save $60 to several hundred dollars per year depending on the type of fountain.
- Insulate the concrete surface inside fountains and add additional insulation inside the fountain body and inside the top three feet of the riser pipe.
- When installing the fountain, use 12-inch diameter (minimum) heat well for riser pipe.
- Make sure to protect the water fountain from the wind.

For Additional Information

- Energy Free Water Fountains, Agri-fact, Alberta Agriculture and Rural Development, Alberta, Canada.

- Livestock Waterers: Selection and Use– Rural Electric Resource Council, 20 page guide on selection and installation of livestock water fountains.

- Midwest Plan Service Publications, at Iowa State University, offers these low cost agricultural publications:

    - Beef Housing and Equipment Handbook. MWPS-6. Fourth Edition, 1987.
    - Dairy Freestall Housing and Equipment. MWPS-7. Seventh Edition, 2000.
    - Swine Farrowing Handbook. MWPS-40. 1992.
    - Sheep Housing and Equipment Handbook. MWPS-3. Fourth Edition, 2002.
    - Horse Facilities handbook. MWPS-60. 2004.

Efficiency Checklist and Topics:

- Farm Energy Efficiency Checklist and Tips
- Farm Lighting Energy Efficiency Checklist and Tips
- Farm Shop Energy Efficiency Checklist and Tips
- Grain Drying Energy Efficiency Checklist and Tips
- Greenhouse Energy Conservation Checklist
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- Livestock Buildings Energy Efficiency Checklist and Tips
- **Livestock Watering Systems Energy Efficiency Checklist and Tips**
- Tractor and Field Operations Energy Efficiency Checklist and Tips

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