

Heat water with milk tanks

UNIVERSAL PARK — You can save energy and cut the cost of heating water in a dairy operation by more than half by installing a heat exchanger to recover the heat now being lost to the air from the milk refrigeration system, according to Mark Shaw and Joseph McCurdy of Penn State.

Heat is available from a milk tank refrigeration unit from two sources. One is the heat that is removed from the milk to cool it from about 90°F. to 40°F. or below.

The second is from the electrical energy used to run the compressor. Most of this heat is contained in the hot gas which comes from the compressor.

There are two ways to recover this heat. One is to install a special water-cooled condenser unit instead of the typical air-cooled condenser. This would normally be considered when installing a new system or replacing an old, worn out unit.

The second is to add a heat exchanger between the compressor and the existing air-cooled condenser, along with a water storage tank and a circulating pump.

A thermostat in the heat exchanger starts the pump to circulate water from the water storage tank through the heat exchanger whenever the compressor is running and the temperature

in the heat exchanger is above the temperature of the water in the storage tank. The conventional water heater is thus supplied with water in the 120°F. to 140°F. range rather than cold 50°F. water from the well.

Some additional heating of water will probably be required to provide the high temperatures needed for cleaning pipelines, etc., but the heat exchanger will provide more than half of the energy needed to heat water.

Berks dairy farm

(Continued from Page D29)

But included among both are some noteworthy producers. Kerchenhill Bootmaker Tracy is classified as 82 good plus and had production credentials of 22,535 lbs. of milk and 873 of fat. Ar-Li Elevation Joan produced more than 21,000 lbs. as a three-year-old. Then, there's Charm, a grade cow, who produced more than 20,000 lbs. as a four-year-old and peaked at 117 lbs. with her fourth calf this past winter.

Expansion has included a new milk house with 1500-gallon tank, a one-story addition to the barn, increasing stanchions from 37 to 66 and a second silo for corn silage.

There are some additional

As a rule of thumb, one gallon of water can be heated for each gallon of milk cooled.

Heating water takes a lot of energy. One kilowatt-hour (kwh) will heat about 4 gallons of water from 50°F. to 150°F. A typical dairy operation may use 250 gallons of hot water per day. This means at least 65 kwh per day, which at 5¢ per kwh, costs \$3.25 per day, about \$100 per month or \$1200 per

year. Half of this is a considerable saving.

There are a number of commercial units available on the market. For

satisfactory operation, follow the manufacturers' specifications regarding the sizing of the heat exchanger, its installation and maintenance.

areas that the Schlappechs will be looking at in the future.

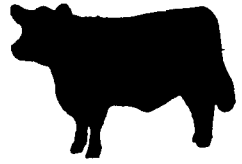
Manure is daily hauled and milking is done with Surge buckets and dump station.

"But for the present we want to stay right at about where we are in size and facilities," Arthur said. The couple has a daughter, Tammy, 13, and a son, Lee, 12.

If and when, they are ready to move into the operation as the sixth generation of the family on the farm, it's certain that the continuing groundwork being laid in the present will guarantee both an agricultural future and an appreciation of the past.

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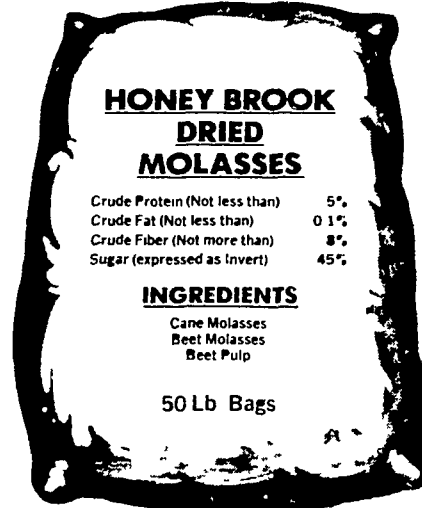
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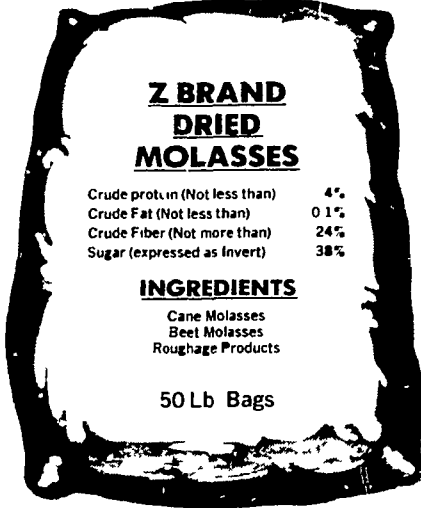
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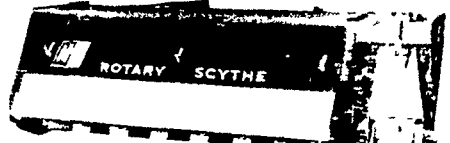
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