

Date:
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Forage Fact # 21

CAP Winter Water System: Solar Powered

Winter Cap Features

- * Portable
- * Inexpensive to run
- * Initial cost higher
- * Pump options to meet your needs
- * Monitoring to ensure proper functioning

Hogberg's Specs

- * Pump – MU20
- * Water line from pump – 2" line reduced to 1 1/2 "
- * Bowl – 13" diameter with 18" depth
- * Panels – Two 105 watts
- * Batteries – Two 6 volts

For more information call:

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A Glimpse the CAP system

Many concerns and trepidations can be addressed by carefully observing what your fellow ranchers have already done. In the past year, the Hogberg's ranch has installed a new solar winter watering CAP system. They have learned a lot about this particular system.

At our 2002 AGM, Glenn Hogberg shared with those present his experiences with the system so far. Points addressed include type of pump, panels, batteries, number of head, elevation, portability, and troubleshooting.



Hogberg's winter CAP system. Two 105 watt panels. Tarped barley bale to keep pump from freezing.

Elevation



The change in elevation is about 12 feet from pump to bowl.

It is important to have a change in elevation so that the line can drain from the bowl back into the dugout. The bowl does not drain and has a float valve with an electric switch to engage the pump.

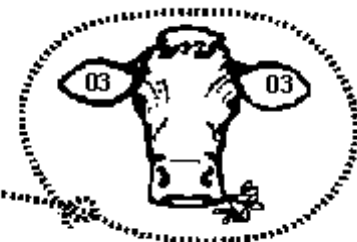
Water Flow Back to Dugout

There is no risk of water contamination in your dugout as the bowl does not drain back into it. The line does not freeze because of its ability to drain back into the dugout.



2 inch line is reduced to a 1 1/2 inch line. Power is the other line running parallel to water line.

**Peace River Forage Association
of British Columbia**



“I have had problems with this winter system. The pump will uncouple from itself and stops pumping water. Frequent checking is required to keep it working.”
 Glenn Hogberg
 Progress

Dealers & Suppliers

CAP Solar
 Olds, AB
 (403)- 556-8779
 1-866-556-8779
 www.capsolar.com

Keddies Tack & Western,
 Grande Prairie, AB
 (780) 532-4888
 1-800-390-6924

“My summer CAP system has worked well for my ranch. We have placed it on wagon to make it more portable, so we can move it to any desired location”
 Ernie Nimitz
 Farmington

Other water system websites:

www.kellinsolar.com
 www.frostfreenosepumps.com

Pump

The pump that Glenn started with was an Mu 20. Glenn has had problems with his pump uncoupling which believed to be caused by too much power being sent to the pump as this pump has no regulator.

Glenn has been in contact with the supplier and the CAP Solar company trying to address the uncoupling problem he is having. He has changed from one 6 volt and one 8 volt battery to two 6 volt batteries thus reducing the voltage to the pump. This is to help prevent the uncoupling of the pump.

Panels & Batteries

Glenn has two 105 watt panels, which feed into two 6 volt batteries, this provides enough stored energy for the pump to continue being able to work.

Until the middle of December, the sun was on the panels from 11:00-16:00 . He then had to put in four 6 volt batteries hooked in series & parallel to have enough energy to run the pump after the sun was off the panels.



Two 6 volt batteries, connected via cable to each other and to the two 105 watt solar panels.

Insulation



Insulation is about 2' thick around batteries and bowl to prevent the water in the bowl from freezing.

Economics

The cost of the system was substantial.

\$1500 per solar panel (\$3000 total)
 \$1750 for tank
 \$100 per 6 volt battery (\$200/\$400 total)
 \$800 submersible pump

Approx. \$6000 in materials to install this system, not including pipe to dugout and repairs made.

Glenn's Words of Wisdom

Problems & suggested solutions:

Pipe to dugout freezing: could be due to vacuum caused by tightly fit battery box lid thus slowing the drain back into the dugout. If he was to do it over again, he would add a 4" sewer pipe over the 2" line to the dugout for insulation.

I would put the system higher up the hill so as to increase the amount of time the panels are exposed to the sunlight.

I would put the tank away from my fence line, so the cows don't put pressure on it when they are trying to drink.

Where the hose goes into ice, he blocked it up on 2x8 s off the ice. He also put a straw bale on hole as insulation.

Compiled by: Glenn Hogberg & Julie Robinson

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