

Spring 2003

Special points of interest:

- **AgrAbility promotes success in agriculture for people with disabilities.**
- **AgrAbility provides “on the farm” visits at no charge to the family.**
- **We make assistive technology recommendations to live and work more productively.**
- **We provide information on resources for peer support.**

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The Baling Wire

Solar and Wind helps out on the Ranch/Farm

Farming and ranch producers are always looking for ways to decrease expenses and increase productivity. Improved technologies such as solar and wind power can sometimes do both, depending on each farm’s unique needs.

For a farmer or rancher with a disability or health challenge, technology offers the additional benefit of making it possible to continue working and living as independently as possible.

Solar technology can be utilized for opening gates, adding lighting in remote locations for safety, heating tanks, and many other activities.

Okay, we admit it, it was time to change the name of the newsletter. Most non-farm folks thought we were writing stories on mysterious UFO events with a name like “Crop Circle”.

So, after soliciting some new names we thought we would try out the “The Baling Wire”. And why not? Baling wire has long been a farm and ranch technol-

ogy. Not only does it have the primary purpose of holding the hay bale together, but it can be used for so many other “quick-fit-it” projects.

Colorado has the benefit of having both resources: plenty of wind and plenty of sun.

Inside this issue of the “Baling Wire” you will find an introduction to both technologies, some pros and cons, and resources where you can do more research and get more information in deciding if solar or wind has any benefits for your agricultural business.

So metaphorically, “The Baling Wire” is what holds the contents of this quarterly newsletter together. It provides the Colorado AgrAbility Project with a place to contact more farm and ranch

families than we ever could in our travels across the state. It also gives us a place to provide information of interest to our primary audience: agricultural families impacted by disability issues and health challenges.

Farmers and ranchers with disabilities who would like information on whether there are assistive technologies that can help improve work participation or automate some on the farm tasks are welcome to contact Jason Beck, the AgrAbility engineer technician. He can be reached at : 1-800-335-2598, ext. 233.



Newsletter Name Change...no more spaceships

Please let us know if there are any subjects you would like to see covered in more depth, and we’ll see if we can “bale” it for you!



Power of the Sun!

“Solar and wind are two main sources of alternative energy. Each system has unique benefits and drawbacks”



Power of Wind!

Alternative Energy for the Farm and Ranch

What do you do when you need electrical power, but power lines are not already available? This is a common problem for a rancher when he needs to supply water for livestock. Up until now the only options were to install power lines, run an electric generator, or install a windmill. However, alternative power sources are becoming an economical and efficient solution.

The two main sources of alternative energy are wind and solar power systems. Each system has unique benefits and drawbacks that are briefly described below.

Wind

Wind systems are comprised of a wind turbine generator, a tower, the necessary controlling components, and a pump. The size of the generator and tower are dependent on the wind conditions on a particular site, amount of water needed during the day and head pressure needed to pump the water.

One of the smaller wind systems can provide enough water for 80 head of cattle from a 100' well for a total system cost of \$5100.

There are a few important drawbacks to a wind turbine system. First, like a windmill the generator only produces power to pump water when the wind is turning the turbine. However an appropriately sized water storage tank could be used to store water while the pump is being powered. Also most wind turbine systems are stationary or difficult to move once in place.

The benefits of a wind turbine are that they are generally less expensive than a windmill and do not require a lot of maintenance to keep them operational. Unlike a windmill, a turbine can be located away from the well and con-

nected to the pump with electrical cable.

Solar

A solar system is comprised of a set of photovoltaic panels, necessary controlling components, and a pump. Again the number of photovoltaic panels depends upon the power needed to produce enough pressure to pump water at the desired rate from the well.

A typical solar system that could provide water for about 35 head of cattle from a 100' well would cost around \$2000. The capacity could be increased to 40 head of cattle with the purchase of a sun tracking device. This device moves the photovoltaic panels causing the sunlight to hit the panels for a longer period of time during the day.

The disadvantages to a solar power system include not generating as much power during cloudy days and not at all during the night. Again with an adequately sized water storage tank this problem can be solved. Power can be stored in a cache of batteries to operate on cloudy days or at night.

The advantages of a solar system are that most solar systems can be mounted on a trailer so that they can be moved to different well locations. Also, they require little to no maintenance and are very durable.

Cost

As with any upgrade in technology there is usually a sizeable initial investment. However because these systems are powered by “free” energy sources they can pay themselves off over time. There are also grants and low interest loans that are available to qualified individuals through various organizations designed to encourage the installation of these systems on farms and ranches.

Water pumping is only one use of this very powerful technology. There are also some investigation in using alternative energy sources to power electric fences, irrigation pumps, outdoor lighting, and even entire buildings. As prices continue to drop look for the application of this technology expanded into many other areas on the ranch or farm.

Benefits to someone with physical limitations: An individual with physical limitation may be able to utilize solar or wind technology to:

- Open/close gates. For a rancher with a mobility impairment, this would eliminate the need to get in/out of the pickup as frequently while checking pastures.
- Power tank heaters in remote locations. For a farmer or rancher with arthritis, this would eliminate the chore of chopping ice in livestock tanks.
- Electrify fences.
- Supply additional lighting. This could be beneficial to anyone working in a dark shed or building that has no power source.
- Charging a car or ATV battery.

Conclusion: As with any business venture, make sure you do your homework and conduct your own assessment of your needs. You need to have a good idea before you have a wind or solar dealer come out, that way you may be able to avoid unnecessary purchases of equipment or services.

Resources on Alternative Energy for the Farm and Ranch

For general information about alternative energies visit:

National Renewable Energy Laboratory
Visitors Center
15013 Denver West Parkway
Golden, CO 80401
303-384-6565
www.nrel.gov/visitors_center

U.S. Department of Energy
Denver Regional Office
1617 Cole Blvd. MS 1721
Golden, CO 80401
303-275-4826
www.eren.doe.gov/dro/

For information about grants and loans for alternative power:

United States Department of Agriculture
Rural Development Office for Colorado
655 Parfet Street, Room E-100
Lakewood, CO 80215
1-800-659-3656
www.rurdev.usda.gov/co/

U.S. Department of Energy
Denver Regional Office.
1617 Cole Blvd. MS 1721
Golden, CO 80401
303-275-4826
www.eren.doe.gov/dro/

A few Colorado solar and wind system dealers:

Alternative Energy, Inc.
Jeff Brady
401 S. Simms St.
Lakewood, CO 80228
303-984-0399
www.altenergyinc.com

RMS Electric, Inc.
Mark McCray or Dave Petroy
1884 55th St.
Boulder, CO 80301
303-444-5909
www.rmse.com

Check your yellow pages for local businesses:

Veritas Solar LLC
Keven Verity
P.O. Box 302
Naturita, CO 81422
970-865-2536
veritassolar@yahoo.com

Solar Energy International
Johnny Weiss
P.O. Box 715
Carbondale, CO 81623
www.solarenergy.org



Solar Panel and Tank

Check out grants and loans for alternative power that can help improve livestock production or lower energy costs.



Turbine and Water Tank

Note: Mention or display of a trademark, proprietary product, or firm in text or figures does not constitute and endorsement by the U.S. Department of Agriculture, Easter Seals Colorado, Colorado State University Cooperative Extension, or the Colorado AgrAbility Project.



Creating solutions, changing lives.

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National Cattlemen's Beef Association Support AgrAbility

Colorado AgrAbility would like to thank the National Cattlemen's Beef Association staff for their generous donation of \$8,500 to support AgrAbility services.

Each year, the employees of the NCBA host a golf tournament to raise money for charity. AgrAbility was a new recipient for 2002.

The NCBA is a marketing organization and trade association for America's one million cattle ranchers. THANKS, NCBA!!!

More information about the NCBA can be found at:
www.beef.org



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Equipment Corner

We keep an eye out for donated equipment to Easter Seals Colorado that may be of benefit to someone in the rural or agricultural community. Please call if you see an item you think you or someone you know could benefit from having...or if you have equipment you'd like to donate, let us know.

- 16" wide manual wheelchair
- Bath-tub safety rail.
- Bed-side hand rail.
- Walkers (several sizes)

- Grab bars.

We are looking for donations of:

- Electric Scooters
 - Power Wheelchairs
 - Tractor step kits.
 - Money donations for Assistive or Adaptive Technology for agricultural families impacted by disability issues.
- Make checks payable to:

Easter Seals Colorado AgrAbility Project. In the memo write: "for AT".