

Blowin' In The Wind

Farm Windmills Are Much More Than A Link To Our Past

BY RITA BRHEL
P&D Correspondent

Forests of white turbines with blades longer than train cars are sprouting up in the nation's windiest states, from California to Minnesota, creating a grid of alternative power contingent on a never-ending supply of wind. It's considered New Age, akin to ethanol and biodiesel fuel, solar and nuclear energy. But harnessing the wind is nearly as old as technology itself.

The first windmills — essentially turbines without electricity — were used in Persia at 500 to 900 A.D. for pumping water or milling grain and resembled a large merry-go-round with boat sails. Another vertical-axis windmill dates back to 1219 A.D. in China.

The first windmills to appear in Europe were of the horizontal-axis configuration around 1270 A.D. The forebear of today's windmill design, these too had cloth sails. Around 1390, the Dutch refined the design into a tower mill. Improvements were made steadily during the next 500 years until the windmill sails had all the major features recognized today as being crucial to performance. From then on, they were used extensively, from water-pumping and grain-milling to processing of timber, spices, paints, tobacco, and other commodities, and their popularity didn't wane until the invention of steam engines at the end of the 18th Century.

Then, in 1854 — 130 years after the first U.S. windmill was erected in Jamestown, Va. — the first of the modern design, the Halladay windmill, made its appearance in the American Midwest, upon which settlers depended on for water, both for home use and with livestock. The first windmills of this kind had four paddle-like wooden blades; subsequent designs thinned the blades and added a tail to orient the contraption into the wind. The steel blades came onto the scene in 1870.

Windmills quickly became an iconic part of rural American culture. More than 6 million small-output wind machines — those designed for

home use — were installed between 1850 and 1970.

Today, these steel-bladed windmills are largely considered of a prior time, before electricity, a leftover of the pioneer days. They serve to remind people of what life was like pre-light bulb, pre-automobile, pre-hydrant.

There once was a windmill on every homestead, but as farms disappeared and pasture was turned into cropland, windmills have been plucked out of the landscape one at a time until now, they are an uncommon sight. And, even more unlikely, is a windmill with the rotor on top of the tower, or all the blades. A working windmill is a rare find.

These small-output windmills atop their cage-like towers — versus the sleek tri-blade design of the massive turbines of today's wind farms or the smaller versions for off-the-grid homes — have been relegated in many people's minds to personal antique collections or heritage museums. A windmill still standing in a pasture may conjure thoughts of nostalgia, but without a real purpose — or is there?

In pastures without access to surface water, such as stock ponds or creeks, producers must develop another way to water their livestock. Rather than digging and installing water lines for stock tanks, alternative energy can provide water at a relatively low cost. Producers with a working windmill have an easy choice, but producers starting from scratch often lean toward solar power.

The U.S. Department of Agriculture's Natural Resources Conservation Service recently hosted a webinar re-introducing windmill usage to producers. Here's a comparison of windmills and solar systems side by side, in terms of water-pumping:

- Solar systems — costs an average \$4930 equipment and installation, produces an average 3120 gallons per day if at least eight hours of sun per day.
- Modern windmills — costs an average \$6700 equipment and installation, produces an average



PHOTO: RITA BRHEL

4320 gallons per day if at least 15 mile-per-hour winds.

Some producers may be tempted to go with the less expensive option between the two, said Craig Runyan, the water resources specialist who presented for the NRCS, but it's important to note that solar systems can only work during the day and windmills can work night and day, so the higher cost of installing windmills translates into double the results of solar. For areas with plenty of windy days, such as South Dakota and Nebraska, windmills make more sense than solar systems. For areas with lower annual rainfall, and therefore more sunny days, solar systems are more comparable.

In addition, solar panels are easily damaged compared to windmills, and the pumps used with solar systems are more easily damaged by low water quality caused by suspended solids. Pumps used with windmills are not as temperamental. "Solar panels also seem to be

easy targets for vandals," Runyan said. "People like to shoot at them."

The best of the two options would be a system that combines solar and wind power, so that either can be the back-up to the other on calm days or cloudy days, but as of yet, the technology for this isn't available yet.

The major requirement for a future or present windmill site is one with a good well. The well is small-diameter hole drilled from the surface into the aquifer. Generally, wells are considered abandoned if not in use for three consecutive years, so a new well should then be drilled. Any reputable well driller will know both regulations and best practices to drilling a well. One of the primary requirements is to separate the well area from land-use risks, such as livestock pens and septic tanks.

"If the well driller knows what he's doing, there is no reason that well shouldn't be there indefinitely," Runyan said.

Herbicide Drift: Do The Neighborly Thing

BY RITA BRHEL
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I don't know where Summer lives, but I do know that she's not alone.

Summer lives on a small acreage with cropland on all sides. She gets along with the farmer who owns the land, and he tries to give her a heads-up of when the local co-op will be spraying herbicide on the fields. But, sometimes he forgets and calls after the spraying is done. The co-op itself never calls.

Every year, Summer's garden has to be replanted because of herbicide drift. She's tried moving the garden closer to the house, away from the property line, to no avail. She's even had damage some years to the ornamental plants in the beds just outside her front door. Her house is situated 200 feet from the property line, far enough that drift shouldn't be a problem if regulations regarding wind speeds — specifically not spraying if winds are more than five miles per hour — are followed.

Sometimes, Summer doesn't learn that the field has been sprayed until after she and her children have been playing outside in the yard all day, including the youngest, still in diapers, crawling and not yet walking. On occasion, Summer has real-



Rita BRHEL

ized that her children had been eating mulberries off the bush bordering the property line only hours after spraying. If that part about the baby crawling around a recently sprayed (unbeknownst to Mom) lawn doesn't make you shudder, then you probably don't mind eating chemically treated mulberries. But if you do, or if you spray fields yourself, you should know that chemical drift that causes damage can make you liable for that damage. And if your property has experienced damage, you should be reporting it.

Now, Summer said that she didn't

want to cause any problems with her neighbor and certainly didn't want him to lose income by not spraying so close to her house. But on the other hand, it's her property and her family that's in danger from repeated exposure, and any farmer who thinks that's not a big deal ought to be held accountable.

Where to report depends on the state. In Nebraska, contact Craig Romary with the Nebraska Department of Agriculture's Animal and Plant Health Protection program, at 402-471-6883 or craig.romary@nebraska.gov. In South Dakota, fill out this online form or print to complete and mail: <https://www.state.sd.us/eforms/secure/eforms/E2093V1-PesticideComplaint.pdf>.

While not intended for homeowners, Driftwatch is an online program designed to improve communication between applicators and owners of commercial fields and aparies who

qualify as pesticide-sensitive crops and habitats in Nebraska: <http://nebraska.agriculture.purdue.edu/>. It includes a place to register your location as well as maps and other resources. Driftwatch programs are springing up in other states, so hopefully one will be available for South Dakota in coming years.

I'm fortunate that the farmers whose cropland borders our land are conscientious about when to spray, but I know others who haven't had the same relationship with their neighbors. Vegetable and flower gardens, vineyards and windbreaks have all suffered devastation from applications both on the ground and in the air. Crop-duster injuries seem to be pervasive near where I live.

But, just because the herbicide being applied is meant for an income-producing crop, it doesn't mean the applicator has the right to be sloppy and spray it all over the neighbor's yard. Be sure to report if your property receives damage; it may be the only way the applicator knows he needs to be more careful next time. Plus, it's your right.

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June 1 Deadline Approaches For 3 Programs

HURON — USDA Farm Service Agency (FSA) State Executive Director Craig Schaunaman reminds producers that the June 1 deadline for Supplemental Revenue Assistance Payments (SURE), the Direct and Counter-Cyclical Program (DCP), and the Average Crop Revenue Election Program (ACRE) is fast approaching.

The SURE program compensates producers for production and/or quality losses during times of disaster. All producers who have experienced crop production and/or crop quality losses during the 2010 crop year must apply for SURE program benefits by the June 1st deadline. Eligibility requirements differ between producers located in counties designated as a primary or contiguous disaster county by the Secretary of Agriculture and between producers located in non-disaster counties. In addition to other eligibility requirements, producers must have purchased Multi Peril Crop Insurance and/or Noninsured Crop Disaster Assistance (NAP).

While SURE helps after natural disasters strike, DCP and ACRE provide income support when there is a decline in commodity prices. Eligible DCP participants receive a direct payment and/or a counter-cyclical payment. Direct payment rates are established by statute regardless of market prices. FSA reminds producers that the 2008 Farm Bill does not authorize advance direct payments for 2012. Counter-cyclical payments vary depending on market prices, and are issued only when the effective price for a commodity is below its target price.

ACRE protects producers from farm market revenue declines when revenue triggers are met for a commodity at both the state and farm level. All owners and operators who will share in DCP and ACRE payments on a farm must sign up by June 1.

For more information on these programs or other programs administered by FSA, please contact your local FSA office or on the web at www.fsa.usda.gov.

Final Applications For Organic Initiative Due

LINCOLN, Neb. — USDA Natural Resources Conservation Service (NRCS) State Conservationist Craig Derickson reminds potential applicants to contact their local NRCS office soon to find out if they are eligible for the agency's Organic Initiative. Applications for the final ranking period of 2012 are due at NRCS offices by close of business on June 1. The NRCS Office Locator is available at <http://go.usa.gov/Uo8>.

Nationwide, NRCS has nearly \$50 million in financial and technical assistance available to certified organic producers, those who want to make the transition to organic production and producers who sell less than \$5,000 in organic products annually.

Increasing demand for organically grown foods provides new opportunities for small and mid-size farmers to prosper and stay competitive. This initiative will allow more producers to get the needed assistance in protecting the natural resources on their land and, at the same time, creating conditions that help foster organic production.

Part of the Environmental Quality Incentives Program, the Organic Initiative offers a wide array of conservation practices specifically designed for organic production. These practices will help the selected applicants meet many requirements of their USDA Organic System Plans and stay in compliance with USDA's National Organic Program. The top five Organic Initiative conservation practices are cover crops, nutrient and pest management, seasonal high tunnels, crop rotation, and fencing.

Changes for the 2012 signups include three ranking periods for current and transitioning producers; a threshold ranking score that can speed up approval for qualified applicants; required conservation practices that promote the consistent use of those practices; and an expanded list of conservation activity plans.

Learn more about the Organic Initiative at <http://go.usa.gov/Uo9> and find out about other NRCS initiatives and programs at <http://go.usa.gov/UoX>.

Low-Stress Livestock Handling Workshop Set

BROOKINGS — SDSU Extension hosts Tri-County Ag Day June 8 at the SDSU Cottonwood Research Station.

The event is being planned by SDSU Extension Cow/Calf Field Specialists who are partnering with local communities to bring an annual event that will focus on a different important topic to farming and ranching each year, as well as showing appreciation to local farmers and ranchers for all they do to keep small communities thriving. Local businesses are sponsoring the event and taking part in a trade show throughout the day.

The featured presenter is Dr. Tom Noffsinger, DVM from Benkelman, Neb. He is well-known as an expert on low-stress livestock handling. He is an owner and member of Production Animal Consultation, which is a group of professionals who provide information on stockmanship and animal welfare.

Registration begins at 10 a.m. The program runs from 10:30 a.m. to 5 p.m. with a tradeshow running all day and an Ag Appreciation dinner at 6 p.m. The dinner is sponsored by local businesses.

To register for the dinner and Dr. Noffsinger's presentation, contact Paulette Morse at 605-394-1722 by June 1.