



<http://www.ext.nodak.edu/extnews/spouts/>

# water spouts

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## Mark Your Calendar for These Irrigation Workshops

- **Wednesday, Dec. 3, 2008**

*Bismarck Best Western Ramkota Hotel*

This workshop is for potential irrigators. Participants are encouraged to bring field-specific information for the proposed irrigation development. This workshop will start at 1 p.m. The program will have short presentations on irrigation development requirements followed by one-on-one sessions to answer site-specific questions.

- **Thursday, Dec. 4, 2008**

*Bismarck Best Western Ramkota Hotel*

This workshop is for experienced irrigators. It will be held in conjunction with the North Dakota Water Users annual convention. The Missouri Slope Irrigation Development Association (MSIDA), NDSU Extension Service and North Dakota Water Users sponsor this workshop. As part of the convention, there will be an irrigation exposition where participants can visit with irrigation dealers and equipment suppliers. Topics include irrigation budgets, optimizing fertilizer requirements, strip-tillage research, research on alternative irrigated crops, determining irrigated land rental rates, dryland and irrigated cover crops, diesel to electric conversion, status of EQIP and wireless applications.

- **Wednesday, Dec. 17, 2008**

*Ernie French Center, Williston Research/Extension Center*

This workshop is for irrigators in the MonDak region, with topics selected specifically for the area. The North Dakota State University Extension Service is hosting the workshop. Topics include irrigated crop yields, an update on Nesson Valley irrigation research, strip-tillage, irrigated crop budgets, EQIP update,

Roundup Ready crop management, irrigation scheduling and irrigation water management. The contact person is Chet Hill, NDSU Extension Service area value-added specialist at the Williston REC. He can be reached at (701) 774-4315 or [chet.hill@ndsu.edu](mailto:chet.hill@ndsu.edu).

- **Thursday, Dec. 18, 2008**

*Bevs Café, 117 Main Street, Turtle Lake*

Interest in irrigation development in the Turtle Lake area has been increasing. This workshop will feature presentations on dealing with water service contracts from the Bureau of Reclamation, irrigated crop budgets, water permits, power requirements and availability, and other topics. For more information, contact Mike Liane at (701) 662-1364 or [michael.liane@ndsu.edu](mailto:michael.liane@ndsu.edu).

More information about the workshops will be mailed in November. If you have any suggestions for topics to cover at the workshops, contact me by phone, e-mail or letter.

## Beware of Metal Thieves

Due to the high cost of metal, thieves have been stealing everything from brass sprinkler heads to copper wire on center pivots. Thieves have been targeting irrigation systems because brass, aluminum and copper are common components. On electric powered center pivots, a favorite of thieves is the power line that runs along the top of the spans from the pivot point to the endgun. This wire usually is held in place with simple clips on the top of the span, so the thieves only need to attach a severed end to a pickup. They drive the length of the pivot to pull the wire off, load it up and drive away. It takes less than 15 minutes. Power panels, wiring to the motor and transformer and grounding rods are common theft items. Aluminum pipe is another favorite target. If left in the field and in plain sight of a nearby road, it becomes an easy target.

To protect your irrigation equipment, take time to look at your system from a thief's point of view. Remember that thieves will use snowmobiles in the winter. Take steps to make it difficult for the thief to

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steal any of your equipment. This might involve hiding aluminum pipe in tree belts or moving it to your farmstead. Remember that out-of-sight can mean out of harm's way. Covering or camouflaging pumps and motors might be another option. Center pivot manufacturers are making better, more secure clips for the power cable on top of the span pipes. If your pivot is easy to get to from a road, check with your local irrigation dealer about more secure fasteners.

## Pressure Gages Are Important

The pressure gage often is an overlooked and neglected instrument on irrigation systems. However, it is probably the most important indicator of proper irrigation system operation. Accurate pressure gages installed on the pump discharge line and pivot point can be used to estimate the head loss because of friction loss and vertical lift. They also indicate if there are pump problems or leaks in the pipe.

Every time you turn the pump on, the pressure gage receives a "shot" due to pressure fluctuations from filling the pipe. In addition, there often are pressure fluctuations and vibrations while the pump is operating. Because of these conditions, pressure gages (even liquid filled types) lose their accuracy after a couple of growing seasons.

If your pressure gages are old and you question their accuracy, buy replacements this winter or next spring. When you attend an irrigation dealer's open house may be a good time to buy. For center pivot irrigation systems, the gage located at the pivot point probably is the most important and should be the first one replaced.

Since a pressure gage only conveys useful information when you are looking at it, you may want to consider installing a small shutoff valve between the gage and the pipeline. When you want to check the pressure, just open the valve. This will extend the life of the pressure gage and ensure you are getting accurate readings. This also makes it easier to replace the pressure gage when the system is in operation. Quarter-inch metal shutoff valves can be purchased at most hardware or farm supply stores.



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## Fall Maintenance for Irrigation Equipment

We all know that proper maintenance extends the useful life of irrigation equipment. Fixing small problems in the fall is much less expensive than repairing a major breakdown next year. To winterize your irrigation system, read the service manuals or the checklist in this article. If you don't feel confident doing the maintenance or don't have the time, contract with an irrigation dealer to do the work.

### Water delivery system

If your water source is a well, fall is the proper time to chlorinate it. Chlorine will control iron bacteria that, if left unchecked, will plug the screen and reduce the production capability of the well. The chlorination procedure is outlined in NDSU Extension circular AE-97, "Care and Maintenance of Irrigation Wells." You can get a copy from your county Extension office or the NDSU Agriculture Communication distribution center at (701) 231-7882. You also can find it on the Web at [www.ext.nodak.edu/extpubs/irrigate.htm](http://www.ext.nodak.edu/extpubs/irrigate.htm).

Pipes, valves, tanks, centrifugal pumps, etc., should be drained or pumped out to prevent damage from freezing. Underground pipelines need to be drained or pumped. Drains and pump-out risers should be capped following draining or pumping to keep water from seeping back into the line. Pipeline pump-out locations should be checked a couple of days after pumping. If the pipe is full of water, it will need to be pumped again. Protect pump-out risers and other equipment from livestock. Be sure to close or cover any openings that might invite rodent entry.

### Electrical motors and control panels

- ✓ Check all motor openings to see if they are properly screened to keep rodents out. If a screen is damaged or missing, replace it with a quarter-inch metal mesh screen. This screen can be left in place during operation without plugging up with dust and debris. Electric motors do not need to be covered. Left open to allow free air movement will keep moisture condensation in the motor to a minimum.
- ✓ Lubricate all bearings.
- ✓ Lock the control box in the "OFF" position.
- ✓ Spray electrical contacts with contact cleaner to displace dirt and moisture and prevent corrosion.
- ✓ Replace panel door seals if hard or broken to keep moisture and dust out.
- ✓ Check the level of oil in the reservoir and change it if discolored.

## Pumps

- ✓ Lubricate all bearings. If oil lubricated, after the pump is cold, open the oiler and let oil drip onto the line shaft bearings. Rotate the shaft to distribute the oil over the entire bearing. The cold oil will adhere to the bearings and provide good winter protection.
- ✓ Drain the water from the pump and connecting pipelines. Replace the plugs.
- ✓ If used, loosen the packing gland.
- ✓ Lubricate the shaft.
- ✓ Loosen any belts. Insert greaseproof paper between the belts and pulleys.
- ✓ If possible, remove the flow meter and pressure gages and cover the holes. If the flow meter or pressure gages do not work, this would be a good time to have them repaired or replaced.

## Aluminum pipe

Pipes should be stored on racks so that one end is above the ground to permit drainage and air circulation. With metal prices very high, store the pipes at your farmstead, if possible, to deter thieves. If left in the field, store the pipes out of sight.

Protect the pipes from livestock to avoid damage. Remove and inspect the gaskets. If any gaskets are damaged or leaked during use, purchase replacements before next year's irrigation season. Store the gaskets in clean water and in a place that will not freeze. This prevents the gaskets from cracking and drying out. Do not store gaskets on a nail or hook. If they cannot be stored in water, place them over a tube about the same size as the gasket and keep them out of direct sunlight. Covering the gaskets to restrict air movement also will help prevent drying and cracking. Loosen the connectors on the pipes left in the field.

## Sprinkler systems

- ✓ Each sprinkler head should be inspected. Make sure the nozzle is not chipped or broken. Look for any broken parts on the sprinkler. Note the location of the damaged sprinkler heads and replace or fix them before the next irrigation season.
- ✓ Check all gearboxes for moisture accumulation and that each contains the proper amount of grease. Drain off any moisture. If excessive moisture is evident, drain and replace the grease because water mixed with grease will not provide the needed protection.
- ✓ Lubricate all fittings.

- ✓ Check the water drain valve at each span of a center pivot system.
- ✓ Remove and clean the system end cap. Here is where sand, scale and other debris collects during the summer. Remove the sand trap, flush the system and replace the trap. Drain all water-carrying lines. Drain the booster pump case.
- ✓ Park the system into or with the prevailing wind, which is northwest or southeast. If livestock will be in a field with the system, it should be fenced to protect the equipment. Cattle can damage sprinkler drop tubes and exposed wiring.

## Chemical injector pumps

- ✓ Flush with water. If belt driven, loosen the belt. If transportable, store the pump in a clean, dry place.
- ✓ Drain and refill the gearbox and lubricate the pump.

## Internal combustion engines

Internal combustion engines need special attention paid to the cooling system, ignition, engine openings, fuel system and lubrication. It would be ideal if the engine is winterized and stored inside. Where it is impossible to provide housing, proper winterization is very important.

- ✓ Change the oil and filter when the engine is warm, then run the engine briefly to circulate the oil. Clean and replace the air cleaner.
- ✓ Remove and clean the spark plugs and pour 2-ounces of oil into each plughole. Replace the plugs when finished. Rotate the crankshaft several turns to allow the oil to coat the cylinder walls.
- ✓ The cooling system should be flushed and refilled with the proper antifreeze solution. This will prevent rust and scale from forming in the cooling system.
- ✓ For gasoline engines, add fuel stabilizer and run the engine or drain all the fuel from the tank, lines and carburetor. For diesel engines, fill tank. DO NOT drain the tank. Replace the fuel filter and leave all lines and injectors filled with diesel fuel. For LP gas engines, drain the vaporizer-regulator (fuel and water lines).
- ✓ Seal all openings with weatherproof tape (air cleaner inlet, exhaust, distributor cap and crankcase breather tube).
- ✓ Lubricate all accessories and loosen all belts. Remove the battery, charge it and store in a cool, dry place.

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