

UNL Extension: Acreage Insights

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Have Your Private Well Water Tested Now

By [Sharon Skipton](#), UNL Extension Water Quality Educator



Many of us thought it would never warm up this year. It's finally warm. More importantly, the soil is finally warm, which makes this the perfect time to have your private well water tested.

State and federal regulations do not require you to have your private water supply tested. It is recommended that you voluntarily have your private water supply tested annually for bacteria and nitrate contamination. Why now? Coliform bacteria are most likely to be found during periods of wet weather when the soil is warm. In addition, runoff and excess soil moisture can carry contaminants into shallow groundwater sources or through well defects. Therefore, this is the perfect time to have your water tested.

There is no single test to determine the safety of drinking water. Testing for bacteria and nitrate does not guarantee the water is safe, as other contaminants could be present. Aquifers, which supply groundwater, are vulnerable to many types of contamination. Contaminants can enter aquifers and groundwater from septic systems, landfills, fertilizer and pesticide use, sewage, animal waste, fuel storage tanks, and many other sources. Even distant contamination can negatively impact a water supply given time, as groundwater moves slowly. In addition, some contaminants are introduced to groundwater from naturally occurring sources such as the rock and minerals that make up the aquifer.

It would be costly, and in most cases unnecessary, to have your private water supply tested for the nearly 100 contaminants for which public water supplies are required to test. You must decide if you want to have your water tested for contaminants in addition to bacteria and nitrate and, if so, which contaminants are of concern.

In general, consider having tests done for other substances when specific contamination is suspected. This might be the result of a spill, backflow, use of product in close proximity to the well, or other such event. If any contaminant is detected in a nearby private or public well, consider having your water tested for the contaminant.

Many Nebraska laboratories offer testing services including water analyses. The Nebraska Department of Health and Human Services approves laboratories to test drinking water samples. Not all laboratories are approved to test for all drinking water contaminants. Approval must be obtained for each specific contaminant. The Nebraska Department of Health and Human Services can provide information on request regarding all laboratories located and approved in Nebraska, and can provide information on the specific contaminants for which each is approved. They can be reached at 402 471-8407 or laurie.wieting@nebraska.gov.

Take a Stroll in the Pasture

By [Steve Tonn](#), UNL Extension Agronomy Educator

A long walk on a nice summer evening is hard to beat. Here's an idea, take a stroll through your pasture and evaluate the pasture resources on your acreage or small farm. After last year's drought and its impact on our pastures, a pasture walk is even more important. Invite other family members or friends to join you.

Dr. Stephen Barnhart, Iowa State University Extension forage agronomist, suggests that to get the best view of plant recovery and vigor wait until there are 2 to 3 inches of spring regrowth. Then walk through your pastures and consider:

1. Have there been any changes in plant species since the last season?
2. Is the pasture density less than last season?
3. Is there evidence that weeds will be more of a problem?
4. Is there active erosion or localized damage due to supplemental hay feeding?



Damaged pasture area with invading weeds.

Pastures with little or no drought damage should have overwintered well and have a stand density of 80 percent sod cover or greater. These pastures should recover with good growing conditions. Even with apparent “normal growth”, plants have had some drought and use stress, and they may require a deferred grazing for a couple of weeks longer than usual for complete recovery.

Pastures with greater drought damage may have some stand loss, with less than 80 percent sod cover. These pastures will benefit from deferred spring grazing. Interseeding with legumes may also be an option to thicken up the stand. Even with deferred fertilization, overseeding and weed

management, these pastures may require good growing conditions and two to three months of careful grazing management for complete recovery.

Severely damage stands (stands with less than 40 percent sod cover) are going to require good growing conditions, weed management, an aggressive overseeding effort (or even complete renovation) and patience for adequate recovery opportunities.

Pasture walks can be a valuable assessment tool. Routinely walking your pastures can provide useful information for short-term management decisions about grazing pressure, fertility needs, weed control, forage availability and overall pasture management. For help with getting started with a pasture walk or help with pasture management questions, contact your local University of Nebraska-Lincoln Extension Office or your local Natural Resources Conservation Service Office.

Summer is a good time to evaluate your pasture and your management practices. So take a nice evening walk in your pasture.

Leafy Spurge – Best Treatment Options

By [Brent Meyer](#), Lancaster County Weed Superintendent



Leafy spurge is in full bloom now and treatment is recommended to keep it from producing seed. If you are tired of treating every spring with poor results we suggest you switch your treatment program to include a fall application. Treat with herbicides at least two weeks prior to a killing frost for best results. This is the time when the plant is taking down nutrients to help get it through the winter and will carry the herbicide deeper into the root zone. This is far more effective than just burning off the top growth when treating in the spring. For proper herbicide rates use the [UNL Extension 2013 Guide for Weed Management](#) and follow the label directions.

Considered one of the most serious perennial weed species, leafy spurge is threatening millions of acres of pasture and rangeland in the western United States. It is one of the most persistent and difficult to control perennial weeds yet encountered.

Leafy spurge plants are one to two feet high and the stems contain a milky white latex sap. This colorful plant has greenish yellow bracts that support the actual flowers. The seed pods break open at maturity, shooting seeds 15 feet or more from the parent plant. The root systems have numerous pink buds that produce new shoots, and pieces of root as short as one-half inch will give rise to new leafy spurge plants.

Achieving control on a large area of leafy spurge is costly and difficult. It is advisable to control the small patches before they spread and become a more costly problem. Leafy spurge is an aggressive plant; therefore a programmed approach achieves best results. Plan a complete three to four year re-treatment program. Mark the location with some type of permanent marker such

as a T-post so you can find it again next year as the stand begins to weaken. Whenever an infestation has been controlled, inspect the area every spring and fall for several years to prevent re-infestation by seedlings.

Contact the Weed Control Office at 402-441-7817 or email weeds@lancaster.ne.gov for help in developing a control plan that's right for your situation.

The Miller Moth Returns

By Jeff Bradshaw and Robert Wright, UNL Extension Entomologists



Early this year we mentioned the large population of army cutworm larvae that had been reported in western Nebraska. Those cutworm larvae turn into moths that are commonly known as “miller moths” in the spring.

Spring miller moths have begun their emergence in some parts of Nebraska. The moth's initial arrival can be noted by the presence of birds scattering about in the streets to chase down the succulent treats (the moths are attracted to street lights at night). What isn't such a treat (for us) is that the moths can invade homes, garages, and vehicles. When disturbed, great clouds of moths can suddenly disperse and often defecate as they disperse. While sometimes irritating, they cause little harm and are present in large number for only a few weeks. There is a return flight in the fall; however, there numbers are often much less.

Description

Army cutworm moths or millers usually begin to appear in early to late May. The moths are generally gray or light brown, with a wingspan of 1 1/2 to 2 inches. Each forewing is marked with spots, wavy lines, and other dark and light markings. The moths prefer to feed at night on the nectar of flowering shrubs and trees. This feeding does not harm the plants. As dawn approaches, they congregate and may enter homes, garages, barns, and sheds in search of resting sites. Narrow cracks or crevices are preferred, but any protected area is suitable. If they are disturbed during the day, they will quickly escape and find new hiding places.

At dusk, the moths re-emerge and continue feeding on nectar or migrate to other areas. Some moths, however, may enter homes where they become a nuisance. With the exception of

occasionally staining curtains and other surfaces with their droppings, they cause little harm.

Just a Stop on Their Migration

The great hoards of millers noticed in the spring are a result of the migratory nature of these animals. The severity of moth aggregation during the migration will depend on spring cutworm populations and environmental conditions. Moths emerging in Nebraska tend to remain in the area for two to three weeks but may stay for up to six weeks or as long as local plants are flowering. Cool, wet conditions during this time will extend their stay. Hot, dry conditions will encourage them to move westward.

The moths will migrate westward to higher elevations as they follow the progression in the initiation of spring flowering plants. During this time, with the aid of easterly winds, moth concentrations can increase dramatically. When the last trees finish flowering (e.g. locusts and lindens) and average temperatures increase in the high plains, the moths move to the Rocky Mountains.

This migration allows the moths to escape severe summer temperatures and find alpine flowers, their primary food source. When the alpine summer comes to a close in September, the moths once again take flight, returning to the plains. Army cutworm moths are noticed throughout Nebraska from mid-September through October. As they migrate eastward, they mate and lay eggs in barren or sparsely vegetated fields, especially winter wheat, alfalfa and grasslands. The eggs hatch within a few weeks and the larvae begin to feed.

Management of Millers

When millers emerge and begin to move westward in the spring, area residents have little recourse but to patiently await their departure. There are a few tactics, however, that can help lessen moth activity in and around homes:

1. Keep outside lighting to a minimum. These nightflying moths are attracted to lights. A porch light, inadvertently left on, can attract hundreds or even thousands of these pests.
2. Where lighting is necessary, use yellow light bulbs. Yellow light will not attract as many moths because insects do not sense this color very well.
3. Seal cracks and crevices with caulking. Place weather stripping around doors and windows. Repair all screens in windows, doors, attic vents, etc.
4. Consider using a landscape that minimizes flowering plants and dense vegetation near houses.

If millers enter a house or other buildings, they can be swatted, vacuumed, or trapped. An insecticide application will have limited effectiveness as it will only kill those that it contacts. The best solution is to simply keep doors and windows closed, keep porch lights off and patiently wait for these annoying migrants to move on.

Source. Based on information from [Spring Millers](#), 2002, UNL Extension NebFact 526, by Ron Seymour and Gary Hein

Tree Care After Planting

By [Kelly Feehan](#), UNL Extension Educator

Many trees are planted each spring. Once the right tree is selected for the location and planted at the correct depth, the next steps are correct watering, mulching and staking. Practices to avoid at planting and usually for the first year after planting are fertilizing with nitrogen and pruning.

Watering

Water is critical to root establishment. Even so, more young trees die from too much water than from not enough. This is especially common in denser clay soils or in over-irrigated lawns. Too much water suffocates roots because they require oxygen as much as they need water.

As a rule, maintain a consistently moist soil about eight to 12 inches deep and be sure to moisten the soil outside of the root ball. This will promote root growth outward into surrounding soil. The amount of water and frequency of watering needed to do this depends on the type of nursery stock selected, the soils texture, tree species planted, and weather conditions.

There really is no standard answer such as water once a week with a certain amount of water. This might be too much on a clay soil or for a red oak tree, but too little on a sandy soil or for a river birch.

As a general recommendation, the Nebraska Forest Service recommends watering trees immediately after planting and again the next day. Then water three days later and once again three days after that.

From then on, the key is to monitor the soil around the tree and irrigate as needed. During dry summer spells, balled and burlapped (B&B) trees should be watered about once every seven to ten days if planted in clay soils and about once a week if planted in sandy soils.

Sprinkler systems may provide sufficient water up until summer heat arrives. During the hottest, driest parts of summer, a newly planted tree is likely to require additional water. Container-grown trees will dry out faster than B&B trees. Monitor trees and soil moisture closely.

Mulch

Mulch protects tree roots from extreme temperatures, eliminates weed and grass competition, conserves soil moisture, and keeps lawn equipment away from tree trunks. However, too much mulch can trap moisture at the base of the trunk and negatively impact root growth.

If there is too deep of a mulch layer, roots will grow into the mulch. These roots tend to dry out and die during the heat of summer and are killed by cold winter temperatures. This adds additional stress to young trees trying to recover from transplant shock.

When mulching, use organic mulch like shredded wood. Mulch the tree at least out to the trees drip-line (ends of the branches). Next to the trunk, keep the mulch only one inch thick. Outward, towards the edge of the root ball or at the trees drip-line, mulch can be up to four inches deep but no deeper.

Staking

Staking should be done on trees that are tall and leggy and planted in high wind areas. Keep in mind trees are staked to anchor the root ball, not to eliminate movement of the stem or tree canopy (branches and leaves). The goal is to prevent the root ball from rocking and tearing new roots.

When staking, use materials that will not rub against the trunk and create wounds. Do not stake too high on the tree and only stake a tree for one year after planting. If large trees are moved with a tree spade, they may require staking for two years.

Source: Nebraska Forest Service



Excess mulch application negatively impacts tree health.

Top 10 Lawn & Landscape Irrigation Tips

By [John Fech](#), UNL Extension Horticulture Educator



The good news about lawn and landscape irrigation is that you can have your cake and eat it, too! Lawns and landscapes can be designed and maintained to be good looking and water conserving. From the home office in Wahoo, NE, following are 10 useful tips (David Letterman style) to accomplish both objectives.

- 10. Monitor system output.** Measure the amount of water applied in a 15 minute period using collection devices such as tuna or coffee cans. Adjust the runtime to deliver the required amount.
- 9. Know how much water is needed.** Kentucky bluegrass lawns, in general, require 1 inch per week in April and May, 1-1/4 inch per week in June, 1-1/2 in July and August, 1 - 1/4 in September and 1 inch in October.
- 8. Measure water penetration.** Use a screwdriver or soil probe to measure moisture (rainfall + irrigation water) penetration into the lawn.
- 7. Water to the bottom of the roots.** Use a small shovel to determine how deep the roots are. Actually the soil should be kept moist to about half an inch deeper than the deepest roots to encourage downward growth. Roots are shallow in summer and deeper in spring/fall.
- 6. When watering on a slope, use “delayed starts.”** Run your sprinklers until you notice runoff, then stop. Wait 3 hours, then resume. Aerate to increase infiltration.
- 5. Water in the early morning (4am to 10am).** This allows the grass blades to dry, making them less susceptible to foliar diseases. Watering is more efficient in morning due to less evaporation and wind speed. Change the time that your system runs monthly, or at least seasonally. Contact a lawn sprinkler professional if you need help.
- 4. Observe your sprinkler system once per month.** Look for heads that don't turn, heads that spray into the street or onto a sidewalk, bent or damaged heads, clogged or worn

nozzles or orifices, turf growth around heads that impede water delivery, puddling and runoff.

3. Monitor the spray patterns. Adjust heads as landscape plants grow larger and begin to block the spray pattern. New installations of benches, decks, etc. can also decrease irrigation efficiency.

2. On days when temperatures are above 90°F, run your sprinklers 5 to 10 minutes per zone in the afternoon to cool the turf and reduce stress. This is called “spritizing,” and it reduces the symptoms of summer patch disease.

1. Create water zones by putting plants together that have similar water needs. Each turf species has a different water requirement which is also distinct from ornamentals. Ornamental plants should be grouped into low, moderate and high water users. Each zone of plants should be irrigated according to its needs.

Drip Irrigation- Low Flow is the Way to Go

By [Sarah Browning](#), UNL Extension Horticulture Educator

Providing water for large landscapes, or windbreak plantings can be labor intensive and time consuming, and the cost of water used adds up quickly. In these situations, drip irrigation is the most efficient watering method to use- 90% efficient compared to 50-70% efficient for sprinkler irrigation- proving that low flow is the way to go. Hardly any water is wasted through wind, evaporation, run-off or overspray.

Additional benefits of drip irrigation include the following.

- Drip irrigation makes supplying water to narrow, or odd-shaped areas easier. And it's great for all types of garden areas.
- Water is applied slowly, reducing the risk of soil erosion or compaction.
- Drip irrigation can be operated during windy periods, without significant water lost to evaporation.
- Low volume water application preserves a good water/oxygen ratio in the soil, which is necessary for healthy plant root growth.
- Plant disease resulting from overhead irrigation, and wetting of plant leaves, is eliminated.
- Drip, or micro-irrigation, is the best way to apply water to berms and slopes. The slow rate of water application created with these systems allows the water to soak into the soil more easily, instead of running off down the slope or side of the berm.
- Systems can be run by connecting them to an AC or battery powered controller unit, which automates the system runtime for busy homeowners.
- Drip irrigation supplies are readily available, and can be installed by do-it-yourselfers.

Soaker hoses or “leaky pipes” are the least expensive form of drip irrigation available for home landscape plantings. They weep or drip water through the sides of the hose wall. Soaker hoses can be coiled through a landscape planting and buried under mulch. They also can be automated through the addition of a battery-operated timer/valve at the hose connection.

Also known as micro-irrigation, a drip system is constructed using a network of 1/2 to 3/4 inch diameter black polyethylene pipe that delivers water under low pressure to plants. The main pipeline may have several lateral lines. Pipes can be laid along tree rows, through vegetable gardens, or landscape beds.

Drip Irrigation Emitters

A critical feature of every drip irrigation system is the emitter. They are designed to release water so slowly that water drips or trickles from emitter’s opening, which gives this watering system its name. There are two main types of emitters- pressure compensating and pressure sensitive. Pressure compensating emitters provide the same amount of water to all emitters along the length of a pipe. Pressure sensitive emitters provide a higher amount of water when higher water pressure is available. Emitters can be attached directly to the plastic piping, or connected to 0.25 inch microtubes allowing placement near plants further away.

The amount of water applied by emitters is measured in gallons per hour, and various flow rates can be selected based on your system, or plant needs. Common emitter flow rates include 0.5, 1, 2, or 4 gallons of water per hour (gph), allowing you to choose emitters that apply water at the proper rate for your soil type and plant needs. Emitters are often color-coded by their flow rate, making them easier to identify as you install or modify your system. However, not all irrigation system manufacturers use the same color code system. So consider purchasing all your equipment from one manufacturer to keep things simple.

Bubblers are another type of emitter, applying larger amounts of water in a circular pattern. They can be used to water larger plants, or fill a basin created around the base of a new tree or shrub. Bubblers have adjustable flow rates from 0 to 35 gph.

Do not include microspray heads in the design of your drip irrigation system. Microspray heads put out fine streams of water a few inches above ground level, in full, half, or quarter circular spray patterns. Because of their higher water output microspray heads should be used on their own dedicated irrigation lines.

Soil Type Effects on Water Infiltration

Effects of soil type, including water infiltration rates and lateral water spread, are important when designing your irrigation system.

- Clay soils have high water holding capacity but slow water infiltration rates, usually .10 to .25 inch per hour. For this reason your drip irrigation system should be designed to apply water slowly enough to avoid runoff.
- Loam soils have moderate water holding capacity and an infiltration rate of .25 to .50 inch per hour.

- Sandy soils have the fastest water infiltration rates at .50 to .75 inch per hour, but low water-holding capacity. Water can be applied to sandy soils more quickly with less chance of runoff; however, any water applied beyond the water-holding capacity of the soil is lost as it moves below the plant's root zone. More frequent applications may be necessary to provide plants growing in sandy soils the continuous amounts of water needed for good growth.

To measure the water infiltration rate for the soil in your landscape, cut the top and bottom out of a coffee can. Mark the inside of the can in 1 inch increments. Insert one end of the can into the soil. Be sure it goes through both turf and thatch. Check that water does not seep laterally from the can. Fill the can with water and allow time for all of it to drain into the soil. Then add water to the 2 inch mark on the can. Now measure the time for this water to sink into the soil. Divide this elapsed time by two. The number you get will be the infiltration rate for your lawn, i.e., the rate for 1 inch of water to enter your soil. Adjust your irrigation system to apply water at this rate.

If water is applied too heavily at a single application it is forced below the depth of the plant's root system and is wasted. This happens most commonly on sandy soils. When irrigating annuals and vegetables the upper 5 to 6 inches of soil should be moistened. Herbaceous perennials should be watered to a depth of 8 to 10 inches, and woody trees and shrubs to a depth of 12-18 inches.

Most landscape plants, including ornamental annuals and perennials, trees and shrubs, and vegetables, require 1-1.5 inches of water per week, although applications must be adjusted according to the type of plants being irrigated, the soil texture and microclimate they are growing in, and the season of the year. Woody plants and most ornamentals require 1 inch of water applied in a single, weekly application. Vegetable plants require at least 1 inch of water per week. Determine when to water by scratching the soil. If the top 1-2 inches of soil is dry, then the vegetable garden should be watered.

System Design Notes

Drip irrigation systems are a great do-it-yourself project because the main pipe line does not need to be trenched into the soil, although if the lines are not buried, they should be held in place with wire landscape pins placed every 2-3 feet. This helps eliminate the pipe as a tripping hazard in the garden. Burying the irrigation system pipes with mulch is also beneficial; it protects the pipes, holds moisture in the soil, and prevents weed problems.

The most common water source is an outdoor home faucet. At the faucet, install a 1) backflow preventer, 2) 150-200 mesh filter, and 3) pressure regulator.

Backflow prevention is important when using a municipal or other potable water source. It prevents back siphoning of contaminants into the water source if a sudden drop in water pressure occurs from the water source.

A filter is installed on the main line to catch physical contaminants and prevent clogging of the emitters. The filter should be cleaned regularly so the system operates effectively.

Drip irrigations usually operate best with 10-30 pounds per square inch (psi) of water pressure, however, many municipal water systems deliver water at pressures above 30 psi. High water pressure can blow out emitters.

To estimate the water pressure of your faucet, use an old bucket and turn the water on full force. Note the number of seconds it takes to fill the bucket. Plug your numbers into the equation below.

(Bucket size in gallons/ Seconds to fill bucket) x 3600 seconds per hour = flow rate in gph

If you are not sure of your home water pressure, the addition of a pressure reducer or regulator can be beneficial.

A drip system can also draw water from a well or pond, or utilize one valve of a high-pressure sprinkler system. For more information on setting up these systems, refer to

- [Small Acreage Low Flow \(Micro or Drip\) Irrigation System Design and Installation](#), Utah State University
- [Low Pressure Drip Irrigation for Small Plots and Urban Landscapes](#), New Mexico State University
- [Drip Irrigation for Home Gardens](#), Colorado State University