

UNL Extension: Acreage Insights

Acreage eNews-May 2013

<http://acreage.unl.edu>

Celebrate Mother's Day with Plants for the Plains

By [Karma Larson](#), Nebraska Forest Service



For those hesitating about what to get for Mother's Day, Nebraska Statewide Arboretum is hosting its annual spring plant sale on Saturday, May 11. The display gardens will be open for touring so there will be plenty of landscaping ideas for both experienced and novice gardeners.

There will be more edible plants offered this year. "Many of us are trying to grow more of our own food," said Horticulture Program Coordinator Bob Henrickson. Nut trees include hickory, walnut, pecan and hazelnut. Persimmon and pawpaw trees will be available and fruits like raspberry, currant and grape.

These are plants for Nebraska, Henrickson said. "Many of them have identifiable regional seed source; some are not widely available in the nursery trade. And trees and shrubs are in smaller sizes which encourages the development of strong root systems."

Wildflower-lovers will be pleased with a wide selection of prairie plants: aster, coneflower, false indigo, primrose, gayfeather and queen of the prairie. There are woodland plants for shady areas—beebalm, woodland phlox, wild columbine, jack-in-the-pulpit, etc.

For difficult spots like dry shade and rain gardens, Henrickson recommends sedges. “They’ve proven very hardy and have a variety of ornamental characteristics.” A newer one is seersucker sedge, with deeply ridged veins as the name implies.

There will be a great selection of trees native to the region and some unusual trees for the collector that have proven hardy but are not widely available: Katsura tree, blackgum and Liotung oak to name a few. One of the smaller trees Henrickson recommends is Shantung maple, a small ornamental tree with beautiful sweetgum-like foliage and good fall color.

Whatever your existing landscape, Henrickson welcomes gardeners to bring photos to get suggestions for “just the right plant in just the right place.”

The plant sale is from 9 a.m. to 2 p.m. Plant buyers can follow the signs from the north entrance to UNL’s East Campus on 38th and Huntington/Leighton. A plant list with photos is at <https://nsa.gostorego.com> or call 402/472-2971. Proceeds from the plant sale sustain the Arboretum’s mission and fund critical programs and services.

***Sericea lespedeza*: Nebraska’s Newest Noxious Weed**
By [Brent Meyer](#), Lancaster County Weed Superintendent



For those unfamiliar with this invasive plant, the name itself can be difficult. *Sericea lespedeza* is a perennial that grows well in grasslands and pastures as well as along roadsides and drainage areas. It is mainly found in southeast and south-central Nebraska, though it has the potential to invade range and grasslands statewide.

The herbarium record shows that *Sericea lespedeza* was first collected in Richardson County in 1974, but has spread to 3,000 acres in Nebraska. The reason for its introduction is unknown, but it has been promoted in other states for wildlife habitat, and used as a hay crop in southern United States.

Identification

As with many invasive species, learning to identify it is half the battle. The plant generally grows 3-4 feet tall, but will grow anywhere between 2-7 feet tall and can be identified by its alternate

leaves. Lower leaf surfaces tend to have short hairs. Stems are straight, slender, and grooved, and can also have short hairs. Flowers, which bloom in late summer, range in color from white to cream or light yellow.

Sericea lespedeza can be not only challenging to pronounce, but to get rid of as well. It is an extremely aggressive invader of open areas. Dense monocultures of thickets are formed due to its ability to sprout from root crowns. Established *Sericea lespedeza* plants will reduce or eliminate competing native vegetation, thus impacting native ecosystems and reducing carrying capacity for livestock (it is not palatable to most livestock).



Control

A combination of two or more control methods (mechanical, chemical, etc.) is the best approach when controlling *Sericea lespedeza*. By utilizing several control options, your odds become greater that more plants will be controlled. Existing infestations spread rapidly through seed dispersal, which can be carried by wildlife, livestock, contaminated hay, vehicles and equipment. Continued monitoring and follow-up are essential for maintaining and reducing infestations.

Everyone's cooperation is needed in spotting and preventing new infestations. Early vigilance and action will prevent the huge cost of controlling large stands of *Sericea lespedeza*. Making it a noxious weed statewide allows County Weed Authorities to educate landowners on how to identify it, make them better prepared to spot new infestations, and eliminate small infestations before they become widespread.

In addition to [*Sericea lespedeza*](#), Nebraska has 11 noxious weeds:

- [Canada thistle](#),
- [leafy spurge](#),
- [musk thistle](#),
- [plumeless thistle](#),
- [purple loosestrife](#),
- [spotted & diffuse knapweed](#),
- [saltcedar](#), [phragmites](#),
- [Japanese knotweed](#), and
- [giant knotweed](#).

The addition of *Sericea lespedeza* to the noxious weed list will aid in efforts preventing its spread beyond southeastern Nebraska.

Contact Information

We need everyone's help, so if you would like more information on purple loosestrife or would like to report an infestation contact the Lancaster County Weed Control Office. Email: weeds@lancaster.ne.gov or phone 402-441-7817.

Controlling Cattails

By [Tom Dorn](#), UNL Extension Agronomy Educator



Four approaches can be used for controlling cattails.

Mechanically Removing the Tops

One can keep cattails in check, and eventually obtain control, by repeatedly cutting the tops. If possible, the plants should be cut below the water line. If they must be cut above the water line, the water level should be raised to submerge the cut stems at least eight inches. Research in Iowa (Weller, 1975) found that cutting shoots two or three times during the growing season before flower production, reduced a cattail stand by 95–99% in one year. A single cutting in August followed by submergence resulted in 80% control. It is important to remove all dead and live cattail stems to achieve this control.

Power equipment that has been used to cut cattails includes sickle mowers and hand operated power trimmers equipped with metal cutting wheels instead of strings. Hand scythes, machetes (corn knives) and long-handled shovels also have been used to manually cut cattails that are close to the shoreline.

Hand Pulling

Where feasible to do so, pulling rather than cutting, will result in faster control because one is removing the structures where energy is stored by the plant (crowns, rhizomes and roots). Repeated pulling so the plants never grow taller than three feet above the water surface will

prevent seed production. Sometimes the rhizomes become so intertwined, it is nearly impossible to pull the plants out by their roots. In this case, use a shovel to first divide the clumps into square foot sections and then pull them.

Using a Contact Herbicide

A contact herbicide only kills the green tissue that comes in contact with the herbicide. It does not translocate to (move to) other parts of the plant as in the case of a systemic herbicide. Thorough coverage of the green tissue is essential for effective control. Expect plants to regrow from the roots. Treat three to four times during the growing season to prevent seed production and to eventually starve the root system.

For each 1,000 square feet of surface area treated, use:
3 Tbsp (1.5 fl oz) Reward™ + 3 Tbsp non-ionic surfactant in 2¼ gallons of water.

See last paragraph for more information.

Using a Systemic Herbicide

Systemic herbicides applied to the foliage are absorbed into the plant tissues and then translocated (moved) throughout the entire plant. Cattails are most susceptible to systemic herbicides during growth stages when the plant is translocating larger amounts of photosynthate into the root system. The optimum treatment period is from boot stage (noticeable bulge caused by the flowering structure growing up through its protective sheath) to early flowering (green cattail head freshly emerged from the boot).

For each 1,000 square feet of surface area treated, use:
9 Tbsp (4.5 fl oz) 2,4-D ester (4L) + 3 Tbsp Methylated seed oil (MSO) or 3 Tbsp Crop Oil Concentrate (COC) in
3½ gallons of water

- OR -

4½ Tbsp (2.25 fl oz) aquatic glyphosate (Aquamaster™ or Rodeo™) + 3 Tbsp non-ionic surfactant (X-77 or equivalent) in 2¼ gallons of water

Products mentioned can be purchased at most major garden supply centers, landscape nurseries or from agricultural chemical suppliers. Be sure to read and follow all label directions.

Apply herbicide mixtures to the green foliage, not to the water, using a pressurized hand sprayer. For information on calibrating a hand-held sprayer see UNL Extension in Lancaster County educational resource “[Calibrating a Hand-Held Sprayer](#),” or at the Extension office.

Tough Places to Grow Turf

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



As versatile as lawn grasses may be, there are many locations where they just won't flourish. In general, a lawn needs

- at least 5 hours of sun each day,
- a large uninterrupted area,
- well-drained soil, and
- a relatively flat grade or slightly rolling topography.

Slopes, shade, compacted soils, heavy foot traffic, and poor air circulation should prompt you to consider alternatives. Resist the temptation to try to make due with grass on a poor site. The chart on this page suggests solutions for several common problems.

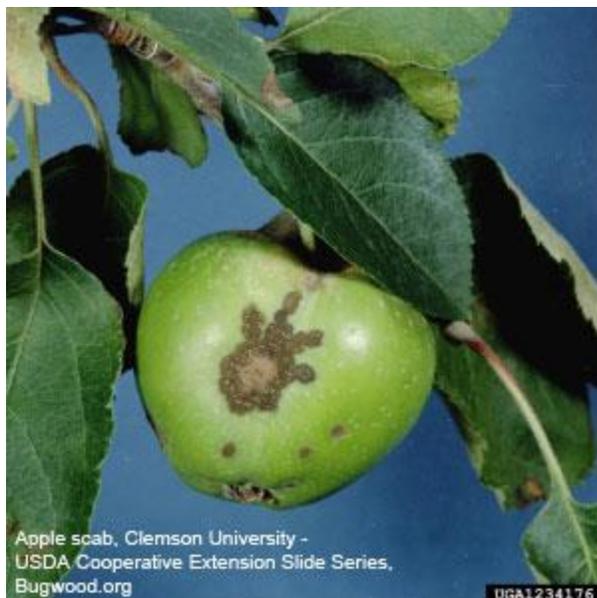
A "hell strip" is an awkward area between the sidewalk and the street, surrounding your mailbox, or falling between your lawn and the neighbor's driveway. Grasses grown in these areas are apt to become stressed by heat from the street and sidewalk, salt spray, and soil compaction from heavy traffic. Grass is not the right plant choice for these locations. Instead consider short ornamental grasses and heat tolerant perennials such as yarrow, junipers, fleecflower, sedum, coreopsis, lilyturf, daylilies, and gazania.

| Problem Area | Possible Solution |
|------------------------------|--|
| Thin turf under shade trees | Plant shade-adapted groundcover or grasses |
| High-traffic areas | Install bluestone, flagstone, or other pavers |
| Moss or mildew in shady area | Remove turf and moss, plant shade-adapted perennials and add wood chip mulch. Consider removing or pruning nearby trees to allow more sunlight penetration. Test the |

| | |
|----------------------|--|
| | soil to determine if the pH is a problem. |
| Grass on steep slope | Plant junipers, Hall's honeysuckle, crown vetch, or other ornamentals on the slope |

Controlling Apple Scab

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



Apple scab, caused by the fungus *Venturia inaequalis*, is one of the most important diseases of apples and crabapples in Nebraska. It causes decreased yield, lower fruit quality, thin tree canopies and reduced tree vigor. Nearly every year, the disease defoliates susceptible varieties of ornamental crabapple.

Fungicide control of apple scab on trees with a history of heavy infestation, begins at bud break, which will begin any day.

Symptoms

Apple scab fungi overwinter on infected leaves and fruits, and develop fruiting bodies on those dead materials in late winter and early spring. Mature fungal spores are released into the air during periods of spring rain, and blown to nearby trees. Peak spore dispersal usually coincides with bloom. Spores that land on a leaf or fruit, and come in contact with water germinate and cause infection. So disease development is favored by wet, humid weather that prevails from late April through June.

The first symptoms appear on the undersides of leaves as olive to greenish-black spots with indefinite, feathery margins. With time the lesions darken and become evident on the leaf's upper surface. Leaves with large numbers of leaf spots may become distorted, and drop prematurely from the tree. Lesions on the apples are also olive to greenish-black, becoming cracked or "scabby" as the fruits enlarge. Heavily infected fruits may become misshapen.

Although unsightly, the fruit lesions are superficial and unblemished portions of the fruit are still safe to eat.

Control Strategies

There are several approaches to managing apple scab, each of which offers some degree of success when used individually. The best long-term management, however, involves integrating multiple tactics, including the use of resistant varieties, sanitation, and chemical control.



Plant resistant apple and crabapple varieties. The following apple varieties have shown resistance to the apple scab fungus: Easy-Gro, Enterprise, Freedom, Gold Rush, Jonafree, Liberty, Mad-free, Prima, Pristine, and Redfree. However, in years with heavy disease pressure even resistant apple varieties may still require occasional spraying to totally eliminate apple scab damage to the fruits. Resistant crabapple varieties include: Bob White, Calocarpa, David, Jackii, Prairifire, Red Splendor, Sargent and Sugar Tyme.

Sanitation includes raking up and disposing of infected leaves and fruits in fall or early spring before trees begin to leaf out. If you haven't done this already, and there are still last year's old leaves and fruits laying on the ground beneath your tree, take time now to clean them up. Either destroy or discard heavily infected leaves.

During the growing season, avoid wetting the leaves of apple and crabapple trees with lawn sprinklers.

Effective control of apple scab using chemical fungicides depends on the timeliness and repetition of applications, and the degree of coverage obtained on both the upper and lower leaf surfaces. Begin applications in spring at bud break and repeat applications as directed by the fungicide label. For a complete spray schedule for home orchardists, including a list of appropriate fungicides, refer to the University of Missouri's publication "[Fruit Spray Schedules for the Homeowner](#)". Always read and follow all label directions and precautions.

Opening Pine Buds, Signal Time to Control Diplodia Tip Blight
By [Sarah Browning](#), UNL Extension Horticulture Educator



Browning and death of branch tips is quite common in older, well-established pine plantings. Such damage is often due to Diplodia Tip Blight, (syn. Sphaeropsis tip blight). Infection kills current-year shoots and eventually may kill whole branches. This disease, caused by a fungus, becomes increasingly more common and destructive as trees age, although young trees can be affected. Austrian pine is the most severely affected of the pines, but Ponderosa, Scotch and Mugo pine are also susceptible.

Symptoms

The most conspicuous symptoms of Diplodia tip blight are stunted new shoots with short, brown needles still partially encased in their sheath. Infected shoots are quickly killed and may be located throughout the entire tree, although damage is generally first evident in the lower branches. The severity of damage may vary considerably throughout the tree, with some branches that have been infected several years in a row dying back completely. After two or three successive years of infection, treetops may also be extensively damaged. Repeated infections reduce growth, deform trees and ultimately kill them.

Small, black, pimple-like structures develop at the base of infected needles and on the backside of pine cone scales. These structures produce additional fungal spores that can re-infect the tree.

Pests Causing Similar Symptoms

Diplodia tip blight can be confused with damage from pine tip moths; however, pine tip moth damage can be distinguished by the presence of larvae or tunnels found when the affected shoot is slit open. It should also not be confused with pine wilt, a disease caused by trunk-dwelling nematodes, which is killing many pines across Nebraska. Pine wilt primarily affects Scotch pine trees, and kills the entire tree very quickly. Usually within a matter of 2 or 3 months.

Control

New shoots are most susceptible during a two-week period starting when the buds begin to open and continue to be susceptible through mid-June. Infections are worse during years with very wet spring conditions, which promotes disease infection. High humidity also promotes the germination of spores. Fungus spores are dispersed primarily on rain splash from March to October.

Infection may also be higher this year since trees are still drought-stressed following last summer's conditions. Trees often experience a biological lag time of 2-3 years in recovery following stress, such as drought. This means trees are in a vulnerable state going into the 2013 growing season, and we could see higher levels of infection this year.

Two applications of fungicide are recommended. The proper growth stage for applications usually falls during the third week in April and a second application in the first week of May for eastern Nebraska. Applications should be made as buds at the tips of the branches begin to open, with a second application 7-10 days later. A third application may be beneficial in trees that are heavily infected, or if wet spring conditions persist into early June. For homeowners, Bordeaux mixture, liquid copper, Cleary's 3336 (thiophanate-methyl), or propiconazole (Banner MAXX) are effective in treating this disease. Read and follow all label directions carefully before application.

Prune out dead branches to reduce disease pressure.

More information:

[Diseases of Evergreen Trees](#), Nebraska Forest Service

[Sphaeropsis Tip Blight of Pine](#), University of Nebraska- Lincoln Extension

Plan Now to Protect Your Garden from Wildlife

By [Stephen Vantassel](#), UNL Extension Project Coordinator of Wildlife Damage Management



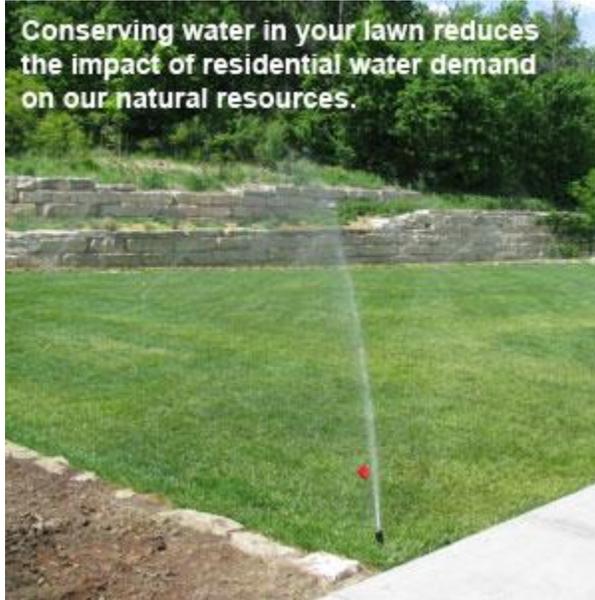
With the arrival of warmer weather, you are probably thinking about getting the garden planted. But along with all your preparation, be sure to include strategies to prevent wildlife damage too. The reason is a little prevention goes a long

way. Too often gardeners neglect prevention only to discover that the animals have enjoyed the crop before they could. What follows are a few simple tips to ensure you actually enjoy your harvest.

1. Isolate your garden. Place gardens in locations away from cover, including tall grass and wooded areas. Wild animals are always worried about being seen by predators. Forcing them to cross an open area to reach your garden makes them less likely to approach.
2. Fences are your friends. A simple 18-inch chicken-wire fence will keep rabbits at bay. Install taller fences (up to 3 feet or more) with an 18-inch over-hang to prevent woodchucks from gaining access. If animals are likely to burrow underneath, secure 12 inches of mesh to the ground around the perimeter. The addition of a strand of electric wire greatly improves the effectiveness of the fence. The [NebGuide Managing Deer Damage in Nebraska](#) has a lot of information on electric fences .
3. Monitor for voles. Voles, sometimes called meadow mice, are mouse-sized rodents than can inflict tremendous damage to your plants at and below the surface level. Signs of vole presence include dime to quarter-sized holes in the soil and inch-wide trails in the grass. If voles are present, follow the suggestions in NebGuide [Controlling Vole Damage](#).
4. Be vigilant. Wildlife can inflict severe damage to gardens in a short amount of time. It is essential to identify the signs of damage quickly, particularly as harvest season approaches. Tips on identification of wildlife damage can be found at [The Internet Center for Wildlife Damage Management](#).
5. Know where to find help. [The Internet Center for Wildlife Damage Management](#) has a wealth of information on controlling wildlife damage, as do the [UNL Extension Wildlife Damage NebGuides](#). If you still need assistance, feel free to contact me.

[Please take our survey.](#)

Make Every Drop Count Publications Can Help You Use Water Wisely In and Around Your Home
By [Sharon Skipton](#), UNL Extension Water Quality Educator



Wise use of water can reduce the strain on private drinking water wells during drought conditions and beyond. It's no surprise that water use in homes varies with climate, household size, efficiency of equipment, water use patterns, and income. Research shows that people in the United States tend to use 70 to 100 gallons per person per day. That's twice as much as those in western European cities. A study in Lincoln, NE showed families there were on the conservative side of the range, using 70 gallons per person per day.

Although the amount of water used might vary, research indicates the primary water use in homes is for flushing toilets, washing clothes, and showering. In addition to household use, water is used for lawn and landscape irrigation.

The University of Nebraska – Lincoln Extension wants to help you become more efficient in your use of water in and around your homes. We recently released three newly-edited publications containing research-based information to help you make wise water use choices. The publications are:

[Make Every Drop Count in Your Home](#)

[Make Every Drop Count in Your Lawn](#)

[Make Every Drop Count in Your Landscape](#)

If you have a private well, you rely on groundwater for your supply. Groundwater comes from natural underground layers of sand or gravel that contain water in the small spaces between particles. Groundwater is a renewable resource, replenished mostly by precipitation. However, it is not limitless. Groundwater levels decline when use exceeds recharge. The National Oceanic and Atmospheric Administration released its Spring Outlook report recently. They predicted it is not likely that many drought-stricken areas of the United States will see relief this spring.

With the drought of 2012 and the possibility of continued drought in 2013, it is especially important to use water wisely.

How Many Animals Will My Pasture Support?

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



Many acreage owners purchase property in the country in order to provide pasture for their animals or to purchase animals to graze their property. These questions often comes up "Do I have enough acres to support my animals?" or "How many animals can I graze on my pasture?"

The answer is that pasture carrying capacity can vary from year to year, due to fluctuating forage production. To ensure that the animals have sufficient forage to remain healthy, and ensure that grazing does not permanently damage soil and vegetation resources, animal numbers and/or grazing time must be controlled. If either too many animals are allowed to graze or animals are allowed to graze too long, forage will be adversely affected.

Repeated removal of forage by grazing animals will weaken plants and allow less palatable plants to replace them. Eventually all forage plants will be eliminated from a pasture if heavy grazing is left unchecked. In the extreme, uncontrolled grazing can change a pasture with grasses into a dirt lot with a few weeds.

Before you can calculate how many animals can graze your pastures, you have to have an understanding of animal units (AUs), animal unit equivalents (AUEs) and animal unit months (AUMs). An AU can be:

- One 1,000 lb. cow with or without an unweaned calf
- One 1,000 lb. horse
- Five 100 lb. ewes or nannies with or without an unweaned lamb or kid

The basic rule of thumb is that, with slight species and gender variations, 1,000 lbs. is an animal unit (AU), except for ewes and nannies, which are approximately 5 to 1 AU. Larger animals that are over 1,000 lbs. in weight must be assigned an acceptable AU figure of more than one AU by

working along the lines that 100 lbs. of additional weight equates to an additional 0.1 AU. For example, a 1,500 lb. horse would be 1.5 AUE.

An AU will consume approximately 780 lbs. of dry forage per month, this is called an Animal Unit Month (AUM). An AUM can be thought of as a box of forage that weighs 780 lbs. that would support a 1,000 lb. cow for one month. In Eastern Nebraska, if the pasture is in excellent condition, an acre of pasture may support .9 AUM. However, it would probably be more realistic to work on a premise that an acre of pasture will support .7 AUM and less if the pasture is in poor condition. After the 2012 year drought many pastures in Nebraska are in poor condition. These poor pastures may only support .25 AUM.

Cost of Pumping Water for Domestic and Acreage Needs By [Tom Dorn](#), UNL Extension Agronomy Educator

We occasionally are asked by rural residents, “How much does it cost to pump water with our domestic well?”

I will show the calculations necessary to compute the electricity consumption. Note: This discussion is for electricity cost only and does not include an estimate of depreciation and repairs resulting from use of the pumping equipment.

The horsepower and the electricity required to pump water depends on four factors:

1. The distance the water must be lifted from the pumping water level in the well to the soil surface. (Lift component)
2. The pressure in the distribution system. (Pressure component)
3. The volume of water pumped per minute, gallons per minute (GPM)
4. The efficiency of the pump and motor.

Note: The lift component and the pressure component combine to make up the total head the pump is working against. Head is expressed in feet. Each PSI of system pressure the pump must produce is equivalent to lifting water an extra 2.31 feet.

$$\text{Total head (ft)} = \text{lift (ft)} + \text{PSI} \times 2.31 \text{ ft/PSI}$$

Water Horsepower (the useful work imparted to the water) is computed as follows:

$$\text{Water Horsepower (WHP)} = \text{GPM} \times \text{Total Head (ft)} / 3,960$$

Example 1- Domestic Water Needs

Let's look at the example of a domestic well pumping 10 gallons per minute while lifting water from 125 feet pumping depth, and producing 45 PSI pressure in the distribution system.

Total head is 125 ft lift + (45 x 2.31 =104 ft pressure head) = 229 ft total head

$$\text{WHP} = 10 \times (229) / 3,960 = 0.58$$

If we assume the pump is 75% efficient, the motor driving the pump must produce $0.58/0.75 = 0.78$ horsepower to drive the pump. Assuming the single phase (220 volt) motor is 70% efficient, the pump motor consumes 1.07 kWh of electricity for each horsepower-hour. Therefore, we would expect this pump to use $1.07 \text{ kWh/hp} \times 0.78 \text{ hp} = 0.83 \text{ kW-h}$ for each hour of operation. If the electricity rate is \$ 0.09 per kWh the electricity cost is about 7.5 cents per hour of pumping.

A family of four will use about 250 gallons of water per day (91,250 gallons per year) for domestic uses.

This pump would have to run 9,125 minutes or 152 hours a year to supply domestic uses. The electricity cost would be $152 \times 0.075 = \$11.40$ per year for domestic uses.

If the family also irrigates a 10,000 square foot (0.23 acre) lawn an average of 0.75 inch per week from May 1 through Sept. 30, add 102,750 gallons for the lawn, making the total water used on the acreage 194,000 gallons per year. The electrical cost would be 323 hours x \$0.075 = \$24.25 per year.

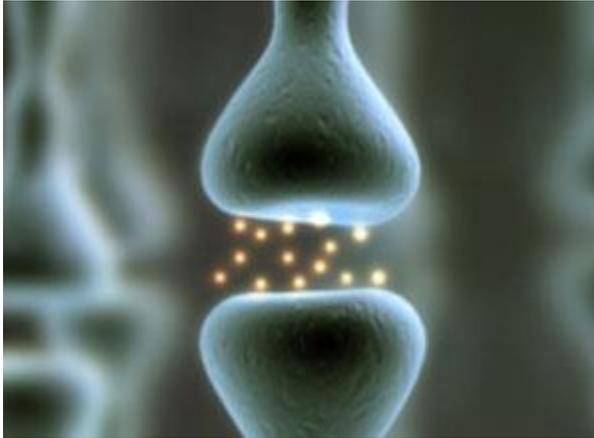
Example 2- Livestock Needs

Another question I get on occasion concerns what a landowner should charge for pumping drinking water for cattle on rented pasture.

In the summer months, cows nursing a calf require about 22 gallons of water per day. Each cow will drink about $22 \times 31 = 680$ gallons of water per month.

The pump described above would need to run 68 minutes = 1.13 hours per month to pump the water needs of each nursing cow. The electricity cost would be about 9 cents per cow per month.

Eat Smart and Stay Active to Combat Osteoporosis
By [Lisa Franzen-Castle](#), UNL Extension Nutrition Specialist



Osteoporosis is often called a “silent” disease because people cannot feel their bones getting weaker. It’s estimated that nearly 10 million Americans have osteoporosis and almost 34 million more have low bone density, putting them at increased risk for osteoporosis and broken bones. Each May the National Osteoporosis Foundation (NOF) celebrates Osteoporosis Awareness and Prevention Month. The Foundation has developed campaigns with the goal of increasing awareness of and action related to osteoporosis. There are many things you can do to make your bones stronger and keep them strong.

Check out the following tips to eat smart and stay active:

- **Calcium.** Calcium helps keep your bones strong and is used for nerve function and muscle movement. If you don’t supply enough calcium to meet the body’s needs, your body will take calcium from your bones. According to the NOF, women age 50 and under and men age 70 and under, need 1000 milligrams (mg) of calcium a day. Women age 51 and older and men age 71 and older should aim for 1200 mg daily.
- **Calcium sources.** Foods that are natural sources of calcium include dairy products, certain vegetables (collard greens, turnip greens, kale and okra), and some fish (sardines and salmon with bones). Calcium-fortified foods such as some juices, soy beverages, cereals, and breads have calcium added to them. If you are not getting enough calcium through your diet, supplements may help you meet your daily needs.
- **Lactose intolerance.** If you avoid dairy because of lactose intolerance, choose Dairy Group alternatives that are lower in lactose or lactose-free, such as hard cheeses, yogurt, lactose-free milk, or calcium-fortified soymilk or consume the enzyme lactase before consuming milk. Other strategies include starting with small portions of foods such as milk and gradually increasing the serving size and eating dairy foods in combination with a meal or solid foods.
- **Vitamin D.** Vitamin D is needed to absorb the calcium consumed and helps with muscle performance and balance. Without enough vitamin D, bones can lose mass and weaken.

According to the NOF, adults under age 50 need 400-800 international units (IU) of vitamin D daily. If you're 50 or older, you need 800-1000 IU.

- **Vitamin D sources.** One source of vitamin D is through exposure to sunlight. The skin makes vitamin D from the sun's ultraviolet rays. Only a few foods contain vitamin D naturally, such as salmon, tuna and mackerel and fish liver oils. Some milk, ready-to-eat breakfast cereals, orange juice and yogurt products are vitamin-D fortified. Before buying a vitamin D supplement, check the supplement labels you currently take; many already have vitamin D.
- **Staying Active.** Did you know certain forms of exercise can build bone density and slow bone loss? The NOF recommends getting 30 minutes of weight-bearing exercise on most days and strengthening exercises two to three times a week. Weight-bearing activities include dancing, walking, low-impact aerobics, and gardening. Muscle-strengthening exercises can be done with free weights, weight machines, or elastic exercise bands. Balance and posture exercises, such as tai chi or yoga, can help decrease the risk of falls and broken bones.

Approximately 1 in 2 women, and up to 1 in 4 men, over age 50 will have an osteoporosis related fracture in their lifetime. And, although many consider osteoporosis to be an older person's disease, it can strike at any age. Check out [Know My Bones](#), and the [National Osteoporosis Foundation](#) for information on understanding osteoporosis, keeping your bones strong, and bone health resources.