Biosolids Improve Soil, Increase Yields

Barb Ogg
UNL Extension Educator

In May 1992, the first truckload of biosolids from the Theresa Street Wastewater Treatment Facility was delivered to farmland in Lancaster County. Since then, more than 500,000 tons of biosolids has been applied to cropland in Lancaster County. Organic solids separated from wastewater and biologically processed to make them safe to use as an organic fertilizer for crops not in the human food chain.

The credit goes to the hard-working area farmers who have been open-minded about using this unconventional fertilizer. More than 80 Lancaster County cooperators have tried biosolids on at least one field. Some have used biosolids only once or twice, but a few have been so impressed with the results, they have incorporated biosolids into their farming practices and use it every year.

This recycling program will extend the life of the Bluff Road Landfill by 6-9 years, a savings to nearly everyone who lives in Lancaster County.

Program Operations. Wastewater solids are processed for several weeks in large, egg-shaped anaerobic digesters at the Theresa Street Wastewater Facility. After processing, it can be called biosolids. Four days each week, de-watered biosolids are delivered to approved crop fields in Lancaster County for land application. Biosolids are delivered at no cost, but cooperators must have the time and machinery to apply the material. Manure spreaders can be rented, at a low cost, from the City of Lincoln.

Field Restrictions. Soil tests are taken to determine nitrogen (N) and phosphorus (P) levels on fields. Fields with high levels of N or P are not candidates for application. Federal and local restrictions prevent application of this material near wells, rivers, streams, and public water supplies.

Regulation of Heavy Metals and Pathogens. In 1993, federal regulations set standards for pathogens and heavy metal concentrations. These regulations were meant to prevent harm to people, wildlife, and the environment. The City of Lincoln’s biosolids easily meets EPA pathogen and metals limits.

Advantages to Cooperators. Most of the nitrogen in biosolids is organic-N, which differs from nitrate-N and ammonia-N because it becomes available over time and is present when the crop needs it. Phosphorus, zinc (Zn), and copper are present in significant amounts in biosolids. Biosolids is ideal for use on eroded or terraced fields deficient in P, Zn or other trace elements. Application of biosolids generally increases soil phosphorus by 25–55 ppm. Biosolids is 60 percent organic matter which loosens heavy clay soils and helps with water infiltration, minimizing oil erosion. One application increases topsoil organic matter by about 0.6 percent. Studies have shown corn grown after one biosolids application grows faster, has larger stalks, and matures more quickly than corn grown on equivalent amounts of anhydrous ammonia.

Disadvantages. Cooperators must have the time and equipment to apply biosolids or hire a custom applicator to apply it for them. Crop rotation can sometimes be an issue around storage sites.

Increased Biosolids Use. The demand has grown for biosolids, but we try to work with as many cooperators as we can. Crop producers willing to accept and store biosolids during the spring and summertime, when crops are growing in the field, are likely to receive more material.

Payment for Application. The city pays up to $0.65 per cubic yard toward the cost of application, but cooperators have the option to bid less. Cooperators willing to bid less are more likely to receive biosolids.

Payment for In-Field Storage. The program compensates cooperating farmers for in-field storage during times of the year when crops are growing. After the crop is harvested, the farmer will apply biosolids. Compensation is based on crop damage from trucks and storage sites and will be determined after delivery is completed. Compensation for crop damage is $365.72 per acre.

GPS Mapping. Since 1997, the Lincoln Biosolids Program has used GPS to calculate field acreage as well as environmental setbacks from wells, ponds, and steams. This technology has become important as a database to keep track of multiple applications on the same field.

Successful Program. Overall, the Biosolids Land Application Program has been very successful and a good example of using a waste material in such a way it becomes a valuable resource. From time to time there have been odor complaints after application. Odor seems to be worse during rainy, humid weather. Unfortunately, weather conditions are not very predictable. When odor becomes an issue, we may ask cooperators to incorporate the material. Within a couple weeks, there is usually little odor.

Biosolids provides nitrogen for the following crop, but many cooperators use it because it is rich in phosphorus, zinc and other micronutrients.

Testimonials

We don’t always get feedback about biosolids from our cooperating farmers, but this is some feedback we have heard:

• A couple years ago, a new farmer in the program reported the field he applied biosolids to had never yielded more than 85 bushels corn per acre. After one application of biosolids, it yielded 145 bushels. (Greater results like this are found on marginal land.)

• A cooperating farmer increased his wheat yield by 10 bushels per acre by using biosolids. This was a side-by-side comparison, the grain was harvested separately. He reaped an economic benefit of $95 per acre. (This was in 1997 when wheat was selling for $3.50/bushel.)

• Some farmers use biosolids on brome grass pasture or alfalfa. One farmer reported the grass in his biosolids fertilized pasture was so lush he could have grazed more cattle on it. (There is a 30-day waiting period after a biosolids application, before letting animals graze on pasture.)

Egg-shaped anaerobic digesters at the Theresa Street Wastewater Facility break down the wastewater solids into a more stable form. This process makes biosolids suitable for use by area farmers as a fertilizer.

GPS technology is used to map fields before and after application and determine setback distances from streams and other environmental features.

Cooperating farmers can rent manure spreaders at low cost from the City, but must have other equipment and time to apply biosolids.
Leasing Pastures and Hay

Master Conservationist Entries Due April 1

Nebraska adults and youth in both rural and urban areas who have implemented soil and water conservation practices are eligible to enter the 2010 Nebraska Conservationist Recognition program. The deadline for entries is April 1. There are categories for youth groups and individuals, residences, communities and private businesses as well as production agriculture (farming and ranching). Master Conservationist program brochures are available at the UNL Extension office and online at http://owh.com (click on the “In the Community” link).
Test Private Drinking Water Safety
Spring is a Good Time to Test

Sharon Skipton
UNL Extension Water Quality Educator

Water is just behind oxygen for life essentials, so those with private drinking supplies need to monitor safety by testing for contaminants.

The availability of public water supplies is regulated by federal and state laws. Private drinking water is tested for more than 100 different contaminants. Private water supplies are not regulated by federal or state statutes, but may be regulated at the local level. In most cases, management and testing of private wells is voluntary. The owner needs to decide when to test the well and which specific contaminants need to be tested for. In addition, the owner should consider checking the well condition and land slope.

Have the water supply tested at least annually for bacteria and nitrates, the most common contaminants in Nebraska’s private drinking water supplies. Those tests alone don’t guarantee water safety, but are usually good indicators of water safety. Testing is recommended during warm, wet periods, specifically in the spring. If a contaminant is entering groundwater as a result of runoff, it’s more likely to be detected then.

Nebraska has a number of laboratories that test drinking water for a cost. Some are government-owned, while others are private. Ask the labs about the tests they conduct. The owner must decide which contaminants should be tested for since a lab will only check for tests requested. Bacteria and nitrates are recommended, but if another contaminant is suspected, test for it too. Clients will receive a container from labs for collection of water and delivery to the lab. Results should come out within a week for most tests.

There are many types of bacteria and some are not harmful. The most common cause for concern from those causing human illness is gastrointestinal disease, which can be dangerous to infants. They can lead to blue-baby syndrome, known as methemoglobinemia. It’s a condition where blood loses its ability to carry oxygen to an adequate amount of body tissues. The syndrome leads to lips and other appendages turning blueish.

Concentrations of nitrate-nitrogen in public water supplies of 10 parts per million are allowed, the maximum amount allowed by the US Environmental Protection Agency. While infants are at greatest risk above a 10 parts per million concentration, adults are usually not at risk since nitrate is removed by the kidney. Pregnant and nursing women are considered higher risk since nitrate compounds accumulate in the baby developing in the uterus and nursing infants at risk.

Contaminants can result from human activities or natural causes. Nitrates can occur from poor management of fertilizer, human waste, or animal waste. Bacteria tends to come from poor management of animal and human waste. The quality of design, construction, and location of a well can help prevent nitrate and bacterial contamination. The nature of soil or rock in contact with groundwater is the cause of some contaminants including arsenic and uranium.

Water can be treated for contamination. No one treatment can remove all types of contaminants, so it’s important to know the type and concentration of the contaminant present. Some treatments don’t totally eliminate contaminants, but they can reduce contaminants to an acceptable level.

Bacteria can be treated with distillation, disinfection with chlorination, or ultraviolet light. Nitrate can be treated with distillation or a reverse osmosis filter.

Certified Water Testing Laboratories
The Nebraska Department of Health and Human Services administers the U.S. Environmental Protection Agency Safe Drinking Water Act. This includes certification of laboratories to test drinking water samples in Nebraska. As of December 2008, there are three government-operated and three commercial-operated approved laboratories. Only one is located in Lancaster County: Nebraska Department of Health, Nebraska Public Health Environmental Laboratory, 3701 South 14th St., Lincoln, NE 68502; 471-8426.

Check Site Conditions Before Planting Trees

Dennis Adams
Forestry Specialist, Nebraska Forest Service

Spring is an ideal time to add new trees to a home landscape. Once the frost is out of the ground, weather and soil conditions typically are ready to support a healthy tree.

Before purchasing a tree for planting, it is important to review the conditions and general lay-out of the area surrounding the new tree. Check for soil nutrient deficiencies and soil saturation levels. Some tree species may do better on wet soils, while others may handle drier conditions. Consider factors such as wind and sun exposure. Overall, make sure the species is adaptable to Nebraska’s conditions.

Take time to visualize the landscape with the new tree. However, keep in mind the mature form and size the tree will grow to. Some trees may grow too large for an area, while small trees may not provide the desired shade cover.

Properly preparing the site for tree planting is important. The following are a few tips to help the process run smoothly:

- Dig the hole one foot wider than the transplanted tree’s root ball or root mass.
- Don’t plant the tree too deep. The surrounding soil line should not be above the tree’s root crown.
- Backfill the hole with the same soil. Don’t use soil amendments.
- Don’t pack the backfill soil. Use water to settle the backfill soil around the tree roots.
- In areas with prevalent high winds, it may be necessary to stake the tree to keep it free of damage.

Leasing

continued from preceding page

is negotiated, a lease is drawn up, and the tenant receives 100 percent of the production and pays 10 percent of the production costs. Often, the lease will stipulate the tenant is responsible for weed control in the field and perhaps along the roadside.

Very small hay fields

Usually fields of less than a couple of acres (usually associated with agrichains) are planted primarily as a way to keep weeds down on the areas not used for the lawn and garden. It is relatively more expensive for the tenant to move equipment from place to place and it takes more time per ten of land cut, bale, and haul from small patches of hay where the operator is spending a greater percentage of time turning around. Often all of the hay production from these small areas is given to the tenant in return for stumpage and removing the hay. This saves the landowner the cost of hiring someone to move equipment when it is feasible for local operators (usually someone with a few horses or cattle on their own acreage) to harvest small patches of hay.

Laurie Hodges, Ph.D.
UNL Vegetable Specialist

Lettuce is a very popular vegetable in the U.S. It is a basic ingredient in salads and is eaten more frequently than any other vegetable. Lettuce can be served along with a variety of dressings or mixed with other fresh vegetables to create tasty dishes. Crisp-head, leaf, butterhead, cos (also known as romaine), and stem make up the five different types of lettuce. Many people plant several types and colors, as some types are more tolerant of adverse weather or insect damage than others.

Lettuce tolerates a moderate freeze and does best in cool temperatures. Lettuce seed will germinate in about 7 days when soil temperature is 50°F. Many people start early spring lettuce as transplants, which take about 4 weeks to develop from seeding, at room temperature. These can be planted in the ground when soil temperatures are consistently 45°F.

Planted early, it is important to acclimate the transplants to cooler temperatures and to protect the young plants from severe weather by using row covers. Row covers help protect the lettuce from wind, insects, and rabbits. Lettuce needs to be grown from wind protection or growing in a high tunnel. Wind stress increases leaf thickness and toughness, damages the tender leaves, and may carry fine soil particles.

A series of plantings 10–15 days apart will supply fresh lettuce for an extended period. This ensures a supply of young, fresh lettuce grown under cool conditions. Temperatures above 80°F can cause bitterness or bolting in lettuce.

Lettuce seed should be sown thinly in rows about 1½–2 feet apart and covered with half an inch of fine soil. Allow 6–8 inches between butterhead varieties and 10–12 inches between crisp-head varieties. One packet of seed will sow 50 feet; 1 ounce, 100 feet of rows.

An alternative way to grow leafy types of lettuce is in a wide row. Seed can be broadcast thinly and lightly covered with soil in an area 1–2 feet wide. Following germination, as the seedlings enlarge, plants can be thinned to 1.5 inches by 1.5 inches, then 3 inches by 3 inches, then 6 inches by 6 inches spacing, or greater. The plants removed can be transplanted or used on the table.

For homeowners with limited space, lettuce can serve double duty as a border plant in ornamental gardens. The various leaf colors available can be used to develop unique patterns in the border.

Several species of aphids and the cabbage looper are insect pests that frequently attack lettuce. Besides feeding damage that reduces quality, insects can spread diseases. Therefore, control of the insects and nearby weeds is important.

Use of clean seed, sanitation, especially control of weeds in and near the lettuce planting, and physical controls are the most effective ways to combat those diseases. Good air movement through the canopy of lettuce does much to minimize problems with fungal diseases.

Crisp-head lettuce is ready for harvest when the heads are solid and the top becomes yellowish green. Butterhead varieties may be harvested when a loose head is formed. Leafy lettuce may be harvested any time after the plants are large enough to use. It is good practice to thin leaf lettuce several times, removing the largest leaves at each thinning, to allow the plant to develop. This extends the harvest of one planting for a considerable period of time.

Head lettuce can be removed by hand slightly below the soil surface. Be careful to avoid damaging the outer wrapper leaves. Trim damaged or soiled leaves at the base before rinsing the heads in cool water when preparing for eating.

Early Spring Ideal for Lettuce Gardens

On the table.

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Fats as Part of a Healthy Diet

Fats and oils can be part of a healthy diet and play many important roles in the body. Fat provides energy and is a carrier of essential nutrients such as vitamins A, D, E, K, and carotenoids, according to Know Your Fats, a publication of the United States Department of Health and Human Services. Fats also can add flavor and sate to meals. This adds to our eating pleasure and may even help in weight control, providing we don’t consume too many calories.

“But, fat can impact the health of your heart and arteries in a positive or negative way, depending on the types of fat you eat.”

Currently, there is much discussion on the exact effect of various fats in the diet and the role of overall dietary patterns versus specific foods. Two areas receiving the most attention at present are trans fats and omega-3 fatty acids.

Reduce Trans Fats
Eating too much trans fat, which is made when liquid vegetable oil is processed to become solid, may increase risk of heart disease. Trans fat is mostly found in food products made with shortening — liquid oil that is processed to become hard. Most of the trans fat Americans eat comes from cakes, cookies, crackers, pies, fried potatoes, household shortening, and hard margarine. Limiting consumption of many processed foods is a good way to reduce trans fat.

Check the Nutrition Facts Label for the presence of trans fat in a food. Health experts recommend keeping your intake of trans fat as low as possible.

Include Omega-3 Fatty Acids
Fish and shellfish contain a type of fat called omega-3 (aka n-3) fatty acids. Research suggests that eating omega-3 fatty acids lowers your chances of dying from heart disease, according to “Heart Healthy Eating at www. womenhealth.gov/faq/heart- healthy-eating.htm”.

Fish that naturally contain more oil (such as salmon, trout, herring, mackerel, anchovies, and sardines) have more omega-3 fatty acids than lean fish.

You can also get omega-3 fatty acids from plant sources, such as:
• canola oil
• soybean oil
• walnuts
• ground flaxseed and flaxseed oil

Evidence suggests that consuming approximately two servings of fish (particularly fatty fish) per week (each serving about 3.5 ounces cooked) may reduce the risk of mortality from heart disease.

Avoiding High Levels of Mercury in Fish
Some types of fish, however, may contain chemicals at levels that can be health risks. One of these chemicals is mercury, and some types of fish have high levels of mercury.

Women who might become pregnant, pregnant women, nursing mothers, and young children should avoid some types of fish and eat types lower in mercury. Below are guidelines for limiting mercury in fish for these more vulnerable groups.


$Stretch Your Food Dollar by Turning Leftovers into Planned Overs

Do you find yourself throwing away leftovers? Yes, eating leftovers may seem unappealing, but you’ve already prepared a meal once so why not be creative and make the most of those leftovers. Typically, when people prepare a meal they are only thinking about that one meal. However, it would be much easier if thinking about that one meal could make another meal so simple! Leftover creativity is easier than you think! Here are some ideas to get you started. First, start with a suggested dinner menu, and then assess your options for making another meal from those ingredients. If necessary make extra of the main course so you have enough for preparing the next meal.

For example:
• Use leftover roast beef for beef stroganoff or roast beef sandwiches.
• Use leftover chicken on a salad. You can add carrots and celery for more variety and texture. When cooking ground beef, make extra. Use in tacos or sloppy joes. Why wash the skillet twice?
• Freeze items into smaller portions and reheat them when you need something quick.

Follow some of these suggested ideas even when you have leftovers. Be creative and make a new meal from old ones and save some money so you won’t have to throw out food again!

2004 EPA and FDA Advice For: Women Who Might Become Pregnant, Women Who Are Pregnant, Nursing Mothers, Young Children, and Older Women

By following these three recommendations for selecting and eating fish or shellfish, women and young children will receive the benefits of eating fish and shellfish and be confident that they have reduced their exposure to the harmful effects of mercury.
1. Do not eat Shark, Swordfish, King Mackerel, or Tilefish because they contain high levels of mercury.
2. Eat up to 12 ounces of fish or shellfish (about 2 average meals) a week of a variety of fish and shellfish that are lower in mercury:
• Five of the most commonly eaten fish that are low in mercury are shrimp, canned light tuna, salmon, pollock, and catfish.
• Another commonly eaten fish, albacore (“white”) tuna, has more mercury than canned light tuna. So, when choosing your two meals of fish and shellfish, you may eat up to 6 ounces (one average meal) of albacore tuna per week.
3. Check local advisories about the safety of fish caught by family and friends in your local lakes, rivers, and coastal areas. If no advice is available, eat up to 6 ounces (one average meal) per week of fish you catch from local waters, but don’t consume any other fish during that week.

Follow these same recommendations when feeding fish and shellfish to your young child, but serve smaller portions.

Source: www.fsan.fda.gov/~dmsi/advisory.html

UNL Food Entrepreneur Assistance Program Seminar, April 10
The University of Nebraska – Lincoln Food Processing Center is offering a one-day seminar for all individuals interested in exploring the idea of starting a food manufacturing business. The “From Recipe to Reality” seminar will be offered on April 10. Pre-registration is required and space is limited. Registration deadline is April 1. Contact Jill Gifford at 472-2819 or jgifford1@unl.edu for an information packet.
President’s View — Irene’s Items

Irene Colborn
FCE Council Chair

Our Nebraska winter has been a challenge for many of us. Time to think about warm thoughts and looking forward to those first flowers popping up through the ground with their lovely blooms (and those pesky rabbits leave them alone). This year, as a community service project, our club collected Valentine’s cards and sent them overseas so the soldiers could send them home to their families. Lorena Maxson put together a box with the valentines and included personal items, food, etc., to fill the box. The post office has boxes you can use to mail to overseas troops. This is a flat rate, weight of the box does not matter. This could be a project your club would like to do throughout the year with the different holidays.

Remember the March Council meeting on March 22. Presidents will receive additional information in March. Come with your ideas and be a part of the Community Service Project.

Found this little “item” on an email — Life is short, break the rules, forgive quickly, love truly, laugh uncontrollable, and never regret anything that made you smile. Have a good month!

FCE News & Events

Two Leader Training Lessons

The FCE & Community leader training lesson “Living Resourcefully: Finding Ways to Make Your Dollars Go Further” will be presented by Extension Educator, Lorene Bartos on Tuesday, Feb. 23, 1 p.m. Participants will explore ways to save money in the household budget. Learn ways to make the most of what you earn and how to eliminate spending leaks and develop strategies to make the most of your financial resources and other resources available. The FCE & community leader training lesson, “How Strong Families Deal with Stress and Crisis,” will be presented by Extension Educator, Lorene Bartos on Tuesday, March 23, 1 p.m. Participants will focus on how families effectively manage stress and crisis in their families. Special emphasis will be on the role members of the older generation play in helping to support younger, less-experienced family members.

Lessons will be presented at the Lancaster Extension Education Center, 444 Cherrycreek Road. If you are not an FCE member or your club is not doing the lessons and you would like to attend either training, please call at 441-7180 so informational packets can be prepared.

FCE Council Meeting

Mark your calendar for Monday, March 22 for the FCE Council meeting. The Salt Creek Circle Club has planned to meet at the Engine House Café, 6028 Havelock Avenue at 1 p.m. After lunch and our business meeting, we plan to tour Fresh Start at 6433 Havelock Avenue. Call Pam, 441-7180, to make lunch reservations. All FCE members are welcome to attend the Council meeting.

FCE Scholarship Applications Due May 1

A $400 scholarship provided by the Lancaster County FCE Council is available for a graduate of a high school in Lancaster County or a permanent resident of Lancaster County majoring in Family and Consumer Science or a health occupation. This is open to full-time students beginning their sophomore, junior or senior year of college in the fall of 2010 or who have completed two quarters of study in a vocational school. Applications are due May 1 in the extension office.

National Poison Prevention Week, March 15-21

National Poison Prevention Week emphasizes the most common poisoning risks for adults and children, and offers educational resources for parents to protect their children and adults to make informed decisions regarding their use of prescription and over-the-counter drugs.

Safe Kids USA offers these tips:

• Lock up potential poisons out of sight and reach of kids. This includes medicine, makeup, plants, cleaning products, pesticides, art supplies, and beer, wine, and liquor.

• Never leave a child alone with an open container of something you wouldn’t want them to ingest. Alcohol can be poisonous in a matter of seconds.

• Don’t refer to medicine or vitamins as candy and don’t involve children as helpers with your medication.

• Choose medicines and products with child-resistant caps. When you are giving medicine to your children, follow dosage directions carefully.

• Keep products in their original containers. Read labels to learn if a product is poisonous and for first aid information.

• If your home was built before 1978, test for lead based paint and have your child tested for lead exposure. Children inhale dust and dust particles that can be burnt in fireplaces and can build-up enough lead in their blood to affect intelligence, growth, and development.

Install a carbon monoxide alarm outside every sleeping area and on every level of your home. Carbon monoxide is an invisible, odorless gas that builds up around fuel-burning appliances and cars in garages. It can make a child seriously ill in concentrations that would barely affect an adult.

• Know which plants in and around your home can be poisonous. People and pets are poisoned by plants and it may not be as well child-proofed as yours.

• Discuss these precautions with grandparents and care givers. They may have medications very dangerous to children and their homes might not be as well child-proofed as yours. For poison emergencies, call the Poison Control Center at (800) 222-1222 or in the Omaha area call (402) 955-555.

Energy-Saving Kitchen Tips

• Use electric pans or toaster ovens for small meals rather than your large stove or oven. A toaster oven uses a third to half as much energy as an oven.

• Use a microwave oven or pressure cooker whenever convenient. They save energy by reducing cooking time.

• Look for blue flames in natural gas appliances. Yellow flames indicate the gas is burning inefficiently and an adjustment should be made.

UNL Extension will present a series of online workshops Thursdays Through March 25

http://smallsteps.unl.edu

“Small Steps to Health and Wealth” encourages participants to set health and/or wealth goals and take action to achieve their goals by identifying small progress steps. All you need is a computer with Internet access and a phone.

Cost is $20 including workbook or $5 if materials are downloaded from the Web site and printed prior to the program. For more information, contact Lorene Bartos at bartosl@unl.edu or 441-7180. You can still participate even though the series has started!
2010 Great Plants Selections

The Great Plants program is a joint effort of the Nebraska Nursery & Landscape Association and the Nebraska Statewide Arboretum that selects and promotes exceptional plants. These plants are reliably hardy, easy to care for and ornamentally worthwhile.

Tree of the Year

American Yellowwood, Cladrastis kentuckea — Fragrant clusters of white flowers bloom in late spring on this medium-sized tree. Foliage is arranged in leaflets that emerge yellow-green in spring and turn buttery yellow in fall, contrasting to brown seed pods. Beech-like bark is smooth and light gray (common name refers to yellow color of freshly cut heartwood). Tough, disease-resistant tree with beautiful flowers and foliage. Full sun, size: 30–50 feet high and 40–55 feet wide.

Shrub of the Year

Bottlebrush Buckeye, Aesculus parviflora — In mid-summer, 12-inch white flower panicles with red anthers attract butterflies and hummingbirds. Glossy, indehiscent buckeye fruits follow in a pear-shaped husk. Dark green leaves arranged in leaflets of 5–7 turn a variable yellow in fall. Fairly pest-resistant, it grows best in rich, moist soil in protected areas. For part sun, size: 8–12 feet high and 8–15 feet wide.

Perennial of the Year

Gateway Eupatorium, Eupatorium purpureum Gateway — Large clusters of tiny red flowers, attractive to butterflies, bloom from mid-summer into early fall. Interesting seed heads last into winter. A clump-forming, erect perennial with dark green leaves that whorl around burgundy stems. Grows best in fertile, moist to wet soil. Best in full sun, size: 4–5 feet high and 2–3 feet wide.

Grass of the Year

Sand Lovegrass, Eragrostis trichodes — Sprays of tiny purple flowers bloom on arching stems in late summer. Shiny, dark green leaf blades turn bronze, then rusty-tan, and last well into winter. An early greening, warm-season native bunch grass for hot, dry conditions; will self-seed in optimum conditions. For full sun, size: 3–4 feet high and 2–3 feet wide.

Homeowners are heading back to the basics. The latest report on garden trends for 2010 from the Garden Media Group (GMG) of Kennett Square, PA, says there is a significant shift in garden trends, away from lavish outdoor lifestyles to practicality and comfort.

Edible gardens, like the vegetable gardens are in and many are making the effort to get rid of their lawns. GMG notes a recent media survey by the National Gardening Association that reports nearly a 28 percent increase in “hobby” country farms and urban edible gardens over the past year.

Gardeners are hopping aboard the sustainable gardening movement by installing rain gardens, opting out of chemicals in the garden, and putting in native plants that require less water and are resistant to pests and disease.

Green roofs are going on top of buildings across the country, conserving heat in winter, keeping temperatures cool in summer, decreasing storm water runoff, and even attracting wildlife.

If it takes some time for the U.S. economy to fully recover from near collapse, as most economists are predicting, these new gardening trends are likely to continue well into the current decade.

UNL Extension recently helped establish a garden at People’s City Mission. Residents have grown a wide variety of produce.

Sign Up for Free E-mail Horticulture Newsletter

HortUpdate is a FREE e-mail newsletter from the University of Nebraska–Lincoln Extension which provides timely information to the lawn and landscape industry. This e-mail includes current lawn and landscape problems with control recommendations and a seasonal “To Do” list. To subscribe, go to http://extensionhorticulture.unl.edu.
Inspection Summary

The major goal of the Lancaster County Weed Control Authority is to get voluntary compliance of the landowners with the Nebraska Noxious Weed Control Act and the City of Lincoln Weed Abatement Program.

The first step is to make the landowner aware of these responsibilities and obtain their willingness to abide by them. The second step is to provide any needed assistance to the landowners. And the third step is to carry out an inspection program, as needed, to identify infestations and violations, for the purpose of getting landowners to prevent and control the noxious weed infestations or to avoid and correct weed abatement violations when they occur.

Noxious Weed Program

The Lancaster County Noxious Weed Program promotes awareness and knowledge to landowners to carry out effective control programs. The program provides general awareness through the annual Weed Awareness special section in the UNL Extension in Lancaster County News, the Lancaster County Weed Control Authority Web page, exhibits and newsletters.

The most direct awareness effort is carried with an extensive survey and inspection program. This program utilizes a computer data base of all inspections since 1994 and the Lincoln/Lancaster Geographic Information System used to record the locations of noxious weed infestations found. Sites are selected from previous year’s inspection information which indicates the severity and extent of the infestation and the control efforts made by the landowner. Sites are selected where it is felt the landowner needs a reminder letter or assistance in control efforts and, in a few cases, the need for possible forced control.

These landowners are provided with an aerial photograph showing the location(s) of the noxious weed found by the inspector and recommended options for control. Additional landowner sites inspected when observed or a complaint is received and infestations found. Follow-up inspections are made to assure control is accomplished.

Musk Thistle — In 2009, 528 sites were selected for inspection. An additional 123 sites were inspected because of complaints received and seven sites observed by the inspectors during their other inspections. Over 6,280 acres were inspected resulting in finding 458 infestations on 636 acres. Cards were sent to 58 landowners with only trace infestations, reminder letters were sent to 254 and 89 legal notifications were sent. The Authority contracted for forced control on six sites and seven acres. Landowners controlled 15 sites.

Purple Loosestrife — All 21 known purple loosestrife infestations were inspected. One ornamental flower site was also inspected as a result of being observed by an inspector. A total of 45 inspections were made on the 24 sites. Inspectors found 16 violations on nine acres. Landowner notifications included four legal notices and 15 reminder letters. Landowners controlled 15 sites. Follow-up will be made on all 16 sites.

Other Noxious Weeds

Canada Thistle inspections were made on two sites and were controlled by the landowners. Saltcedar was controlled on all three sites found.

City of Lincoln Weed Abatement Program

The City of Lincoln Weed Abatement Ordinance requires owners of land within the city limits to maintain the height of weeds and worthless vegetation below six inches. Three seasonal inspectors are used in administering this program. Most inspections are carried out as a result of complaints. There were 122 properties pre-selected for inspection because of past violations and the lack of response to correct the violations. There were 1,430 complaints on 1,214 properties. An additional 189 properties were inspected and observed as having violations.

It required 3,144 inspections to make the initial and follow-up inspections on 1,404 sites on 901 acres. Violations were found on 1,069 sites on 527 acres. Complaints were made on 339 sites that did not receive a violation when inspected within three days of the complaint. These sites either were not in violation when the complaint was made, or they were cut prior to the inspection. Notifications of violations were made with 743 legal notices, 497 reminder letters, 15 published in the paper and nine personal contacts. Landowners cut 162 sites and forced cutting was contracted on 175 sites.
Phragmites Control
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public land or railroads. Contacts were made with managers of these public lands and railroads:
• County Road Engineer
• Nebraska Game & Parks
• Lincoln Parks and Recreation
• Nebraska Public Power District
• Lower Platte South NRD
• Nebraska Roads Department
• Lincoln Sanitary Landfill
• BNSF Railroad
• UP Railroad
• County Commissioners

All of them responded positively and controlled their infestations. The County Commissioners provided funds to have the county roadside infestations controlled.

Developing a Control Plan
A list of contractors willing to provide phragmites control was prepared. A helicopter applicator was also contracted to be available for landowners. The county commissioners budgeted the anticipated cost of the helicopter applications. Landowners who chose to use the helicopter applicator were issued a legal notice and billed for their application. The county then paid the helicopter applicator. A Landowner’s Guide for Controlling Phragmites was developed, printed and placed on the Weed Control Authority Web site at lancaster.ne.gov/cnty/weeds/.

Notifying Landowners
All landowners were notified of their responsibility for controlling phragmites. They were provided a location map and photo of their infestation, contractors available for hire, landowner’s guide, offer for assistance in developing a control plan and a self-addressed planned treatment card.

Landowner Response
Many thanks go to the landowners for their control efforts. Positive responses were received from 94% of the landowners on 96% of the infested acres. The helicopter applicator treated 90 acres (50%) of the infested acres. The availability of the helicopter applicator was very important to the overall control effort. The multi-acre sized infestations would have been very difficult to control satisfactorily from the ground. Landowners willingly provided 100% of the cost of the control.

Follow-up
The effectiveness of the 2009 treatments will not be evident until regrowth this spring. All sites will be inspected in May 2010. Landowners will then be notified of any follow-up control needed. Inspectors will be on the lookout for any new infestations. Landowners and the public are asked to do likewise.

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Nebraska Noxious Weed Control Act Revision Proposal

Situation
The Nebraska Noxious Weed Control Association is proposing a revision of the rules and regulations for the Nebraska Noxious Weed Control Act. Nebraska, along with most states lists a weed as noxious when it invades the late stage of the invasion. Only seven states have multi-category designations that address potential noxious weeds not yet in the state and at a very early stage of their invasion. If such provisions would have been in place in Nebraska 10 years ago, we would have dealt with phragmites and salicetar at the early stages of their invasion and we would have had the needed strategy to eradicate it at least have kept it in check at small fraction of the cost required now.

Stages of Invasion
Strategies for managing invasive plants should be applied for each of the four stages of the invasion process. We first must try to exclude new invaders and have provisions for the eradication of new invaders. We also need well thought-out strategies to deal with those noxious weeds well established in the state. Organizing by invasion stage emphasizes rapid response to new invaders which has been shown to be more cost-effective than prolonged management of widespread species. In order to implement these provisions, we need to know what highly invasive, hard-to-control plants have a potential to invade Nebraska. A Weed Risk Assessment should be used to identify specific “classes” of invasiveness of potential noxious weeds present in the state in surrounding states or plants from elsewhere that may find a favorable habitat in the state. The Nebraska Department of Agriculture, with input from the Nebraska Noxious Weed Control Association, could then develop noxious weed categories. The status of designated noxious weeds may range from not known to be present to being established and widespread in the state. This would give County Weed Control Authorities the authority to exclude invasive plants from entering the state and eradicate them if they show up in the state.

Proposed Revision
The revised rules and regulations will have to go through a comment period and a hearing, then be approved by the Governor. The Nebraska Noxious Weed Control Association is developing recommended revisions of rules and regulations that would include noxious weeds designation process, a listing of noxious weeds by categories and the inclusion of species specific weed management plans. The Nebraska Department of Agriculture would use these recommendations to finalize the revised rules and regulations in consultation with the Nebraska Noxious Weed Control Association and others.

University of Nebraska–Lincoln Extension’s current Guide for Weed Management in Nebraska (EC130) is the Nebraska Department of Agriculture’s (NDA) official reference for the herbicide control of noxious weeds. The guide includes special sections on noxious weeds prepared in cooperation with NDA. This section provides information options for herbicide control for each noxious weed. It provides information about rate and timing with estimated chemical cost. It has an excellent section on application equipment and practices which includes nozzle selection, calibrating sprayers, and spray additives. Cost for printed book is $10 plus tax or it can be viewed online free.

UNL Extension and the NDA have developed a series of free publications on the biology, identification, distribution and control of the state’s noxious weeds:
• Canada Thistle (EC171)
• Plumeless Thistle (EC172)
• Spotted and Diffuse Knapweed (EC173)
• Leaky Spurge (EC174)
• Purple Loosestrife (EC176)
• Musk Thistle (EC177)
• Salicetar (EC164)
• Common Reed (Phragmites) (EC166)

These UNL Extension publications can be obtained at County Weed Control offices, extension offices or viewed online at www.ianprubs.unl.edu.

Weed Free Forage Certification Program

You can prevent potential noxious weed infestations by insisting on Certified Weed-Free forage. As a buyer, you should be aware noxious weed infestations on forage products can cost you hundreds or even thousands of dollars down the road. Ask your forage supplier to have their products certified prior to harvest. Forage growers must call the Lancaster County Weed Control Authority one to two weeks prior to harvesting. There is no charge for the field inspections. There is a small charge for the cost of bale tags. Nebraska carries out its Weed-Free Forage Certification Program in accordance with the standards of the North American Weed Management Association. Certified weed-free forage products include: straw, alfalfa/ grass hay, forage pellets/cubes, alfalfa hay, grain hay and grass hay. Weed-free forage is required on many U.S. Forest Service and Bureau of Land Management lands, in National Parks, Bureau of Reclamation land, military

Weed Free Forage Certification Program

locations, tribal lands, as well as, National Fish and Wildlife refuges. The Nebraska Department of Roads requires weed-free forage on highway projects. Restrictions may apply to other lands administered by county, state or federal agencies. If you have questions about certification regulations or weeds not allowed in certified forage, please see the North American Weed Management Association’s (NAWMA) Web site at www.nawma.org for a complete list of weeds and regulations.
Lower Platte River Weed Management Area Report

The Lower Platte Weed Management Area (LPWMA) has been working with landowners in the Lower Platte River Basin since 2003 fighting the non-native plants invading the Platte River and its tributaries. The LPWMA includes the ten counties in the Lower Platte River Basin, including Lancaster County. In 2008, the treatment of over 2,000 acres of phragmites infested sandbars was completed on 120 miles of the Lower Platte River. A total of 753 acres on 56 miles of the river below Fremont were treated in 2008 leaving 64 miles to be treated. The goal of the Lower Platte River Weed Management Area (LPWMA) was to complete the treatment of the vegetated sandbars in the 120 miles of the Lower Platte River and to provide control of all upland phragmites sites found to prevent them from re-infesting the river.

Control

About 1,300 acres of sandbars of the remaining 64 miles on the river was treated by helicopter in 2009. An additional 1,100 acres of the river were treated by County Weed Control Authorities from airboats with the operators’ time donated. A total of 206 acres were treated on 729 upland sites of phragmites in 10 counties. This included 102 acres on 19 sites treated by helicopter in Lancaster and Saunders Counties. The areas sprayed by helicopter are shown on the map above right and also can be viewed at www.nrldmapmaker.org.

Surveys

Follow-up surveys of the river from the 2008 survey were made in order to provide the helicopter operator with maps to guide his application. Road surveys were made in March and April for upland phragmites sites. These sites can also be viewed at www.nrldmapmaker.org.

An area survey was also made of the 56 miles of river treated in 2008. About 10 acres of missed areas were treated.

Landowner Information

A Lower Platte Newsletter was prepared and sent out to about 500 landowners outreach efforts to be initiated. The Lower Platte River Weed Management Area was also prepared and distributed. All landowners found to have phragmites infestations, were provided a map of the locations with control recommendations.

Participation

All of the over 170 landowners signed agreements and contributed to the cost of the control treatments. The weed control authorities carried out the surveys and control efforts on the river. Airboat operators donated their time and the use of their airboats to assist with the surveys and control efforts.

The Lower Platte Weed Control Web Site

www.lowerplattewma.org

The Pesticide Sensitive Crop Locater online at www.agr.state.ne.us/division/bpi/pes/psci.htm provides very useful information about the landowner’s guide for controlling Phragmites available at www.lowerplattewma.org was and sent out to about 500 landowners outreach efforts to be initiated. The Lower Platte River Weed Management Area was also prepared and distributed. All landowners found to have phragmites infestations, were provided a map of the locations with control recommendations.

Participation

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2010 Plans

An aerial survey of the river will be made to determine if there needs to be follow-up helicopter applications, airboat surveys to find and control small infestations and upland surveys for phragmites. These efforts will have broad support and input. Three natural resources districts, Papio, Lower Platte North, and Lower Platte South have agreed to fund surveys and control phragmites on the Platte River and tributaries. The funding for control would be 50% cost share with cooperating landowners. Ducks Unlimited, Nebraska Game and Parks, Lower Platte River Corridor Alliance and the NRDs will be involved in planning and funding for the removal of the treated dead vegetation on the sandbars for the benefit of flood control, reduced ice jams and least terns and piping plovers.

Pesticide Sensitive Crop Locater Online

While all agricultural crops can be damaged by accidental pesticide drift, many “new” crops are especially sensitive to pesticides, causing drastic economic impacts to individual growers. The Nebraska Department of Agriculture (NDA), in conjunction with the University of Nebraska Center for Advanced Land Management Information Technologies, has developed an online locater for pesticide-sensitive commercial crops on the web at the authority’s program and activities and about weed control and management.

The site is continually being updated.

Via the Web site, you can:

Contact the Weed Control Authority.
Make a weed complaint.
Make a real-time search of current weed inspections.
Look at a map of noxious weed locations in the county.
See the latest listing of possible weed special assessments.
Study noxious weed and weed abatement laws and regulations.
Learn about noxious weed identification.
Read about the County Noxious Weed and City Weed Abatement Programs.
See plans and reports.
Check on noxious weed controls.
Learn about managing natural areas in an urban setting.
Link to other weed control Web sites.

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Learn about managing natural areas in an urban setting.
Link to other weed control Web sites.
Learn to Recognize Lancaster County’s Noxious Weeds

The Nebraska Noxious Weed Control Act states it is the duty of each person who owns or controls land to effectively control noxious weeds on such land. Pictured are Nebraska’s noxious weeds which are common Lancaster County.

Noxious weed is a legal term used to denote a destructive or harmful weed for the purpose of regulation. The Director of Agriculture establishes which plants are noxious. These non-native plants compete aggressively with desirable plants and vegetation. Failure to control noxious weeds in this state is a serious problem which is detrimental to the production of crops and livestock and to the welfare of residents of this state. Noxious weeds may also devalue land and reduce tax revenue.

Lancaster County’s Invasive and Noxious Weed Alert List

This list focuses on invasive and noxious weeds — rare to non-existent in the county — posing the greatest threat.

This list has been developed as a tool to focus management efforts on the early stages of plant invasions. The public and land managers can assist in this effort by being on the lookout for plants on this list and report any findings to the Lancaster County Weed Control Authority.

Phragmites

Common reed, or Phragmites, is a tall, perennial grass that can grow to over 15 feet in height. Phragmites forms dense stands which include both live stems and standing dead stems from previous year’s growth. Leaves are elongate and typically 1–1½ inches wide at their widest point. Flowers form bushy panicles in late-July and August and usually purple or golden color. As seeds mature, the panicles begin to look “fluffy” due to the hairs on the seeds and they take on a grey sheen. Below ground, Phragmites forms a dense network of roots and rhizomes which can go down several feet. The plant spreads horizontally by sending out rhizome runners which can grow 10 feet or more in a single growing season if conditions are optimal.

Once Phragmites invades a site, it quickly can take over riparian communities, crowding out native plants and altering wildlife habitat. Its high biomass blocks light to other plants and occupies all the growing space below ground so plant communities can turn into a Phragmites monoculture very quickly. Phragmites can spread both by seed dispersal and by vegetative spread via fragments of rhizomes breaking off and transported elsewhere. New populations of the introduced type may appear sparse for the first few years of growth, but due to the plant’s rapid growth rate, they will typically form a pure stand choking out other vegetation very quickly. In Lancaster County, a total of 245 infestations on 180 acres were found in 2009. Most sites are recent infestations with potential to grow larger and to contribute to new infestations by the wind blown seeds. It is very important infestations be controlled to prevent this spread. See the article “Phragmites Control in 2009” on the front page of this Weed Awareness special section.

Saltcedar

Most saltcedars, or tamarisks, are deciduous shrubs or small trees growing 12–15 feet in height and forming dense thickets. Saltcedars are characterized by slender branches and gray-green foliage. The bark of young branches is smooth and reddish-brown. As the plants age, the bark becomes brownish-purple, ridged and furrowed. Leaves are scale-like, about 1/16-inch long and overlap each other along the stem. They are often encrusted with salt secretions. From March to September, large numbers of pink to white flowers appear in dense masses on 2-inch long spikes at the branch tips. Saltcedars have long tap roots allowing them to intercept deep water tables and interfere with natural aquatic systems. Saltcedar disrupts the structure and stability of native plant communities and degrades native wildlife habitat by outcompeting and replacing native plant species, monopolizing limited sources of moisture and increasing the frequency, intensity and effect of fires and floods. Although it provides some shelter, the foliage and flowers of saltcedar provide little food value for native wildlife species depending on the nutrient-rich native plant resources. In Lancaster County, a total of nine sites have been found. Only three were wild infestations. The other six were ornamental plantings.

Spotted and Diffuse Knaweed

Spotted and diffuse knaweed are a biennial or short-lived perennials. They typically form a basal rosette of leaves in the first year and flowers in subsequent years. Flowers are purple to pink, rarely white, with 25–35 flowers per head. Plants bloom from June to October, and flower heads usually remain on the plant. Spotted knaweed infests a variety of natural and semi-natural habitats including barrens, fields, forests, prairies, meadows, pastures, and rangelands. It out competes native plant species, reduces native plant and animal biodiversity, and decreases forage production for livestock and wildlife. These are state noxious weeds with only one site found in Lancaster County.

Sericea Lespedeza

Chinese lespedeza is a warm-season, perennial herbaceous plant. It has an erect growth form, ranging from 3–5½ feet in height and leaves alternate along the stem. Each leaf is divided into three smaller leaves, ½–1 inch long, which are narrow and pointed, with awl-shaped spines. Leaves are covered with densely flattened hairs, giving a grayish-green or silvery appearance. Mature stems are somewhat woody and fibrous with sharp, stiff, flattened bristles. Small (about ½ inch) creamy-white to pale-yellow flowers emerge either singly or in clusters of 2–4, from the axis of the upper and median leaves. Sericea lespedeza is primarily a threat to pastures and CRP. Once it gains a foothold, it can crowd other plants and develop an extensive seed bank in the soil, ensuring its long residence at a site. Established dense stands of lespedeza and its high tannin content makes it unpalatable to native wildlife as well as livestock. It is a noxious weed in Kansas and some southeast Nebraska counties and found in a few sites of the county where it was planted and some escapes from these plantings.

Japanese Knotweed

Japanese knotweed is an upright, shrubby, herbaceous perennial that can grow to over 10 feet in height. Stems of Japanese knotweed are smooth, stout and swollen at joints where the leaf meets the stem. Leaves are broadly oval to somewhat triangular and pointed at the tip. The minute greenish-white flowers occur in attractive, branched sprays in summer and are followed soon after by small, winged fruits. This plant threatens riparian corridors, wetlands and stream sides. It spreads quickly to form dense thickets that exclude native vegetation and greatly alter natural ecosystems. It poses a significant threat to riparian areas because of its ability to survive severe floods and rapidly colonize banks and islands. Once established, populations are extremely persistent. It has been planted as an ornamental with some reports of plantings in Lincoln. We would like reports of any wild infestation or ornamental plantings. It has become a serious problem in Iowa.

Weed Awareness
Do-It-Yourself Bed Bug Trap

Barb Ogg
UNL Extension Educator

In the last decade, we’ve seen a resurgence of bed bugs in the United States. Bed bugs aren’t just an “American” problem — people all over the world are dealing with more bed bug problems.

Before treatments are done, it’s important to make sure bed bugs are present. Inspections require removing bed linens, turning over mattresses and box springs, looking for bed bug droppings, and bed bugs themselves. An easier method of finding bed bugs has been developed by Dr. Changhe Wang, a research entomologist from Rutgers University. This homemade trap is simple to make. It is also inexpensive. His research lab has compared it with some high-priced traps, and they found it worked very well.

This trap will catch more bed bugs if nobody is sleeping in the bed, but some bed bugs will be caught even if someone is sleeping in the bed or on the sofa. If there is a very small infestation, it may probably won’t catch all the bed bugs if nobody is sleeping in the bed or on the sofa. If you find bed bugs, you can put the pet dish in the freezer for a few hours to kill the bed bugs. If using this trap in more than one location, take precautions to avoid moving bed bugs to other locations by freezing the trap several hours before reusing it. A double pet dish will fit into a jumbo-size plastic food storage bag.

In the morning, the trap will catch bed bugs if there were any bed bugs in the room during the night. If you want to reuse this trap the next night, you will need more dry ice. Reapply a dusting of talcum powder before using.

Why Does this Trap Work?

Bed bugs are attracted to CO₂ given off as the dry ice warms up. The CO₂ escapes the thermos through the spout at the top. Because CO₂ is heavier than air, it will flow down the thermos and concentrate in the bottom of the trap and near the floor. Carbon dioxide will not replace oxygen so it is not hazardous to people or pets. It is carbon monoxide (CO) that is dangerous. According to Dr. Changhe Wang, the CO₂ given off by a 1/3-gallon trap will be about the same as two people breathing.

Note: In the winter, I had a hard time finding one-half gallon plastic insulated thermos jugs. At one store, I bought a Rubbermaid™ water cooler. When I tested the Rubbermaid™ water cooler, I found a small amount of water had accumulated overnight in the trough of the inverted pet food dish. Because it wasn’t insulated very well, water condensed on the bottom of the Rubbermaid™ cooler and dripped into the trap. The trap still caught bed bugs, but a well-insulated thermos will work better.

FOR MORE INFORMATION

For those who wish to use a print-friendly format and other bed bug resources, go to http://lancaster.unl.edu/pest/bugs.shtml

**What You Need for This Trap**

To make this trap, you’ll need:

- A plastic pet dish. Look for a divided pet dish with flat bottom food bowls. (I paid $2.78.)
- A 1/3–1/2-gallon cooler/thermos. You’ll need one that is insulated well and has a spout on the top. ($6.99 for a 1/2-gallon cooler)
- Talcum powder (baby powder). Scented or unscented, it doesn’t matter. Before you buy, check the label to make sure it is talcum baby powder, not cornstarch baby powder. ($1.73)
- A small paintbrush, make-up brush or cotton ball. I used an old make-up brush.
- Some fabric. I cut up one of my husband’s old shirts, which worked great.
- Glue. I used Elmer’s “because I already had it. You can also use masking tape.
- Dry ice in cubes. Look in the Yellow Pages for suppliers. This is the last step. You’ll need to prepare the trap before you get dry ice. In Lincoln, the local vendor sells dry ice in 5 lb. bags for $4.28.

Before you start, remove the plastic label from the pet dish. Turn the dish upside down and look at it. This inverted pet dish is going to be your trap. At night, the bed bugs are going to crawl up the sides of the inverted pet dish and fall down into the trough that surrounds the two round flat areas. The thermos containing dry ice is going to sit in the middle of the inverted pet dish straddling the flat areas.

Because the outside of the plastic pet dish is too slippery for bed bugs to climb up, you must provide traction to help them out. Cut strips of fabric and glue them to the sides of the dog dish, or use masking tape to completely cover the edges. Make sure you cover the entire side from top to bottom. Let the glue dry several hours or overnight. If any glue dripped on the inside of the trap, you’ll need to clean it off. Make sure there are no small spaces for bed bugs to hide under.

My total cost for this trap (buying one 5 lb. bag of dry ice) was $15.78 plus sales tax.

**Setting the Trap**

Directions:

1. Use a brush or cotton ball and coat a very, very thin layer of talcum powder on the bottom of the grooves. A dusting is all that is needed. The talcum powder insures the bed bugs won’t be able to crawl up the sides and get out of the trap.

2. Take the thermos or a styrofoam cooler to your dry ice supplier and buy dry ice. Dry ice is very cold and it will burn your skin, so don’t touch it. If you accidentally spill some, use gloves to pick it up.

3. When dry ice warms up, it turns to carbon dioxide gas (CO₂) and pressure will build up inside the container. Screw the thermos lid on tightly, but open the spout just a little bit to release the pressure.

4. Assemble the trap. Put the inverted pet dish near the bed or sofa you think might be infested. Place the thermos on the flat areas. Make sure it does not touch the front or back of the pet dish. At bedtime or about 9 or 10 p.m., open the thermos spout all the way to release the carbon dioxide.

5. In the morning, remove the thermos and look to see if you have caught any bed bugs. Adult bed bugs are 1/4-inch and easy to see. This trap will also catch the tiniest bed bugs that are about this size of a pinhead. They will be pinkish colored and hard to see. This is why you want only a very thin layer of talcum powder in the bottom of the trap. If you find bed bugs, you can put the pet dish in the freezer for a few hours to kill the bed bugs. If using this trap in more than one location, take precautions to avoid moving bed bugs to other locations by freezing the trap several hours before reusing it. A double pet dish will fit into a jumbo-size plastic food storage bag.

In the morning, there probably won’t be much dry ice left. If you want to reuse this trap the next night, you will need more dry ice. Reapply a dusting of talcum powder before using.

Bed Bugs Walking

Some insects, like house flies, seem to defy gravity by walking on windows or even upside down. They can do this because they have tarsal pads which are sticky enough to overcome gravitational forces.

Bed bugs do not have tarsal pads. But, they do have tarsal claws that allow them to dig into surfaces.

Catherine Louden, a researcher at University of California–Irvine, studied how bed bugs walk on different surfaces. She videotaped bed bugs as they ran across wood, glass, fibrous tape, painted surfaces, and plastics. She slowed the tape and was able to see how bed bugs walked on the different surfaces.

She found when they walked on wood and fibrous tape, bed bugs showed normal insect walking, without any slipping. But, when bed bugs were placed on plastic surfaces, she found bed bugs slipped with every step, even when walking horizontally. On painted and glass surfaces, bed bugs showed an intermediate level of slipping and less synchronized walking.

This study shows why bed bugs can’t get out of the plastic pet dish. Even without the talcum powder, this trap will still probably work, but the talcum powder makes the plastic surface even more slippery.

Use glue or masking tape to attach fabric to the outsides of the pet food dish.

Use a small brush or cotton ball to apply a very thin dusting of talcum powder to the trap.

In the morning, bed bugs will be found in the bottom of the trap.

The items needed to make this trap are easy to find and only cost around $15.
4-H & Youth

Spring Rabbit Show
Saturday, March 20, 9 a.m.
Lancaster Extension Education Center
444 Cherry Creek Road, Lincoln
Awards 7:30–9:00 a.m.
Open to all youth 8–18
TICKETS FOR $1
Please bring an item for raffle such as crafts, rabbit items, plants, Easter/Spring items, books, etc.
RAFFLE FOR MANY PRIZES! Please bring an item for raffle such as crafts, rabbit items, plants, Easter/Spring items, books, etc.
Free for more information, call Rodney at 782-2186 or Marty at 441-7180.
Volunteers Needed
Sponsored by Lancaster County 4-H Rabbit VIPS Committee and UPL Extension in Lancaster County.

4-H Ag in the News

4-H/FFA Market Beef Weigh-In, Feb. 25
4-H and FFA exhibitors showing market steers or heifers at the Lancaster County Fair will arrive on Feb. 19 and an official weigh-in and Earmark-Ben must identify and weigh in their projects on Thursday, Feb. 25, 6–8 p.m. in the at the Lancaster Event Center Pavilion 2. 4-Hers planning on exhibiting at State Fair or Earmark-Ben to have boar DNA sampled. There is a $6 per head charge and it will be pulled at the time of weigh-in. Exhibitors do have until April 1 to identify, weigh and pull DNA on any market animal that may go to State Fair or Earmark-Ben.

4-H Horse-Related Scholarships Due March
One $500 scholarship and four $1,000 scholarships are available for 4-H’ers enrolled and active in the Nebraska 4-H Horse Program. For applications, go to www.animalscience.unl.edu/extension/equine/4Hscholarship.html.

Jammie Jamboree, April 10
Learn basic sewing skills as part of the 4-H Clothing Level 1 program and make jammie bottoms on Saturday, April 10, 9 a.m. at the Lancaster Extension Education Center, 444 Cherry Creek Road, Lincoln. Open to all youth (need not be in 4-H). Bring your sewing machine, basic sewing equipment (such as scissors, pins, measuring tape, etc.), pull on pajama bottom pattern (one simple pattern is Simplicity 5535), preshrunk flannel or 100% cotton fabric (no one-design fabric or fabrics) and matching thread. Also bring a sack lunch and join us at 10 a.m. by calling 441-7180. Jammie bottoms may be entered at the county fair and styled in the Style Revue under Clothing Level 1.

4-H Dog Clinic, April 24
Lancaster County 4-H along with the University of Nebraska–Lincoln will present a 4-H Dog Clinic on Saturday, April 24, 9 a.m.–3 p.m. at the Lancaster Event Center Pavilion 1. Dog owners and April Ninness for more information or call Deanna at 441-7180.

4-H Pick-a-Pig Project
The pick-a-pig project was designed to give urban youth the opportunity to participate in a 4-H livestock project. There is a minimal cost to participate. The 4-H member will be required to attend weekly meetings and training sessions at a local farm. Those participating will learn about swine production, nutrition, management, and how to keep records. They will get the experience of showing swine at the Lancaster County Fair. For more information or to sign up, contact Deanna at 441-7180 or dkarmazin2@unl.edu. Sign up deadline is April 11.

4-H/FFA Sheep Weigh-In, May 6
All 4-H members planning to exhibit market sheep need to have their lambs officially tagged and weighed by June 15. A county-wide sheep weigh-in date has been set for Thursday, May 6, 6–8 p.m. at the Lancaster Event Center Pavilion 1. Those participating will learn about sheep care, nutrition, showmanship, and grooming of many different species. More information will be in the next Nebraska 4-H Newsletter.

Livestock Clinic, May 8
Lancaster County 4-H along with ADIM will host a livestock clinic Saturday, May 8. The clinic will be 4 p.m. at the Lancaster Event Center Pavilion 1. Top notch presenters will be talking about selection, nutrition, showmanship, and grooming of many different species. More information will be in the next Nebraska 4-H Newsletter.

4-H PSA Contest
The 2010 4-H PSA Contest will be held Sunday, April 18 at 1:30 p.m. at the Lancaster Extension Education Center, 444 Cherry Creek Road, Lincoln. The PSA Contest provides 4-H’ers the opportunity to learn to express themselves clearly, organize their ideas and have confidence. Register by April 12 by calling 441-7180 or emailing dkarmazin2@unl.edu with name, speech title and age division.

Contest divisions and requirements:
• Clover Kid: 5–7 years old, read or recite any short story, nursery rhyme, poem, pledge, etc.
• Novice: 8–9 years old, 2 minutes in length, any topic related to 4-H
• Junior: 10–11 years old, 2–3 minutes in length, any topic about a 4-H experience.
• Intermediate: 12–13 years old, 3–5 minutes in length, encouraged to talk about a 4-H project you would like others to enroll in.
• Senior: 14 years old, 5 minutes in length, a timely topic related to 4-H.
For speech resources and check out our Web site at http://lancaster.unl.edu/4h/Contest/speech.shtml.

PTSA PSA Contest
In the Public Service Announcement (PSA) Contest, 4-H’ers submit a “radio commercial” recorded on a cassette tape or CD by Monday, April 12. PSA’s must promote 4-H and should be 60 seconds. State 4-H asks for PSAs to be general enough to be used anywhere in Nebraska. Instead of effects and background noises are encouraged (copyrighted material may not be used). If you do not have the capabilities to record a PSA, you can contact Deanna at 441-7180 to set up a time.

NEW for 2010!
• All 4-H PSA’s will use the state theme as the basis for their PSA. The 2010 PSA theme is “Meet the Future.”
• All 4-H PSA’s must include the following tag line within the last ten seconds of the PSA: “Learn more about the University of Nebraska–Lincoln 4-H Youth Development Program at 4H.unl.edu and Know How. Know Now.” The tag line is included in the 60 second time limit.

The deadline to submit entries for the 4-H Speech Contest on Sunday, April 18. Additional contest information, guidelines and examples can be found at http://lancaster.unl.edu/4h/Contest/speech.shtml.
4-H Achievement Night

Lancaster County 4-H Achievement Night was held Jan. 28. Achievement Night. The evening was presented by University of Nebraska–Lincoln Extension in Lancaster County and 4-H Council. 4-H’ers, 4-H clubs and 4-H leaders were recognized for their 2009 achievements. Lancaster County 4-H congratulates all 4-H youth who commit themselves to excellence! We also thank the 4-H leaders who volunteer their time and talents to youth! For a complete list of award, scholarship, and pin recipients (as well as additional photos) go to http://lancaster.unl.edu/4h.

Kyle Pedersen was awarded OUTSTANDING 4-H MEMBER (pictured with 4-H Council President Kirk Gunnerson). Kyle has been a 4-H member for 10 years and is a member of Cool Clovers Club (he has served as a club officer every year), 4-H Teen Council and 4-H Council. He has been involved in numerous 4-H projects and contests. As a State Horticulture Contest winner, he competed in the National Junior Horticulture Association Contest and as a State Record Book winner, he attended 4-H Congress. Kyle has participated in many community service projects.

4-H MERITORIOUS SERVICE was awarded to Jay Wilkinson (pictured with Extension Associate Deanna Karmazin). He has been involved with livestock and 4-H for four decades! He has been superintendent of the Lancaster County Fair 4-H Sheep show for 5 years and assistant superintendent for 3 years and counting. He has helped with the Happy Go Lucky 4-H club and many times has loaned his sheep for grooming and nutrition clinics. As a 7 year member of the Lancaster County Agricultural Society board of directors, Jay is in charge of the livestock areas during the Lancaster County Fair. He oversees all the livestock stalls and two show arenas. He is essential to the success of 4-H livestock shows!

NEBRASKA DIAMOND CLOVER

The Nebraska 4-H Diamond Clover Program is a relatively new statewide program which encourages 4-H members to engage in a variety of projects and activities. At the beginning of the 4-H year, youth choose goals from a provided list, and at the end of the 4-H year, fill out a report which documents their accomplishments.


Level 2 – Aquamarine: Hannah Bellinghausen, Alyssa Bennett, Morgan Chipp, Skye Clough, Valerie Gabel, James Griess, Bethany Hage, Ben Harris, Bryanna Louden, Adriana Miller, Kylene Plager, Lucy Polk, Jacob Ronnau, Sheridan Swotek, and Abigail Tinean

Level 3 – Ruby: Ivy Dearmont, Madeline Gabel, Spencer Peters, Jacob Pickrel, Hannah Ronnau, Micah Scholl, Brody Zabel, and Haley Zabel

Level 4 – Sapphire: Elli Dearmont, Kaiya Green, Natalie Griess, and Emily Steinbach

Level 5 – Emerald: Cory Peters, Rachel Pickrel, and Ian Schuster

COLLEGE SCHOLARSHIPS

Lancaster County 4-H Council — $500: Jeff Cassel, Rachel Hanigan, Levi Meyer, Ellen Muehling, Kyle Pedersen, and Britni Waller

4-H Teen Council — $250: Jeff Cassel and Ellen Muehling

Lincoln Center Kiwanis — $1,000: Ellen Muehling

Spencer Farley and Rachel Pickrel were presented American Youth Foundation 1 DARE YOU awards for striving to achieve their personal best.
What to Bring to Have Your Taxes Prepared at a VITA Site

- W-2’s from your employer, 1099’s for miscellaneous income, and W-2’s for gambling income
- 1099’s for interest, dividends, unemployment, retirement, and other income
- Social Security cards or ITIN letters (for you, your spouse, your children, and other dependents)
- Copy of last year’s tax return (very helpful)
- Social Security cards or ITIN letters (for you, your spouse, your children, and other dependents)
- Blank check or savings account information for direct deposit
- Statements of student loan interest, mortgage interest and property tax
- List of any other income and expenses

New and Outgoing Lancaster County Extension Board Members

University of Nebraska–Lincoln Extension in Lincoln County welcomes its newest extension board appointments — recently-appointed to three year terms are Denise Farley, Ryan Mohling, Boshra Rida, and Patricia M. Schmidt.

Current Extension Board members are:
- Wesley Daberlow, President
- Deborah Day, Vice President
- John Chess, Secretary/Treasurer
- Linda K. Butcher

Current Extension Board members are:
- Pablo Cervantes
- Irene Colborn
- Denise Farley
- Kirk Gunnesson
- Ryan Mohling
- Boshra Rida
- Patricia M. Schmidt

Extension thanks outgoing board members George H. Bool, Robin Ambroz-Hollman, Bonnie Krueger, Carra Petil, Clarice Steffens, and Annie Stokes for their contributions.

Extension board members assist extension staff in establishing and accomplishing extension program goals and objectives. The work is in partnership with UNL Extension on priority issues through educational programs in agriculture, horticulture, pest management, nutrition and food safety, family living, home environment and 4-H youth development.

University of Nebraska–Lincoln students are providing free tax preparation services at the UNL Volunteer Income Tax Assistance (VITA) sites, and have done so for the past four years. Free parking and childcare is also provided at the UNL sites.

Dr. Linda Moody, assistant director of Student Involvement, says, “Our students gain real world experience through this volunteer opportunity. It helps accounting majors get internships.”

In 2009, UNL student volunteers prepared 785 tax returns which generated $1,100,000 in Earned Income Tax Credit. The 26 student volunteers donated 1,200 hours to help low- and moderate-income families electronically file their returns. Those receiving refunds have said they plan to pay off bills, repair a car, or pay their mortgage.

Jessica Frech, a senior accounting major is in her third year as an EITC volunteer. “Helping individuals to have a smooth tax filing experience is very rewarding says Lessia. She adds, “As a VITA (Volunteer Income Tax Assistance) member, I am able to work with great people, solve problems, and have fun...all at the same time.”

UNL students are also providing expertise at six targeted sites.

Extension Board Association Scholarship Forms Due March 15

The Nebraska Association of County Extension Boards is accepting applications for their scholarship program for the 2010/11 academic year.

- One $1,000 scholarship to any incoming freshman or transfer student enrolling into the University of Nebraska-Lincoln College of Agricultural Sciences and Natural Resources (CASNR) or into the College of Education and Human Science (CEHS).
- One $500 scholarship awarded to a current student of CASNR or CEHS, who is a sophomore or higher. Applications are due by March 15. To obtain a scholarship application and for more information, go to http://lancaster.unl.edu/4h/Programs/award.shtml or call Deanna Karmazin at 441-7180.
EXTENSION CALENDAR

February (Nebraska 4-H Month)
20 4-H Horse Stampede, U. N. L. Animal Science Building
20 Pillow Party ................................................................. 9 a.m.
25 Initial Pesticide Training for Commercial/Noncommercial Pesticide Applicators ............................................... 9 a.m.
25 Small Steps to Health and Wealth, online workshop........... 12:10–1:1 p.m.
25 4-H/FFA Market Beef Weigh-In, Lancaster Event Center, Pav. 2... 6–8 p.m.

March
1 Preference Given to 4-H Camp Scholarship Entries Submitted to Extension by this Date
1 R.B. Warren 4-H Horse Educational and Grand Island Saddle Club Scholarships Entries Due
2 4-H Council Meeting ........................................................... 7 p.m.
4 Small Steps to Health and Wealth, online workshop........... 12:10–1 p.m.
11 Small Steps to Health and Wealth, online workshop........... 12:10–1 p.m.
12 Extension Board Meeting................................................ 8 a.m.
14 4-H Teen Council Meeting ................................................ 3 p.m.
16 Private Pesticide Applicator Training ........................................ 8:30–11:30 a.m.
16 Guardian/Conservation Training .......................................... 1:30–4:30 p.m.
18 Recertification Training for Commercial/Noncommercial Pesticide Applicators ................................................................. 9 a.m.
18 Small Steps to Health and Wealth, online workshop........... 12:10–1 p.m.
18 Parents Forever.............................................................. 5:30–9 p.m.
20 4-H Rabbit Spring Show ................................................... 9 a.m.
22 Family & Community Education (FCE) Council Meeting.
Engine House Cafe, 6028 Havelock Ave ........................................ 1 p.m.
23 FCE & Community Leader Training Lesson 5 ............
25 Small Steps to Health and Wealth, online workshop........... 12:10–1 p.m.
27 Child Care Conference — Going for the Gold .......... 8 a.m.–3:30 p.m.

UNL College of Architecture High School Workshop, June 13–19
This summer the University of Nebraska–Lincoln College of Architecture will be conducting a workshop for high school students interested in exploring careers in architecture, landscape architecture and interior design. The workshop is a residential program and will be held June 13–19. Workshop participants will create designs and learn about the process of design. The fee is $885 per participant. This includes studio supplies, program fees, meals and lodging. Each applicant must complete an application form and provide two recommendations on or before April 9. Forms and more information are online at http://architecture.unl.edu/programs/arch_hs_workshop.shtml. For more information call 472-7943.

UNL Water Seminar Series
The UNL Water Center and School of Natural Resources free Spring Water Seminar Series will feature top speakers addressing water and environmental concerns. The lectures will be 3:30–4:30 p.m., Wednesdays, first floor auditorium ofHardin Hall, northeast corner of N. 33rd and Holdrege St. Most seminars will be taped and most speaker materials will be available for viewing online. For more information, call 472-3165 or go to http://watercenter.unl.edu.

• Mar. 3 — “The Impact of Flow Variability on the Likelihood of Cooperation Among International Bilateral River Basin Riparian,” Edella Schlager, University of Arizona
• Mar. 10 — “Collaborative Watershed Governance: Institutions, Conflict, and Conflict Resolution,” Ariel Dinur, University of California, Riverside
• Mar. 14 — “Biotechnology in Microbial Forensics,” Wen-Tao Liu, University of Illinois at Urbana-Champaign
• Mar. 16 — “Climate-Related Variations in Mixing Dynamics in Arctic Laks,” Sally MacIntyre, University of California-Santa Barbara

Open House Events

BIG RED OPEN HOUSE
March 8 or April 12 — Spend a day on campus learning more about academics, student life, scholarships, and the Big Red spirit!

SUPER SATURDAY
April 24 — A visit day built by students for students!

HUSKER SUNDAY
April 25 at Westfield Gateway Shopping Mall

JUNIOR WEDNESDAYS
Wednesdays from March 3 to April 28 — A Husker Weekday tailored for juniors.

For more information or to register, see http://admissions.unl.edu

The Nebline
The Nebline is published monthly (except December). Mailed to more than 12,000 households in Lancaster County and can be read online at http://lancaster.unl.edu/nebline

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Sign up at http://lancaster.unl.edu/nebline to be notified by e-mail when Nebline is posted online.

Mail Subscriptions
Subscriptions to Nebline via mail are free to Lancaster County residents. There is an annual $5 mailing and handling fee to addresses in zip codes other than 68528, 68529, 68530, 68532 and 68565.

Mail to: UNL Extension in Lancaster County
444 Cherry Creek Road, Suite A • Lincoln, Nebraska 68528-1507

For an East Campus tour, contact Laura Frey at 472-4445 or lfrey2@unl.edu

The University of Nebraska-Lincoln is an equal opportunity educator and employer with a comprehensive plan for diversity.
Kathy Wieand

Lancaster County 4-H is proud to announce Kathy Wieand as winner of March’s “Heart of 4-H Award” in recognition of outstanding volunteer service. Kathy has volunteered with 4-H for eight years. She has been co-leader of Equiliders Horse Club and is currently co-leader of the Silver Spurs Horse Club, which was awarded Outstanding 4-H Club (with 8-12 members) for 2009. She is also a member of the Lancaster County Horse VIP Committee.

Laura Hardesty nominated Kathy for the award, saying, “She is a wonderful 4-H leader. She helps the 4-H’ers succeed with her ever-ready smile and willingness to help. Kathy has been an organizational leader for many years and is an outstanding role model.”

Kathy says, “I enjoy working with the youth and watching them develop their riding skills as well as learning about horses. I have made many friends through 4-H and appreciate the commitment and support of club members. My favorite experience as a 4-H volunteer is hosting the annual “Hairy Horse Show.” Proceeds from this show are donated to a local horse rescue. It is a great feeling to give back to the community.”

Congratulations to Kathy. Volunteers like her are indeed the heart of 4-H!

Nominations of co-volunteers welcome.

Save 10% on 4-H Camps by Registering Before April 1!

Applications Open for 4-H Camp Staff

The three 4-H Camps in Nebraska are currently accepting applications for our 2010 summer staff. All positions provide endless opportunities for growth in a fun, fast-paced outdoor atmosphere.

You may apply for a variety of positions:

- **Camp Staff** — Salaried youth ages 18 and older who lead camp programs. Spend mid-May to August working full time to provide day to day leadership of camp activities and teaching groups of all ages. A great summer job for college students with any major. Initial application deadline was Feb. 15.
- **Cabin Mentors** — Youth ages 17 and up who provide cabin supervision and assist in leading camp programs. Mentors receive an honorarium for their service and are scheduled according to their availability. Perfect for high school youth who need a fun getaway from their full time summer job. Mentor for a few days or for the entire summer — the choice is yours! Application deadline is March 15.
- **Camp Counselors** — Youth ages 15–18 who assist with cabin supervision and leading of camp programs. Join over 150 volunteer teens in providing valuable leadership to a group of campers by day and assist with cabin supervision at night. Camp counselors are scheduled according to their availability and counseling is a fantastic leadership experience for any young person. Application deadline is March 15.

More information and applications are online at http://4h.unl.edu/camp/staff — need not be in 4-H to apply.

Explore Career Options at Big Red Academic Camps

The 2010 Big Red Summer Academic Camps are a chance for high school youth to spend time investigating an interest or potential career, explore the UNL campus, meet people from across the state and have lots of fun. Held in June, Big Red Summer Academic Camps feature 12 career exploration camps hosted by Nebraska 4-H and UNL faculty members. The camps are residence camps held on the University of Nebraska-Lincoln campus. Housing and food are provided.

After spending several fun-filled days exploring a specific topic such as movie-making or food molecular biology, youth showcase their work at a special “capstone event” which family members are invited to attend. Brochures and registration forms are available at http://bigredsamps.unl.edu or at the extension office. For more information, call 472-2805.

**Save $50 by registering before April 1!**

Big Red Summer Academic Camps reserves the right not to hold a camp due to low participation numbers.

Can You Guess It?

Did you guess it from the February Nebliner? The answer was Whole Grains

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