The NEBLINE, March 2010

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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. Organics separated from wastewater solids are processed at a landfill and biologically processed to extend the life of the Bluff Road Landfill by 6.9 years, a savings of $265.72 per acre.

Lancaster County. Biosolids are organic fertilizer for crops not in the 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 digesters at the Theresa Street Wastewater Facility. After processing, it can be called biosolids. Four days each week, de-warmed 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 established 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, which differs from nitrate-N and ammonium-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 are ideal for use on eroded or terraced fields deficient in P, Zn or other trace elements. One application of biosolids generally increases soil phosphorus by 25–35 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 amnabiotic ammonia.

Disadvantages. Cooperators must have the time and equipment to apply biosolids or hire a custom applicator to apply it for them. Compaction 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, times 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 $65.72 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 in the form of 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.

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.

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 reapplied an economic benefit of $3 per acre. (This was in 1997 when wheat was selling for $5.00 per 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.)

Biosolids provides nitrogen for the following crop, but many cooperators use it because it is rich in phosphorus, zinc and other micronutrients.
It is preferable to warm cold grain in stages. Push a warming front through the grain whenever the air is 10-15°F warmer than the grain. If you wait until the air temperature is greater than 15°F warmer than the grain, you might experience some rewetting of the grain because the air will be cooled as it passes through the cool corn and could drop the temperature below the dew point temperature of the air. This is a greater problem when the grain is below 25°F because the humidity will condense in the form of frost. Frost buildup can impede airflow through the grain. During farrowing, always push the temperature front through the entire grain mass before discontinuing aeration for more than a few hours. Once you get the grain over 40°F, I advise using the Equilibrium Moisture Content Table to judge when it will be advantageous to run the aeration fans to dry your corn.

Caution: Once you warm the grain above 45°F, it will be more susceptible to mold growth, so warm the grain only if the air temperature calls for several days of good drying conditions based on the Equilibrium Moisture Content table (see Table 1).

Question 2: How long will it take to dry it to 15 percent moisture?

Answer: For estimates on the time to dry corn with natural air, look at the estimated time to dry corn chart in Drying Time in Binned Corn Using Natural Air on the Crop Watch watershed site at http://cropwatch.unl.edu/web/cropwatch/archive/artid=1990301. Your two bins of corn are 16 and 18 percent moisture. The bin with 16 percent moisture should dry to 15 percent in about five days if the 24-hour average air temperature is 40°F and humidity is 50 percent. The time to dry from 18 percent to 15 percent moisture is about 14.5 days under the same average temperature and humidity conditions.

Table 1. Equilibrium Moisture Content of shelled corn at various air temperatures and related humidities

<table>
<thead>
<tr>
<th>Air Temp</th>
<th>Relative Humidity</th>
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<tbody>
<tr>
<td>50°F</td>
<td>50%</td>
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<tr>
<td>55°F</td>
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<td>65°F</td>
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<tr>
<td>70°F</td>
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<tr>
<td>75°F</td>
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</table>

Leasing Pastures and Hay

Grass hay crop-share leases

Perennial grass hay crops are typically shared on a 60/40 crop share with the tenant receiving the 60 percent share. Typically, the landowner pays the initial cost of establishing the stand of grass. The tenant is responsible for cutting and baling and is expected to haul the landowner’s share a reasonable distance for storage. Fertilizer costs have traditionally been shared in the same ratio as the crop, but with rapidly increasing land values, which result in higher property taxes and higher opportunity cost for the landowner, the percentage split on fertilizer cost is beginning to be a negotiated item rather than a set percentage.

Alfalfa hay crop-share

Alfalfa hay has about as many 50/50 share arrangements as 60/40 arrangements during the productive years of the stand. If the landowner pays the cost of establishing the alfalfa, the hay is usually split 50/50 whereas if the establishment costs are split between landowner and tenant, a 60/40 share is more common. Small fields of hay, sweet clover, and older, thinner alfalfa stands with low yield potential often will be shared 60/40 or 70/30.

Cash leases for hay land

Cash leasing hay land is no different than cash leasing other types of land for agricultural production. A rental rate see LEASING on next page
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 water supplies need to monitor safety by testing for contaminants. The quality of public water supplies is 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.1 Have the water supply tested at least annually for bacteria and nitrate, 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 nitrate are recommended, but if another contaminant is suspected, test for it too. Clients will receive results 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 prominent effect from those causing human illness is gastrointestinal disease, which can be dangerous to humans. They can lead to blue-baby syndrome, known as methemoglobinemia. It’s a condition where blood loses its ability to carry an adequate amount of oxygen. The syndrome leads to lips and other appendages turning bluish. Concentrations of nitrate-nitrogen in public water supplies of 10 parts per million are allowed, the maximum amount allowed. Soils of the Environmental Protection Agency. While infants are at greatest risk above a 10 parts per million concentration, adults are usually not at risk. To determine the nitrate concentration, have a water sample collected from that concentration. Pregnant and nursing women are considered higher risk since nitrate concentrations are higher for developing fetuses and nursing infants at risk. Contaminants can result from human activities or natural causes. Nitrate can occur from poor management of fertilizers, human waste, or animal waste. Bacteria tend 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, and proper sampling procedures. For more information, see “Certified Water Testing Laboratories.”

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 and Human Services, Public Health Environmental Laboratory, 3701 South 14th St., Lincoln, NE 68502; 471-8426. http://www.hhs.state.ne.us/lab — contact for fees, sample containers and proper sampling procedures. Source: UNL Extension NebGuide (G1614) “Certified Water Testing Laboratories in Nebraska”

Leasing
Leasing continued from preceding page is negotiated, a lease is drawn up, and the tenant receives 100 percent of the production and pays 100 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 fall between less than a couple of acres (usually associated with acreages) often 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 ton of hay 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 covering the costs associated with harvesting the hay. This saves the landowner the cost of hiring someone to move the hay. It is cost effective 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 alone 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 seed, at room temperature. These can be planted directly into soil when 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 seedlings are greatly harmed 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 requires a supply of young, butterhead varieties grown under cool conditions. Temperatures above 80°F can cause bitterness or bolting in lettuce. A lettuce seed should be sown thinly in rows about 1.5–2 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 removal of insects are the most effective ways to combat those diseases. Good air movement through the crop reduces disease and makes it less likely to develop. This harvests the lettuces planted in large leafy types of lettuce. For homeowners who harvest a leafy head or leafy lettuce, lettuce can be harvested any time after the plants are large enough to use. It is a good practice to thin leaf lettuce several times, removing large plants for use as “chips.” This helps maintain the lettuce bed size and reduces competition. This harvesting the lettuce of lettuces once the head or leafy leafy lettuce is ready for harvest when the heads are solid and the top Lindsey Rhoades — Damaged or soiled leaves at the base of the head before rinsing the heads in cool water when preparing for eating.
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 satiety to meals. This adds to our eating enjoyment 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 vs. 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 come 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 fats as low as possible.

Include Omega-3 Fatty Acids

Fish and shellfish contain a type of fat called omega-3 (aka ‘ω-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 [http://www.womenshealth.gov/faq/heart-healthy-eating.cfm](http://www.womenshealth.gov/faq/heart-healthy-eating.cfm).* 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 harmful. 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 was still on your mind with a lot less work.

Wonder how something sounding complicated can be so simple? Leftover creativity is easier than you think! Here are some ideas to get you started.

1. First, start with a suggested dinner menu, and then assess the 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.

2. Follow some of these suggested ideas even if you are eating leftovers. Be creative and make a new meal from old ones and you’ll be sure to never throw out food again!

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.

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

Source: [www.cfsan.fda.gov/~dms/fishhealth.html](http://www.cfsan.fda.gov/~dms/fishhealth.html)

### Nutrition Facts label example

<table>
<thead>
<tr>
<th>Amounts per serving</th>
<th>% DV*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat 12g</td>
<td>18%</td>
</tr>
<tr>
<td>Saturated Fat 3g</td>
<td>15%</td>
</tr>
<tr>
<td>Trans Fat 3g</td>
<td>10%</td>
</tr>
<tr>
<td>Cholesterol 30mg</td>
<td></td>
</tr>
</tbody>
</table>

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

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 Tilapia because they contain high levels of mercury.
2. Eat up to 12 ounces (2 average meals) a week of a variety of fish and shellfish that are lower in mercury.
3. Five of the most commonly eaten fish that are low in mercury are shrimp, canned light tuna, salmon, pollock, and catfish.
4. 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.
5. Check local advisories for 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.

Source: [www.cfsan.fda.gov/~dms/advice.html](http://www.cfsan.fda.gov/~dms/advice.html)

### 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.
**FAMILY & COMMUNITY EDUCATION (FCE) CLUBS**

**President’s View — Irene’s Items**

Irene Colborn  
FCE Council Chair

Our Nebraska winter has been a challenge for all of us. Time to think warm thoughts and look forward to those first flowers popping up through the ground with their lovely braids and bobby pins (rabbits leave them alone). This year, as a community service project, our club decided to send Valentine’s cards and sent them overseas so the soldiers could send them home to their families. Lorena Maxwell put together a box with the valentine items, personal items, food, etc. to fill the box. The post office has boxes you can use to mail to the troops. If you set a flat rate, weight of the box does not matter. This could be a project your club could 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 for the Council or community service project.

**FCE News & Events**

**Two Leader Training Lessons**

The FCE & Community leader training lesson "Living Resources: 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 441-7180 for 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 6633 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 makeup, medicine, plants, cleaning products, pesticides, art supplies, and beer, wine, and liquor.
- Never leave water unattended with an open container of something you wouldn’t want them to ingest or that could be poisoned in a matter of seconds.
- Don’t refer to medicine or overdose as something to avoid. A child can be poisoned in a matter of seconds.
- Don’t leave medicine or vitamins as candy and don’t involve children as helpers with your medication.

**Energy-Saving Kitchen Tips**

- Place the faucet lever on the kitchen sink in the cold position when using small amounts of water. Placing the lever in the hot position uses energy to heat the water even though it may not be used.
- Keep range-top burners and reflectors clean: they will reflect the heat better and you will have energy.
- Match the size of the pan to the burner.
- 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.

**Small Steps to Health and Wealth**

UNL Extension will present a series of online workshops Thursdays Through March 25 12:10 – 1:00 p.m. (workshops are recorded and can be viewed later)

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 kentukea* — Fragrant clusters of white flowers bloom in late spring on this medium-sized tree. Foliation 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: 20–30 feet high and 12–15 feet wide.

Bottlebrush Buckeye, *Aesculus parviflora* — In mid-summer, 12-inch white flower panicles with red anthers attract butterflies and hummingbirds. Glossy, inedible 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.

Shrub of the Year

Fragrant

2010 Garden Trends

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 20 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.

Source: Jane Berger, Journalist and Landscape Designer

FOR MORE INFORMATION

The City of Lincoln Watershed Management Web site has information about:
• Where to Buy a Rain Barrel
• How to Make Your Own Rain Barrel
• Artistic Rain Barrel Program
• Rain Barrel Classes
Go to http://lincoln.ne.gov and type keyword “rain barrel”

UNL Extension recently helped establish a garden at People’s City Mission. Residents have grown a wide variety of produce.
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 weeds 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 weeds 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 376 sites on 597 acres. Landowners did not completely control 82 sites on 39 acres. These landowners received letters about doing fall control and informed these sites would be inspected in the spring of 2010.

**Leafy Spurge** — A total of 345 leafy spurge sites were selected for inspection. County roadsides made up 191 of the sites selected. The 137 county roadside sites found to be infested were contracted for spraying. There was a total of 542 acres found infested on 283 sites. Reminder letters were sent to 95 landowners. A total of 332 acres (96%) were controlled.

**Phragmites** — We found 245 phragmites sites in 2009. These sites cover almost 180 acres. See the map below right. The 38 sites found on county roadsides were contractor controlled. Landowners were provided control options and they controlled or paid for the control of all the other sites. We will be doing follow-up inspections in May 2010 to determine if any follow-up control is needed.

**Purple Loosestrife** — All 21 known purple loosestrife infestations were inspected. One ornamental plant 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 violations.

**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 123 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 338 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 904 sites and forced cutting was contracted on 157 sites.

**Survey of Locations**

A 1,400 mile county road survey was made during March and April 2009. Ten landowners reported 10 sites, and an unknown number controlled infestations without reporting as a result of information received in previous Weed Awareness inserts. A total of 245 infestations were found on 180 acres. These infestations were found in the full-length of the county with an average size of less than one acre (see map below). These infestations have a seed source with the potential to infest all the wetlands in the county. One-third of the infestations and 50% of the acres are on county roadsides below right. The 38 sites found on county roadsides were contractor controlled. Landowners were provided control options and they controlled or paid for the control of all the other sites. We will be doing follow-up inspections in May 2010 to determine if any follow-up control is needed. 58 landowners. A total of 332 acres (96%) were controlled.
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public land or railroads. Contacts were made with managers of these public lands or 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/city/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.

Nebraska Noxious Weed Control Act
Revision Proposal

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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 under the late stage of the invasion. Only seven states have multi-category designations for 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 salicart 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 a 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 potential 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 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

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Weed Control Resources

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 uses five 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 application rate and timing with estimated chemical cost. It has an excellent section on 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)
• Plumlees Thistle (EC172)
• Spotted and Diffuse Knapweed (EC173)
• Leafy Spurge (EC174)

• Purple Loosestrife (EC176)
• Musk Thistle (EC177)
• Salsbor (EC164)
• Common Reed (Phragmites) (EC166)

These UNL Extension publications can be obtained at County Weed Control office, extension online at nebraskaipm.unl.edu, and 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 can add cost you hundreds or even thousands of dollars down the road. Ask your forage supplier to have their forage 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 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.
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 2009, 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 2009 lower Platte River. 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 1,4 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 279 upland sites of phragmites in the 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.nrdmapmaker.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.nrdmapmaker.org.

**Participation**

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 outside of the LPWMA. The Lower Platte River Weed Management Area (LPWMA) has 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 use of their airboats to assist with the surveys and control efforts. The Lower Platte North NRD handled the contracting for the helicopter application and provided a cash match for the application of $46,000 grant from the Nebraska Department of Agriculture.

**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 on-line locator for pesticide-sensitive commercial crops on the web at www.agr.state.ne.us/division/bpt/pes/pes/csc.htm.

**Pesticide Applicators**

Pesticide applicators are encouraged to use this Web site to determine if any sensitive crops are near a planned pesticide application site, and adjust their procedures (timing or application method) accordingly. Keep in mind, however, listing a crop on the locator is not a guarantee, and not all sensitive crop locations may be listed at any one time. Applicators are encouraged to use this service and document known locations in your application records, or simply print out a view from this locator.

It would also be a good idea to scout the area beforehand to become familiar with the landscape. Stop and visit with neighbors who may have sensitive crops to let them know of your intentions, and try to allay any concerns.

**Commercial Growers of Pesticide-Sensitive Crops**

NDA encourages commercial growers of pesticide-sensitive crops to register their locations on this Web site so pesticide applicators can access information for their area. This service is only as good as the information contained here, so new information should be updated as soon as possible. In addition, growers should take the time to contact their neighbors and/ or local pesticide dealers/co-ops to let them know of concerns about the potential for pesticide damage. Good communication is the key to avoiding problems.

**Areas in the Lower Platte Weed Management Area treated by helicopter for phragmites**

This included 102 acres on 19 sites of phragmites in the 10 counties. These sites can also be viewed at www.nrdmapmaker.org.

**Lancaster County Weed Control Web Site**

The Lancaster County Weed Control Authority Web site at www.lincoln.ne.gov/cnty/weeds provides very useful information about 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.
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 tamarisk, are deciduous shrubs or small trees growing 12-15 feet in height and forming dense thickets. Saltcedars are characterized by slender branches and greyish-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 Knapweed

Spotted and diffuse knapweeds 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 knapweed 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 leaflets, ½–1 inch long, which are narrowly oblong and pointed, with awl-shaped spines. Leaflets 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 ¼ inch) creamy-white to pale-yellow flowers emerge either singly or in clusters of 2–4, from the axes 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.
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. Changlu 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 take several nights to catch bed bugs. The larger the infestation, the more bed bugs will be caught.

This trap is useful in determining if bed bugs are present, but probably won’t catch all the bed bugs present. It should not be used solely as a method of control. Only one trap per room should be used.

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 and well has a spout on the top. ($6.99 for a 1/3-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 powder, not cornstarch baby powder. ($1.73)
- A small paint brush, 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 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 accidently 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.

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. Changlu 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 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 further information on a print-friendly format and other bed bug resources, go to http://lancaster.unl.edu/pest/bugs.shtml

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 probably work, but the talcum powder makes the plastic surface even more slippery.
4-H/Youth

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March 2010

Spring Rabbit Show
Saturday, March 20, 9 a.m.
Lancaster Extension Education Center
444 Cherryreek Road, Lincoln
Registration: 7:30–9:00 a.m.
Awards will be given! Classes: Fancy Rabbits, Commercial Rabbits, Pen Class and Pee Wee Class.
REGISTRATION FEE: $2.50 per rabbit or Con, $1 for class, $1 Sheepman.
FREE CONTESTS: Rabbit Quiz & Rabbit Race!
RAFFLE FOR MANY PRIZES! Tickets for $1.
Please bring an item for raffle such as crafts, rabbit items, plants, Easter/Spring items, books, etc.
All rabbits must be tattooed in the left ear (over the eye at the show). All rabbits must be brought in solid bottom cages which are leak-proof with a CLOSERD, solid bottom.
For more information, call Rodney at 782-2186 or Marty at 441-7180.

Opportunity to learn and practice your sheepmanship!
4-H Camp Scholarships
The following scholarships go towards attending Nebraska 4-H summer camp(s). Application deadline is May 1 — preference given to applications submitted by March 1. Applications are available at the extension office and at http://lancaster.unl.edu/extension/equine/4H/scholarship.html.

The 2010 4-H Speech Contest will be held Sunday, April 18 at 1:30 p.m. at the Lancaster Extension Education Center. The Speech 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 Kids: 7–5 years old, be able to tell one 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: 14–16 years old, 4–5 minutes in length, a topic related to 4-H.

For speech resources and check out our Web site at http://lancaster.unl.edu/4h/Contest/speech.shtml.

4-H/FFA Market Beef Weigh-In, Feb. 25
4-H and FFA exhibitors showing market steers or heifers at the Lancaster County Fair, May 7-9, and Ak-Sar-Ben in Ak-Sar-Ben should identify and weigh in their projects on Thursday, February 25, 6–8 p.m. in at the Lancaster Event Center - Pavilion 2. 4-H'ers planning on exhibiting at State Fair or Ak-Sar-Ben for beef 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 they plan to go State Fair or Ak-Sar-Ben.

4-H Horse-Related Scholarships Due March 1
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 http://www.animalscience.unl.edu/extension/equine/4H/scholarship.html.

Jammie Jamboree, April 10
Learn basic sewing skills as part of the 4-H Clothing Level 1 project and make jamme bottoms on Saturday, April 10, 9 a.m. to 12 p.m. at the Lancaster Extension Education Center, 444 Cherryreek Road, Lincoln. Open to all youth (need be in 4-H). Bring your sewing machine, basic sewing equipment (such as scissors, pins, measuring tape, etc.), or pull on pajama bottom pattern (one simple pattern is Simplicity 5355), prewashed fabric and basic sewing kit (no one design fabric or fabrics) and matching thread. Also bring a sack lunch and wear comfortable shoes. Register by April 9 by calling 441-7180. Jamme bottoms may be entered at the county fair and styled in the Myle 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 - Exhibit Hall. Contact Deanna at 441-7180 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
4-H and FFA members planning to exhibit market sheep should have their lambs officially tagged and weighed by June 15. A country-wide sheep weigh-in date has been set for Thursday, May 6, 6–8 p.m. at the Lancaster Event Center - Pavilion 1. Due to time constraints and budget, Deanna will no longer be able to come to each farm individually.

Livestock Clinic, May 8
Lancaster County 4-H along with ADM will host a livestock clinic Saturday, May 8, 9–10 a.m. at the Lancaster Event Center - Pavilion 1. Top notch presenters will be talking about nutrition, management, showmanship, and grooming of many different species. More information will be in the next NebrilNe.

Fair Books Due to be Mailed by Mid-March
The Lancaster County Fair is the largest and longest running Super Fair, which will be held Aug. 5–14 at the Lancaster Event Center. 4-H/FFA exhibitors and events will be Aug. 5–8.

This year, a 4-H Fair Book will be mailed to all 4-H families typically at the end of the extension office. It will also be posted at http://lancaster.unl.edu/4h. More information about 4-H exhibits, and contests will be published in upcoming NebrilNes.

“Spotlight on ... 4-H Newsletter” Has Great Ideas & Tips
The “Spotlight on ... 4-H Newsletter” has great ideas and tips for all organizational 4-H leaders, however, the information applies to all 4-H members. It is packed with information and resources to educate, inform and motivate!

Some recent topics include:
• Table Setting Tips
• Sew What, Sew Green, Sew for Other
• Portrait of Photography
• Recipe Maker
• Wild About Wildlife

To sign up and go to http://lancaster.unl.edu/4h.

Clove College Instructors and Volunteers Needed
4-H Clover College will be held June 15–18 at the Lancaster Extension Education Center. Clover College is four days of fun-filled, hands-on workshops for youth ages 6 and up. If you would like to volunteer or would like to teach a workshop, please contact Tracy at 441-7180. All help is very much appreciated.

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 must promote 4-H and should be 60 seconds. State 4-H asks for PSA’s to be general enough to be used anywhere in Nebraska at anytime of the year. Sound effects and background noises are encouraged (copyrighted material may not be used). If you do not have the capabilities to record a PSA, contact Deanna at 441-7180 to set up a time.

NEW for 2010!
• All 4-H PSA’s must 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 Extension 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.

To submit your PSA, you must hand it out at 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 Clubs Need to Help Provide Booths at Kiwanis Karnival, April 10
The annual Kiwanis Karnival, a FREE family event is sponsored by the Lincoln Center Kiwanis. This year, it will be held Saturday, April 10, 6–8 p.m. at Elliott Elementary School, 225 S. 5th Street, Lincoln. The Karnival features carnival type games for the kids, bingo for adults, prizes, snacks, fun and fellowship. Lincoln Center Kiwanis has sponsored this event for over 50 years providing prizes and snacks.

4-h clubs are needed to provide carnival-type booths. This is a great community service and leadership activity for clubs. If your 4-H club or family would like to have a booth or set up for more information, call Lorene at 441-7180, come join the fun!
4-H Achievement Night

Lancaster County 4-H Achievement Night was held Jan. 28. 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!

Spencer Farley and Rachel Pickrel were presented American Youth Foundation I DARE YOU awards for striving to achieve their personal best.

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College Scholarships

Lancaster County 4-H Council — $500

- Jeff Cassel
- Rachel Hanigan
- Levi Meyer
- Ellen Muehling
- Kyle Pedersen
- Britni Waller

4-H Teen Council — $250

- Jeff Cassel and Ellen Muehling

Lincoln Center Kiwanis — $1,000

- Ellen Muehling

COMMUNITY SERVICE AWARDS

Presented to 4-H’ers who have completed the most hours of community service. Award recipients receive a $30 Activity Certificate from Lancaster County 4-H Council redeemable towards 4-H activities and supplies.

Age 14 and over: Spencer Farley, Kyle Pedersen, Rachel Pickrel, Emily Steinbach, Jessica Stephenson, and Britni Waller

Age 13 and under: Ellii Dearmont, Maddie Gabel, Valerie Gabel, Sadie Hammond, Saige Hammond, Mckenzie Kapperman, Jacob Pickrel, Hannah Ronnau, Jaime Stephenson, and Sheridan Swotek

Level 1 – Amethyst


Level 2 – Aquamarine

- Hannah Beltinghausen, Alyssa Bennett, Morgan Chips, Skylar Clough, Valerie Gabel, James Griess, Bethany Hage, Ben Harris, Bryanna Louden, Adriana Miller, Kylene Plager, Lucy Polk, Jacob Ronnau, Sheridan Swotek, and Abigail Tinsman

Level 3 – Ruby

- Ivy Dearmont, Madeline Gabel, Spencer Peters, Jacob Pickrel, Hannah Ronnau, Micah Scholl, Brody Zabel, and Haley Zabel

Level 4 – Sapphire

- Elii Dearmont, Kaiya Green, Natalie Griess, and Emily Steinbach

Level 5 – Emerald

- Cory Peters, Rachel Pickrel, and Ian Schuster

Level 2 – Aquamarine

Level 3 – Ruby

Level 4 – Sapphire

Level 5 – Emerald

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 Beltinghausen, Alyssa Bennett, Morgan Chips, Skylar Clough, Valerie Gabel, James Griess, Bethany Hage, Ben Harris, Bryanna Louden, Adriana Miller, Kylene Plager, Lucy Polk, Jacob Ronnau, Sheridan Swotek, and Abigail Tinsman

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

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

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

Level 1 – Amethyst

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Level 5 – Emerald

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
Volunteer Income Tax Assistance (VITA) is a program developed and sponsored by the IRS which offers free tax help to low- to moderate-income individuals who need assistance preparing their tax returns. Part of VITA, the Lincoln EITC Coalition will provide free tax preparation services at several sites in Lincoln.

In 2009, the Lincoln EITC Coalition filed over 5,000 tax returns which resulted in over $5 million in refunds to our local economy. Approximately 35% of those refunds ($1.75 million) was from the Earned Income Tax Credit (EITC).

The EITC is a special tax benefit for working people who earn low to moderate incomes. New for 2009: The maximum amount of income you can earn and still get the credit has been increased, and you may have up to three qualifying children. You may be able to take the EITC if:

- You have three or more qualifying children and your earned income was less than $43,279 ($48,279, if married filing jointly).
- You have two qualifying children and your earned income was less than $40,295 ($45,295, if married filing jointly).
- You have one qualifying child and your earned income was less than $35,463 ($40,463, if married filing jointly). OR
- You do not have a qualifying child and your earned income was less than $13,440 ($18,440, if married filing jointly).

Please note: if your tax return has transactions that are beyond the scope of the VITA volunteers’ training, VITA volunteers cannot prepare the return. In case of bad weather, please call the VITA site or tune into KFOR 1240 AM for cancellations.

For more information about VITA sites in Lincoln, call 1-877-659-7870. For VITA sites outside of Lincoln, call 1-877-659-7870.

EITC if:

- The maximum
- Earn low to moderate incomes.
- Credit (EITC).
- Approximately 35% of those
- Such as, provide free tax
- UNL Volunteer Income Tax Assistance (VITA) sites, and
- Provide free tax preparation services at the Nebraska East Union VITA site.

To have a smooth tax filing experience is very rewarding to third year as an EITC volunteer. “Helping individuals have fun ... all at the same time.”

UNL students are also providing expertise at six targeted sites.

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 $1,109,000, including $371,000 of 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 Fricchi, a senior accounting major, is in her third year as an EITC volunteer. “Helping individuals have a smooth tax filing experience is very rewarding says Lessica. 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.”

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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/de/Programs/award.shtml or call Deanna Karmazin at 441-7180.

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For more information about VITA sites in Lincoln, call 2-1-1 or 441-8503, or go to www.lincoln-action.org. For VITA sites outside of Lincoln, call 1-877-659-7870.

- You have one qualifying child and your earned income was less than $18,440, if married filing jointly)
- You have two qualifying
- 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)
- W-2’s from your employer, 1099’s for miscellaneous income, and other income
- Retirement, and other income
- Blank check or savings account information for direct deposit
- Statement of student loan interest, mortgage interest and property tax
- List of any other income and expenses
- What to Bring to Have Your Taxes Prepared at a VITA Site
- • W’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
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University of Nebraska-Lincoln Extension in Lancaster 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 Daberkow, President
- Debra Day, Vice President
- John Chess, Secretary/Treasurer
- Linda K. Butcher

New and Outgoing Lancaster County Extension Board Members

- Pablo Cervantes
- Irene Colborn
- Denise Farley
- Kirk Gunnerson
- Ryan Mohling
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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 $585 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 will create designs and learn about the process of design.

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 of Hardin 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 472-1305 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,” Ariel Dinar, University of California, Riverside

• Mar. 10 — “Collaborative Watershed Governance: Institutions, Conflict, and Conflict Resolution,” Edella Schlager, University of Arizona

• Mar. 17 — “Biotechnology in Microbial Forensics,” Wen-Tso Liu, University of Illinois at Urbana-Champaign

• Mar. 31 — “Climate-Related Variations in Mixing Dynamics in Arctic Lakes,” Sally Maclntyre, University of California-Santa Barbara

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

The Nebraska

The Nebraska 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. The Nebraska articles may be reprinted without special permission if the source is acknowledged as “University of Nebraska-Lincoln Extension in Lancaster County, Nebraska.” If the article contains a byline, please include the author’s name and title.

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

The University of Nebraska—Lincoln Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska—Lincoln cooperating with the Counties and the United States Department of Agriculture.

Join us on YouTube, Twitter and Facebook at http://lancaster.unl.edu/media

Lancaster Extension Education Center Conference Facilities
444 Cherry creek Road, Lincoln
Kathy Wiegand

Lancaster County 4-H is proud to announce Kathy Wiegand 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 Equilibrators 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 VIPS 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.

Watch Chicks Hatch Online with EGG Cam! http://lancaster.unl.edu/eggcam

Now with streaming video in near real time!

EGG Cam will feature poultry hatching through the end of May!

Become a Facebook Fan!

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/.

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 features 12 career exploration camps hosted by Nebraska 4-H and UNL faculty members. The camps are residence camps hosted 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://bigracadcamps.unl.edu or at the extension office. For more information, call 472-2805.

4-H members are encouraged to apply for a scholarship application is on the Web site.

Save $50 by registering before April 1!

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

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

Nebaska 4-H Summer Camps & Trips are a great place for youth to discover, learn and grow! Camps are open to all youth ages 5-18 (need not be in 4-H). There are three unique Nebraska locations at Halsey, Gretna, and Alma offering more than 40 camps ranging from half day to four days/three nights! UNL Extension, through its 4-H Youth Development Program, has been operating 4-H Camps for over 40 years. The 4-H camps and centers all meet over 300 standards established by the American Camping Association. Brochures with complete information are at the extension office and online at http://4h.unl.edu/camp/.

Explore Career Options at Big Red Academic Camps

Camp Dates Grade**

- **Biological Science** June 13-18 9-12
- **Companion Animals** June 13-18 9-12
- **Culinary Arts and Food Science** June 13-18 9-12
- **Fashion Design** June 13-18 9-12
- **Filmmaking** June 13-18 9-12
- **Natural Resources** June 13-18 9-12
- **Unicameral Youth Legislature** June 13-16 9-12
- **Veterinary Science** June 13-18 9-12
- **3D Animation/Virtual World Creation** June 13-18 9-12

** Students who graduate in May 2010 are welcome to attend.

* New camp for 2010

** Students in grade 9-12 are welcome to attend.