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Planting Your Small Farm's Future

Don Janssen
Extension Educator

To remain competitive and survive in the current economy, farmers must be insightful, innovative, and

ready to make changes. In recent years, conventional wisdom has encouraged diversification with alternative enterprises and increased on-farm processing, packaging, and other means for adding value to raw products before they leave the producer's hands. While this makes good sense, making diversification and value-added strategies work can be challenging. It must be remembered, the objective of diversification is to spread risk, not to increase it through poorly conceived undertakings. Success or failure can depend on a number of factors; one of these is good information. Before plunging into new, costly ventures, the following advice is worth heeding.

Starting Points to Consider

- Talk to others who are already doing it. If you don't know anyone already involved in the enterprise, locate the state, regional, and national groups involved and get a list of local contacts. Avoid being swayed by too much hype. If possible, talk to some folks who've tried and failed. We often learn more from failure than from success.
- Read all you can about your proposed enterprise. The popular farm press commonly picks up on new trends and feature articles. Furthermore, there are typically a wealth of newsletters and journals that arise following the introduction of new crops and other enterprises. The Internet also offers a new, rapid means of accessing information on new topic areas. If you don't own a computer, you can usually get net access at your local library.
- Study the markets. Get a good sense of the market possibilities for any crop or product you consider producing. Identify wholesalers, retailers, brokers, direct marketing options, and other resources that can be helpful. Ask other producers how they market.
- Learn the specialty market standards required. Evaluate your ability to meet standards for cleanliness, packaging, crop

quality, etc. Some requirements are rather unique. For example, synthetic fertilizers and pesticides may not be used on a field for three years before a harvested crop may be sold as "organically grown."

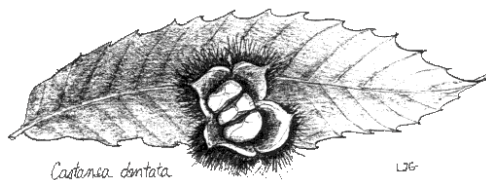
- Establish your market connection BEFORE you grow your crop. This is especially critical for highly specialized commodities like edible soybeans. The seeds of edible soybeans are often colored differently than conventional beans making them difficult or impossible to sell through conventional channels as a fallback option.
- Become techno-smart. Get comfortable with the idea of using the phone and the computer to market your products.
- Be flexible. When dealing with niche enterprises, it is often necessary to move quickly in response to rapidly changing market conditions. Farmers must constantly be on the lookout for ways to improve and innovate.
- Think (w)holistically. Consider more than just immediate, short-term profits when investigating new crops and enterprises. Diversification may not actually increase profits.

What it can do is make profitability more reliable by smoothing out the ride between good and bad years.

There may be additional benefits. Perhaps adding a new crop to the rotation will reduce problem pests...or maybe it will build soil fertility. Develop a whole-farm business plan and study carefully how well a new enterprise can be integrated.

A Few Diversification and Value-Added Options

Edible soybean production
Sweet sorghum syrup manufacture
Pulse (dry bean & pea) crops
Grass seed production
Certified organic production
Milling & packaging flour
Exotic grains (amaranth, quinoa, etc.)
Vegetable crops (DJ)



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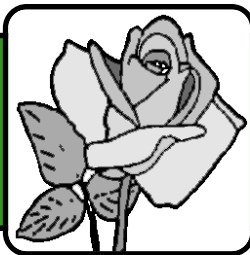
Community Focus

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Lancaster County 4-H Council
University of Nebraska
Cooperative Extension in Lancaster County
444 Cherrycreek Road • Suite A
Lincoln, Nebraska 68528-1507

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Horticulture

Houseplant Insect Problems

If you have houseplants, at some time you will have a problem with insects. The most common houseplant insects are aphids, white flies, mealy bugs, thrips, scale and spider mites.

Some of these insects are so small it is difficult to see them but most can be seen without the use of a hand lens. Fortunately, most of the insects are easily controlled with insecticides. Instructions for using these insecticides will be on the label. Following these instructions carefully is important to avoid damaging your plants.

Insect damage to plants takes on various appearances. Color changes in the leaves often indicate the presence of insects. If leaves curl, dry, and die check for possible insect infestations.

Isolate new plants to be certain they are not bringing new insects into your house. Inspect your plants regularly to keep ahead of any potential insect problems. (MJM)

Ways to Attract Birds

- Plant shrubs and trees which bear fruits eaten by birds.
- Add a birdbath to your yard.
- Provide birdseed in feeders throughout the year.
- Install birdhouses designed for particular species.
- Use ground covers instead of lawn. These areas will provide an excellent hunting ground for birds that feed on worms and insects.
- Vary vegetation heights to accommodate birds with different feeding and nesting level preferences. Some birds feed on the ground, nest in shrubs, and sing from treetops. Provide all three levels.
- Build a small soil mound faced with a stone retaining wall. Changes in slope are highly attractive to many ground feeders and the wall will have many crevices in which birds can dig and probe for insects. Combine the mound with a garden pool for an especially attractive feature.
- Plant flowers which produce birdseed as well as blooms. Among the many to choose from are asters, bachelors buttons, calendula, poppy, chrysanthemum, coneflowers, coreopsis, cosmos, dusty miller, marigold, phlox, portulaca, celosia, sunflower, verbena, and zinnia. (MJM)



Horticulture information center

NUFACTS
24 hours a day, 7 days a week
1-800-832-5441; or
441-7188 in the Lincoln area



To listen to a NUFACTS information center message, call the number above on a touch-tone phone, then enter a three-digit number listed below. Call 441-7180 to receive a brochure with all the NUFACTS message topics. (MJM)

NUFACTS
117 Tree Snow Damage
120 Christmas Tree Care
124 Wood for Fireplace
137 Deicing Salt Injury
210 Amaryllis
212 Swedish Ivy
213 Prayer Plant
214 Houseplant Insects
215 Cyclamens
217 Boston Fern
218 African Violet Care
219 Poinsettia Care
220 Houseplant Leaf Yellowing
221 Holiday Cactus Blooming
222 Winter Houseplant Care

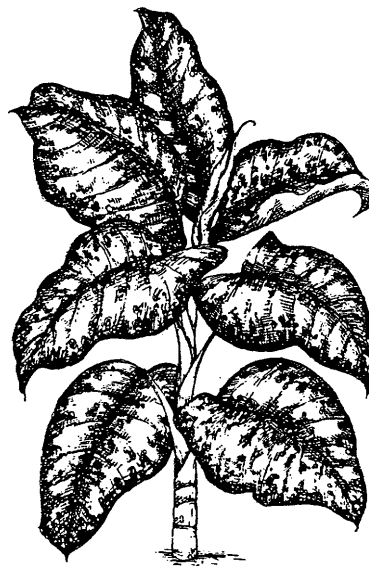
Winter Care of Houseplants

Winter weather adversely affects growing conditions for houseplants. Proper care during the winter months can help insure the health of houseplants. Most houseplants grow well with daytime temperatures of 65 to 75 degrees Fahrenheit and night temperatures of 60 to 65 degrees Fahrenheit. Temperatures below 50 degrees Fahrenheit or rapid temperature fluctuations may damage some plants. Keep houseplants away from cold drafts and hot air vents. Also make sure houseplant foliage doesn't touch cold windows.

Many houseplants prefer a humidity level of 40 to 50 percent. Unfortunately, the relative humidity found in many homes during the winter months may be only 10 to 20 percent, a level too low for many houseplants. Humidifiers are an excellent way to increase the relative humidity in a single room or throughout the entire home. Simple cultural procedures can increase the relative humidity around houseplants. Group plants together. The water evaporating from the potting soil, plus water lost through the plant foliage or transpiration, will increase the relative humidity in the immediate vicinity of the houseplants. Another method is to place the houseplants on trays or saucers filled with pebbles or gravel and water. The bottoms of the pots should be

above the water level. Misting houseplants is not an effective method to raise relative humidity. Misting would have to be done several times daily to appreciably raise the humidity level and is simply not practical.

Houseplants require less watering during the winter months than in spring and summer. Actively growing plants



need more water than those at rest during the winter months. Plant species also affects watering frequency. Ferns prefer an evenly moist soil and should be watered frequently. Cacti and succulents, on the other hand, should not be watered until the potting soil is completely dry. The majority of houseplants fall between these two groups. Most houseplants should be watered when the soil is barely moist or

almost dry to the touch. When watering houseplants, water them thoroughly. Water should freely drain out of the bottoms of the pots. If the excess water drains into a saucer, discard the water and replace the saucer beneath the pot.

Houseplants need to be fertilized periodically when actively growing in the spring and summer. Fertilization is generally not necessary during the winter months because most plants are growing very little or resting. Indoor gardeners can begin to fertilize houseplants in March or April as growing conditions improve and the plants resume growth. Fertilizers are available in numerous forms: liquids, water soluble powders, tablets, spikes, etc. Regardless of the fertilizer type, carefully read and follow label directions.

Dust and grease often accumulate on the leaves of houseplants. The dust and grease not only makes them unattractive, it may slow plant growth. Cleaning houseplants improves their appearance, stimulates growth, and may help control insects and mites. Large, firm-leaved plants may be cleaned with a moist soft sponge or cloth. Another method is to place the plants in the shower or tub and gently wash the leaves. Be sure to adjust the water temperature before placing the plants under the shower head. (MJM)

Air Layering Tropical Plants

Air layering is a simple method of propagating indoor ornamental plants that have become overgrown. No special growing facilities are needed.

The idea behind air layering is to create a damp, temperate environment on the stem to encourage root growth. The plant will do the rest. The newly rooted branch is cut and then potted as an independent plant. Rooting time varies from a few weeks to a few months.

Tropical plants can be air layered almost any time. Roots seem to grow faster when layering is done during late winter through spring, while the

plant is actively growing. Have the following tools ready: a sharp pruning knife, moistened sphagnum moss, rooting hormone, clear piece of plastic, tape and twist ties.

Choose a branch that is at least pencil-thick. Many tropical will root anywhere along the stem, but layering at the node is recommended. Remove the leaves at the node. Make a diagonal cut one-third of the way through the stem just below the node. Angle the cut up toward the node. If you want to use a rooting hormone, dust the powder into the fresh wound.

Take a handful of wet

sphagnum moss and squeeze out the excess water. The moss should be damp, not wet. Using plenty of moss, apply it to the prepared stem and squeeze it in. Wrap the plastic around the moss. The plastic should fit snugly to maintain a moist environment as the roots grow.

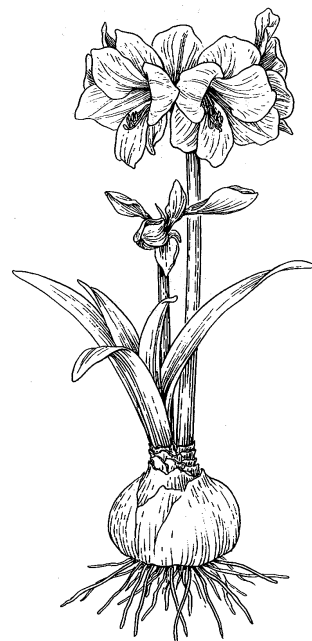
Seal the vertical seam with tape. Cut the excess plastic and secure the ends with the twist ties. Leave the plant in its original environment. Water and fertilize as usual. In several weeks, roots will appear in the moss. At this point remove the plastic, cut off the newly rooted plant and pot it. (MJM)

Amaryllis Care

What do you do with amaryllis bulb you got for the holidays now that it is done flowering? Throw it out? NO! With proper care you can get it to bloom again next year.

When the flowers are done blooming, cut off the old flower stalk. Do not cut off the green leaves. Water the plant at least once a week and place it in a sunny window until spring. After the danger of frost is past, amaryllis plants can be placed outdoors in a sunny spot. Sink the pot to the rim in a flower bed among your other garden plants. The bulb is storing food for next year's flowers during this time, so proper watering, fertilization, and light will pay dividends in larger or more flowers next year.

In the fall, the amaryllis should be moved indoors before a hard frost. Watering and fertilization should be reduced and the yellowing leaves can be removed from the top of the bulb. Place the pot in a cool cellar or room to "rest" for one or two months. Move the plant to a sunny location and start watering and fertilizing once new growth begins. (MJM)



Pheromone Traps Help Control Pests

Barb Ogg
Extension Educator

Pheromones are natural chemicals produced in the body of an animal that help it communicate with other members of its species. Many animals make use of chemical cues to some extent, but insects raise chemical communication to an art form. Scientists have identified pheromones in more than 200 species of at least six orders of insects (cockroaches, scale insects, butterflies and moths, beetles, flies, and bees).

The most common type of pheromone is a sex attractant is released by a female when she is receptive and ready to mate. Even though we cannot detect the odor, males of the species can smell a receptive female from long distances, even miles. To do this, males need specialized antennae with many receptors that can detect the specific “odor” of the pheromone molecule. Males of species that rely on pheromones for mate location often have antennae that are more elaborate than females. Scientists call this *sexual dimorphism*. Many moth species have sexually dimorphic antennae—indicating chemical cues are used to locate mates. It makes sense for moths to rely on chemical cues because they are active at night and cannot rely on sight for locating mates.

Male insects are not always

just the pursuer, however. Once the male gets close to a female, he may produce a short range pheromone of his own, a sort of pheromone aphrodisiac, acceptable to the female and is part of the courtship process. After mating successfully, males or females may produce an anti-aphrodisiac pheromones to discourage additional suitors.

Scientists have isolated pheromone compounds from pest species in the laboratory and, depending on the species, have devised strategies to help control populations. Sometimes pheromones are used in conjunction with sticky traps as a monitoring tool to detect the presence of the pest. Knowing when the first insects are present can be helpful in timing insecticide applications more accurately. Pheromones have also been used to disrupt mating by “dumping” so much sex attractant the males cannot find the “real” females. Another type of pheromone that some insects release is called an *aggregation pheromone* and attracts large numbers of the same species. Sticky traps baited with aggregation pheromones will attract both sexes and can be used as a direct control method.

The advantages of pheromones are they are species specific and non-toxic to non-target species. This makes them ideal as a least-toxic control method. Right now, the most common uses for pheromone

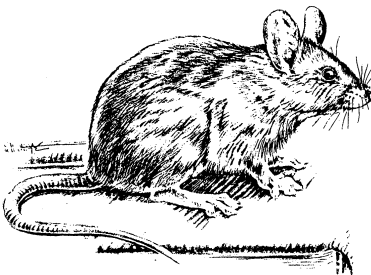
traps in homes are Indian meal moths and German cockroaches.

Indian meal moths (IMM) are often called “millers” and can be seen flying around the house. They are only about 1/2 inch long, but, if you look closely, you will notice they are bicolored (copper-colored and tan). Larvae are yellowish-white worms, with a dark head capsule, and feed on grain products, flour, nuts, bird seed, and dry dog food. IMM pheromone sticky traps will only capture males because the pheromone is the female sex attractant, but they can be useful in detecting early infestations before they get out of control. Traps will be effective for two months and can be purchased at many hardware stores, discount stores, and pest control supply companies.

The German cockroach is the most difficult cockroach to control, but the development of pheromone sticky traps, baited with an aggregation pheromone, can be helpful in a cockroach control program. Because it is baited with an aggregation pheromone, the sticky trap attracts both males and females. It may not completely control a German cockroach infestation, but can be useful when used in conjunction with other controls.

For more information about Indian meal moths, German cockroach or pheromone traps, call the extension office at 402-441-7180. (BPO)

Sneaky Rodents can be Tough to Catch



In nature, rats and mice are among the most important sources of prey for many animals. Over the past 7,000 years, humans have become the primary predators of some domestic rodents. Rodents, in turn, have evolved anti-predator behaviors which increase their survival. There are several innate characteristics of rodents that help them to avoid danger.

- Secretiveness. By their very nature, rodents are secretive — nesting, feeding, and hiding in areas that are quiet and undisturbed. They are active at night when people are quiet. Inside buildings, as in the wild, they like to move in contact with surfaces, running along walls, squeezing into holes and between objects, and darting beneath pallets and appliances. They also eat in corners and tight spaces rather than open areas.
- Quickness. To escape their natural predators, the rodent has evolved to run quickly or jump explosively within a split second.

The house mouse has been clocked moving at an unbelievable speed of 12 feet per second. Rodents also jump to avoid danger. Studies have shown, when frightened, young mice often react by “explosive” or “popcorn” jumping. This last minute jump may propel the rodent out of the clutches of a predator.

- Cautiousness. Rodents explore and re-explore their surroundings on a daily basis. These explorations may pay off in the discovery of new food sources and hiding spots. However, rodents are very cautious when new objects, surfaces, and foods are found in their explorations. This means that new objects are investigated very slowly and cautiously. This characteristic is why a mouse approaches a snap trap for the first time and stretches over and removes the bait without setting off the trap.

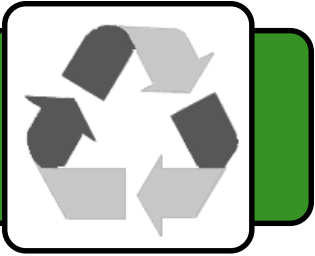
Management of rodents may be easier (or at least less frustrating) if one understands these behaviors and characteristics. Here are some tips which may help:

1. If you have a serious rodent problem, use several types of traps even in the same area. Consider snap traps, glue boards, and mechanical live traps. What catches one mouse,

might not catch another. Also, try several types of baits: peanut butter, a raisin, small piece of bacon, tied with thread or dental floss. A cotton ball may be attractive to female mice looking for nesting materials.

2. Look for evidence of rodents in quiet, dark areas. These are often good places to place baits and traps.
3. Remove food sources in areas where you are attempting control efforts. Without easy access to foods, rodents will investigate traps and baits much faster.
4. Whenever possible, eliminate as much of the rodents harborage (clutter, junk, etc) as possible. This stresses the rodent and decreases their fear of new foods and harborages making trapping and baiting more successful.
5. You may be more successful if you place unbaited, unset traps for a couple days before you bait and set them.
6. Set traps along walls or appliances — not in the middle of open areas.
7. Try using “double sets” of traps with approximately two to three inches spacing between the traps. This will help decrease the popcorn response and escape of the mouse. (BPO)

Environmental Focus



“Green” Gifts

You can promote environmentally sound activities through thoughtful gifts you give. Consider the following:

- Purchase an aluminum can crusher.
- Give a bird feeder or nest box.
- Give a compost bin or set up a vermicomposting bin for someone who has just about everything.
- Buy yourself a garbage disposal (what goes down the sewer eventually gets recycled).
- Buy recycling bins for glass, aluminum, plastic, newspaper.
- Subscription to Nebraskaland magazine.
- Buy your honey thermal underwear (turn your house down a few degrees and save money, too).
- Purchase garden tools or kneepads (kneepads were Barb's favorite gift from last year...find kneepads at the hardware store).
- Make a “coupon” to clean house for a family member.
- Volunteer to run errands for a family member.
- Assist a relative with home repair.
- Purchase a gift certificate for a relaxing massage.
- Take your family on a camping or fishing trip.
- Purchase a certificate for skating, art, or gymnastics lessons.
- Bake or make something or frame a favorite photo.
- Give tickets to a play, concert, or sporting event or a membership to a favorite organization.
- Give a state park sticker.
- Make a donation to a friend or family member’s favorite cause or charity.

Before you buy anything, consider the following questions:

Is your gift something that can be used more than once?

If your gift breaks, can it be fixed? Or will it just be thrown away?

Is it made out of recycled materials?

Does the gift come with a lot of packaging? Can the packaging be recycled?

Could you give a gift that isn’t a “thing”? For example, could you promise to do someone’s chores for a week? Or teach someone about your favorite hobby? (Source: Ranger Rick)

And finally, did you know 82 percent of Americans would rather receive a photo album of times shared growing up than a store-bought gift? (Source: Center for a New American Dream-Commissioned Holiday Poll, November, 1998) (BPO/SC)

Give a Gift of Knowledge

Children are fascinated by all the creatures living in our environment. Looking to encourage this curiosity? Give your family the gift of nature. Field guides are wonderfully illustrated, pocket-sized guides to the natural world. You can find guides on identifying beetles, spiders, butterflies, moths, snakes, birds, fish, wildflowers, trees, and much more.

There are many different series of guides that can be used. Golden Guides and Peterson’s First Field Guides are kid friendly; however, they may not have everything you find. In that instance, you may need to use a more comprehensive guide, such as, the Peterson, National Geographic, or Audubon Society Field Guides. You can find field guides for just about anything you would like to identify at your local library or bookstore. (SC)

Winter Activities for Kids

- Make a snowman or snowwoman, and dress him/her for the birds. Make a necklace out of birdseed, popcorn, dried fruit. Use raisins for the eyes. For arms, insert sturdy branches so the birds will have a place to perch.
- Make snow angels. Listen to the sounds of falling snow.
- Put a piece of black construction paper in the freezer. Take it outside and catch snow flakes, and, using a magnifying glass, check out the different patterns.
- Make your own icicles (this is an outside activity). Puncture a very small hole into a hanging container, fill it with water, then leave it slowly dripping outdoors over night. The next day you should have your own icicle.
- Take your parents ice fishing! Look for water-borne insects suspended in the ice.
- Look for animal tracks in the snow. Follow the tracks to see if you can find food sources such as chewed branches or resting places in the snow. Source: *National Wildlife Foundation* (SC)



Farm Views

Discussion on Crop Biotechnology

Weed and insect control has been a challenge for farmers for centuries. Following World War II, pesticides were developed and rapidly adopted by farmers. While most were safe and effective if used properly, some were not, and in isolated cases, were removed from the market.

Genetic engineering offers a way to alter crops to resist insect pests or become tolerant to less toxic and environmentally safer herbicides.

In 1996, Monsanto, and affiliated seed companies, launched the commercial sale of Round-Up Ready soybeans. By 1999, 57 percent of the U.S. soybean acreage was planted to soybean varieties with this herbicide-tolerant trait. Compared to the soil incorporation of some conventional herbicides, this seed technology encourages no-till farming practices, which can help reduce soil erosion and water pollution. The gene that encodes tolerance to the herbicide glyphosate (Roundup), using the techniques of genetic engineering, was transferred from *Agrobacterium* sp. strain CP4, a soil bacterium. The gene is a single dominant gene and is stable over several generations.

Bacillus thuringiensis (Bt) is a soil bacterium that has been used for several decades by

gardeners and organic farmers to control insects. Using the tools of genetic engineering, scientists have inserted the gene that codes for this protein

into several crops including corn, cotton, and potatoes. The crystalline protein has a complex molecular structure. This allows scientists to select the specific molecular structure that targets a specific insect such as European corn borer in corn, pink budworm, and boll weevil in cotton, and Colorado potato beetle in potatoes. Once the target insect ingests a few bites of the plant tissue that contains the Bt protein, the insect's digestive system converts the protein into a toxin that destroys the cell membrane of its stomach and kills the insect. However, when an animal or a human consumes the Bt protein in the plant, the acid environment of the stomach promotes digestion of the protein, without any toxic effects.

In 1999, about one-third of the corn acreage in the United States was planted to transgenic varieties. This has resulted in a reduction in insecticide use, primarily for cotton. However, since the high-dose strategy if insect management, if widely adopted, could place extreme pressure on the target insect

population, insect resistance management (IRM) programs are essential to minimize the development of insect resistance to Bt. In January 2000, the U.S. Environmental Protection Agency approved a refuge management strategy for corn that requires Midwestern farmers to plant a 20 percent refuge to non-Bt corn varieties within one-quarter mile of the Bt corn. Entomologists have determined that resistance to Bt is a recessive trait. If some European corn borer survive in the 20 percent refuge portion of the field and mate with those adults in the portion of the field planted to Bt corn, it is expected that a viable number of European corn borer will survive without the recessive trait, and insect resistance to Bt will be at least delayed, if not avoided.

Besides the input traits such as insect-resistance and herbicide-tolerance, a number of output traits are being introduced into crops. Through genetic engineering, scientists have added vitamin A into rice. Rice is the primary food grain eaten as a staple in the diets of millions of people, especially in the developing world. World health experts hope that these vitamin A enhanced rice varieties will reduce by about 500,000 the number of people who go blind

each year and by two million the number of children who die each year due to vitamin A deficiency.

Other examples of output traits include

phytase in corn that increases the availability of phosphorus in hog rations and reduces the amount of phosphorus added to feed premix. With greater utilization of phosphorus in the hog's digestive system, there is less phosphorus in the hog manure and a reduction in the amount of phosphorus applied to fields. This should help reduce hog production costs and offer an environmental benefit.

"Farmaceuticals" such as genetically engineered tobacco to produce cancer-treating drugs are under development. Also crops such as bananas and potatoes have been engineered to deliver selected vaccines against childhood diseases.

The development of output traits through biotechnology will require producers to follow strict identity preserved practices including cultural practices, careful cleaning of harvesting equipment, and separate storage facilities, in order to keep the crop identity preserved (IP). Those who are able to do this

See **BIOTECHNOLOGY** on page 11

Fescue Endophyte Toxicity Found in the County

In mid-August, the extension office received a request from an acreage owner for someone to make a field visit to look at a herd of llamas. When I arrived at the acreage, one adult male was "down" showing symptoms of becoming overheated (hyperthermia) and weakness in the legs. As I visited with the owner, I learned that a female had spontaneously aborted a late-term fetus the previous day and the herd of 13 females and two males had never produced a live offspring in the three years they had been on the acreage. In every case of pregnancy, the fetus spontaneously aborted at various stages of development from quite small to nearly full term.

Naturally, one would suspect extreme nutritional deficiency or chronic poisoning, in such cases. The owner was very aware of the need for good nutrition. After walking the pasture, the only substantial potential source of toxin appeared to be the grass the animals were grazing, a nearly solid stand of Kentucky 31 tall fescue.

Fescue is widely used for pasture in states to the south and east of Nebraska with tens of thousands of acres of tall fescue pasture in eastern Kansas, Missouri, Arkansas, and other southern states. Fescue is used as a turf grass in Nebraska but seldom as a forage grass for animal production. Consequently, little or no research has been conducted in Nebraska on grazing or haying fescue.

Fortunately, I had heard about a potential problem with toxicity in fescue. Fescue itself is not toxic. The toxicity is associated with a fungus that can be present in the plant. Since this fungus grows only within the plant, between plant cells, it is known as an endophyte fungus. ("In" [endo] the plant [phyte]) I was able to locate some information from the University of Missouri which listed symptoms and seemed to confirm my suspicions that the fescue could be the source of toxin in the llama herd. Research has shown that under certain conditions, the endophyte can produce ergot-

like alkaloids, that when ingested, can produce toxic reactions in the animal, (symptoms described below).

Based on our conversation and the results of a necropsy performed on the aborted baby llama by the University of Nebraska veterinary diagnostic lab, the owner immediately removed the herd from the pasture and began feeding hay as the only source of forage. The male soon was able to stand again and has returned to health over time. Shortly before this article was written, some six weeks after the llamas were removed from the fescue pasture, the owner reports three live births. Obviously, these females were pregnant at the time the owner switched from fescue pasture to hay, but they had not aborted yet.

Fescue Toxicity Syndrome in cattle.

Three separate syndromes appear to be associated with tall fescue toxicity.

1. Summer slump. Livestock show poor gains, reduced conception rates, intolerance to heat, failure to shed the winter hair coat, elevated body temperature, and nervousness.

2. Fescue foot. The clinical signs are rough hair coat, weight loss, elevated body temperature and respiration rate, leg tenderness, and actual loss of hooves and/or tail switch. Fescue foot occurs mainly in winter and may be noticed a few days after the first real cold snap. Cattle must be eating infected grass or hay at the time.

3. Bovine fat necrosis. Cattle with this syndrome have hard masses of fat in the abdominal cavity. This syndrome, which results in upset digestion and difficult births, has been associated with very high nitrogen fertilizer or manure rates applied to the fescue.

Fescue Toxicity Syndrome in Horses.

Fescue toxicity has serious reproduction effects on mares. Specific indicators are abortion, prolonged gestation, difficult birth, thick placenta, foal death, retained placenta, little or no milk production, and sometimes, death of mares during foaling. Foals that survive in utero will

generally be larger than normal, have overgrown hooves, poor suckling reflexes, incoordination, and lowered body temperatures.

Fescue Toxicity Syndrome in Sheep.

Sheep appear to be less affected by the endophyte in tall fescue, possibly because they are inherently hardy. However, sheep are prone to "fescue foot," hyperthermia, poor wool production, and reproductive problems, as well as, lowered intake and the resulting poor weight gains.

Symptoms observed in the Llama herd.

Hyperthermia, (over heating), weakness, retention of the winter hair coat, and spontaneous abortion.

Is all Tall Fescue Infected with the Endophyte Fungus?

No, the fungus is spread only in the seed. Seed from infected plants will produce infected plants and seed from fungus-free plants will remain fungus free—even when the plants are present in the same pasture. The fungus cannot be identified visually in the field. The fungus is not present on the plant surface and causes no visible symptoms or growth abnormalities, in fact, the fungus may actually help the tall fescue plant survive and improve its durability. It has been found to improve insect resistance and drought tolerance.

The most obvious method of determining the presence of the endophyte in tall fescue is poor animal performance and the characteristic health problems described above. Because the endophyte grows within the plant tissue, it is necessary to submit a sample to a laboratory for testing to verify the presence of the endophyte.

For more information on Tall Fescue Toxicity, point your browser to the Ag/Acreage section of the Lancaster County Extension website. The information will be found on the Nebraska Production Agriculture—Crops—Forages page. Or point your browser directly to <http://www.ianr.unl.edu/ianr/lanco/ag/crops/forages.htm>. The information is under the heading "Tall Fescue as a Forage Source, What You Should Know?" I will continue to add to this site as I locate additional resources. (TD)

Crop Protection Clinic Scheduled for January 3

Lancaster County is slated to serve as a host site for a Crop Protection Clinic. This very popular clinic offers many topics of interest to crop producers and agribusiness professionals. Among this year's topics are: New Herbicides and the Weed Management Guide, Plant Viruses and Their Vectors, Stewart's Wilt, Herbicide Application Technology, On-Farm Research and the Nebraska Soybean and Feed Grain Profitability Project, Transgenic Corn Hybrids and Resistance Management, Value-Added Grains and the new SNAP Cooperative, and many more. Commercial Pesticide Applicators will be able to renew their General Standards and Ag Plant certification by attending the entire workshop session. Registration begins at 8 a.m. with sessions continuing from 9 a.m. to 4 p.m. The \$20 registration fee includes proceedings, publications, refreshments, and the noon meal. Advanced registration is not required; however, it saves standing in line. (TD)

Conservation Tree Program— New Species

The Nebraska Conservation Tree Program has released its list of tree seedlings available for the 2001 planting season. You will notice there are a few new species included in the list this year. The false indigo, red osier dogwood, and diamond willow have been added for the increase demand for riparian buffer strip species.

All three species can tolerate high moisture conditions which are often associated with bottomland stream and river corridors. The cottonwood seedling is in response to requests for “old river bottom” cottonwood. These are seedlings which will have both male and female trees in a bundle and will eventually produce cotton as they mature.

The 2001 tree seedling price is \$62.00 per hundred seedlings, (this does not include sales tax). Orders are being taken now through your local Natural Resources District or by contacting the Nebraska Forest Service at (402) 472-6624.

The New Species:

False Indigo : *Amorpha fruticosa* is a fine structured small shrub that at first resembles sandbar willow. False indigo is a legume with pinately compound leaves with 11 to 25 leaflets. This shrub will

grow on a wide range of soil types and moisture conditions. It normally grows at the edge of water but can also be found on poor, dry, sandy soils. Mature plants can grow to 18 feet but more commonly 12 to 14 feet. This is an excellent plant to use in riparian buffer strips.

Red Osier Dogwood

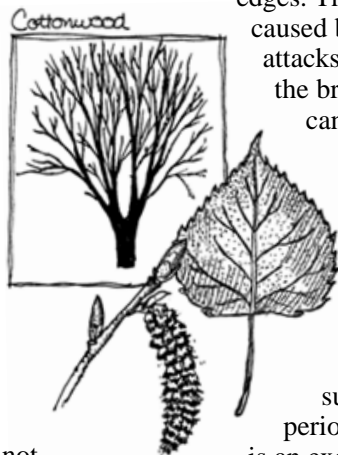
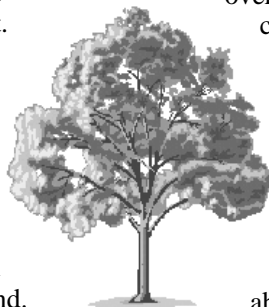
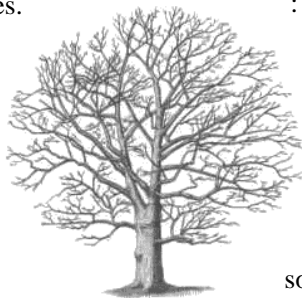
: *Cornus stolonifera* is also known as red stemmed dogwood. The young bark is red in color year-round. It can grow in a wide range of soil types especially in wetter soils along riparian areas.

This dogwood will grow from seven to ten feet in height and can spread by ground suckers.

Seedling Cottonwood : *Populus deltoides* are the native natural cottonwood found along Nebraska rivers and streams. The seedlings will be a mix of male and female seedlings. The female trees will produce cotton as they mature. It is not recommended to be planted close to homes because of the cotton in the spring. This is also a good selection for riparian buffer strips.

Diamond Willow : *Salix cordata* is the common name for several reported species of willow. The genus *Salix* is a very complex genera with a lot

overlapping characteristics between species. This willow is considered a small tree with a mature height of about 20 feet and rarely over six inches in diameter. Most specimens are multi-stemmed from the base. Leaves are three to ten cm long, one to three cm wide and finely serrated around the edges. The diamonds are caused by a fungus that attacks the main stem at the branch nodes. The cankers that form at the point of infection are sunken and roughly diamond in shape. Willow is a wetland species and can survive extended periods of flooding. It is an excellent tree to plant in riparian buffer areas and for stream bank stabilization. (DJ)



Nebraska Nuts Add Holiday Flavor

From Thanksgiving through New Year's, holiday foods traditionally include many foods native to the Americas, such as turkey, corn, cranberries, potatoes, etc. Additionally, many nuts are native to Nebraska and can enhance meals and snacks, giving them a local flavor. Here is a sampling:

Black walnuts – a delicious native nut that imparts unique flavors to dressings, sauces, and other dishes.

Northern pecans — a smaller version of the pecan we

all know and love. It is considered by many to be sweeter and richer tasting than its more southerly cousins. It works well with many dishes and desserts. This nut tree, a result of years of selection and research, produces fine nuts right here in Nebraska.

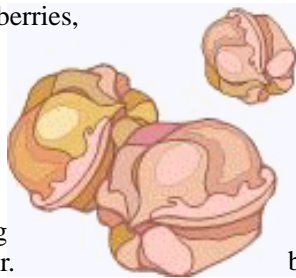
Hazelnut – its rich but mild flavor, is a wonderful addition to many foods. Chances are the in-shell hazelnuts found in the grocery are grown in the Pacific Northwest or Turkey, even though hazelnuts are native to eastern Nebraska. New hybrids that

produce larger nuts than our natives are being tested to see how well they will grow and produce in Nebraska.

Shellbark and Shagbark hickory nuts – some of the finest tasting nuts in North America and compliment any meal.

Chestnuts – wrap up your holiday evenings relaxing in front of the fireplace with your family and roasting terrific tasting chestnuts.

Most of these nuts are available from specialty food shops and over the Internet. Consider planting your own nut trees for your own fresh supply, for local marketing, or at least to feed the squirrels! (DJ)



Acreage Insights



To Prune is to Care

Fear of pruning shouldn't stop you from planting fruit trees—unless it's going to stop you from pruning them.

Young trees need pruning to develop a desirable shape; mature, bearing trees need pruning to stay healthy and productive. Pruning, in other words, is a basic part of fruit tree care and maintenance. If you keep in mind why you're pruning and what you want to accomplish, taking saw in hand doesn't have to be scary.

Young trees are pruned to encourage them to develop a strong but open branch structure that will expose leaves and fruits to sunlight and pest control materials. The two methods ordinarily used are the open center and the central leader methods.

Peach and Japanese plum trees are usually shaped by the open center method. The central upright trunk is removed and branches are selected and directed so the mature tree has a sort of wide, flat vase shape. As the name suggests, the center of the tree is open.

Apples and other fruits are trained by the central leader method. The main upright stem is retained and two or three branches are selected each year for two to three years to form the basic structure of the tree. If the tree was viewed from directly above, the lateral branches would look like spokes of a bicycle wheel.

In both cases, you select branches that form wide angles with the main stem. Sharp, V-shaped crotches are weak and prime to break under the weight of a heavy fruit crop or a load of ice or snow.

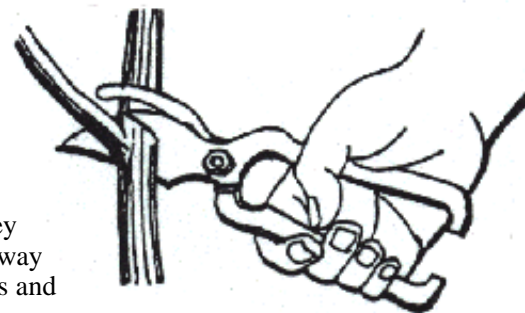
Mature, bearing trees are pruned each year during the dormant season, usually in late winter.

The first step is to remove dead, broken, or diseased branches. Cut them back to the trunk or to healthy buds. It's important to remove dead or broken branches because they can provide an entryway for disease organisms and insects. Pruning away branches infected with diseases such as black knot of plum is the main means of controlling their spread.

Next, remove large branches that have grown so vigorously they shade the lower ones, make the tree difficult to spray, or harvest. In some cases, removing large branches can correct earlier pruning mistakes. Remove large limbs where they originate or shorten them back to small, healthy, side branches.

Another goal of pruning is to remove less productive wood – i.e., overly vigorous, vertical branches such as water sprouts and suckers, and weak, downward drooping limbs.

Pruning tools should be sharp for clean cuts that will heal quickly. To remove a large branch safely and avoid tearing the bark, undercut it partway, then finish removing most of the length with a cut from the top side. A third cut removes the stub. Wounds need not be painted or sealed. (DJ)



Deforestation in United States

There is a common misconception in America that the country is being deforested. Some environmental groups show pictures of logged areas in the Pacific northwest and try to claim the forest is destroyed leaving the average person with the misconception America is rapidly being deforested. Also, natural disasters such as large wildfires and large areas of trees blown down by wind also create an image the United States is

being deforested. But the actual numbers reveal this is false.

According to the American Forests magazine, the land in forests have changed little the last 70 years despite millions of acres of logging, wildfires, and blow downs. The United States was estimated to be about 54 percent forested (1219 million acres) in 1600. Forested acres reached a low point around 1920 at 600 million acres. The latest national inventory figures from

1992 reveal 737 million acres of forest or about 32 percent of the country is forest. So, how has the amount of forested land remained the same even with logging, wildfires, and blow downs?

In the south (Alabama, Mississippi, Georgia, etc.), land logged is replanted soon after logging. With the abundant rain in the south, logged areas are forested in just a few years.

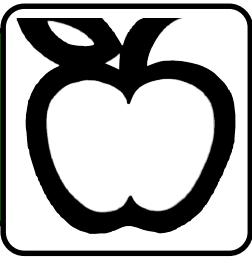
In the forests of the northern

states, aspen is the dominant species. Aspen sprouts prolifically from its roots following logging or fire. In five to six years after logging, aspen forests are so thick, a person can barely walk through them.

In other types of forests, trees in adjacent woodlands provide the seed for establishing the next forest following fires or logging. As humans, we have a natural tendency to think once a forest is cut or burned, it is gone

forever. But nature is much more resilient.

In most of the United States, the woodlands have been logged once, twice, and in some places in the south, three times, yet these acres of land are still forested. As is said in forestry, cutting a tree does not lead to deforestation, but not planting a tree, can. (DJ)



Food & Fitness



Alice Henneman, RD, LMNT, Extension Educator

It's Prime Time for Prime Rib

Preparing a prime rib for your holiday dinner couldn't be easier. Here's a yearly favorite recipe from Ann Marie Bosshamer, Nebraska Beef Council (NBC).

1) Select your prime rib. Ask your meat department manager to help you find the perfect roast. A prime rib is named on the meat label as a "Rib Eye Roast."

2) All you need is a shallow roasting pan, a roasting rack, and a meat thermometer.

3) Heat oven to 350 degrees F. Place roast, fat side up, on the roasting rack in the shallow pan. Insert meat thermometer into the thickest part, not touching bone or fat.

4) Season beef as desired and place in the oven. Do not add water.

5) Remove roast when thermometer reaches 5 to 10 degrees below final desired doneness, 135 to 140 degrees F for medium-rare or 150 to 155 degrees for medium. (Final temperature after standing 15 minutes following removal from oven should be 145 degrees F for medium rare and 160 degrees F for medium.)

6) Tent roast loosely with aluminum foil and let stand for 15 minutes. The roast temperature will continue to rise and you can carve across the grain. Enjoy!

Here's a recipe from Ann Marie you might enjoy.

Classic Beef Rib Eye Roast

Makes 8 to 12 servings.

Total preparation and cooking time: 2 3/4 to 3 1/2 hours
6 to 8 pounds well-trimmed beef rib eye roast

Seasoning:

- 6 large cloves garlic, crushed
- 1 1/2 teaspoons dried thyme leaves
- 1 teaspoon cracked black pepper

Heat oven to 350 degrees F. Combine seasoning ingredients. Press evenly into surface of beef roast. Prepare roast as described above. Roast approximately 2 1/4 to 2 1/2 hours for medium rare; 2 3/4 to 3 hours for medium. (Follow temperature guidelines given earlier.) (AH)



“Do You Know What You Are Eating?”

“Do you know what you are eating?” Approximately 400 fifth grade students will answer this question as they participate in the Nutrition Education Program (NEP) School Enrichment classroom experiences. The educational kits, developed by NEP professionals, are used by classroom teachers for a two week period.

NEP staff begins the nutrition unit by delivering the kits to the classroom and providing an educational lesson. They present a hand washing program where all students and teachers practice proper hand washing using the “Glitter Bug” lotion and the ultraviolet light. It's amazing to hear the “oohs” when they realize how hard it is to get hands clean. Upon completion of the program at Elliott school, a classroom teacher said, “the students are doing a much better job of washing their hands everyday.”

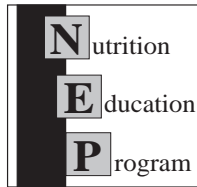
The kits contain many hands-on learning experiences. The students conduct a science experiment in which they divide into two groups. One group of students wash their hands, the other does not. They cut up apples and place them in a sealed bag for the 2-week

period. It is quite evident by the amount of mold growth, which bag is which. At Elliott school, one student said, “I'm going to wash my hands before I eat from now on.”



5th grade students making "Peanut Butter Bites".

A favorite activity in the kit is the game “Who wants to be a Healthy Snacker?” Students are asked a series of three nutrition questions, from easy to difficult. They have four multiple choice answers. Similar to the TV show, they have three lifelines: ask a friend, poll the audience (classroom), and 50/50. They especially like the “HOT SEAT” sign



Nutrition Education Program

for Limited Resource Families

Karen Wobig
Extension Assistant

on the contestant's chair. Students demonstrate knowledge of what they learn by naming the five food groups and the six nutrients they study.

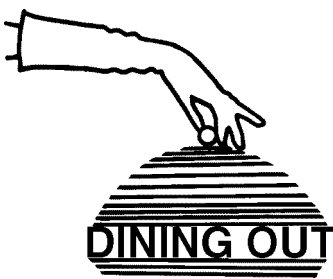
Students have the opportunity to mix together an “orange soda”. By mixing the ingredients, including 12 teaspoons of sugar, they realize how much sugar they could consume from soda. They also learn the ingredients are not from the five major food groups. One student at Elliott Elementary school said, “They should make a pop with all the nutrients in it.”

Teachers typically teach five to ten hours of classroom education by using the nutrition kits. At the conclusion, NEP staff provides the classrooms with the opportunity to make “Peanut Butter Bites.” All supplies are furnished and the students actually make their own healthy snack (see recipe below). They receive a take-home parent's letter with the recipe and information on how to enroll

See EATING on page 11

Handling Holiday Leftovers When Dining Out

By Alice Henneman, R. D., Extension Educator, Joyce Jensen, Registered Environmental Health Specialist with the Lincoln-Lancaster County Health Department and Fayrene Hamouz, Ph.D., University of Nebraska Department of Nutritional Science and Dietetics.



The holiday season typically includes a special time spent dining with family and friends. If asked what we planned to make for that holiday meal, many of us might answer: RESERVATIONS!

Eating out removes many decisions, but still includes several important choices. After deciding what to order, whether to have dessert, and how much to tip, there's one more impor-

tant decision: how to handle the leftovers. Here are five ACTION STEPS to take with leftovers:

1) Leave Your Leftovers If You Can't Refrigerate or Freeze Them Within Two Hours From Time of Service.

Two hours is the maximum time perishable foods should be at room temperature. This INCLUDES the time they're on the table during your meal. Just ONE bacterium, doubling every 20 minutes, can grow to over 32,768 bacteria in five hours!

Perishable foods include:

- meat, poultry, and seafood;
- dairy products;
- cooked pasta, rice, and vegetables; and
- fresh, peeled, and/or cut fruits and vegetables.

Also, if food is left out too long, some bacteria, such as *staphylococcus aureus* (*staph*), can form a heat-resistant toxin that cooking can't destroy.

One of the most common sources of *staph* bacteria is the human body. Even healthy people carry *staph*—according to the U.S. Food and Drug Administration's “Bad Bug Book,” *staph* bacteria are present in the nasal passages and throats and on the hair and skin of 50 percent or more of healthy individuals. *Staph* bacteria also may be found in facial blemishes, cuts, and lesions.

Most likely, the only way you'll know if a food contained *staph* bacteria is when someone

See LEFTOVERS on page 11



Clean Hands Campaign

Have fun using “glo-germ” to teach handwashing to youth and adults. Receive handouts for your group and a copy of reproduction ready handwashing activities. Call Alice Henneman (441-7180) to schedule a time to checkout the Clean Hands Kit and receive your materials. Kit must be checked out and returned within the same week. Available on a first come, first served, basis. This activity can be used with any number and takes about 20 minutes, depending on the size and age of your group. (AH)



**YOUR
information
center...
around the
clock**

NUFACTS

NUFACTS offers information 24 hours a day, 7 days a week. In the Lincoln area call 441-7188; for the rest of Nebraska call 1-800-832-5441. When directed, enter the 3-digit number of the message you wish to hear.

- 329 Freezer Power Outage
- 371 Substituting Oil for a Solid Shortening
- 374 Don't Use Rusty Pans

and many more...

Cook It Quick!

Tips and recipes for cooking healthy foods in a hurry:
www.lanco.unl.edu/food

FREE monthly Food Reflections e-mail newsletter.

To be added to the mailing list, e-mail Alice Henneman at AHENNEMAN1@UNL.EDU

Clarice's Column

Clarice Steffens
FCE Council Chair



It's a very rare Sunday afternoon! Even though it is very close to Thanksgiving and not very far from Christmas it is a quiet, relaxed afternoon. Something to appreciate as the holidays near!

On September 24, many of our FCE members gathered at the Lancaster Extension Education Center to celebrate our annual Achievement Night. Thanks to our special guest, Carolyn Ducey, of the International Quilt Study Center, for a very interesting presentation. Congratulations to all our award

winners and thank you's to the 2000 Achievement Day Committee—Helpful Homemakers, Busy Belles and the individual members for the great program and dessert! Many members also brought personal quilts for display and shared their quilt's story—thanks to all of you. Members also shared their club's accomplishments for the year and, again, we find our clubs continue to support very worthwhile projects.

As we move forward to 2001, plans are being made for meetings. We will continue the schedule of four council meetings, the Summer Sizzler and Achievement Night. We are also appreciative of any suggestions you may have for topics to be covered at our meetings. Please

talk to your club members so your suggestions can be discussed at the January Council meeting.

The January Council meeting will be Monday, January 22, 12 noon. This meeting will be hosted by the council officers and will include lunch and a craft. The cost will be \$7.50.

As you read this, I hope most of you will have completed the majority of your plans for the holiday. Whether you celebrate Christmas, Hanukkah, or Kwanza. I hope your holiday experience is all you want it to be. Enjoy the parties, the decorations and the gifts, but mostly enjoy your family, friends and colleagues. Have a very special holiday season!

- FCE News -

FCE Leader Training Lessons

The January Family and Community Education (FCE) leader training lesson "Stretching Your Food Dollar in Quick and Easy Ways" is scheduled for Thursday, January 4 at 1 p.m. Alice Henneman, Extension Educator will present this lesson.

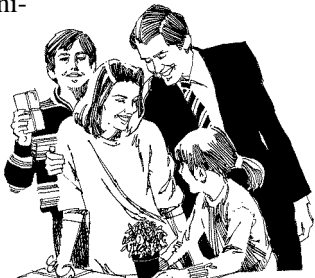
This lesson will look at ways to spend your food budget wisely, using foods available in today's supermarkets and grocery stores. You will examine ways to restructure time-proven methods to trim food costs while you focus on saving kitchen time, too. Ways to access additional resources so the consumer can get more information will be included in the lesson materials.

The February FCE leader training lesson "Safe Surfing.Com" is scheduled for Tuesday, January 23 at 1 p.m. Lorene Bartos, Extension Educator will present this lesson.

References to the Internet are everywhere. You can see dot com on TV, in newspaper articles, magazine ads, on the back of semi-trucks, and packages you purchase at the store. Yet many families have concerns about the web. This lesson will help make your Internet connections a positive experience. You will learn how to take steps towards safety and security while finding good resources for your family. (LB)

Healthy Families Healthy Communities: Building Supportive Policies

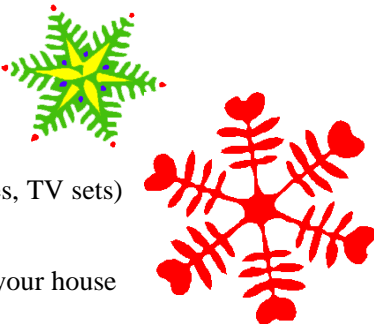
Healthy Families Healthy Communities is a national satellite video conference scheduled for Thursday, February 1, 2001, 1 to 3 p.m. CST. This video conference highlights current research and outreach efforts that build supportive policies and engage communities around issues related to the well-being of children, youth, and families. It will share success stories that put research into practice and build policy. Program segments include: family strengths, quality child experiences, engaged parents, and reducing violence. Faculty from Cornell University, University of Minnesota, University of Nebraska, and the University of New Mexico will make presentations. Among those who will present are William Doherty from Minnesota and James Garbarino from Cornell. UNL faculty scheduled to participate include Dean Marjorie Kostelnik and Drs. John DeFrain and Pauline Zeece. For more information contact LaDeane Jha, 441-7180. (LJ)



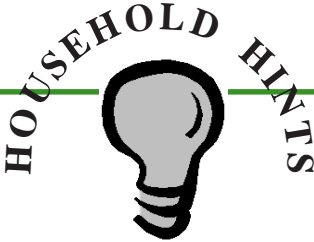
Before you leave for the holidays

Make sure:

- Your telephone-answering machine is on.
- Timers for lights and radios are activated.
- The kitchen is clean, perishables are tossed, you've run your garbage disposal, and all garbage is taken out.
- Your thermostat is lowered (or raised accordingly).
- Appliances sensitive to power surges (computers, microwaves, TV sets) are unplugged.
- Your doors and windows are securely locked.
- A neighbor or friend will pick up your mail and papers, has your house key and knows your whereabouts.
- You have your tickets, cash, credit cards, passports, and confirmations. (LJ)



Family Living



by Lorene Bartos, Extension Educator

Holiday Clean-up

The easiest clean-up after holiday entertaining for dishes and glasses is to wash them in the dishwasher following a few simple guidelines. Make sure the water is hot (at least 130 degrees)—dishwashing detergents work best in hot water. If water coming from the tap is less than 140 degrees, turn up the thermostat on the water heater or use the high-temperature option on the dishwasher. Follow the dishwasher manual instructions for proper loading, and do not overload! Also follow manufacturer's instructions for the proper amount of dishwashing detergent to use. You may need to use extra detergent if you have hard water or if you are washing heavily soiled, greasy dishes. Use a rinse agent to help minimize spotting and filming. It will speed up the drying process because it causes water to sheet off dishes and glassware. (LB)

More Happiness in 2001

Each new year brings ambitious attempts to kick bad habits, live a healthier life and accomplish more work. How about a new approach this year? Instead of trying to reach many different and difficult goals, resolve to achieve just one—putting more happiness in your life. Keep this resolution. Your life and immune system will improve, resulting in a healthier and more prosperous year.

- Change your attitude about your job and colleagues.
- If you are stuck in a job you hate, explore options for change. If you can't change jobs, then change your attitude toward your job and the people with whom you work.
- Make time for activities you enjoy.
- Change the way you think about failure. Failure is a state of mind. People who learn from upsetting events and then move on are happier and healthier than those who don't.
- Get fully in touch with your feelings.
- Keep a journal.
- Treat yourself as you would treat a beloved pet.
- Make a difference.
- Develop a childlike sense of humor. (LJ)

CHARACTER COUNTS! Corner Responsibility

The new year is a great time to make life improvements. Taking responsibility for our words and actions can become a way of life. Most adults agree they want children to grow up making responsible decisions, so now is a good time to think about what kind of example we are setting.

Making improvements in responsible behavior can be as simple as watching what we eat and maintaining our fitness and health. Abstaining from alcohol and cigarette use or beginning a lasting fitness program are good places to modify behavior. Start out setting reasonable goals and gradually continue.

We need to be responsible for ourselves and our families. Now is a good time to evaluate areas of our personal lives with decision-making, accountability, self-restraint, and work ethic. Accepting responsibility, not blaming others, and keeping commitments are accountability issues. Responsibility is pursuing excellence which includes doing your best, being diligent, perseverance, and good work habits. Being responsible for your family includes feeding your family, budgeting for family expenses, keeping children adequately supervised, and meeting emotional needs of the family.

A final suggestion for responsibility is continuous improvement. Always look for ways to make situations better. Take one step at a time and strive for improvement. (SS)





4-H & Youth

4-H Bulletin Board

- Sunday, January 7-Teen Council Meeting 3-5 p.m.
- Tuesday, February 6- 4-H Council 6:15 p.m.
4-H Awards/Achievement-What's It All About 7 p.m.
- July 31-August 5 Lancaster County Fair- Lancaster Events Center near North 84th Street and Havelock Avenue

Volunteer of the Month

Deb Arends was named City/County Volunteer of the Month. Each month the Lancaster County Retired and Seniors Volunteer Program, along with the Volunteer Services Division of the Lincoln Area Agency on Aging recognizes individuals that have given many hours of volunteer services.

Deb was recognized at a recent County Commissioner's meeting. Deb has impacted the lives of many youth through the enhancements she has made in many of the 4-H related activities. Deb has volunteered with 4-H for nine years and is involved in many other community organizations. By sharing her time, talents, and enthusiasm she has made a difference in the community.

Deb received a cash award, balloons, and her name will be engraved on a plaque that is displayed in the City/County Building.

Congratulations Deb and thank you for your dedication to 4-H.



If You Dare, Come Into Our Jungle!



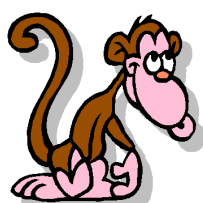
5th and 6th grade 4-H Lock-In



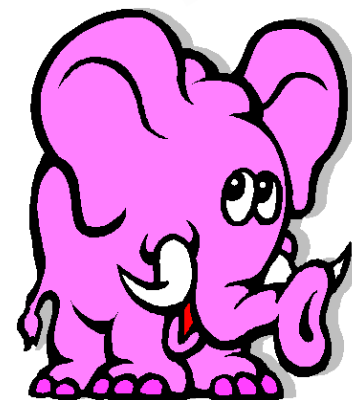
January 12, 8 p.m. to
January 13, 8 a.m.



call Tracy at 441-7180 if you have questions



Bring your toothbrush, toothpaste, sleeping bag, pillow, active wear, sleepwear (sweats) and a friend interested in 4-H!



Lancaster Extension Education Center • 444 Cherrycreek Road, Suite A, Lincoln

Presented by Lancaster County 4-H Teen Council and sponsored by University of Nebraska Cooperative Extension in Lancaster County

4-H Lock-In Registration Form

Name of participant(s): _____

Address: _____

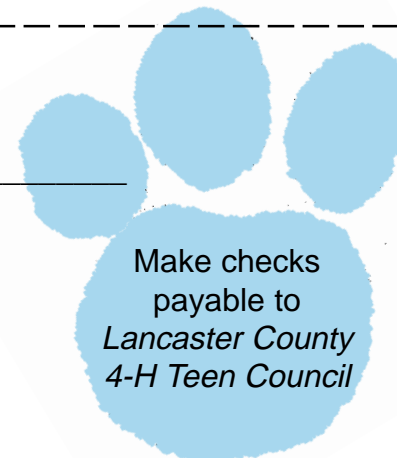
City/State/Zip _____

Phone: _____

Parent/Guardian: _____

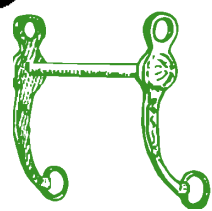
Special Needs/Other Information: _____

Age: _____



Return registration to:
Tracy Kulm
University of Nebraska Cooperative
Extension in Lancaster County
444 Cherrycreek Road, Suite A
Lincoln, NE 68528-1507

Registrations due by January 5th, 2001



ORSE BITS

THE 4-H HORSE PROGRAM

The time of year is again upon us, to decide what our projects will be for the upcoming year and marking our calendars for all those important deadlines: district/state shows, county fair, animal I.D.s, demonstrations . . . For those involved in, or thinking of becoming involved in the 4-H horse project, one of your first responsibilities will be to make yourself aware of those deadlines. You can easily do this by checking the NEBLINE monthly calendar. But remember, your work will need to begin far earlier than the calendar deadline.

The primary aim of this project is to develop confident, competent, caring individuals who have good character, and are connected to their communities. Through the horse project, you will develop leadership, initiative, self-reliance, and sportsmanship. While working with your project animal, you will experience pride, responsibility, and the respect of your mount.

You also will develop a greater love for and a more humane attitude toward animals. Horse project members appreciate horseback riding as a beautiful and wholesome form of recreation. You will acquire skills in horsemanship, patience, and understanding in handling horses. You will develop safety precautions . . . finally; participation in the horse project will help prepare you for citizenship responsibilities as you work together in groups and support community horse projects and activities. (from the *Nebraska 4-H Horse Project Member Manual*)

I believe by participating in 4-H, taking care of, and training your project horse(s), the above project goals will be easily achieved. Ride often, pay attention to your horse, pay attention to your leader or ring practice instructor. Learn about horsemanship levels and study to achieve a higher level of horsemanship. Organize and do community service projects. Participate in speech contests and demonstrations.

Make yourself aware of the rules of the project. Get a 4-H Horse Show and Judging Guide and read the regulations for the classes that interest you.

And now. . . back to the deadlines! Remember, it is your responsibility to know and meet deadlines for different projects. If you are an independent club member, you are responsible to get the information you need to participate in 4-H events. Make sure you watch your NEBLINE calendar. For those in organized clubs, remember your leader will *try* to remind you of upcoming deadlines and *try* to help you fill out paperwork, but ultimately, it is still *your own responsibility*. Check your NEBLINE calendar monthly and ask your leader questions if there is something you don't understand, or call the extension office.

Participation in the county fair, district/state shows, demonstrations, and contests can be a really fun and memorable experience for exhibitors. But in the end, the *project* will make a real difference in our youth. Parents and leaders: Let's not forget the project.

2001 Horsin' Around Horse Clinic

This year's Horsin' Around Horse clinic will be held at the Animal Science Complex at UNL's East Campus on February 10 and 11. This two day event will have three featured speakers.

Scott McCutcheon of Whitesboro, Texas specializes in training and raising some of the most successful reining horses in the country. Scott knows how to train a horse to perform challenging maneuvers that require an enormous amount of physical energy while maintaining a horse's natural quiet disposition. Scott will focus not only on reining horses, but will share methods to train and refresh horses for all types of riding.

Dr. Del Wilmont who has served as the Deputy State Veterinarian for the Nebraska Department of Agriculture since 1988 will discuss "Why do we need a health certificate?" on Sunday. Dr. Wilmont previously ran a solo equine practice in Grand Island and had worked as the track veterinarian at Fonner Park for two racing seasons. Phillip Fisher, certified journeyman farrier, has been an active member of the Midwest Farrier's Association and the American Farrier's Association since 1981. Phil is an AFA approved certification tester and currently serves as the Vice President of the AFA. Phil shoes all types of horses with an emphasis on shoeing for soundness in western performance and pleasure horses.

For information or a registration form, please call the extension office and ask for Ellen.

Roping Clinic

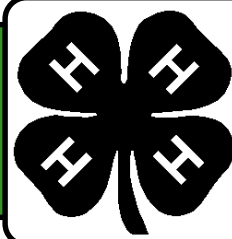
A Roping Clinic will be held on Saturday, January 13, 1 p.m., at the Brad and Susan Frink arena, 5505 NW 112th. Cliff Herman will be a presenter at the clinic. Also assisting will be the College Roping Team.

Everyone is welcome!

If you have any questions, please call Ellen at 441-7180.

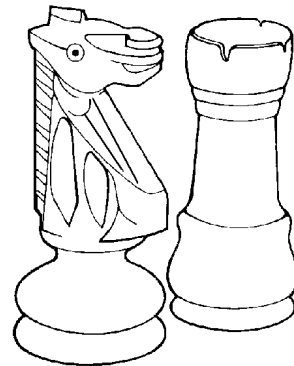


4-H & Youth



Interested in Chess?

Interest has been expressed in starting a 4-H Chess Club for youth 9 to 18. Playing chess helps develop critical thinking and organizational skills. If you are interested, please call Lorene at 441-7180. With enough interest, a project will be developed and a club organized. (LB)



4-H Volunteer Forum

The Nebraska State 4-H Volunteer Forum will be held February 2 and 3, 2001 in North Platte and March 30 and 31, 2001 in Columbus. This forum is a conference developed by a committee of 4-H volunteers from across the state. Network with other 4-H leaders, exchange successful 4-H programs among 4-H leaders, and be introduced to new areas and projects. There will be numerous workshops, hands-on learning experiences, and new ideas and programs designed to enhance your club. Anyone interested in 4-H is welcome to attend. Scholarships are available through the 4-H Council. For more information, please contact Tracy at 441-7180. (TK)

Help Families— Save Pop Tabs

Nebraska 4-H Youth Council is again collecting pop tabs for the Ronald McDonald House in Omaha, which was opened in 1994. It provides a home to families whose children, 18 years and younger, are receiving medical care in the Omaha area. The families are asked to pay just \$7.50 per night. This fee, however, does not pay for all of the operating costs of the house, therefore, the Ronald McDonald House recycles pop tabs and the proceeds are used to offset operating costs.

To be a part of this on-going community service project, bring your pop tabs to the Lancaster County Extension Office. (TK)



Join the 4-H Speech VIPS

We are looking for new speech VIPS members. If you would like to help organize and conduct the Lancaster County 4-H speech contest, call Deanna or Tracy at 441-7180. (DK/TK)





Community Focus



Extension Educator Receives "Distinguished Educator" Award for Year 2000

LaDeane Jha received the "Distinguished Educator" award at the Annual Nebraska Cooperative Extension Association's annual conference held November 14-16 in Kearney.

Cooperative Extension Dean and Director, Elbert Dickey presented the award and a check for \$500. He noted her 30th year with UNL Cooperative Extension, her continued work as a program innovator, a tireless advocate for equal opportunity, a respected community collaborator and a superb teacher and scholar.

Since 1998, Extension Educator Jha has taken leadership for Character Counts! education in Lancaster County. Since the programs introduction, more than 15,700 youth and 1,800 adults have received Character Counts! training.

LaDeane provided positive educational and program leadership through the Expanded Food and Nutrition Program from 1970-1993. She became a "community legend" during this tenure with recognized compassion and respect by clients and community professionals.

LaDeane is presently completing a PhD program at the University of Nebraska. (GB)

Lancaster County Extension Staff Recognized

Lancaster County Extension staff were recognized for services to Cooperative Extension at the annual Nebraska Cooperative Extension Conference held in Kearney.

Staff recognized were:

Don Janssen, Extension Educator - 25 years
Tom Dorn, Extension Educator - 20 years
Alice Henneman, Extension Educator - 20 years
Arlene Hanna, Extension Associate - 10 years
Mary Jane McReynolds, Extension Associate - 10 years
Gary Bergman, Extension Educator - 5 years
Darren Binder, Extension Assistant - 5 years (LB)

Free Speech—From the University of Nebraska

There may be no such thing as a free lunch, but the University of Nebraska-Lincoln's Speakers Bureau can offer you a Free Speech. Topics range from jazz to global warming, E-Business to nutrition, and motivation to cosmic rays.

The Speakers Bureau is a free service and an important way for the University to share campus expertise with our community. When your organization or group seeks an entertaining, informative, and intriguing topic presented, this becomes your opportunity. To secure a speaker, call 472-8396 or e-mail speakers2@unl.edu. The University Speakers Bureau will do their very best to accommodate your needs.

Speakers are available through April 26, 2001. Availability of speakers is limited during December and early January. Listed below are sample presentations. Other topics are also available through the Speakers Bureau. Please inquire for a complete listing.

Daniel Bernstein, Professor of Psychology

Best Practices in Teaching

College teachers usually prepare course content based on their background, tradition, and past practices. In classroom teaching, as in other areas of life, best practices are often not "doing it the way we always have." Bernstein's presentation focuses on teachers who consider each course to be an opportunity to find out what kind of teaching works best as measured by how well the students learn.

Thomas Elmo Clemente, Assistant Professor of Agronomy

Genetically Enhanced Crops

Biotechnology is providing a useful set of tools for plant breeders to draw upon in crop improvement. One such tool is plan genetic engineering, the ability to introduce a gene from an unrelated organism into a plant cell for expression of a novel trait. Clemente will provide an overview of plant genetic engineering methods, a discussion on breeding and safety assessment of plan genetic engineering, and a look at what products are in the pipeline.

Kenneth Dewey, Professor of Climatology

Global Warming and Climate Change

The topic of global warming and its potential impact on our lives has been in the news quite often lately. Here is your opportunity to unravel the mystery of how our global climate is currently changing and how it has changed over time. Evidence also will be examined that argues the case that human activity is responsible for much of the recent change in our climate.

Judy A. Driskell, Professor of Nutritional Science and

Dietetics

Nutrition Recommendations for Adults

Adequate nutrition is a component of good health. Good nutrition also improves one's quality of life. Yet many men and women in the U.S. do not eat sufficient amounts of nutrients necessary for good health. Poor nutrition has been shown to be a risk factor for many chronic diseases. How much of which

nutrients are essential for adults? Driskell also will discuss dietary guidelines and recommendations.

Deanna Baxter Eversoll, Director of Part-Time Student Services and Degree Options and UNL Sage Program.

Education for a Lifetime

Technology has allowed neuroscientists to explore the human brain in new ways, and exciting new possibilities are being revealed. Lifelong involvement with the learning process is essential for individual potential to be reached, and education for a lifetime is indeed a wellness issue. Eversoll will explore the learning possibilities that can influence your day-to-day life.

Mohamed Fayad J.D. Edwards, Professor of Computer Science and Engineering

E-Business—Big Business

Electronic commerce is essential in allowing any entity to easily reach customers, reduce sales overhead, and learn about their customers. Most experts agree about the "dawning of e-commerce predominance." This presentation will discuss the growing importance of the Internet on global economics as proven by impressive global statistics and projections.

Michael Jess, Senior Lecturer of the Conservation and Survey Division

Nebraska: World-Class Water

Oil gives the countries in the Middle East world-class status; water in the Ogallala aquifer gives Nebraska world-class status. Jess discusses water issues in Nebraska including the aquifer, the diversion of flows from the state's streams and rivers, the supplies consumed by production agriculture, and the effects of irrigation on river flows and wildlife habitat.

Charles Lamphear, Director of the Bureau of Business Research

Where Have All the People Gone

A historical perspective on population change shows that many rural counties in the nation's heartland have been losing population since the early 1900s. Are people being pushed or pulled from rural communi-

The University of Nebraska in the 19th Century

What became of the old 'U' Hall and the famous iron fence that surrounded the original University of Nebraska campus? This slide presentation focuses on the earliest building on the Nebraska campus, and on the faculty members, administrators, and architects responsible for its growth and development—

some of whom were well-known individuals such as JJ "Black-jack" Pershing, Willa Cather, and Roscoe Pound.

Linda Major, Project Director of NU Directions and Tom Workman, Communications Coordinator of NU Directions

Binge Drinking

Binge drinking has been depicted by the media as the #1 problem among college students. This presentation defines high-risk drinking, shows the first- and second-hand effects of high-risk drinking, and discusses attempts to reduce high-risk drinking at the University of Nebraska through NU Directions, a great project funded by the Robert Wood Johnson Foundation and administered through the American Medical Association.

Gary Meers, Professor of Special Education and Communication Disorders

Strains, Pains, and Migraines or How to Survive Until Tomorrow

Frustration is created in many ways in our day-to-day lives—family, pets, kids, shopping, education, and other general areas of life that can easily overwhelm us. One of the best ways to deal with frustration is humor, and this presentation takes a humorous look at the various frustrations we face and how we can best cope with them.

Linda L. Price, E.J. Faulkner, Professor of Agribusiness and Marketing

Cherished Possessions and Family Heirlooms

How do older Americans think about their possessions and the transfer of their special possessions to their kin? Price presents the results of almost 200 personal interviews that provide insight on how family heirlooms reflect and produce the meaning of family, why some possessions become family heirlooms, and the meaning of heirlooms passing between generations.

Larry Routh, Director of Career Services

Nebraska Brain Drain

LEFTOVERS

continued from page 6

gets sick.
Say farewell to your food and leave perishable leftovers at the restaurant if you can't refrigerate or freeze them within TWO hours. Or eat defensively and divide larger entrees with your tablemates so there are no leftovers.

2) Cool Leftovers Quickly in Shallow Containers in Your Refrigerator.

Key points in cooling hot leftovers include:
● Refrigerate and cool leftovers in shallow containers; limit food depth to about 2 inches.

● Let the refrigerator cool leftovers. Protect hot leftovers from cross-contamination from other foods by storing them on the top shelf of the refrigerator. Cover them LOOSELY so the food cools faster; then, cover them tightly when they're cool. Or, you can place them uncovered on the TOP shelf of the refrigerator in a location where you won't have to reach over them for other foods and possibly spill other foods onto them; again, cover them when they're cool.

● Cold leftovers such as salads, pies, etc. should be covered and refrigerated immediately.

● Store packages of raw meat, poultry, or seafood on the BOTTOM shelf of your refrigerator so their juices don't drip onto your leftovers and other foods.

● Food keeps best if your refrigerator temperature is 40 degrees F or less. Buy appliance thermometers for your refrigerator and for your freezer as a present for yourself for the holidays. They're available at many hardware, discount, kitchen supply, and grocery stores. At \$5 to \$10, this might be one of the best investments you can make to help assure your food stays safe and of good quality.

3) Eat Leftovers in One to Two Days or Freeze Them for Longer Storage

For best safety and quality, eat leftovers in a day or two. Or, freeze them at 0 degrees F if you'd like to keep them longer.

Thaw frozen leftovers in the refrigerator, as part of the cooking process, or in your microwave.

If food is thawed in the microwave, cook it right away.

Unlike food thawed in a refrigerator, microwave-thawed foods reach temperatures that encourage bacterial growth.

At 0 degrees F, frozen leftovers are safe indefinitely; however the U.S. Department of Agriculture Food Safety and Inspection Service (USDA/FSIS) recommends most foods will have best quality if used within two to four months.

4) Reheat Leftovers to 165 Degrees F.

Reheat leftovers to 165 degrees F until they're steaming hot THROUGHOUT. At this temperature, harmful bacteria should be destroyed. Stir to promote even heating. However, remember as described in action step 1, certain toxins formed by bacteria can be heat resistant. It's still important to follow the "two-hour rule," regardless of how high and how long you heat a food.

If you reheat foods in your microwave, follow these guidelines based on the USDA/FSIS's August 2000 publication, "Cooking Safely in the Microwave Oven" (http://www.fsis.usda.gov/oa/pubs/fact_microwave.htm).

Beware of microwaving leftovers in the original take home container. At high temperatures, certain containers, such as foam containers, may not be stable. It's possible melting or warping may cause harmful chemicals to migrate into the food. USDA/FSIS gives these recommendations for safe containers and wraps:

● Only use cookware especially manufactured for use in the microwave. Glass, ceramic containers, and all plastics should be labeled for microwave use.

● Plastic storage containers such as margarine tubs, take-out containers, whipped topping bowls, and other one-time use containers should not be used in microwave ovens. These containers can warp or melt, possibly causing harmful chemicals to migrate into the food.

● Microwave plastic wraps, wax paper, cooking bags, parchment paper, and white microwave-safe paper towels should be safe to use. Do not let plastic wrap touch foods during microwaving.

● Never use thin plastic storage bags, brown paper or plastic grocery bags, newspapers, or aluminum foil in the microwave.

Here are some general guidelines for microwave reheating:

● Cover the container with microwavable lid or plastic wrap. Loosen or vent the lid or wrap to let steam escape. The moist heat that is created will help destroy harmful bacteria and ensure uniform cooking.

● Stir and/or rotate food midway or as needed throughout the microwaving time to eliminate cold spots where harmful bacteria can survive and for more even cooking.

● Reheat until steaming hot throughout (165 degrees F). Allow a few minutes standing time at the end to promote even heat distribution and complete the cooking. Using a clean food thermometer to check the food in several places helps assure it has reached 165 degrees F.

5) When in Doubt, Toss Leftovers Out.

Suppose you:
1) left your leftovers on the car seat overnight;

2) let your leftovers sit over a week in the refrigerator; **OR**

3) forgot your frozen leftovers on the kitchen counter all day.

Is there any way to know if they're still safe to eat?

You can not SEE or SMELL most bacteria that might make you sick.

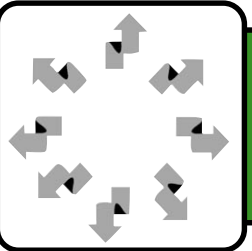
TASTING is risky and also won't tell if a food is unsafe. For some bacteria, such as *E. coli*, even a tiny taste may be enough to make you sick. Plus, depending on the food-borne illness, it may take from 1 hour to 6 or more weeks to get sick from contaminated food. By the time you know for sure a food was probably safe, it would be too old to eat!

That's why the advice most frequently given is: **WHEN IN DOUBT, THROW IT OUT!**

If you get sick soon after a meal, remember it isn't always the food that's the culprit. Overindulging during the holidays can cause some of the same symptoms as a food-borne illness, such as an upset stomach or nauseous feeling.

"Ring out the old, ring in the new" is an oft-quoted phrase from Tennyson on the passing of the old year and the coming of the next. Apply that to old leftovers!

Miscellaneous



Extension Office Welcomes New EFNEP Employee

Patrice Broussard, EFNEP Nutrition Advisor joined the NEP team November 1. Previous experience includes planning and preparing meals for 145 children at a daycare center for nine years. She's also been an LPN. She and her husband have nine children (the youngest is a junior in high school) and 12 grandchildren. Besides enjoying cooking, she has taught Sunday School and has directed a senior choir at her church. Before moving to Lincoln this May, she lived in Oklahoma her entire life. (MB)



Patrice Broussard helps Elliott fifth graders make peanut butter bites as a nutritious snack.



EATING

continued from page 6

in NEP and 4-H. After receiving the program, an Elliott student even made the "bites" for the school's Heritage Feast.

It is very rewarding to see the students' faces light up when they explain what they learned through the kit activities.

Peanut Butter Bites
You need:
1 tablespoon peanut butter
1 tablespoon dry milk
1 tablespoon quick oatmeal
1 tablespoon raisins
1/2 tablespoon honey
Mix in a bowl. Make into

four small "bites." Wrap leftovers in waxed paper and store in refrigerator.

For family size (or 16 servings):
2 cups peanut butter
2 cups dry milk
2 cups oatmeal
2 cups raisins
1/2 cup honey
Note: NEP has nutrition kits available for first and fourth grade classrooms. For further information, contact Karen Wobig at 441-7180. (KW)



BIOTECHNOLOGY

continued from page 4

effectively should expect to receive a premium for adding value to the product. (TD)

Excerpted from: "Agricultural Biotechnology: What's all

the fuss about?" by Marshall A. Martin, Professor and Associate Head. Purdue Agricultural Economics Report, March 2000.

SPEECH

continued from page 10

Are college graduates leaving Nebraska for greener pastures? Is it possible for Nebraska employers to successfully recruit graduates who are being aggressively pursued by employers in other states? In this presentation, Dr. Routh will explore recruitment and retention strategies that can work for Nebraska employers interested in keeping graduates in Nebraska.

John Rupnow, Professor of Food Science and Technol-

ogy

Functional Foods
"Let food be thy medicine and medicine be thy food." This 2,500-year-old quote from Hypocrites hold true today as food and medicine are no longer separate topics and the lines between them continue to blur. Rupnow's presentation focuses on the nontraditional health-promoting and disease-preventing components in common foods that led to some of them being coined as "functional foods" and

the real and perceived consumer needs and desires for them.

Gregory Snow, Associate Professor of Physics and Astronomy
News Flash! Nebraska High School Students Detect Cosmic Rays!

The High Energy Physics group at the University of Nebraska has initiated a state-wide education and outreach project that involves Nebraska high school students, teachers,

and college undergraduates in a multi-faceted, hands-on research effort to study extended cosmic-ray air showers. Snow's presentation will explain how the Internet is used to share and compare data recorded at different school sites across Nebraska while University of Nebraska professors guide participants in actively contributing to fundamental research.

Darryl White, Professor of Trumpet
Jazz: An American Art Form

Jazz is America's classical music and considered by many to be America's greatest overall contribution to music. The impact of jazz on American society has been enormous, and its influence on world culture has been far reaching. In this presentation, White will explain what jazz is, how it has evolved, why it is important, and some of the key figures in its development. (GB)

The NEBLINE

Nebraska Cooperative Extension
Newsletter
Lancaster County

THE NEBLINE is published monthly by the University of Nebraska Cooperative Extension in Lancaster County, 444 Cherrycreek Rd., Suite A, Lincoln, Nebraska, 68528-1507. Contact the extension office, (402) 441-7180 or www.lanco.unl.edu for more information.



Gary C. Bergman, Extension Educator–Unit Leader,
gbergman1@unl.edu

NOTICE: All programs and events listed in this newsletter will be held at the Lancaster Extension Education Center unless noted otherwise. Use of commercial and trade names does not imply approval or constitute endorsement by the University of Nebraska Cooperative Extension in Lancaster County.

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- Office (leave message after hours) 441-7180
 - TDD (Telecommunications Device for the Deaf) 441-7180
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 - FAX 441-7148
 - COMPOSTING HOTLINE 441-7139
 - NUFACTS INFORMATION CENTER 441-7188
 - EXTENSION OFFICE E-MAIL LanCo@unl.edu
 - WORLD WIDE WEB ADDRESS www.lanco.unl.edu
- OFFICE HOURS: 8 a.m. to 4:30 p.m. Monday-Friday



NEBLINE
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Comments _____

Story Idea(s) _____

Return to:
University of Nebraska
Cooperative Extension in Lancaster County
444 Cherrycreek Road • Suite A, Lincoln, Nebraska 68528-1507

Extension Calendar

All programs and events will be held at the Lancaster Extension Education Center unless otherwise noted.

- December 14**
4-H Cat Club Meeting 7 p.m.
- January 2**
4-H Council 7 p.m.
- January 3**
Crop Protection Clinic registration 8:30 a.m.
- January 4**
FCE Leader Training 1 p.m.
- January 9**
CWF 7 p.m.
- January 10**
Horse VIPS 7 p.m.
- January 11**
RabbitsVIPS 7 p.m.
- January 12**
Extension Board Meeting 8 a.m.
- January 15**
Office Closed Martin Luther King Day
- January 17**
Private Pesticide Applicator Certification Training 9 a.m.-12 p.m. or 1-4 p.m.
- January 18**
Fairboard Meeting 7:30 p.m.
- January 19**
Private Pesticide Applicator Certification Training 1-4 p.m.
- January 20**
Private Pesticide Applicator Certification Training 9 a.m.-12 p.m.
- January 22**
FCE Council Meeting Noon
- January 23**
FCE Leader Training 1 p.m.

Prepare for Your Future at
University of Nebraska

Is the University of Nebraska part of your future? Now is an excellent time to start preparing!

To seek information about the University of Nebraska, explore the Office of Admission's website www.unl.edu/nhusker/index.html or contact them at University of Nebraska-Lincoln, 1410 Q Street, P.O. Box 880417, Lincoln, Nebraska 68588-0417. (402-472-2023)

You'll find lots of information:

- NU Admissions
- Applying for Admission
- Academics
- Student Life
- Tuition, Scholarships, and Financial Aid
- The University Campus
- and MORE! (GB)

There is no place like Nebraska.



Just the facts, ma'am,
About the University of Nebraska-Lincoln



Founded 1869



Colors Scarlet and Cream



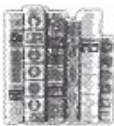
Campuses 2 campuses, City and East
616 acres



Location Lincoln, Nebraska
population 209,000



Nickname Cornhuskers



Programs of Study
147 undergraduate majors
21 pre-professional programs
116 graduate programs



Students
17,804 undergraduate students,
3,893 graduate students, 384 law students
61 master of architecture students



Full-time Faculty 1,100



Housing 12 residence halls
On-campus housing guaranteed to new
first-year freshmen



Student/Faculty Ratio 16 to 1



Student Organizations
350 student organizations
15 sororities/25 fraternities



Intercollegiate Sports
13 women's sports/11 men's sports