

## 2008 Featured Garden: The Nutraceutical Garden



Cucurbits: Plants in the gourd family such as cucumbers, squash, pumpkins or melons



The ISU Horticulture Center is part of the Department of Agriculture.

For more information about the Center contact Jessica Chambers at 309-438-3496 or e-mail at horticulture@ilstu.edu

**Hours of operation:**  
Dawn to dusk

**Location:**  
The Center is located on Raab Road in Normal between Heartland and Lincoln Colleges.

How much do you really know about the food you eat? Of course most fruits, grains, and veggies offer us nutritional benefits, but many medicinal benefits can be present as well. This notion was the inspiration behind the Center's featured garden for 2008, the Nutraceutical Garden.

The word nutraceutical was first contrived by Stephen DeFelice, M.D., founder and chairman of the Foundation for Innovation in Medicine in the 1980s. The term, which combines the word nutri-

tion and pharmaceutical, is defined as a food that contains a medical health benefit beyond that of basic nutrition. Many nutraceuticals are desired for their preventative benefits and possible treatment of disease. One of the more common examples is lycopene, which is found in tomatoes and may aid in the maintenance of prostate health in men. Nutraceuticals are among the fastest growing components in the food industry. The Nutraceutical Garden is divided into six components each

one focusing on different plant types. These are Vegetables, Fruits, Herbs, Herbaceous, Common Weeds and Grasses, Grains & Legumes. Each garden offers its own unique presentation, while at the same time being interpretative in nature.

On September 11<sup>th</sup> from 5pm to 7pm, the Center will have its Nutraceutical Garden event. Come join us and learn more about the food you eat and how it affects the way you live.

JC

## Component 1: The Weed Garden

An entire industry has been created in order to terminate its existence. Millions of dollars are spent to eradicate it every year by determined homeowners yearning for the perfect green lawn. And yet this thing holds healing powers so great that could it actually be considered a weed. . . the dreaded dandelion, *Taraxacum officinale*?

The history of the name is almost as interesting as the plant itself. The genus name, *Taraxacum*, is derived from the Greek taraxos, meaning disorder, and akos, meaning remedy, due to the plant's recognized healing actions. The English name dandelion is a corruption of the French 'dent de lion', meaning lion's tooth, which refers to the plant's coarsely toothed leaves.

The Nutraceutical Garden highlights some of the health and nutritional benefits that are provided by common weeds. The dandelion is no exception. Its leaves are high in vitamin A, vitamin C, iron, and calcium, carrying more iron and calcium than spinach. It also contains luteolin, a powerful antioxidant, as well as potassium.

Its uses are endless and powerful. It is used as a high cholesterol treatment, potassium-rich diuretic, liver stimulant; considered a tonic (tones the body), reduces water weight gain, a mild laxative, helps to eliminate toxins from the blood, promotes healthy digestion and will soothe an irritated stomach, acts as an anti-rheumatic, helps support the liver and kidneys, keeps the bowels in a healthy condition, stabilizes blood sugar, reduces blood pressure, has shown anti-tumor properties and clears the skin of impurities. The milky juice from the stems and leaves acts as a fungicide and has antibacterial properties. The juice has

been shown to be effective in the treatment of warts (helping get rid of them without damaging the surrounding skin), corns, stings and blisters. The milky latex has been used as a mosquito repellent. And believe it, or not the list goes on...

So from salads to wine, think twice the next time you see one of these tiny yellow nuisances protruding out from beneath blades of grass, because these nuisances may just hold the secrets to long lasting health and disease prevention.

JR



Dandelion—the lion's tooth

## Component 2: The Vegetable Garden

If you could decrease your chances of developing cancer or heart disease by paying more attention to the colors of the foods you eat, would you do it? If you could increase your energy level, keep your skin looking younger longer and strengthen your resistance to colds by spending more time in the produce department and less time in the pharmacy aisle, would you do it?

When we began our research into the nutraceutical properties of vegetables, our goal was to give visitors to the Horticulture Center's Nutraceutical Garden practical and easy-to-understand information to help them make informed decisions about what they feed their families. We also want to show people that anyone can grow vegetables. It doesn't require a lot of space, expense or knowledge. For those of us familiar with traditional gardening (straight rows of the same basic plant varieties that our parents and grandparents grew), perhaps simply choosing new varieties is a good beginning. For example, growing Health Kick Tomatoes with 50 percent more of the antioxidant lycopene. Or Red Sails lettuce, which is higher in vitamin A. Or Atomic Red carrots with higher levels of beta carotene.

What about those of us with limited space? Square foot gardening enables gardeners to harvest up to five times as much produce per square foot of space, with far less weeding and maintenance. Vertical gardening can produce vegetables in a lot less space—and it looks great, too! Did you know that you can grow some varieties of watermelon in a one by two foot space or in a container? In the Vegetable section of the Nutraceutical Garden, we have tried to demonstrate not only a wide variety of the most nutritionally beneficial vegetables, but we are also using non-traditional planting methods. Some of them are working amazingly well, while we're still experimenting with others.



Health Kick Tomatoes offer 50 % more lycopene

Even if gardening isn't your thing, awareness of the nutritional and medicinal values of types and varieties of vegetables can make your trip to the grocery store or Farmer's Market a lot more interesting and can help you make the best choices for yourself and your family. Come out and visit the vegetable garden. We would love to share this learning experience with you!

SM



## Jon's tid bits

Native Americans were the first people to discover the medicinal properties of the purple cone-flower (*Echinacea*). They used the roots of this plant as a sort of cure-all, treating everything from toothaches to snakebites and typhoid fever.



Extreme care should be exercised when using herbal remedies. Herbs do work, and may work more powerfully than one anticipates. These natural remedies should be treated with the same respect one would treat any other medicine. They are not salad greens. JD

## New Faces in Horticulture:



**Mike Busing** is our Horticulture Center Assistant. Mike retired last year after working for Grounds for 30 years! Experience, hard-worker and easy going are just three ways we describe him. He has been a huge part of this year's success.

**Dr. Dave Kopsell** grew up on a 200-acre, family owned nursery in northern Illinois with his identical twin brother Dean. Both received their BS degrees in Horticulture from ISU in the early 1990s. After the family business was sold, Dean and Dave received their PhDs from the University of Georgia in 1999. Dave has held several positions in teaching, research, private consultation, and with Cooperative Extension. Most recently he was an assistant professor at the University of Wisconsin-Platteville, teaching ornamental and crops science courses. His research specialty is plant nutrition and quality improvement, most notably nutraceutical compounds in leafy green vegetables. He currently lives in Bloomington with his wife Amanda, who is a nurse.



**Brittney Whitted** is our newest Undergraduate Assistant. Brittney worked during the summer and will work limited hours into the fall. Hard-worker, creative and pleasant defines Brittney. Brittney and her family made our summer events special and fun.



## Component 3: The Herbaceous Garden

Every spring anxious gardeners await the emergence of the first bits of green from their perennial gardens. They count down the days until the frost-free date, much like that of an impatient child anticipating the arrival of Christmas morning. It is only after these occurrences that the most lackadaisical to the most serious gardeners can enjoy the beauty and splendor that these flowers bring to them. However, unbeknownst to many, the beautiful plants that we often only appreciate for aesthetic value have many other important and valuable uses. These plants also contain the secrets that heal our wounds and protect our immune systems.

The herbaceous component of the Nutraceutical Garden highlights the nutritional and medicinal benefits that can be derived from common herbaceous annuals and perennials.

Described in medical literature for over 200 years, *Digitalis purpurea*, common foxglove, is often used as a cardiac drug. The plant contains digitalis, also known as digoxin and digitoxin, which is known to strengthen the heart muscle and helps slow heart rate. It is used to treat congestive heart failure and certain arrhythmias.



Foxglove



Comfrey

Another common perennial with fairly unknown medicinal benefits is *Symphytum officinale*, comfrey. Comfrey comes from the Latin 'con firma', which means strength. The plant contains allantoin, a cell stimulating substance that aids in the healing of wounds and broken bones. The leaves and roots also help treat inflammation associated with rashes and cuts. It is important to note that comfrey should only be used topically as it contains high alkaloid levels unsafe for internal use.

These are only two perennials that are featured in the herbaceous section of the Nutraceutical Garden. Several other plants are showcased, many of which may already be in your gardens. So the next time you are plagued with a headache or find yourself suffering from nausea, instead of peering inside your medicine cabinet, take a walk outside and try one of Mother Nature's natural remedies.

JR



## Component 4: The Herb Garden

When beginning my research on herbs I was faced with the question (and I am sure many of you are too), what is an herb? An herb is any plant or plant part that is valued for its medicinal, savory or aromatic properties. Even though herbs are commonly used today for culinary purposes, they have been used for medicinal purposes for several thousand years and have been traced back to B.C. time. Herbs are known for their brilliant flavors and scents, but very few people realize all of the medicinal and nutritional benefits they have to offer.

Chives make a great topping to that loaded baked potato, but they offer more to your health than you may know. Chives (*Allium schoenoprasum*) are said to have been brought to the United States by European colonists for medicinal uses. Today, chives are believed to have great nutritional value as well. They contain a sulfur-rich oil which helps lower blood pressure and has antiseptic properties. Chives and chive flowers are high in vitamin C, folic acid and potassium, and are used to prevent anemia.



Chives



Parsley

While eating at a restaurant, one of the most beneficial foods on your plate sits on the side, untouched. Parsley (*Petroselinum crispum*) is often used as a garnish for your meal, yet likely contains more vitamins than the food you will eat. Hippocrates, an ancient Greek physician, is said to have prescribed parsley as a cure-all remedy. Parsley is known to contain vitamins A, C, and B's, calcium and iron. It also is said to help relieve bladder problems, and contain laxatives. Parsley is also being studied as a possible protectant against cancer.

The gratification of herbs doesn't stop when you leave the kitchen. They offer great nutritional and medicinal benefits to your health as well as body. Herbs were once grown for their aroma and flavor, but at the Hort Center, we grow them for their nutraceutical qualities.

BW

### Student involvement helps Center Grow!

The Horticulture Center's first and foremost purpose is as an educational outdoor laboratory for our horticulture students. It is an opportunity to grow cucurbits, install perennials, prune viburnums, design new gardens or even to construct a garden playhouse. The spring semester brought several such projects. The AGR 120: Introductory Horticulture class worked on spring cleaning the Children's Garden. They also had the opportunity to design a portion of a children's garden that they would like to see. Some of the ideas included a Planet Garden, a Wizard of Oz Garden and Treats and Sweets Garden.

The AGR 130: Introduction to Agricultural Engineering Technology class constructed the Center's second shed as part of their experiential learning. The AGR 252: Urban Landscape Management class devised six plans for establishing a formal entrance at the Center. As part of Jeff Potthoff's independent study, he constructed ISU's first green roof as he built a playhouse for the Children's Garden. Its roof was planted with a mixture of sedums.

One graduate and two undergraduate students, Jenna Rozum, Jonathan Damery and Brittney Whitted, all participated in the development of the Nutraceutical Garden. Each of them researched and designed one component of the Nutraceutical Garden. Then they grew their plants in the greenhouse. Brittney had the opportunity to partake in the gardens' installation and maintenance throughout the summer.

Lastly, Dr. Moore's summer AGR 203: Agriculture and the Environment class visited the Center in May. The students actively participated in planting the Vegetable Garden, learning new plants and ways to garden on a small scale.

JC



New shed constructed by the AGR 130 class



Watering "Little Green House on the Prairie"

# Volunteer Spotlight

Cathy Kelly



A question about miscanthus started it all for Cathy Kelly.

She was talking to a faculty member working with miscanthus plants as biofuel when he asked if she knew anything about the perennial grass.

She had one growing near her deck. He asked if she was a gardener.

Not exactly, but she had an interest.

That was enough to generate a call from Horticulture Center Coordinator Jessica Chambers, who was recruiting volunteers to dig and plant and weed and water the evolving gardens at the Horticulture Center. The coordinator was having a volunteer get-together and Cathy went.

"I immediately realized this is what I wanted to be a part of," she said. "Jessica's enthusiasm was what did it. She's an ideal leader, shares her vision, motivates us and recognizes our efforts."

In April 2007, Cathy was standing on untilled ground along with a handful of volunteers who arrived to plant viburnums. Jessica pulled up in her dad's truck loaded with plants and newly purchased shovels. She pulled out a can of spray paint and drew a wavy outline of where she thought the shrubs should be planted.



Cathy turned to Shirley Murphy, a volunteer she recruited, and asked if she knew anything about planting shrubs. She told her she'd read about digging the hole twice as wide as the plant so that's where they started.



a huge sense of accomplishment."

Last summer, Cathy and the other volunteers planted The Children's Garden and an 1857 garden that included loofah plants. She still uses the sponge-like seed pods in her bath.

As the volunteers worked, Jessica asked for ideas on what kind of garden they would like to do the following year. Someone mentioned planting a garden with medicinal and nutritional plants. The idea was embraced by all and led the way for the 2008 Nutraceutical Gardens.

"Jessica would always say to us, 'What do you think? Let's try that.' She was always open to us and let us feel our ideas led to the success of everything," Cathy said.

The volunteers didn't stop meeting over the winter, getting together for dinner or to play cards. They've been on field trips, from the Great Pumpkin Patch in Arthur to tomato guru Vern Shepherd's home.

"The social part of it is important to me

too," she said.

Over the winter, the volunteers researched and planned the Nutraceutical Gardens for 2008. Cathy and her friend, Shirley, spearheaded this year's vegetable garden, planting merlot lettuce, red-stemmed Malabar spinach, purple cauliflower and a super healthy tomato with 50 percent more lycopene than the average variety. Carrots, beets and cabbage are grown in four-foot square raised beds.

"We try to be nontraditional and also educate people on how to grow crops in less space," she said.

Although Cathy doesn't think too much about the hours she puts in, she probably spends about 25 hours a month gardening. Keeping her gloves, gardening tools and knee pad in the car, she likes to drop by on Sunday afternoons when she can take in the stillness. In September and October, she'll take vacation time from her job as a compliance specialist at Illinois State to help set up for the Nutraceutical Event and Autumnal Festival.

"Where you really feel that sense of purpose is when you've planted the seeds in tiny cups, transplanted the seedlings, planted them in the ground and then harvested them. You see that whole cycle and that's when it all comes together. We call it volunteer work but I never feel like it's work."

KA



*Share your knowledge, Share your time, Share your experiences*

**by volunteering at the Illinois State University Horticulture Center.**

To become a volunteer at the ISU Horticulture Center go to <http://www.horticulturecenter.ilstu.edu/events/Volunteer.shtml>

## Component 5: The Grains, Grasses and Legumes Garden



Amaranth

“Most of the antioxidants and vitamins are found in the germ and the bran of the whole-grain.”



Flax

August has arrived and it looks like the daily high temperatures of summer 2008 are starting to heat up. But then again, Mclean County Fair has started, representing a high probability that extreme temperatures will be with us for at least a week or two.

One of the nutraceutical gardens at the Horticulture Center was amply named the Grasses, Grains and Legume garden. It was relatively easy to select a variety of grains to grow. A point of interest should be made about the grains.

They all start out as grasses, which when juiced (or in some cases eaten “au naturel”), provide nutrients not necessarily found in the grain seed. The grains selected include Kamut wheat, hullless oats, barley, amaranth, millet, quinoa and flax. On the legume side, Georgia peanuts, edamame (soy beans) and Hunan winged bean were chosen as the representative legume plants. Now for a quick synopsis on the growing season to date for the GGL garden. The edamame is progressing nicely. Tiny white blossoms in great numbers per plant were witnessed a few weeks ago. In the past week, however, it looks like a family of rabbits have found the edamame. They've targeted one row as their dining choice. I

hope they've determined the leaves are too mature and chewy for any future meals.

The Georgia giant peanuts are growing, or at least the above ground portion is. It's hard to say what is happening below the surface, especially since they were late getting planted. Peanuts require about a four month growing season, so we may be harvesting only bags of "micro" peanuts come fall. The grasses have shot out their grainy stems. The oats and Kamut wheat are fully headed. Barley is sparse. The beer makers have been warning of barley shortages. I wonder if this is what they meant?

Amaranth, sorghum and millet have all turned out to have the most interesting plant growth. The sorghum, which is the popping type, is shaping up to be the best looking plot. It must be the central Illinois weather and soil. Amaranth, which is distantly related to the pig weed (a common weed found on most farms), would have been extricated in most cases as it emerged, but since it was a desired plant, it was left alone and has grown to exceed 5 feet in height. I am waiting for the 6 to 8 inch flowering seed pod to shoot out the top of the plant. One of the amaranth plants growing in a pot has done this, and it

looks as if it is waiting to be photographed time and time again. Millet too could have easily been pulled as a grassy weed. Having left it alone, it is starting to develop a seed pod at the very top of the plant that is quite furry! Lastly, flax, whose seed is extremely nutritious, appears to be approaching harvest time. During its growing season, a mass of tiny blue flowers would be encountered every morning. Those flowers have since dropped off and small capsules have formed. These capsules house 4-6 individual flax seeds. The trick to extracting the nutrients from the tiny flax seeds is a process called milling. That process will have to be explored before season's end. Stay tuned!

KS

It is important to note that the information presented in this newsletter and in the Nutraceutical booklet concerning nutraceuticals has been collected from current research as well as tradition and theory. Use of any plants for medicinal benefits should always be used with caution and consultation from a doctor or qualified health professional.

## The Fourth at the Hort

Two years ago my husband gave me the idea for the 4<sup>th</sup> at the Hort. This year we made that idea a reality making it a member only event. It turned out to be a wonderful evening in great



part to Brittney Whitted (our summer undergraduate assistant) and her family. They made and served homemade ice cream and pies to about 50 of our friends and volunteers. This was followed by Fairview's fireworks display that was viewed from the golf course's north end.

The evening made such a bang that you can already go ahead and schedule it in for next year.

JC



## Component 6: The Fruit Garden

Fruit gardens: surely there is no gardening element more beautiful and plainly functional than a fruit garden. In the spring, blossoms and fragrances clothe these gardens from the tops of the trees all the way to the ground, and in the summer and fall, the fruit sets on, in all its array of colors and forms, all chock full of nutritional value. It is therefore with great pleasure, that the ISU Horticulture Center planted its very own fruit garden this summer, as a part of the Nutraceutical Garden.

Proper nutrition is plainly tied to eating fruits, but few people really know why. What is it about the apple that keeps the doctor away? Why is cranberry juice currently in vogue? The answer lies in each fruit's unique biological composition. Apples, for example, are rich in pectin (a type of fiber), and

some experts say that by eating two apples a day, cholesterol can be reduced by as much as 10%. Cranberries (and also related plants such as blueberries and lingonberries) are high in polyphenols (body cleansing antioxidants), and a glass of cranberry juice a day can prevent certain digestive infections.

The plants that will be included in our garden include everything from the common to the uncommon. Of course there will be apples, cherries, blueberries, and the like, but there will also be such novelties as wonderberries, lingonberries, and pawpaws. We will even have small exotics such as lemons, limes, and oranges, growing in pots.

JD

### Jon's tid bits

I believe it is safe to say that most Americans have never heard of lingonberries before, but in Scandinavia, where they are native, lingonberries have always been quite popular, being used in everything from baked goods to wine. They were once so popular in Iceland that law books contained statutes concerning their harvest. A person was allowed to eat the berries while on a neighbor's property, so long as he didn't take anymore than he could eat on the spot.

The pawpaw, a small tree bearing "custard-filled," green fruit, is native to Illinois and 25 other states. It is the largest fruit indigenous to North America.

JD



Fruit from the Paw Paw

## Schedule of Events

- September 11, 5:00-7:00 PM Nutraceutical Evening** Come learn more about the food you eat and how it affects the way you live. Tours of the gardens, informational booths, Farmer's Market, & mini seminars
- October 4, 8:00 - 4:00 PM, Autumnal Festival**  
The Autumnal Festival, the Center's annual fundraiser, will be held on Saturday, October 4. The Festival kicks off with a bird stroll at Heartland Community College at 8:00 a.m. Free children's activities, sponsored by local businesses, will take place from 9:00 a.m. to noon under the big white tent. At 1:00 p.m., join Susan Waltrip as she whips up different ways to cook with pumpkins and squash. Come join us and get lost in the corn maze, bid on a scarecrow and purchase your pumpkins for Halloween all while supporting the Center.
- November 8, morning, Prairie Grove Planting**  
The ISU Horticulture Center is collaborating with the Children & Elders Forest in establishing a grove of indigenous trees on the Center's north end of the prairie. The Children and Elders Forest is a local organization that seeks to deepen the bonds between the generations, while at the same time increasing the local tree population. A team of at least one elder and one child select a native tree from the Prairie Grove design. Connect with your love one and leave a memorable and sustainable legacy here at ISU.

## Arbor Raising

This summer the Center's staff and volunteers added a new feature, an arbor, to the pumpkin patch. The original idea came from an arbor we saw at Sugar Grove Nature Center last year that had several different types and sizes of gourds hanging from it.

The arbor at the Horticulture Center was built in one night, similar to an old fashion "barn raising." Many volunteers and staff pitched in to help with the arbor construction. Shirley Murphy came up with the idea for the "arbor raising." She and Kevin Wiand orchestrated the whole event. They designed the arbor, purchased the materials and had everything in place for the evening's event. Shirley even arranged a picnic dinner for everyone.

So when you come to the Autumnal Festival on October 4<sup>th</sup>, be sure to catch our newest addition. And if you are an inquisitive person, you can search the arbor to find the signatures of those who worked on building the arbor that evening.



JC

## Become a Friend of the Horticulture Center

Your support is essential to the Horticulture Center's growth and development. Renew your subscription now for 2009!

With your help the Center can continue to provide high-quality learning, research and facilities to students and the community.

**Gift:**  Student \$10.00  Non-student \$25.00  Additional Gift \$ \_\_\_\_\_

**Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip:** \_\_\_\_\_

**Phone:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

ISU Horticulture Center - 136 Ropp Agriculture Building - Campus Box 5020 - Normal, Illinois 61790-5020

Phone: 309-438-3496 - Fax: 309-5653 - E-mail: horticulture@ilstu.edu - Website: www.horticulturecenter.ilstu.edu