Chinese Solar GreenHouse
By: Tim Baker, Extension Professional and Horticulture Specialist

I recently attended an update on high tunnel technology at Lincoln University in Jefferson City. One of the speakers was a grower who was sharing his experiences building and using a Chinese Solar Greenhouse.

I first heard the term, “Chinese Solar Greenhouse,” from our former State Vegetable Specialist, Dr. Sanjun Gu, at the Great Plains Growers Conference several years ago. Dr. Gu is from China, and had a lot of photos of this interesting technology.

This technology allows producers in China to grow warm season vegetables during the winter months, with no additional heating. Can you imagine growing tomatoes in January without extra heat? They are doing it in China, at latitudes similar to ours. In other words, it is in a cold part of China, not the tropics.

How do they do this? The key is good insulation. The greenhouses run east and west. The north side, as well as the east and west end walls, are very thick, made of earth or some other material to provide insulation as well as storing heat. The south side is covered with plastic, but is covered at night by a straw mat, which provides further insulation to be able to retain the heat at night that was gained during the day.

A grower north of Springfield heard Dr. Gu’s presentation, and was intrigued enough to build a Chinese Solar Greenhouse. He has followed most of the design principles, although he has not found an insulating material to cover the greenhouse at night. That has meant a few nights where the temperature inside approached freezing, which required additional heat.

The grower has tried several crops, including early and late tomatoes, cucumbers, and bell peppers, which lasted until Christmas. He also has grown carrots, head lettuce, kale, chard, celery, parsley, and various salad greens which have been seeded and harvested all winter long. In addition he has tried ginger, which does quite well.

Chinese Solar Greenhouses certainly have a lot of advantages, especially if a grower has a market for crops during the winter. There are a few disadvantages, including the extra cost of construction. It will be interesting to see what this grower’s conclusions will be after a few more years of using this structure.
Choose a pressure canner to safely preserve

By: Janet Hackert, Regional Nutrition and Health Education Specialist

With each year’s growing season, there seems to be a new round of new and improved kitchen gadgets to make preserving the harvest easier and better. Some can be a great help; others, like the electric multi-cooker appliances, may not result in the safe canned product one might be expecting. University of Georgia Cooperative Extension’s National Center for Home Food Preservation (NCHFP) released comments this spring warning against the use of electric multi-cookers for canning. They warn, “We do not support the use of the USDA canning processes in the electric, multi-cooker appliances now containing ‘canning’ or ‘steam canning’ buttons on their front panels.”

This national center (NCHFP), which has conducted testing and made the canning recommendations USDA endorses, explains their cautious reception of these appliances. The purpose of canning is to first destroy any microorganisms that may be present in food that can cause foodborne illness and then seal the jar to preserve the food’s safety and make it shelf-stable. Testing involves measuring the temperature inside and throughout the jar of food during processing to make sure all food will reach required temperatures for the necessary length of time to render it fully safe.

For low acid foods, like vegetables and meats, the USDA’s recommendations for pressure canning must be followed. Because of their low acid content, temperatures higher than the boiling point of water must be reached and this is only possible by processing under pressure. But the environment in the pressure canner is also critical to safely can. For example, the USDA guidelines say to vent the pressure canner for ten minutes. This evacuates the interior of air which, if left in the canner, can lower the actual pressure (AND temperature) inside the canner. Likewise, elevation affects the pressure inside the canner and so tested recommendations include appropriate altitude adjustments. According to NCHFP, “The position of jars in the canner and flow of steam around them also impacts the temperature in the jars.”

It is unknown if the new appliances have been adequately tested with thermal process canning work. So although they may have a button that indicates canning, the resulting safety of the food is not certain. Also, these appliances are usually smaller than what is required to follow the USDA recommendations. What they do recommend is, “using only pressure cookers/canners that hold four or more quart-size jars.” For more information from the National Center for Home Food Preservation, visit http://homefoodpreservation.org online and search for electric multi-cookers. For a fact sheet on this topic, go directly to http://nchfp.uga.edu/publications/nchfp/factsheets/electric_cookers.html. To watch a short video explaining what to look for in a safe canner and showing what is approved for both pressure canning and boiling water canning, go to http://nchfp.uga.edu/video/pressure_canners.html.

For more information on pressure canners or canning or any other topic, please contact me, Janet Hackert, at 660-425-6434 or HackertJ@missouri.edu or your local University of Missouri Extension office.
Brussels Sprouts — Who Knew They Were So Good!

By: Janet Hackert, Regional Nutrition and Health Education Specialist

The cool weather in northwest Missouri has been good for growing cruciferous vegetables like Brussels sprouts. These little green vegetables are sometimes referred to by children as “cannon balls,” and often are not a big favorite from the vegetable group. But selected well, eaten soon after picking and cooked properly, they can be a nutritious treat.

Like many vegetables, Brussels sprouts themselves are low in fat, low calorie and very low in sodium while being a good source of dietary fiber, high in Vitamin C, providing Vitamin K, and a good source of folate.

Brussels sprout grow in an interesting manner. Best harvested when they are about an inch in diameter, the sprouts, or small cabbage-shaped heads, grow in clusters up a central, woody stalk. They are best harvested from the bottom up, as the heads form and grow. Choose tight bright green heads, free of yellowing leaves. When the sprouts get too big, they can get bitter like their cruciferous “cousins” such as broccoli, cabbage, cauliflower, horseradish or kale.

Ideally fresh Brussels sprouts can be held in cold, moist storage, that is, 32 to 40 degrees Fahrenheit and 90 to 95 percent relative humidity, in a perforated plastic bag for up to three weeks. If there are more than can be used in that amount of time, they do freeze well. To freeze, “select green, firm and compact heads. Trim, removing coarse outer leaves. Wash thoroughly and immerse in brine (4 teaspoons salt to 1 gallon of water for 30 minutes) to remove insects. Sort into small, medium and large sizes. Water blanch small heads 3 minutes, medium heads 4 minutes, and large heads 5 minutes. Cool promptly, drain, package, seal and freeze.” (from MU Extension Publication GH1503, Quality for Keeps: Freezing Vegetables). They can also be pickled; a safe recipe and procedure for this can be found at the National Center for Home Food Preservation web site, http://homefoodpreservation.org.

Brussels sprouts can be enjoyed in a variety of ways. The Fruits and Veggies More Matters web site suggests trying them roasted at 400 degrees Fahrenheit for 40 minutes; using them in a vegetable kebob; blanched, sautéed with garlic and onion and tossed with vinegar and parmesan cheese; chopped in a potpie recipe; stir fried; broiled with a mustard glaze; or several other ways. Just keep in mind that if you do not care for them one way, you may find them delicious another way.

For more information on growing, selecting, harvesting, storing or serving Brussels sprouts, or any other topic, please contact me, Janet Hackert, at 660-425-6434 or HackertJ@missouri.edu or your local University of Missouri Extension office.

New Business Course Offering for MU Extension

By: Clint Dougherty, PTAC Business Specialist and County Program Director for Buchanan County

“Cutting Through the Red, White, and Blue Tape: An Introduction to Government Contracting”, is focused on helping established businesses tap into the $500 billion market that is federal contracting. This one and a half hour course provides an overview of government contracting and provides a step-by-step process for selling products and services to a government agency. Topics covered include vendor registrations, socioeconomic certifications, and government marketing. Attendees will leave with a better understanding of how government agencies look at acquisitions and how to leverage business resources to achieve success in the government market.

More information will be available soon, such as location, date, and time. If you are interested, contact Clint Dougherty at 816-279-1691.
USE LABELED FULL RATES OF PRE-EMERGENCE HERBICIDES

*By: Wayne Flanary, Regional Agronomist*

The high cost of inputs and low profit margins have row crop growers searching for ways to reduce costs. One area to avoid is cutting herbicide rates. Labels state the recommended rate for control of different weed species in crops and it is recommended that one follow those recommendations.

Reduced rates will result in reducing the length of weed control. Biological and chemical activity breakdown the weed control products to a point where they do not control weeds and using lower rates than on the label will result in reduced length of control.

Several growers commented that recommendations are to increase product sales. However, the label through the company’s research indicates this is the recommended rate to use.

Using full pre-emergence herbicides is an important tool to add different modes of action to control weed species. This is critical to control weeds and reduce any chance for resistance to develop. Full rates of herbicides will provide better control than reduced rates.

For more information, contact Wayne Flanary at 660-446-3724 or Heather Benedict at 660-425-6434, Regional Agronomists, University of Missouri Extension.

BLACK CUTWORM UPDATE

*By: Wayne Flanary Regional Agronomist*

Occasional black cutworm cutting injury to corn has been reported. Growers are advised to check fields especially those fields which have had a history of cutting. Black cutworm is attracted to winter annual weeds and low lying field areas.

The economic thresholds are 1-2% or more if corn plants are cut below ground and 2-3% or more if plants are cut above ground. Watch fields especially those which are late planted.

Cutworm can also attack soybean. The recommended threshold for treating soybean fields is when 20 percent of the plants are cut, plant stand gaps are greater than 12 inches and live larvae are present.

Typically, black cutworm at the 3rd instar or smaller will cause “shothole” feeding damage on the leaves of newly emerged corn seedlings. Older larvae will tunnel into the growing stalk and cause wilting later in the season.

The larvae go through six to seven instars and reach a maximum length of 1 ½ to 2 inches. When disturbed the larvae will curl into a “C” shape and play dead until the danger passes.

Be sure to watch fields during cool wet weather conditions.

For more information, contact Wayne Flanary at 660-446-3724 or Heather Benedict at 660-425-6434, Regional Agronomists, University of Missouri Extension.
The legume family of plants is an interesting one. It includes everything from common beans and peas to soybeans to peanuts to kudzu. It even includes larger species such as mimosa, redbud, carob, and locust trees. Some legumes are toxic to humans, but many food crops come from this family.

The peas and beans are widely varied in size, shape, taste, and color. You may want to try one or more of these in your garden this year, if you have the space and want to experiment.

**English peas or garden peas.** These are cool-weather plants that should be doing well right now. If you haven’t planted them yet, it’s probably too late. They don’t like hot weather at all, and won’t last long when the temperatures warm up. Many varieties need some support to do well, although there are a few compact types that may get by without it. They are used fresh or dried. Split pea soup comes from dried English peas.

**Southern peas.** These are also called cowpeas, and include pink-eye, purple hull and black-eye peas. They are not the same as the pea described above. They love hot weather, and thrive throughout all the South. I’ve seen some varieties that were rather viney, but others have a compact bush and hold their pods high. Those are a lot easier to deal with.

**Green beans.** These come in both bush and pole varieties. The bush types are better if you don’t have much space, but a lot of folks still plant the pole types. Newer varieties are often referred to as “snap beans.” Some older varieties are called “string beans.” The reason is that they had a tough “string” associated with them. That has pretty well been eliminated by plant breeders in the newer varieties.

**Lima and butter beans.** These are similar in appearance. Butter beans are smaller, but will take more heat. Some limas adapted to cooler climates have pods up to 5 inches long with very large seeds. Some bush types are available. Lima and butter beans with speckled seeds generally have stronger flavor compared to the white or green-seeded varieties.

**Scarlet runner beans.** These beans have gorgeous, red blossoms and long, dark-green pods. You better have lots of space for these, since vines may climb up to 12 feet. The seeds are edible, and are good in stews. The flowers are attractive to hummingbirds.

**Shelly beans.** These are sometimes referred to as “horticultural beans.” The seeds are usually shelled out of the pods while they are moist and tender. At this point, you can cook them without soaking. The pods have red stripes, and the mature seeds have red splotches. Both bush and climbing varieties are available.

**Asparagus beans.** Also called “yard-long” beans. They usually don’t grow to three feet, but you may see a two-foot pod at times. They are best harvested immature, and used like a snap bean. They do well in warm climates, but will need support.

**Fava, Windsor, broad, or horse beans.** These are all names for the same bean. These do well in cooler climates, but may grow poorly here. They are popular in the Mediterranean countries and northern Europe. Good in soups and salads.

**Garbanzo beans.** Also called chickpeas. Commercial production in the U.S. is in central California. They are planted in early spring, and harvested dry during the summer. The leaf reminds you more of a vetch than a bean. The plant produces many pods, with several seeds in each pod.

**Kidney beans, pinto beans, great northern beans.** These are actually the same species as the common green bean. You just leave them on the plant until the pods mature.

**Lentils.** These have been used from ancient times, and are mentioned in the Bible. In the U.S., they are mostly grown in the Pacific Northwest. The small pods contain only a couple of seeds, so home production might be a problem.

**Pigeon pea, Cajan (not Cajun) bean, or Congo beans.** These are all names for the same bean. It’s grown widely in the Orient and equatorial Africa. In some parts of the world, it’s used as cattle food, in addition to the human diet.

There are many other miscellaneous beans around the world. Some of these include: Tepary bean - grown by native Americans in Mexico; Mung bean - this is the “bean sprout” bean; Adzuki bean - grown in China and Japan.

If you have the space in your garden, and like to experiment, you might give some of these beans that you are not familiar with a try. You might be surprised!
Are you planning on doing some painting or remodeling soon? If so, there may be some things that you will want to know as it relates to some of the dangers involved regarding the ingredients in building materials that you might be using.

You may or may not have heard about VOC’s. VOC’s are volatile organic compounds or chemicals that are widely used in ingredients in a wide variety of building materials and household products. Remodeling often involves the use of paints, varnishes, sealants, and adhesives which all contain organic solvents. These are in addition to many cleaning, disinfecting, cosmetics, degreasing and hobby products used in homes. All of these products can release organic compounds while you are using them, and to some degree, when they are stored. According to the EPA (Environmental Protection Agency), concentrations of many VOC’s are consistently higher indoors (up to ten times higher) than outdoors. VOC’s are emitted by a wide array of products numbering in the thousands. EPA studies indicate that while people are using products containing organic chemicals, they can expose themselves and others to very high pollutant levels, and elevated concentrations can persist in the air long after the activity is completed.

The health effects associated with VOC’s are eye, nose and throat irritation, headaches, loss of coordination, nausea, fatigue, dizziness, damage to liver, kidney and central nervous system. The ability of organic chemicals to cause health effects varies greatly from those that are highly toxic, to those with no known health effect. As with other pollutants, the extent and nature of the health effect will depend on many factors including level of exposure and length of time exposed. Eye and respiratory tract irritation, headaches, dizziness, visual disorders and memory impairment are among the immediate symptoms that some people have experienced soon after exposure to some organics. According to the EPA, some organic compounds have also been known to cause cancer in animals, some are suspected of causing, or are known to cause, cancer in humans.

It is important to increase ventilation when using products that emit VOC’s. Providing as much fresh air as possible is important. Pressed wood products, adhesives and many finishes (such as paints and varnishes) contain VOC’s which may off-gas in varying amounts over time. The EPA lists several complementary strategies to minimize problems:

- To the extent possible during remodeling, eliminate or reduce the use of these products inside the living space of the house.
- Consider using solid wood with low-emitting finishes
- Consider the use of pre-finished materials or those that can be finished outside the living space.
- When engineered products such as pressed wood are used, sealing as many surfaces as possible should help to reduce the rate or emissions. Low-emitting sealants should be used. Check with vendors of engineered wood products for recommendations on sealing their products.
- Use “exterior –grade” pressed wood products (lower-emitting because they contain phenol-formaldehyde resins rather than urea-formaldehyde resins).
- Wherever possible, use low-emitting products in the house’s conditioned space, such as sealants, paints and finishes. Use these products according to the manufacturer’s directions, and provide plenty of ventilation both during and after application. Check with vendors to see if they have low-emitting products which are suitable for your specific needs and applications.

If you want to spruce up a room, give your house a new look, or do some remodeling, and your plans include a new paint job, it is good to know that it is fairly easy to find paints that are labeled low-VOC or VOC-free. Painting is a popular, low-cost way to improve the looks of a room or entire house. When stores make different colors, the tints they add may be high in VOC’s, even if the base paint isn’t. After flipping through a million paint chips and finally picking the color you want, there is more to know if VOC’s are playing a part in your paint choice. It is important to know that stores will make that color by adding colorants to a base paint. When stores make different colors, the tints they add may be high in VOC’s, even if the base paint isn’t. After flipping through a million paint chips and finally picking the color you want, there is more to know if VOC’s are playing a part in your paint choice. It is important to know that stores will make that color by adding colorants to a base paint. While the base paint may be low-VOC or VOC-free, the colorant may be anything but. In fact, tinting can significantly increase the VOC level of a paint, depending on the color choice. The bottom line: if you want low-VOC paint, look for low-VOC base paint and low-VOC colorant. Your paint store representative should be able to assist you in making the appropriate selections.
Do you have interest in a career working with youth, agriculture business, nutrition, business development or other extension subject areas? University of Missouri Extension in the Northwest region currently has several regional specialist positions open and we are recruiting. The positions currently posted that require a master’s degree in the respective fields are:

- **4-H Youth** located in Buchanan County.
- **Business Development** located in Carroll County with programming in Saline, Ray, Lafayette and Carroll Counties
- **Community Arts** located in Lafayette County and covering surrounding counties.
- **Nutrition and Health Education Specialist** located in Buchanan County with programming in Buchanan, Andrew, Nodaway, Atchison and Holt Counties.
- **Ag Business** located in Livingston County with programming in Livingston, Caldwell, Daviess, Grundy and Mercer counties. Also located in Lafayette county.
- **Family Financial Education** located Andrew county with programming in Andrew, Atchison, Holt, Nodaway, Worth, Gentry, DeKalb, Buchanan and Clinton Counties.

Review the position descriptions and the on-line application procedure on the University of Missouri Extension webpage--http://extension.missouri.edu/. At the bottom of the page click on the **JOBS** tab and you will see the list of positions for which we are recruiting statewide and you can see those in the NW Region. Positions remain posted until filled.

You are encouraged to check the vacancy list often for positions for which we are recruiting. Also, as there are vacancies and positions approved, additional positions will be posted for regional specialists as well as for youth program associates. With University of Missouri Extension, employees are part of a statewide and nationwide network that transforms research results into real-world solutions for agriculture, businesses, communities, families and young people.

Our specialists, located in more than 100 communities across the state, work side-by-side with local people to solve problems, make decisions, access resources and chart a course for success. As a regional specialist, you are a faculty member of the University of Missouri.

Regional specialists provide collaborative leadership and subject-matter expertise to develop, deliver and evaluate educational programs focused on improving lives, communities and economies.

University of Missouri Extension knows there is more to who you are than your career. As a regional specialist, you are part of the community – living and working alongside your neighbors. We know that lifestyle, family and personal interests are important considerations when making career decisions.
4-H members from across Northwest Missouri participated in a Regional 4-H Shooting Sports Contest, hosted by Nodaway County 4-H, at the Noel Miller Shooting Sports Range in Ravenwood, Missouri, Saturday, May 2. Despite the rain, 115 4-H’ers from a nineteen county area participated in a total of 136 events. Events included Archery, BB, .22 Rifle, and Shotgun.

The contest was divided into three age divisions: Junior, Ages 8-10; Intermediate, Ages 11-13; and Senior, Ages 14-18. Medals were awarded to the top three finishers in each event, in each age division. Juniors did not compete in Shotgun, and Seniors did not compete in BB. Archery offered two courses, the NFAA 300 and the Modified American 600. The NFAA 300 events included: Traditional Recurve/Longbow, bare bow with no sights or accessories; Freestyle Recurve/Longbow, with sights and accessories; Compound Release, release aids, sights and accessories permitted; and Compound Fingers no mechanical releases, sights and accessories permitted. The Modified American 600 events included: Recurve, barebow recurve or longbow, no accessories; Recurve with accessories; and Compound, with or without use of release aid.

Participants pre-registered through the Nodaway County Extension Office in Maryville, MO, and could pre-register for either one or two events. All 4-H members who participated in the contest had previously completed a minimum of ten hours of 4-H shooting sports safety instruction, taught by 4-H shooting sports leaders certified in shooting sports safety.

Nodaway County 4-H certified leaders and assistants hosting the contest were: Rose Buholt, Nodaway County 4-H Shooting Sports Coordinator; Rick McClellan, Deanna McClellan, Kabrina McClellan, Archery 300; Rick McClellan, Todd McGeorge, Archery 600; Pat Giesken, BB; Ralph Johnson, Ben Johnson, .22 Rifle; John Giesken, Willis Spire, Shotgun; Lauren Buholt, Rick Buholt, scoring and tabulating. Gentry County 4-H certified leaders helping were Amy Messner, Archery 300, and Richard Messner, .22 Rifle. The Northeast Nodaway Bluejays 4-H Club provided a food stand on the grounds, with proceeds going to the 4-H Club. The food stand was coordinated by NEN Leaders Dana Auffert and Pam Spire.

The Nodaway County 4-H youth members and adult leaders would like to thank Noel Miller for the use of his shooting sports facility.

Archery 300 Traditional Recurve: Junior Division Lexi Kerwin, Gentry County, 1st place; Gabriel Derks, Gentry County, 2nd place; Ciara Findley, Gentry County, 3rd place. Compound Release: Junior Division Jade Misel, Caldwell County, 1st place; Owen Davies, Andrew County, 2nd place; Jathan Ungles, Nodaway County, 3rd place. Intermediate Division Conner Young, Andrew County, 1st place; Halle Clement, Nodaway County, 2nd place; James Kram, Buchanan County, 3rd place. Senior Division Maddie Eller, Livingston County, 1st place; Delaney Case, Andrew County, 2nd place; Bailey White, Nodaway County, 3rd place. Compound Fingers: Junior Division Cody Hays, Nodaway County, 1st

(Continued on page 9)
place; Ryan Allen, Nodaway County, 2nd place; Jacob Peery, Nodaway County, 3rd place. Intermediate Division: Dakota Allen, Nodaway County, 1st place; Lindsey Hays, Nodaway County, 2nd place; Jessica Hays, Nodaway County, 3rd place. Senior Division Adriana Budine, Buchanan County, 1st place.

Archery 600 Compound: Junior Division Anna Hines, Grundy County, 1st place; Levi Johnson, Grundy County, 2nd place. Intermediate Division: Keyton Francis, Nodaway County, 1st place; Kaci Persell, Grundy County, 2nd place; Trustin Allen, Nodaway County, 3rd place.

BB: Junior Division Grant McIntyre, Nodaway County, 1st place; Weston Deering, Nodaway County, 2nd place; Preston Jenkins, Nodaway County, 3rd place. Intermediate Division: Drew Spire, Nodaway County, 1st place; Trevor Henggeler, Nodaway County, 2nd place; Anne Schieber, Nodaway County, 3rd place.

22 Rifle Open Sites, 50 Feet: Junior Division Wade Johnson, Harrison County, 1st place; Ty Growcock, Nodaway County, 2nd place; Lance Wallace, Gentry County, 3rd place. Intermediate Division: John Gach, Buchanan County, 1st place.

22 Rifle Peep Sites (Aperture), 50 Feet: Junior Division Jaxon McCrary, Nodaway County, 1st place. Intermediate Division: Drew Spire, Nodaway County, 1st place.

22 Rifle Peep Sites (Aperture), 50 Yards: Senior Division Hannah Persell, Grundy County, 1st place; Rebecca Barclay, Clinton County, 2nd place.

Shotgun (Trap): Intermediate Division Dakota Auffert, Nodaway County, 1st place; Alex Smith, Nodaway County, 2nd place; Conner Young, Andrew County, 3rd place. Senior Division Garrett Cramer, Livingston County, 1st place; Brady Giesken, Nodaway County, 2nd place; Chet Spire, Nodaway County, 3rd place.

For more information about the Regional 4-H Shooting Sports Contest, or the Nodaway County 4-H program, please contact Annette Deering, 4-H Youth Development Specialist for University of Missouri Extension, at 660-582-8101 or at DeeringA@missouri.edu.

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Impact of delayed corn and soybean planting

By: Wayne Flanary, Regional Agronomist

The University of Missouri Extension has a guide that addresses the impact of delayed planting. The Guide, g4091, is called “Corn and Soybean Replant Decisions” and can be found at the University of Missouri Extension’s website under publications.

Many growers have corn planted. Other growers; however with significant acreage and areas that has had frequent rains, have planting delays. It is hard to predict the yield potential decrease of delayed planting. However, long-term research indicates once corn planting reaches the May 21 calendar date, an 83% yield potential is expected; by May 31, it becomes 77% and June 10 it is 71%. Again, results will vary from year to year.

Regarding soybeans, a May 22 planting delay is expected to produce a 96% yield potential; May 29 it is 93%; June 19 it is 79% and July 10 it is 54%.

Soybeans have a lot of flexibility for yield recovery from delayed planting.

For specific information, please check Guide g4091 on the University of Missouri Extension’s publications website.

For more information, contact Wayne Flanary at 660-446-3724, Heather Benedict at 660-425-6434 or Wyatt Miller at 816-776-6961, Regional Agronomists, University of Missouri Extension.
Regional Grazing School Northwest Missouri, June 9th through 11th, 8 a.m. to 4 p.m., at Ebenezer United Methodist Church Meeting Hall, 7000 SE Hwy 169, St. Joseph, MO. The Northwest Missouri Grazing school will feature these topics: Meeting needs of livestock with pasture, inventorying farm resources, soils and topology, plant growth and species, grazing basics, livestock water, and extending the grazing season. The cost is $90 per person. For more information or to register contact Jim Humphrey at 816-324-3147 or by email at humphreyjr@missouri.edu

Home Food Preservation Series (Session 1 of 3), Thursday, June 11th, from 6 p.m. to 8:30 p.m. at the DeKalb County Senior Center, 530 E Hwy. 6, Maysville, MO. Participants will receive hands on experience as well as the most current step by step recommendations for food preservation procedures (pressure canning, water bath canning, freezing and dehydrating). Contact Janet Hackert at 660-425-6434 or HackertJ@missouri.edu for more information or to register. Also to register, visit Living Hope Thrift Store and Food Pantry, 118 W Main, Maysville or call 816-449-2163.

Fiscal Fitness Series: Fiscal Fitness Warm-Up, Friday, June 12th, from 1:30 p.m. to 3:30 p.m. at the St. Joseph Chamber of Commerce, 3003 Frederick Ave., St. Joseph, MO. Fiscal Fitness Series: Fiscal Fitness Warm-Up is a guide to understanding your financial resources. The registration deadline is June 10th, and the cost is $50.00 per person. For more information contact Rebecca Evans at 816-232-4461 or by email at evanssbdc@saintjoseph.com.

Fiscal Fitness Series: Pump Up Your Profits, Friday, June 19th, from 1:30 p.m. to 3:30 p.m. at the St. Joseph Chamber of Commerce, 3003 Frederick Ave., St. Joseph, MO. Fiscal Fitness Series: Pump Up Your Profits helps you learn to manage your business finances and cash flow. The registration deadline is June 17th, and the cost is $50.00 per person. For more information contact Rebecca Evans at 816-232-4461 or by email at evanssbdc@saintjoseph.com.

Cooking Matters for Kids (Session 1 of 6), Tuesday, June 23rd, from 1:15 p.m. to 3:15 p.m. at the Waverly Community Center. Have fun in the kitchen with friends, make your own tasty snacks and drinks, show off your chef skills at home, and spot smart food choices wherever you go. For additional information, contact Shanshan Chen at 660-584-3658 or by email at chensha@missouri.edu.

Annual Pressure Canner Gauge Testing at Upcoming Farmers Markets

By: Janet Hackert, Regional Nutrition and Health Education Specialist

With gardens finally taking off, now is a good time to look ahead to the harvest and think about food preservation. The first step is to get the dial gauge of a pressure canner tested – before it is needed – and to brush up on safe canning techniques.

Gauge testing is being offered at local farmer markets in June. Janet Hackert, Nutrition and Health Education Specialist with University of Missouri Extension, will be on site to inspect canners, test gauges and answer questions. She will be at the Chillicothe Farmers Market, 8-noon on Saturday, June 6. The market is held in the court house parking lot located on Highway 65 in Chillicothe. She will be at the King City Farmers Market, 3-7 p.m. on Wednesday, June 10. This market is located at the King City park shelter house. Hackert will be at the Hamilton Farmers Market, 4-7 p.m. on Friday, June 12. This market is located at Hamilton’s Penney Park on Highway 13. She will be at the Bethany Farmers Market, 7:30-11 a.m. on Saturday, June 20. The Bethany market is held in the BTC parking lot on Highway 136, just west of exit 92 on I35. Testing at farmers markets will be done free of charge. For additional information, contact Janet Hackert at 660-425-6434.
## Northwest Region Extension Specialists

### Regional Director
Karma Metzgar, St. Joseph  
(816) 279-6064  

### Regional Administrative Associate
Jill Knadler, St. Joseph  
(816) 279-6064  

### Agriculture

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<th>Ag Business</th>
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<tbody>
<tr>
<td>Randa Doty, Maryville  (660) 582-8101</td>
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<td>Vacant, Chillicothe  (660) 646-0811</td>
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<td>Bob Kelly, St. Joseph  (816) 279-1691</td>
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<td>Vacant, Higginsville  (660) 584-3658</td>
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<td>Heather Benedict, Bethany  (660) 425-6434</td>
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<td>Wayne Flanary, Oregon  (660) 446-3724</td>
</tr>
<tr>
<td>Vacant Richmond  (816) 776-6961</td>
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### Business Development and Procurement

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<tr>
<td>Clint Dougherty, PTAC, St. Joseph  (816) 279-1691</td>
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<tr>
<td>Vacant, Carrollton  (660) 542-1792</td>
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### Community Development

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<tr>
<td>Jerry Baker, Rock Port  (660) 744-6231</td>
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<tr>
<td>Beverly Maltsberger, St. Joseph  (816) 279-1691</td>
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### 4-H Youth Development

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<th>4-H Life</th>
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<tbody>
<tr>
<td>Kathleen Bondy (Lafayette)  (660) 584-3658</td>
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<tr>
<td>Nancy Coleman (Ray)  (816) 776-6961</td>
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<tr>
<td>Debbie Davis (Clinton, DeKalb, Caldwell)  (816) 539-3765</td>
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<tr>
<td>Annette Deering (Nodaway, Worth, Atchison)  (660) 582-8101</td>
</tr>
<tr>
<td>Shaun Murphy (Livingston, Mercer, Grundy)  (660) 646-0811</td>
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<tr>
<td>Becky Simpson (Daviess, Harrison, Gentry)  (660) 663-3232</td>
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<tr>
<td>Vacant (Buchanan, Andrew, Holt)  (816) 279-1691</td>
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<tr>
<td>Taylor Bryant (Saline, Carroll)  (660) 886-6908</td>
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### Human Environmental Sciences

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<tr>
<th>Family Financial Education</th>
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<tbody>
<tr>
<td>Meridith Berry, Trenton  (660) 359-4040</td>
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<tr>
<td>Trish Savage, Marshall  (660) 886-6908</td>
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<tr>
<td>Vacant, Savannah  (816) 324-3147</td>
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<th>Housing &amp; Environmental Design</th>
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<tbody>
<tr>
<td>Connie Neal, Maryville  (660) 582-8101</td>
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<tbody>
<tr>
<td>Vacant, St. Joseph  (816) 279-1691</td>
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<tr>
<td>Jessica Trussell, Chillicothe  (660) 646-0811</td>
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<th>Nutrition &amp; Health Education</th>
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<tbody>
<tr>
<td>Janet Hackert, Bethany  (660) 425-6434</td>
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<tr>
<td>Shanshan Chen, Higginsville  (660) 584-3658</td>
</tr>
<tr>
<td>Vacant, Trenton  (660) 359-4040</td>
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<tr>
<td>Vacant, St. Joseph  (816) 279-1691</td>
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### 4-H Life

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<th>Youth Program Associates</th>
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<tbody>
<tr>
<td>Michelle Daubendiek (Buchanan)  (816) 279-1691</td>
</tr>
<tr>
<td>Dale Hunsburger (Clinton, DeKalb, Caldwell)  (816) 539-3765</td>
</tr>
<tr>
<td>Vacant (Holt)  (660) 446-3724</td>
</tr>
<tr>
<td>April Meighen (Mercer, Grundy)  (660) 748-3313</td>
</tr>
<tr>
<td>Samantha O’Riley (Atchison)  (660) 744-6231</td>
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<tr>
<td>Anita Reid (Carroll)  (660) 542-1792</td>
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<tr>
<td>Janet Sager (Gentry)  (660) 726-5610</td>
</tr>
<tr>
<td>Bart Skroh (Harrison)  (660) 425-6434</td>
</tr>
<tr>
<td>Carol Williams (Andrew)  (816) 324-3147</td>
</tr>
<tr>
<td>Pat Wood (Livingston)  (660) 646-0811</td>
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<tr>
<td>Vacant (Worth)  (660) 564-3363</td>
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### Northwest Region’s Small Business & Technology Development Centers

<table>
<thead>
<tr>
<th>Northwest Missouri State University, SBTDC Regional Office, Maryville</th>
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<tbody>
<tr>
<td>Larry Lee  (660) 562-0823</td>
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<tr>
<td>Rebecca Evans  (816) 364-4105</td>
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<tr>
<th>Chillicothe Satellite Office</th>
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<tr>
<td>Matt Trussell  (660) 646-6921</td>
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</table>
This is a publication that combines topics on Human Environmental Sciences, Horticulture, Agriculture, 4-H Youth Development, Business Development, and Community Development. It is published by extension specialists for individuals and families living in Northwest Missouri. Your local county extension council provides funding for this newsletter.

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Vision: University of Missouri Extension is a valued and trusted educational solution to improve the quality of life in Missouri, the nation and the world.

Mission: Our distinct land grant mission is to improve lives, communities and economies by producing relevant, reliable and responsive educational strategies that enhance access to the resources and research of the University of Missouri.

Feature Articles Inside this Issue:

Horticulture
Chinese Solar Greenhouse

Nutrition & Health
Choose a Pressure Canner to Safely Preserve Brussels Sprouts — Who Knew They Were So Good!

Business
New Business Course Offering for MU Extension

Agronomy
Use Labeled Full Rates of Pre-Emergence Herbicides
Black Cutworm Update
Peas and Beans
Impact of Delayed Corn and Soybean Planting

Environmental Design
Remodeling and Indoor Air Quality: Some Things to Know Before You Begin

Human Resources
MU Extension Northwest Region Job Openings

4-H Youth Development
Regional 4-H Shooting Sports Contest Results

Regional Program & Activity Calendar

University of Missouri Extension
Buchanan County
4125 Mitchell Avenue
St. Joseph, MO 64507

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