From The Ground Up

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Popcorn

By: Christina Lloyd, ISU Extension and Outreach Agriculture and Natural Resource Intern

As one of America's favorite snack foods, popcorn is a tradition that goes all the way back to early Native American civilization when popcorn was both eaten and worn as necklaces or headdresses. When early European settlers came to America they used popcorn as a breakfast cereal and ate it with milk or cream.

Popcorn didn't become commercially popular until the great depression. As popcorn was a very cheap snack that almost anyone could afford it started to gain in popularity. During World War II, consumption of popcorn further increased as a result of a sugar shortage, which created a scarcity of candy. Today, the yearly per capita consumption of popcorn in the United States is nearly 52 quarts.

Most of the popcorn eaten throughout the world is produced in the United States grown primarily in Indiana, Nebraska, Ohio, Illinois, Iowa, Kentucky and Missouri.

Popcorn comes in many different colors such as red and black and our more commonly grown varieties yellow and white. Popcorn grows well in most any place field corn does. Plant popcorn in several short rows for best results. Keep in mind that you should avoid placing popcorn and sweet corn in the same garden as this can negatively affect the quality of the sweet corn.

During the growing season, popcorn needs 18 to 24 inches of water. Water deficiency can reduce yield. Moisture is especially important while the corn plant is tasseling and silking so supplemental irrigation may be necessary.

Once the husks have dried down, the kernels have become hard and the moisture content is around 35%, the ears are ready to harvest. Store them in a well-ventilated place to continue drying. The optimal moisture content of popcorn is around 13.5 to 14%.

Popcorn has a thicker hull than any other type of corn. As pressure builds from the moisture inside the heated kernel, the starch inside of the kernel turns gelatinous. When the hull finally burst the jelly-like starch spills out and when it cools forms the familiar popcorn shape. However, if the popcorn has too much moisture, it will be chewy and if it is too dry, many of the kernels will not pop.

To test the readiness of the popcorn, shell and pop a few kernels each week while they are drying. If the popcorn is chewy, then the kernels should continue drying. If, however, they pop poorly and there are many un-popped kernels, water must be added. Take one tablespoon of water and add it to a quart of popcorn. Mix well a couple of times during the day and then wait 2 to 3 days before trying to pop again. If it still pops poorly, repeat the process.

Once the popcorn pops well and is no longer chewy then it is time to shell the rest of the ears. Store the kernels that you have gathered in a moisture proof container. If you are storing your popcorn for long periods, you can place it in the refrigerator.

Photo: Margaret Murphy

Nutritionally popcorn provides nearly 67% as much protein by weight as beef and about 10% more iron and calcium. It is also packed full of energy with 1.5 ounces providing the equivalent energy as two eggs. In addition, popcorn is a whole grain that provides lots of fiber with one cup having fewer calories than a medium-sized grapefruit.

There are many ways to cook popcorn. One way is on the stove top. Add 2 tbs of oil per half cup of popcorn to a frying pan or sauce pan. Place the pan over medium high heat. Add a couple of kernels and cover the pan with a lid. Once the kernels start to sizzle or pop add the rest of the popcorn. With the lid on continuously shake the pan until the popcorn finishes popping. Add a little seasoned salt or herbs and enjoy. Find more recipes for stove top popping, in the Iowa State University Extension and Outreach article, *Making Popcorn in a Pan on Top of the Stove.*

Harvest Time

Photo: Margaret Murphy

September is keeping gardeners busy. We are in full swing harvesting the fruits of our labor. With harvest season comes questions about when produce is ready to be picked. Most of us know when our tomatoes are vine-ripened and ready to pick or when to harvest a pepper but with some produce it's not always so easy to tell. Take eggplant, for example, neither size nor color is a good indication of ripeness as both will vary by cultivar. To best judge the maturity of an eggplant, check the skin. Eggplant that is ready to be harvested should have firm and shiny skin. Press the surface of the fruit with your thumb, if it's ripe, the skin will spring back. If the skin is too firm and offers no give, leave the fruit on the vine for a while longer. If your thumb imprint remains, then the fruit may be over mature.

Melons are also coming ripe. Picking a melon at its peak flavor relies on harvesting at the right stage of maturity. Muskmelon, often called cantaloupe, is ready to eat when the stem slips easily away from the fruit. The fruit should pull off with little or no effort. You should also be able to smell that muskmelon aroma from the fruit. The best way to determine if a watermelon is ready to harvest is to check the underside or "ground spot". The fruit is ready when the "ground spot" turns yellowish or cream in color. Ripe watermelons also tend to lose their glossy look and have a dull appearance.

Winter squash can be harvested when they have turned a deep, solid color and the rind is hard. Mature winter squash have very hard skins that can't be punctured with your thumb nail. Like watermelon, mature winter squash will have a dull-looking surface. Pumpkins are ready to be picked when they develop a deep, uniform color and a hard rind. When harvesting pumpkins and winter squash leave a few inches of the stem attached. Those with stems are less likely to rot quickly. Both pumpkins and winter squash can be left on the vine, however, harvest them before a hard freeze. The fruit will tolerate a light frost but a hard freeze may damage the fruit.

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SDSU Extension
Minnehaha County Master Gardeners

September 2013

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2 Labor Day	3	4	5	6	7
8	9	10 Store leftover garden seeds in air-tight jar in refrigera-tor	11	12	13 Plant ball and burlapped deciduous trees	14
15	16	17	18 Aerate the lawn if necessary	19	20	21 Continue to water recently planted trees, shrubs & perennials
22 Autumn	23 Check house-plants for insects before bringing in-doors	24	25	26 Take geranium & coleus cuttings & root indoors	27	28 Harvest full-sized tomatoes before frost & ripen indoors
29	30 Stop fertilizing houseplants					

The South Dakota Herb Garden

By: Priscilla Jurkovich, Master Gardener

Mullein, *Verbascum thapsus*, is a biennial herb from the Scophulariaceae (figwort/snapdragon) family. The first year the plant is a rosette of basal leaves. The second year (see photo), it is a single erect stem up to 4 feet tall with yellow flowers that cluster and the leaves alternate. Mullein is noted as a common, invasive weed found in disturbed soil, gravel, pasture and roadsides where there is plenty of light and well drained soil. You rarely will see it in tilled fields since it does not easily survive tilling because of its short taproot. It is widely used for herbal remedies.

Photo by Priscilla Jurkovich

For herbs in general, if the herb has "hairy" leaves it can probably be used for respiratory ailments. Mullein is probably best known for its use as an expectorant and to treat sinus congestion, bronchitis, asthma and other respiratory issues. The Native Americans have used mullein for asthma ailments by rolling up the leaves and smoking it like a cigarette.

The finely shredded leaves can be brewed into a tea (boil water, put in leaves, steep for 20 minutes and strain) to incorporate the constituents in your daily life. The flowers have been used to relieve arthritis, sinus congestion, coughing, water retention/diuretic and gout because of its anti-inflammatory, anti-tumor, anti-viral, anti-fungal, anti-bacterial, expectorant, and analgesic properties. It has also been made into a paste and used topically on wounds to prevent infection and skin conditions such as eczema, warts, boils, athlete's foot and hemorrhoids. Historically, mullein was used in dyes or dipped in tallow and used as a torch.

Fermenting the Harvest

By: Priscilla Jurkovich, Master Gardener

Fermentation practices have been used for centuries to preserve food and to assist with maintaining the nutrition of the vegetables before pasteurization or canning was invented. Beneficial microscopic fungi and bacteria have created a symbiotic relationship to give us bread, cheese, yogurt, beer, sauerkraut, wine and many other varieties of food and drink! So for a master gardener, think of fermentation as "controlled rotting" or composting in which the bacteria and yeasts feed on the sugars in the food to create a probiotic food with enhanced nutrient content of B vitamins, essential amino acids and enzymes.

These microorganisms transform your vegetables into a more digestible and nutritious foods with the correct anaerobic (no air) or aerobic (air) conditions. Live, unpasteurized, fermented foods form a symbiotic relationship in our digestive tract to help break down food and aid in digestion. The fermented vegetables have a naturally "tart" flavor as the culturing breaks down the sugars and carbohydrates. Fermented vegetables are a great option for low-carbohydrate diets and to replenish the gut bacteria destroyed by antibiotic use.

Equipment needed to ferment are basic glass crocks or glass jars, filtered water and salt. Glass crocks or jars with a wide lid make it easy to place the vegetables in the container. Most vegetable ferments use salt, so metallic containers may not be best choice since they may react with the salt as well as the acids produced by fermentation. Filtered water is a common ingredient. If the water has chlorine, it may kill the beneficial microorganisms needed for the fermenting. Salt is another common ingredient. Salt can inhibit some microorganisms, but beneficial lactobacillus microorganism in a vegetable ferment can tolerate salt. Pickling salt or sea salt without iodine is recommended since iodine is antimicrobial similar to chlorine, which could inhibit fermentation.

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Preservation of food through fermentation can be easy and almost any vegetable can be fermented. Use one vegetable or a variety of vegetables to make fermented vegetables. I suggest starting with the extra cucumbers in the garden. Clean the cucumbers. Put the cucumbers in a mason jar with some dill and garlic. Take 8 cups water and 8 tbs pickling salt and dissolve the salt to make a "brine" (1 cup to 1 tbs ratio of water to salt mixture). Cover the cucumbers, dill and garlic with the salt brine. Close the container. Set at room temperature for 2 days (if sliced) or 3 days if whole. Refrigerate or place in a cool location. This dill pickle ferment will keep up to 9 months in the refrigerator if covered with liquid. How easy is that?!

Experiment with your cabbage, carrots, onions and garlic for a coleslaw type sauerkraut.

Pest of the Month
Powdery Mildew

Powdery mildew first appears as pale yellow spots on stems, petioles, and leaves. These spots enlarge as the white, fluffy mycelium grows over plant surfaces and produces spores, which give the lesions a powdery appearance (like someone sprinkled flour over them). Affected leaves become dull, chlorotic, and may wilt in the afternoon heat; eventually they become brown and papery.

Plants can then wither and die, exposing the fruits to sunscald and reducing yield. Powdery mildew is especially happy on older leaves in shady areas of the squash patch, so you may want to look under the canopy when scouting for this sneaky disease.

Management includes: planting resistant varieties, following good sanitation practices, and controlling weeds. You can apply fungicide but this is more of a preventative so needs to be applied at the first sighting of infection. Check the label to ensure the fungicide is for powdery mildew treatment.

Powdery mildew on pumpkin plant
Photo: Sandy Lamfers

Pumpkin Fun Facts

- Pumpkin seeds can be roasted as a snack.
- Pumpkins contain potassium and Vitamin A.
- Pumpkin flowers are edible.
- The largest pumpkin pie ever made was over five feet in diameter and weighed over 350 pounds.
- Pumpkins originated in Central America.
- In early colonial times, pumpkins were used as an ingredient for the crust of pies, not the filling.
- Pumpkins were once recommended for removing freckles and curing snake bites.
- Pumpkins are 90 percent water.
- Colonists sliced off pumpkin tops; removed seeds and filled the insides with milk, spices and honey. This was baked in hot ashes and is the origin of pumpkin pie.
- Native Americans flattened strips of pumpkins, dried them and made mats.
- Native Americans used pumpkin seeds for food and medicine.

Source: http://urbanext.illinois.edu/pumpkins/facts.cfm

Save the Date

- **September 27-29, 2013**: Master Gardener Fall Update in Watertown, SD. Registration deadline, September 14th.
- **June 25-28, 2014**: *Growing Along the River*, 2014 Upper Midwest Regional Master Gardener Conference.

Master Gardener Notes

Volunteer Opportunities

- Extension Office Flowerbed
- Zoo Xeriscaping Project
- Extension Office calls
- Newsletter
- Farmers Market

Click on opportunity for contact person's email

- Keep track of your hours! Send completed forms to Mary Roduner by mail or FAX.

For more information call the Master Gardener office at 605-782-3290 or send an email.

Plus, check out our website!

Plant of the Month

By Deb Wallin , Master Gardener

Staghorn Sumac *(Rhus typhina)*

The leaves in the trees will soon be changing color with the fall season. One of the first to change and offer the most dramatic color is the staghorn sumac. This sumac can be seen in mass planting, woodlands and is used as an accent plant in gardens because of it's picturesque form.

The staghorn sumac is a 15-30 ft. multi-stemmed, deciduous shrub with upright, crooked trunks. It has tropical-looking, finely cut leaves on velvety twigs. The leaves are compound about 1-2 feet long with 13 to 27 leaflets that have serrated margins. The leaves are green throughout the season and then become a superior fall color ranging from yellow, orange to scarlet. The 'tiger eye' sumac emerges chartreuse with red veins, changing to yellow throughout the summer then to scarlet-orange for the fall.

New growth appears with velvet fuzz (like a deer's antler, hence the name). Red fruit will appear on the female plants that persist throughout winter with dazzling red-orange color. The berries are a food source for a variety of birds. Native and honeybees are attracted to flowers in spring.

The staghorn sumac has an aggressive suckering habit and can be a high maintenance shrub if planted as an accent in the garden. It is best pruned in late winter once the threat of extreme cold has passed. Whether planted in a colony, or a woodland, or as an accent plant in the yard— it is a show stopper for fall color!

Information & photos from University of Wisconsin Extension & University of Texas at Austin

iGrow Online Local Food Info Center

By: Chris Zdorovtsov, Community Development Field Specialist, SDSU Extension

The online local food information center, iGrowSDlocalfoods.org, launched in July, as a site that offers one place to find information related to South Dakota local food entrepreneurship, community food projects, research and training.

A Rural Business Opportunity Grant (RBOG) of $50,000, awarded by USDA Rural Development to SDSU Extension, helped fund the development of the site. The clearinghouse provides information on education and community gardens, handling and processing guidance for food products, marketing and sales venue education, regulation and certification information and information on current topics and upcoming events.

"This project meets the requests of producers in the state who find it difficult to start-up or enhance businesses. Currently producers wade through various websites and agencies trying to find answers, and this can cause frustration and discouragement," said Chris Zdorovtsov, Community Development Field Specialist, SDSU Extension.

A South Dakota farmers' market manager recently inquired, "Is there one place where farmers' market vendors can see all the rules that apply to vendors—what they can sell, what they can't sell, the testing of canned goods, rules for eggs, cheese, raw milk, beef, rules about scales weights and measures, rules about free samples, etc?"

The local foods center will create structured connections between local growers and resource providers. This site will serve Tier 0-2 in the food system. The food system model by *UW-Madison Center for Integrated Agricultural Systems* define the different tiers of focus as:

- Tier 0 is the base level for food production that includes the development of community gardens, school gardens, and community kitchens. These projects can be the foundational blocks for individuals advancing into business ventures.
- Tier 1 involves the direct selling of a product from a producer to a consumer through venues such as farmer's markets, farm stands or store, community supported agriculture (CSAs), or mail order.
- Tier 2 develops strategic partners in the supply chain by linking a producer to a local 'middle-man' such as a school, hospital, food co-op, grocery store and or local/regional distributor.

As the site continues to build, content to support that wide range of local food activity will be added. It will allow partners from across the state to supplying content.

Partners for the project include Buy Fresh, Buy Local South Dakota, Dakota Rural Action, South Dakota Department of Agriculture, The South Dakota Value Added Agriculture Center, and USDA Rural Development and SDSU Extension.