

In the Herb Garden

By Priscilla Jurkovich, Master Gardener

The herb section will highlight an herb that can be grown in the South Dakota region.

Common Cinquefoil (*Potentilla simplex*) is a perennial herb in the Rosaceae (Rose) family and grows wild in the cold regions of the eastern part of North America. Cinquefoil five leaflet leaves are a medium to light green color and look similar to the three leaflet strawberry plant and the four leaf tormentil plant. Normally it lies on the ground. The numerous, 5-petaled small yellow flowers bloom from late spring through early summer and produce nectar to attract bees and butterflies. The rest of the season the plants spread quickly by producing plantlets on long stolons.

Cinquefoil roots, flowers and leaves are high in tannins and have antiseptic, anti-spasmodic and anti-inflammatory properties. Poultices have eased the pain from shingles and hemorrhoids, a decoction tea of 2 tsp of dried herb steeped in 1 cup of boiled water may soothe diarrhea or an antiseptic gargle may be used for thrush or periodontal disease.







Composting

What is Compost?

Compost is a dark, crumbly, earthy-smelling form of decomposing organic matter. Composting is an accelerated method of imitating nature's cycle of life and death. The end product in the composting process is a dark, loose, partially decomposed form of organic matter that resembles no hint of its origin. The only difference between finished compost and forest humus created by nature is time.

Various microorganisms and invertebrates convert the raw organic matter in a compost pile into finished compost. Products of the composting process are compost, carbon dioxide, heat and water.

Why Should I Make Compost?



Yard and garden waste makes up 20-30 percent of the solid waste in landfills in the United States. Food wastes make up another 8-9 percent. The cost of collecting, hauling and handling yard waste is a large part of landfill and solid waste management programs, averaging 20 percent of most budgets and increasing to 50 percent when grass clippings and leaves are handled.

Compost works wonders on all kinds of soils due to its high organic matter content and provides vital nutrients to help plants grow and look better. By making and using compost you return organic matter to the soil in a usable form. Organic matter in the soil improves plant growth by helping to break up heavy clay soils and improve the soil structure of sandy soils by adding water and nutrient-holding capacity and by adding essential nutrients to any soil. Healthy plants help clean our air and conserve our soil, making our communities healthier places in which to live.

Compost can be used to enrich the soil in the flower and vegetable garden, to improve the soil around trees and shrubs, as a soil amendment for houseplants and planter boxes and, when screened, as part of a seed-starting mix or as a top-dressing on the lawn.

Essentials of Composting

- Biology The compost pile is a teeming microbial farm. Bacteria start the process by breaking down plant tissue. Fungi and protozoans soon join the process and somewhat later in the cycle, centipedes, millipedes, beetles and earthworms do their part.
- Materials Anything growing in your yard is potential food for these tiny decomposers. Carbon and nitrogen fuel their activity. The micro-organisms use the carbon in leaves

and woodier wastes as an energy source. Nitrogen provides the raw element of proteins to build their bodies. Everything organic has a ratio of carbon to nitrogen (C:N) in its tissues. Sawdust, for instance, has a C:N of 500:1 and table scraps are 15:1. The ideal C:N ratio for compost microbes is 30:1. This balance can be achieved by mixing two parts grass clippings (C:N ratio of 20:1) with one part fallen dry leaves (60:1) in your compost. Though the C:N ratio of 30:1 is ideal for a fast, hot compost, a higher ratio, for example 50:1, will be adequate for a slower compost.

Some references try and simplify the C:N ratio to "greens" and "browns." Greens have a lower carbon to nitrogen ratio (1-30:1) and would include such products such as grass clippings, alfalfa hay and several livestock manures with the accompanying litter. Conversely, browns are high carbon to nitrogen ratio (30-800:1) products such as leaves, straw, bark, sawdust and wood chips.

Table 1. Carbon:ni	trogen ratios for						
selected organic w	<u>astes (by weight).</u>						
<u>Material</u>	<u>C:N Ratio</u>						
Low C:N mate	<u>rials</u>						
Grass clippings	12-15:1						
Food scraps	15:1						
Vegetable wastes	11-20:1						
Coffee grounds	20:1						
Cow manure	18-20:1						
Horse manure	25:1						
Poultry manure	15:1						
High C:N materials							
Leaves	30-80:1						
Straw	40-100:1						
Corn stalks	60:1						
Paper	170-200:1						
<u>Sawdust</u>	<u>200-500:1</u>						
(Backyard Composting H-110,							
New Mexico State	University)						

Table 4. Camban with a new matter fam

- Surface Area The more surface area the microorganisms have to work on, the faster the materials are decomposed. Chopping the material into smaller pieces by running through a shredding machine or lawnmower will speed the composting process.
- Volume a large compost pile will insulate itself and better hold the heat of microbial activity. A small pile (3 cubed feet or 27 cubic feet) will have difficulty holding heat.

However, piles larger than 5 cubed feet or 125 cubic feet do not allow enough air to reach the microbes. This will be further clarified in the next section. These proportions are important only if your goal is a fast, hot compost.

- Moisture and Aeration all life on earth needs water and air to sustain itself. Microbes are no different. They function when the compost materials are about as moist as a wrung-out sponge and are provided with many air passages.
- Time and Temperature The faster the composting, the hotter the pile. If you use materials with the proper C:N ratio, provide a large surface area for the microbes to feed on, provide a large enough volume, and see that moisture and aeration are adequate, you will have a hot, fast compost hot enough to burn your hand!

Composting Methods

• "Fast" Compost Recipe:

Fast composting can produce compost in a couple of months or less but is labor intensive and requires frequent turning. Start your pile with a layer of high C:N (brown) material, then add a layer of low C:N (green) material. If the greens are not fresh, sprinkle in some blood meal, poultry manure or other nitrogen source. Mix well and add water if necessary to moisten. Add a layer of garden soil, old compost or manure to each brown-green layer to add more microorganisms to speed up the process. Continue adding and mixing layers of greens and browns until you fill the bin or run out of materials. Periodically, check the moisture content of the pile. It should feel damp. Check the interior temperature of the pile with a long stemmed thermometer. When the temperature reaches 140 degrees F. or begins to fall, it is time to turn the pile. You will need to turn the pile every three to five days. Once turning causes no rise in temperature, and the material appears dark and crumbly, your compost is ready.

• "Slow" Compost Recipe:

Slow composting is the least labor-and-time-consuming way to compost and is ideal for folks who do not have a large amount of yard trimmings to compost all at once. This method can take from six months to two years, or longer to produce compost, so be patient. The ingredients are the same as those for a "fast" compost. Add greens and browns to the pile whenever available. Turn the pile occasionally to mix the materials, prevent clumping and to avoid anaerobic decomposition. You will know that your compost pile has run out of oxygen if it becomes foul smelling: a telltale sign you need to turn the pile. Look for the ready to use compost near the bottom of the pile.

(Sources: Backyard Composting, Guide H-110, New Mexico State University; Composting, HGIC 1600, Clemson Extension; Composting-Backyard Conservation, USDA-NRCS; and Backyard Composting-Stewardship Gardening, Washington State University.)

Compost Structures

Compost structures can be as simple or intricate, as expensive or inexpensive as you choose. You can construct your own or you buy from catalogs. They say a picture is worth a thousand words: here are pictures of various compost structures.









Barrel

Wire Cylinder

Three Bin Wood And Screen Mesh Barrel Composter



Globe Thistle

By Roine Klassen Master Gardener

Need a plant that is deer and rabbit resistant, inviting to bees and butterflies and drought resistant (xeric-waterwise)? A globe thistle may be a plant you want to try.

The round steel-blue blooms on plants that grow about 2-3 feet tall and about 18 inches wide will do best in the middle to back of the flower bed. Blooms start in midsummer and last through fall. Full sun and any kind of soil but wet and humus-rich is needed will keep the tall stems from needing to be staked. The flowers can be dried; if the flowers are left on the plant, it will reseed itself for several years.

This flower is a genus of about 120 species of the daisy family, Asteraceae. Several varieties are available. Echinops bannaticus, Blue Glow, is a larger plant. These flowers will grow anywhere in the US.





Echinops ritro

Echinops bannaticus

Five Simple Ways to Create A Backyard Insectopia

By Pam Conklin Master Gardener

If you love growing, don't be bugged by insects. Instead, spend time to understand the important role insects play in plant life. Whether your garden passion is woody plants, annual and perennial flowers, fruits and vegetables, or all of the above, insects are essential. Many people consider insects to be pests and will go to great lengths to rid insects from their gardens. The truth, however, is that insects provide many benefits in the garden, such as pollination, controlling undesirable insects by preying on them, and they are a food source for many song birds, like Wrens. This article will arm you with easy steps and resources to help you better appreciate insects and create a diverse, insect friendly environment that will attract beneficial insects and create zones of insect comfort.

Step one: Garden with ecology in mind.

Ecology is simply seeing the relationship of all organisms/species to each other and their surroundings, as a whole system, such as your garden. Insects, you will discover, play an essential role in sustaining and supporting the whole system. Whether you are a veteran or novice gardener, the 45 minute Webcast (below), "Insects and Gardens: In Pursuit of a Garden Ecology," presented by the Library of Congress, will hopefully revalidate and/or spark a new understanding for the importance of insects in our garden and our world.

-Insects and Gardens: In Pursuit of a Garden Ecology https://www.loc.gov/today/cyberlc/feature_wdesc.php?rec=3729



Step two: Get to know the insects.

Knowing who is sharing your garden space is critical. For too many years we have reacted to insects with a degree of alarm. or disdain and have taken measures to rid them from our yards and gardens. But, insects are essential to pollination for most of our vegetables and flowers, and even insect control. If you decide treat for insects. to iust understand that beneficial insects are susceptible to insecticides, too. Always look for the safest alternatives if treating, and always carefully read and follow labels on insecticides.

-Easy to Use Insect Identification key

https://apps.extension.umn.edu/garden/diagnose/insect/ -Pictorial Guide to insects of South Dakota https://www.insectidentification.org/insects-by-state.asp?thisState=South%20Dakota

Step three: Add native plants.

Pollinator plants that are native to South Dakota are a good place to start. They will bring insects to your garden. Interplanting herbs, ornamentals and native plants creates a colorful and diverse pallet for insects, and you, to enjoy. When selecting plants, it's important to know the specific conditions each species requires in order to grow healthy, vigorous plants. So, know your Frost Zone and growing conditions throughout your yard, such as drainage and hours of sunlight. Spacing is important, too, because overcrowding diminishes air flow and causes competition for nutrients, water and even sunlight. Annuals work great to fill-in open areas in newly planted perennial beds. For attracting insects all season, select plants that bloom at different times, so your garden will have flowers blooming from Spring through Fall. Below is a diagram, from a publication titled, "Native Pollinator Plants of South Dakota," provides a list of South Dakota Native Pollinator plants with their bloom times.

	May	June	July	Aug	Sept	Oct
Buffalo bean						
Prairie violet						
Sweet William						
Foxglove beardtongue						
Wild columbine						
Showy beardtongue						
Textile onion						
Bee balm						
Butterfly weed						
Swamp milkweed						
Wild licorice						
Leadplant						
Purple prairie clover						
Hoary vervain						
Stiff sunflower						
Anise hyssop						
Black Samson						
Purple coneflower						
Aromatic aster						
Dotted gayfeather						
Heath aster						
Smooth blue aster						
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Step four: Create a safe spot to rest.

To keep pollinators in your garden and working for you, place various nesting and resting boxes for bees, butterflies, and more to enjoy. There are all size and shapes of insect "hotels" for purchase, or you can get creative and make your own using small clay pots that you fill with bamboo sticks. Place the nesting box on the ground, or close to the ground in areas that are protected. Mason Bees love them!

Visit, Nests for Native Bees, on the igrow site for more ideas.

http://www.xerces.org/wp-content/uploads/2008/10/nests_for_native_bees1.pdf

Step five: Provide them with a fresh drink.

Insects need water. Create a safe insect bath using a shallow bowl or planter bottom. Add a few clean river rock or decorative rocks or marbles. This will give the insects a place to land for a refreshing drink without falling in and drowning. Fill the bowl with fresh water daily. Cleaning and refilling daily will not only keep the water fresh, but will also assure that mosquitoes don't hatch. For details visit:

https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/features/?cid=nrcseprd1 344620

Doing these 5 simple things will definitely bring beneficial insects to your garden and keep them there all season long. And because insects are critical to the balance of nature, creating a backyard *Insectopia* insures they will be with us for many years to come.