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# FROM the Ground Up

SOUTH DAKOTA STATE UNIVERSITY EXTENSION
Master Gardener

Minnehaha Master Gardeners

A word about Minnehaha Master Gardeners: We are volunteers trained through the South Dakota State University Extension Master Gardener Program. The Minnehaha Master Gardeners mission is to provide current, research-based, consumer horticulture information and education to South Dakotans through Master Gardener projects and services. For more information on becoming a master gardener, visit SDSU Extension Master gardener volunteer program

Be sure to stay in touch with all of Minnehaha Master Gardeners' news: **follow us on FaceBook, visit our website,** or **email us.**

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## *What's inside*

# FYI Garden Tips!

*by Pam Conklin, Master Gardener*

1. If you haven't already done so, get your seed potatoes and onions planted.
2. The average last frost date for the Sioux Falls area is May 6, but watch for frost and freezes in the forecast and be prepared to cover warm season plants & vegetables. Tomato plants are especially sensitive to the elements.
3. Cicadas begin emerging in May/June - be kind to the cicada killer wasp - they are a great natural predator and harmless to humans.
   Something fun: NBC News highlighted a timely event: "This spring, two different broods of cicadas — one that lives on a 13-year cycle and the other that lives on a 17-year cycle — will emerge at the same time from underground in a rare, synchronized event that last occurred in 1803." Click to visit the Cicada Double Brood map

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# 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)

Fennel (Foeniculum vulgare) can be an ornamental herb or a vegetable in the carrot family (Apiaceae). As an anise flavored vegetable (Florence Fennel) it is grown as an annual for its edible bulb. Grown as an herb in zones 4-9, fennel can be a perennial herb used in the landscape of borders and butterfly gardens. Fennel does best in moist, well-drained soil in full sun and direct seed as it has a long ap root. The smooth, dark green leaves have a feathery appearance similar to dill and can grow to 3-5 feet

tall.  The yellow flowers with compound umbels of 20-50 flowers attract bees, butterflies and beneficial insects and bloom mid-summer.

The bulb can be eaten raw or cooked and harvested before bolting for best flavor.  The leaves can be added to salad, cucumber, potato or fish dishes for flavoring.  The harvested seeds have been used in sausage, cakes or breads.  The fennel pollen or seeds are used as a spice and is a key ingredient of Indian garam masala.

https://plants.ces.ncsu.edu/plants/foeniculum-vulgare/

https://extension.usu.edu/yardandgarden/research/fennel-in-the-garden

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# Common Mistakes Pepper and Tomato Gardeners Make

*By Carla Goetsch, Master Gardener*

1) **Planting Too Early**- Tomatoes and Peppers love the heat so wait until the nighttime temperatures are no lower than 55 degrees to plant your transplant. Plants can be permanently stunted after exposure to cold temperatures. Wait until middle to later in May to plant.  The transplants should be hardened off to acclimatize them to the temperature swings of day/night.

2) **Crowding Plants**- To avoid disease, plants need adequate room to grow and have enough airflow around them. There should be at minimum 2 feet around the plants, and 3 feet around the large tomatoes. If container gardening, plant only one plant in a container.
3) **Over Fertilizing-** Giving them too much nitrogen will produce more foliage than fruit. Follow directions on how to apply slow-release fertilizer that is specific to vegetables. Amending the soil with compost but assure it is not from a source that herbicides were added.
4) **Watering too much or too little**- blossom end rot is common when there is not enough water to transport the calcium into the plant. Consistent watering schedule and a layer of mulch will help to keep soil moisture consistent. If there is too much water the most common reason is the soil is not well draining.
5) **Not enough sun**- vegetables need at least six hours of direct sunlight a day.
6) **Letting weeds take over**- take care of weeds immediately since if allowed to mature, some weeds produce up to 500,000 seeds per plant.
7) **Overplanting**- Crowding plants together make harvest difficult and increase food waste. It also cuts air circulation that increases diseases.
8) **Not offering enough support**- Tomatoes/peppers do best when they can grow up and not touch the ground.

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# Did You Know…?

*By Debi Ulrey-Crosby, Master Gardener*

Did you know that plants often help each other to stay healthy and grow? It's true. All plants need certain nutrients to survive and grow, with some needing more and some needing less of these resources. Plants need water, minerals, and sunlight for photosynthesis and are constantly competing with their neighbors for the same resources. A good example of this would be to notice weeds growing around more desirable plants and how they can cause crowding and use needed nutrients from nearby plants. Plants can compete for nutrients by setting deeper roots than their shallow rooted neighbors, thereby taking up nutrients first. Plants can grow taller with wider canopies and shade out their neighbors, depriving them of adequate light for growth. Competition for resources creates stress so plants evolve to adapt to these challenges. Desert plants have evolved to tolerate less water and other nutrients by storing those within the cells/flesh. Other plants adapt by growing in shade near deeper rooted plants by growing side roots longer and covering a wider area. These are just two examples of how plants learn to adjust and evolve to survive.

While some plants can seem to be greedy, other plants may also share resources. Some trees have been shown to pull water from deeper sources closer to the surface so that smaller trees and plants nearby can access it. Resources are also shared by a very delicate fungal network deep within the ground. Plants communicate with each other by releasing chemical signals into the air or soil. These chemicals act in many different ways to help strengthen a plants ability to resist stress from droughts or predators, to attract pollinators, and to encourage or even discourage other plants from growing nearby. Plants that release chemicals that inhibit other plants from growing are called allopathic. These chemicals can prevent plants from taking up the nutrients they need or even prevent the growth of the specific fungi needed by a plant. Some plants need very specific species of fungi in order to bring in soil nutrients that the plant is unable to access on its own.

So why is all of this important? Research has shown that planting certain plants with other plants, or avoiding planting some plants near other plants can directly affect the growth of your desired plants whether it's fruits and vegetables or trees and shrubs. We typically refer to this as companion planting, however, plant scientists refer to it as interplanting for small gardens and intercropping for large scale farms. Both create a polyculture which creates a diverse environment that has less pests and diseases.

This growing season, why not give companion planting a try rather than a monoculture with all your vegetables or flowers planted in rows.  Let your veggies mingle with the flowers and herbs and see how much happier your garden is.

Resources:


1. Jessica Walliser. (2020).  Plant Partners – Science-Based Companion Planting Strategies for the Vegetable Garden.
2. Beyfuss, R. (1994) “Companion Planting.  Ecogardening Fact Sheet #10”, Cornell University
3. Harvard University, https://sitn.hms.harvard.edu > flash > exploring-the-underground-network-of-trees


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# What to know about Elderberries before you plant

*By B. Fredrickson, Intern*

New Life Baptist Church, a community garden in Bellevue, NE, planned not only to have plots for residents of the area but also to encourage insects and wildlife. As a result, they built a butterfly garden, planted fruit bearing trees, grapes and three elderberry shrubs. The second year, the shrubs were approximately six and a half feet tall loaded with berries that were free for the taking. The birds loved them, and I did too. Since then, I have researched growing these shrubs. This year I begin this

long-term project.  I hope you will enjoy the trials, errors, and successes as we explore this project.

Elderberries, Sambucus canadensis (American Elderberry) – Sambucus Nigra (European Elderberry), historically, used in both medicine and food, are poisonous to humans without cooking or drying. The berries are a deep purple almost black in color when ripe, are full of vitamins A and C, phosphorus, potassium, and iron. Unripe berries carry elevated levels of cyanic glucosides, even when ripe, human consumption of raw berries can cause respiratory distress, seizure, and possible death. So why would you want to plant this shrub? Delicious jam, jelly, pies, and sustainable fruit producing plants for wildlife and insects, are just a few of my reasons.

If you find naturally growing elderberry plants, you will find that they prefer moist, rich soil and are often found along woodland borders, stream banks and moist meadows. The soil can be acidic or alkaline, but the ideal soil PH is between 5.5 to 6.5. If you are looking to grow berries, plant in full sun. The foliage will do well in semi-shade, but it will not produce as much fruit. Height varies on the cultivar so it can be dwarf (4 feet) or up to 12 feet. When planning to incorporate these plants in your landscape, keep in mind, you will require two different cultivars to produce fruit. The shrubs have compound leaves on opposite sides of a grayish green to brown stem gracefully draping downwards like an umbrella. The edible cream or white colored flowers are often dipped in tempura batter, deep fat fried, and drizzled in maple syrup.

The fruit reaches maturity in late July or August. To maintain a pleasing shape, prune annually in late winter or early spring, removing dead or weak stems but no more than 1/3. Fruit grows on the current season's growth, so complete your pruning by late spring, unless storm damage becomes an issue. Propagation can be done by hardwood cutting in the fall or softwood cutting in early spring. Elderberry shrubs spread easily by suckering which may need some additional trimming. The shallow root system will require some time to become established, so keep the roots moist but not swampy for the first year. If you experience a drought, water, and mulch. Refrain from harvesting fruit until the second or third year.

https://extension.unh.edu/blog/2020/08/what-best-way-grow-elderberries

Sources: Experience, University of New Hampshire, Herb Society of America, Stark Brothers Nurseries and Orchards, USDA Forest Service

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# Celery – Apium graveolens

*By B. Fredrickson, Intern*

While visiting my mother and father-in-law, every evening, when we sat down at the dinner table, there would be a large bowl of carrots and celery as part of our meal. You could taste the difference between one store purchase and another. Which begs the question, how does homegrown celery taste?

https://extension.usu.edu/yardandgarden/research/celery-in-the-garden

Celery, a bi-annual plant, is typically grown as an annual with a shallow root system. Key items to keep in mind if you wish to give this a try.

- Nutrient rich (PH between 5.8 to 6.8)
- Well drained but moist soil (likes sandy soil but if you have a well-established garden, you should be all right)
- 6-8 hours of sunlight
- A long growing season
    - 10-12 weeks (about 3 months)
- Cool weather, we are talking about an early spring or fall planting but too cold and they will bolt. Too hot and not enough water will result in hollow stalks.
- Mulch the plants after they are 6 inches tall to keep them moist and cool
- Water, water, water
- The plant will appreciate an extra serving of nutrients after approximately 4 weeks with 1 Tablespoon of 5-10-10 fertilizer 3 to 4 inches from each plant. (use your favorite fertilizer)
- Careful weeding, you can lose your babies by disturbing the shallow roots

Cool weather in South Dakota? Microclimate is the key word that combined with the right seeds/plant, mulching and regular watering may result in success for your dinner table. Finding plants at your local greenhouse or farm store may be difficult but I found them last year. Start seeds indoors in February if possible. Pre-soak the tiny seeds 24 hours before planting. Press the seeds into your soil, do not cover them. Keep the temperature at 70-75 and do not let it get colder than 64 degrees Fahrenheit.

Two varieties are under consideration:

**The Conquistador** tolerates elevated temperatures and water stress. It is widely adaptable to a variety of soils and climates. The stalks are tall and compact.

**Golden Self Blanching** is recommended if you have never grown celery before. The plant is smaller in height but does not require blanching (covering the stalks with dirt or light cloth to prevent a bitter flavor but do not cover the leaves).

There are other varieties, but I am on the hunt for these two. It is recommended to tie the stalks together to give them added support as they grow. Although, if planted fairly close together they support each other. We had success with them planted approximately 8 inches apart when the recommended spaced planting is 10-12 inches apart. You can also harvest the plant a stalk at a time versus the entire bunch. The question, 'Can you grow them in South Dakota'? The answer is "Yes!"

Resources: Almanac.com, Johnny's Selected Seeds, Utah State University

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# Vermiculture—Part 1

*by Jason Cruse, Master Gardener*

Welcome to a multi-part series on vermiculture—turning organic home waste into compost by using worms at home. The next several issues will document my first year with worms, experiments using different living environments and food, and use of the "vermipost"—the by-product of the worms.

Many extension services offer advice on vermiculture. Before you think about getting started, here are some tips to know:

1. **Not all worms are suitable for vermiculture.** According to North Carolina State University, of the more than 9,000 species of earthworm in the world, only

7 are ok to use for vermiculture. Of these, only 1 is native to North America—the red wiggler.

2. **"Worm tea", or liquid given off by the worm farm, is NOT proven to help plants, and may actually harm plants**. Social media will tell you that worm tea is natural and normal, and that it is good for plants. However, research by master gardeners in CA tells us two things. First, a healthy worm farm should NOT give off lots of liquid and, second, excess fluid may contain pathogens that would be harmful to the plants; however, recommendations vary.
3. **You don't have to spend a lot of money to start a small vermiculture.** Many vermiculture "kits" on line cost upwards of $100. My homemade vermiculture was $30, plus worms. University of Oklahoma discusses multiple ways to start vermiculture, including using bins at home.
4. **Worms escape**. There are many conditions in which worms will try to escape their bin. If getting a few worms on the floor makes you skittish, this is not for you!
5. **Getting compost from worms is not fast**. I started my first bin in February 2024 and my second in April 2024. I expect to pull my first few pounds of castings (compost) in May.

In the coming months, I will be sharing my experiences with my worms, including successes and failures, results, pictures, what my worms like to eat (and what they DON'T!) and so forth. Join me in my exploration of this often untapped method of creating valuable compost!

NOTE: special thanks to Cathie Draine, Pennington County MG, for helping get me started. Resources:

Earthworms and Worm Bins | NC State Extension)

Tea, Worm Tea, Anyone? - Napa Master Gardener Column - ANR Blogs

Vermicomposting | USU

The Basics of Vermicomposting | Oklahoma State University

# Gardeners Get Ready at Spring Event

*By Karla Smith, Master Gardener*

On Saturday, March 23, nearly 200 gardeners received great gardening information at the Minnehaha Master Gardeners' Gardening with the Masters Spring Event held at the Froiland Science Complex on the campus of Augustana University.  The keynote speaker Meg Cowden, a well-known speaker and author, spoke on succession planting. In addition, three other presentations covered growing cut flowers, soil health, and frugal gardening.

In between sessions, attendees continued the learning experience with four hands-on table talk presentations covering soil blocks, drip irrigation, herb gardening, and DIY lawn care. Horticulture students from SDSU and Southeast Technical College were also available providing gardening information from their institutions. Along with gaining valuable gardening information, attendees went home with free garden publications and door prizes.

Occurring in March or April, Gardening with the Masters Spring Event is an annual one-day major education event presented by the Minnehaha Master Gardeners.

# Minnehaha Master Gardeners Events:


Do you have comments, questions, or topic ideas that you would like us to explore? Email us at MinnehahaMGnews@gmail.com. We would love to hear from you!

*All articles are researched and written by Minnehaha County Master Gardeners and Interns. Thank you to all, for sharing your knowledge!*