



Cover Artwork by Pam Conklin

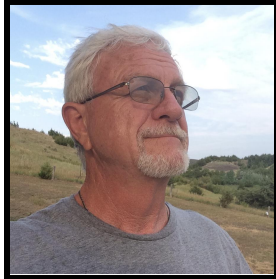
A word about Minnehaha County Master Gardeners: We are volunteers trained through the South Dakota State University Extension [Master Gardener Program](#). The Minnehaha Master Gardeners mission is to provide current, research-based, consumer horticulture information and education to the citizens of South Dakota 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 County Master Gardeners' news: [follow us on FaceBook](#), [visit our website](#), or [email us](#).

What's inside

Highlighting Master Gardeners	1
In the Herb Garden	2
Organic/Inorganic Pesticides and Herbicides: How to Choose	3
Beating the Heat: Strategies to keep plants healthy in heat waves	4
Did you know: Trees can “talk” to each other?	6
Woody Plants for Pollinators	9
Local Master Gardener Hosted Events!	10

Highlighting Master Gardeners

By Pam Conklin, Master Gardener



This Master Gardener is a dedicated student, which is exactly what he likes about horticulture and being an Extension Master Gardener volunteer. “There’s always something new to learn.” This month, I’d like to introduce Jerry Mills. Before retiring, he worked as an Extension Agent in Brown County. By 1991, his official title became, Extension Educator - Horticulture for the Northeast region of South Dakota.

During his career, Jerry occasionally prepared and delivered lectures about vegetable gardening to master gardener trainees. He also had a weekly radio program, a weekly newspaper column, and a monthly newsletter. Another tid-bit, Jerry helped in the startup of several master gardener clubs, recruiting members and helping organize volunteer efforts. Jerry said he has never met a master gardener he didn’t like. These experiences have given Jerry a unique perspective into the Extension Master Gardening Program.

Jerry and his wife moved from Aberdeen to Sioux Falls in 2018, where he transferred his membership to the Minnehaha County Master Gardeners club. He immediately put his skills and interest to work at the “Teaching Gardens,” located at the Mary Jo Wegner Arboretum, alongside fellow Master Gardener, Richard Dicky. Jerry now coordinates volunteer efforts to maintain the 3 educational gardens managed by the Minnehaha County Master Gardener club. Don’t let the summer pass without seeing the gardens Jerry has been involved with - the Teaching Garden at the Arboretum, the Garden of Dreams on the West side of the Arc of Dreams sculpture, and the Old Courthouse Museum garden in the Old Courthouse Museum courtyard. Or, maybe you saw Jerry teaching other garden enthusiasts how to sharpen and care for garden tools in his table talk, [“Sharpen Up!”](#) during our 2022 Spring Event.

When I asked Jerry what his favorite project has been since joining the master gardeners in Minnehaha County, he exclaimed, it was teaching a basic vegetable gardening series at the Arboretum. Jerry explained his love of vegetable gardening by saying that if he’s going to spend time growing plants, he’d like to be growing stuff he can eat! I always ask master gardeners what is one thing that they’ve learned after

becoming a volunteer that they use in their home gardens. For Jerry, it is an interest in raised beds and a technique called [intensive gardening](#). This technique produces greater yields in less space, and is certainly something to check out.

Jerry said he loves hanging out with others who share his interests in the many facets of horticulture, plants, and soils, and I'm certain that others will say they enjoy hanging out with him, too. After listening to Jerry describe his experiences from childhood to now, I would say he is a pretty interesting and knowledgeable guy to get to know. Curiosity, a desire to be continually learning, and imparting knowledge to others sums up Jerry very well.

If you would like to learn more about becoming a Master Gardener, please visit the SDSU Extension webpage about [Becoming a Master Gardener Volunteer](#).

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.



Ginger (*Zingiber officinale*) is in the family Zingiberaceae. In Zone 4, ginger is grown as an herbaceous annual. Ginger is an edible rhizome that has reed-like linear leaves arranged alternately on the stem which can reach 2-4

ft. It takes 10 months to mature. Suggestions for growing in South Dakota is to start it in a pot indoors, in the fall and transplant in the spring after the soil is 50 F outside, to allow for a total of 10 months for maturity. Ginger grows in part shade, or full sun, and likes loose fertile soil. Plant the ginger root 1 to 2 inches in a shallow trench giving at least 1 square foot per plant.

Health Benefits: Ginger has been used as a spice for many savory foods. It has an active compound called gingerol. Gingerol boosts anti-bacterial, anti-oxidant, and anti-inflammatory properties, as well as having many vitamins, nutrients and minerals. Ginger has been used for pain relief, regulating blood sugar, reducing nausea, inhibiting bacterial growth and decrease triglyceride and “bad” cholesterol levels.

Organic/Inorganic Pesticides: How to Choose

By Jason Cruse, Master Gardener

Interest in organic treatments of lawns and gardens is rising. In our master gardener community gardens, if any treatments are used by gardeners, organic is required. For home use, even though inorganic treatments are generally safe to use (as long as used within the specified directions), spills, overuse, and lack of attention can cause problems. As master gardeners, we have a responsibility to teach not only proper use, but also proper care.

Pests create many problems in lawns, as well as vegetable and flower gardens. There are “organic” solutions gardeners can find on-line. Some of these include “homemade” remedies. As master gardeners, we should never recommend homemade remedies. These are untested and present varying results. We should only provide tested products.

Malathion is a common home use pesticide. Malathion is found in products like Spectracide® and Sevin®, among others. Malathion does have health issues if used extensively over long periods of time; care should be taken when using. Products containing malathion can be used on a variety of pests.

Pests can also be controlled by other natural sources. “Cultural” control includes planting companion plants that deter pests, or draw them away from producing plants. In addition, some homemade remedies using bleach, alcohol, or peroxide solutions have shown some efficacy.

For controlling weeds, organic treatments and pre-treatments are available. Preen®, a popular pre-emergence herbicide, contains trifluralin, which is not organic. However, a variant of the same product contains corn gluten meal, which is organic and offers similar results.

To be avoided are products containing glyphosate. Not only is it inorganic and generally indiscriminate in what it kills, it can cause skin or eye irritation, as well as have harmful effects on pets. Glyphosate can be found in many leading commercial products for home use, including Roundup® and Spectracide®.

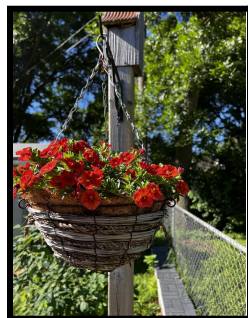
Products containing various acids and/or oils, however, can safely be used and considered organic. SDSU Extension has provided a [comparative list of ingredients/product names](#) that fall into this category.

Above all, if choosing an insecticide or herbicide, read the directions carefully, study your options, and consider where you are using the product, as well as weather conditions. Neighbors may not want your 'drift' in their yard!

Beating the Heat: Strategies to keep plants healthy in heat waves

By Pam Conklin, Master Gardener

Plants may wilt as a physiological response to excessive heat. Understanding what plants need, especially when the weather is hot and the sun is bright, may just save your plants. Follow these tips to help your plants beat the heat.



Watering:

Wilting plants can be a sign of overwatering, or under watering, or just heat related. Therefore, Always check soil moisture before watering. Poke your index finger into the soil, if it feels dry, give the plants a deep drink of water, assuring the soil is moist to the second knuckle an hour later.

A thorough watering once a week that equals about an inch of water is better for root development and overall health, than shallow, more frequent waterings. Shallow waterings encourage shallow roots, plant instability, quicker drying out, and weakening of the plant. Weak plants are more susceptible to insects and disease.

Water near the base of the plant to avoid water evaporation. This is easily accomplished using soaker hoses and drip irrigation systems. The same principle applies when using a wand, or watering can. If possible, water in the morning to avoid heat stress. Morning watering also gives plants time to dry, in case leaves get wet, in order to discourage mildews, diseases, and insect issues.

Hanging baskets and planters require more frequent waterings, but the finger test still applies in these situations. Heat and wind are not friends to hanging baskets and container plants. When watering container plants and hanging baskets, always water deep. You should see water running out of the drain holes. Remember, the more established and tighter the plants in a planter, the more frequently you may need to water.

Sun Exposure:

Different plants have different light requirements. Before planting, make sure you read the plant tag and choose appropriate locations.

Full sun plants may still benefit from afternoon shade on hotter days. Shade cloth can reduce temperatures by as much as 10 degrees! Vegetable plants, like cucumbers, squash, lettuce and peas will really appreciate shade cloth. One of our master gardeners described her companion planting strategy: planting smaller seedlings, or sowing seed among plants that have been in the garden for a few weeks. The larger plants will effectively shade smaller plants.

Mulch:

Covering the ground around plants serves to retain moisture, keep soil temperatures cooler, and protects plants from soil borne pathogens. The goal is to decrease watering.

Wood mulch works best around trees and shrubs, while organic grass clippings and clean straw (as long as they are free of weeds and pesticides) are better suited for vegetable gardens. Feel free to pile the mulch deep on vegetables, up to the first true leaves, will do. For woody plants, apply about three inches of wood mulch around trees. Keep the mulch 3 or 4 inches from the trunk to discourage possible insect damage and moisture build up that could cause issues later on.

Did you know: Trees can “talk” to each other?

By: Debi Ulrey-Crosby, Master Gardener

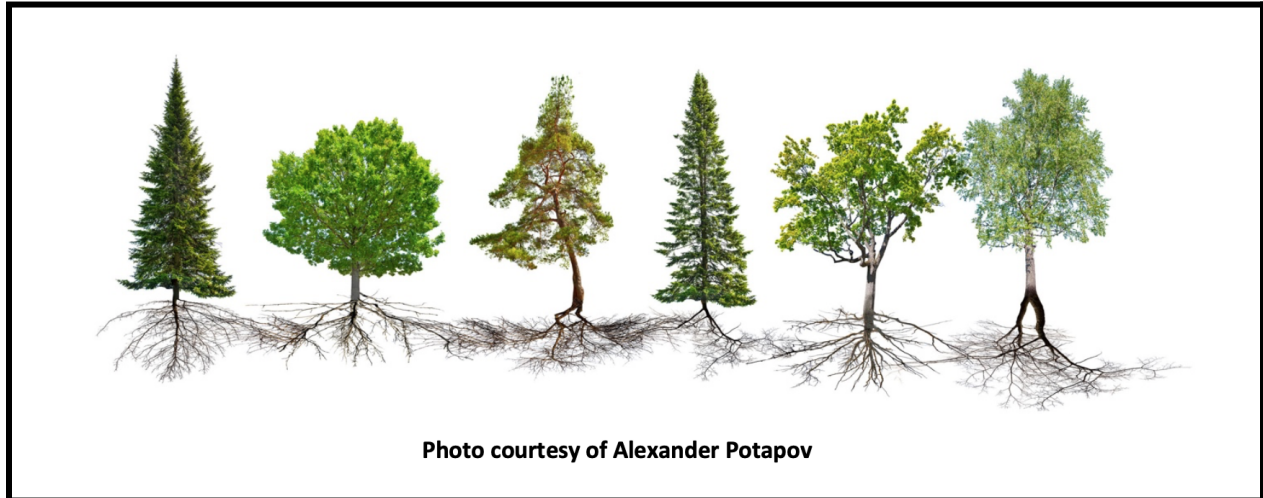


Photo courtesy of Alexander Potapov

There is a lot of information about how trees ‘talk’ or communicate with each other. Several books have been written on the subject and research scientists are just beginning to understand and learn the language of trees. It has become known as the ‘wood-wide web’ due to the underground network of mycorrhizal networks that carry the information from tree-to-tree-to-plants. Mycorrhiza refers to the role of the fungus in the plant’s rhizosphere, or root system. It plays an active and important role in plant nutrition, soil biology, and soil chemistry.

Peter Wohlleben, a German forester, and author of *The Hidden Life of Trees: What They Feel, How They Communicate-Discoveries from a Secret World* (The Mysteries of Nature, 1) has been managing forests in Hummel, Germany and writes that trees of the same species are communal and often form alliances with trees of other species through a massive underground fungal network. Through these symbiotic networks the trees share water and nutrients, send distress signals about disease and drought, acting as an economic exchange of information. The trees provide the sugars they photosynthesize from sunlight to the fungi which, in turn, provides the food source fungi need as they forage the soil for nitrogen, phosphorus and other minerals that are then consumed by the trees. And so, the cycle continues.

Trees also communicate through the air by sending pheromones and other scent signals to each other. It’s been widely known that in the sub-Saharan African savannas when giraffes start chewing on the leaves of the acacia tree, the tree sends out a

‘distress’ signal - ethylene gas. Other nearby acacia trees detect this gas and defend themselves by pumping tannins into their leaves in such large quantities that the giraffe can become very sick or even die from eating its leaves.

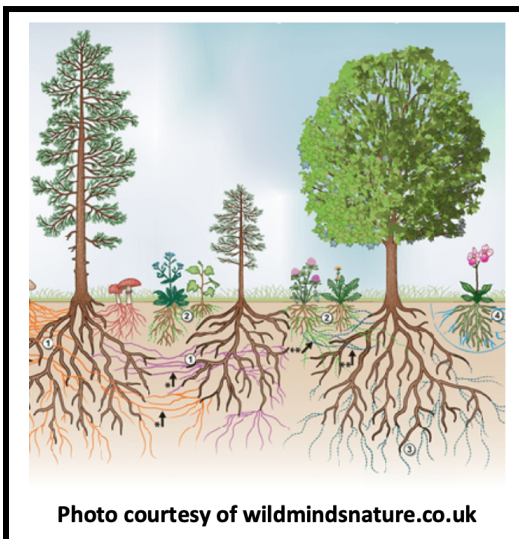
Through a variety of experiments using radioactive isotopes, scientists have discovered that trees not only communicate cooperatively with other trees of the same species, but also with other species. Trees can compete with each others by sending out allelopathic chemicals that inhibit growth of other plants or trees so everything isn’t quite as rosy and happy as it might seem underground.

In a natural forest of British Columbia, Suzanne Simard, a professor of Forest Ecology at University of British Columbia, Vancouver, and author of *Finding the Mother Tree: Discovering The Wisdom of The Forest*, discovered that paper birch and Douglas fir compete with each other, but also grow together. She and her colleagues found that sometimes the birch got more nutrients, while other times the fir got more. They also found that when the fir became more shaded in the summertime the birch would send its excess carbon to the fir. Then in the fall when the birch lost its leaves, the fir would send its excess carbon back to the birch, thus keeping both trees alive.

Trees don’t have a nervous system like humans. Nor do they possess a sense of intention or consciousness, however, in her writings, Simard tends to apply anthropomorphic metaphors when explaining how this mycorrhizal system works. She feels that by talking and describing this network system with human-like qualities more

people are interested and able to better understand the science behind the research.

Whether you want to apply human-like qualities to the underground network of trees and plants to better understand the science, I have decided that I will look at my trees differently and might be just a little nicer and a little more understanding of the trees in my yard.



Sources:

1. Do Trees Talk to Each Other? Smithsonian Magazine by Richard Grant, March 2018. A review of The Hidden Life of Trees: What They Feel, How They Communicate-Discoveries from a Secret World (The Mysteries of Nature, 1). By Peter Wohlleben
2. TheHiddenLifeofTrees:WhatTheyFeel,HowTheyCommunicate- Discoveries from a Secret World (The Mysteries of Nature, 1). By Peter Wohlleben
3. Finding The Mother Tree: Discovering the Wisdom of the Forest by Suzanne Simard -University of British Columbia in Vancouver, Professor of Forest Ecology
4. <https://wildmindsnature.co.uk/blog-post/world-wood-web>

Woody Plants for Pollinators

By Pam Conklin, Master Gardener



Crabapple, *Malus* sp.
'Prairiefire'

So far, we've looked at herbaceous flowers, both perennial and annual; we've taken a look at a few native grasses that will add depth, waving beauty, and nesting for a few pollinators. Now, it's time to take a look at adding woody plants that attract pollinators.

How do trees and shrubs help pollinators? Beyond providing nutrient-rich pollen and nectar that foraging pollinators used for food, many caterpillars feed on the leaves and stems of some native trees, and some bee species nest in hollow branches, or pitted stems provide nesting.

The fallen leaves of deciduous trees and shrubs provide refuge and cover during winter for all kinds of insects, especially bees that burrow into the ground. So think about letting leaves lay where they fall. Any number of insects and birds find rest and shelter in trees and shrubs. If you're lucky, a Ruby-throated hummingbird may build her nest high up in your tree.

Trees and many shrubs need a lot of room to grow optimally, so most likely you won't have a lot of woody plants in your pollinator-friendly landscape. Careful planning will help you choose what is best for your yard, and aesthetics. Apple, peach, pear, crab apple, cherry, chokecherry, lindens, and locusts are just a few tree ideas to get you thinking.

Shrubs can be clumped, or used as accents to the garden. Some of the more popular choices are lilacs, roses (not Tea and Floribunda roses), and fruit-bearing shrubs. My personal favorites are Serviceberry, which can be a shrub, or tree, and Magnolia trees. [The University of Minnesota Extension](#) provides a list of trees and shrubs that are suitable to our climate and soils.

Come back next month for a look at site location and preparation, and what to consider for design and plant selection.

Local Master Gardener Hosted Events!

Due to recent storms in our area, a decision was made to postpone our garden tours to 2023.



Thanks to all master gardeners for your educational contributions!