



# THE DIRT



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NORTH DAKOTA MASTER GARDENER PROGRAM NEWSLETTER

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## Welcome to the first issue of The Dirt,

a quarterly newsletter published by the North Dakota Master Gardener Program.

Our goals are to be an educational resource and to highlight the work of exemplary Master Gardeners in the state. To further these goals, we have assembled a topnotch newsletter team.

- > **Laura Kourajian**, our editor, holds a master's degree in journalism and has worked for the Minot Daily News, Greeley Tribune, St. Paul Pioneer Press, and the Bismarck Tribune.
- > **Rachel Brag** started a company that published over 50 craft and sewing books.
- > **Lila Hlebichuk** has been a newsletter editor with two different companies and writes as a serious hobby.
- > **Rena Mehlhoff** is our co-editor and graphic designer. She works as a communications specialist for the Bismarck Parks and Recreation District.

**Thank you to this talented team for writing and putting together this newsletter!**

## The Wild Prairie Rose By Lila Hlebichuk, lilahl@yahoo.com

**T**he wild prairie rose is a simply beautiful state flower for the simply beautiful state of North Dakota.

This small species rose is fragrant with lovely pink flowers.

You can find this prairie native blooming from May through September throughout North Dakota in pastures and along roadsides. It has beautiful red fall color and rose hips which turn bright red and provide special winter interest as well as food and habitat for birds and other wildlife.

According to the Native Plant Information Network, the wild prairie rose has special value as it is recognized by pollination ecologists as attracting and providing nesting material/structure for large numbers of native bees. The downside is that it can be invasive, spreading by underground rhizomes and making colonies. Considered a weed by the USDA, this woody perennial is native to most of central North America.

The wild prairie rose (*Rosa arkansana* or *Rosa blanda*) has been around for about 35 million years.

In 1889, noting the wild prairie roses growing on campus, the first graduating class of the University of North Dakota chose colors of the wild rose as their school's official colors as they were "suggestive of our green prairies and rosy prospects," according to Netstate.com

With support in 1898 from the North Dakota Federation of Women's Clubs and votes from the school children of North Dakota, Sen. Louis B. Hanna (also former North Dakota governor and U.S. congressman) sponsored a bill to name the wild prairie rose the official floral emblem of the state. The 10th session of the North Dakota Legislative Assembly



[https://en.wikipedia.org/wiki/File:Rosa\\_arkansana.jpg](https://en.wikipedia.org/wiki/File:Rosa_arkansana.jpg)

*Rosa arkansana*, the Wild Prairie Rose. In flower bed outside the Department of Biology, University of North Dakota.

adopted the wild prairie rose as the official state flower on March 7, 1907.

The edible flower of the wild rose is 1 ½ to 2 inches across, has five broad and rounded petals with wavy edges, often notched at the tip. Surrounding the yellow stamens and styles, the petals can be solid or bi-colored and range in color from white to deep pink. One to four flowers bloom on the tips of new growth and occasionally on second year lateral branches of older woody stems.

The leaves are compound and alternate, rounded with serrated edges.

Rosa arkansana usually has 9 to 11 leaflets and is smaller, growing up to just over three feet. Both first- and second-year stems have thorns.

Rosa blanda has 5 to 9 leaflets, grows up to seven feet and new stems are thornless.

The rose hips, which contain the seeds, form at the base of the flower and turn bright red in late summer. Eaten fresh, rose hips are known for their high vitamin C, E and K and B complex content. Rose hips are also rich in pectin, beta-carotene, bio-flavinoids, selenium and manganese.

Careful handling is necessary as the rose hips can quickly lose vitamin C content in drying, processing or storage.

Used in medicines since ancient times, rose hips have been used to enhance the immune system, improve blood cholesterol and pressure, and digestive and weight loss efficiency. However, more scientific studies are needed to verify these claims.

They are used in making jams, jellies, tea, syrups, soups and wine. Many recipes can be found searching the internet on sites such as Mother Earth Living.

Like any aggressive plant, use barriers or bury nursery planters to keep your wild prairie roses from taking over the garden.

Many farmers are happy to have you take some prairie roses from their pastures or they can be found along side roadways. They can be found commercially at native plant nurseries such as Prairie Moon in Minnesota or at High Country Roses in Colorado.



# Fernleaf Peony

By Laura Kourajian, lkourajian@yahoo.com

**A**re you looking for a fascinating and unique plant that is hardy and easy to grow? Try the fernleaf peony.

The fernleaf peony (*Paeonia tenuifolia*) is sometimes called a Memorial Day peony, likely because that is its usual bloom time in the upper Midwest. It is hardy in Zones 3-9, so typically does well in North Dakota. (Some websites say it is hardy to Zone 2.)

Unlike its peony cousins, which are a staple in many North Dakota gardeners' flower beds and are welcomed for their large, fragrant blossoms as well as their ease in growing, the fernleaf peony is rare enough and unique enough to call attention to itself.

"If you grow perennials, it's a collector plant," said Dan Cashman, owner of Cashman Nursery and Landscaping in Bismarck.

In early spring, around the same time standard peonies start poking up through the ground, the fernleaf peony will start sending up little reddish fingertips that turn an evergreen color as they mound up on their way out of the earth.

As they continue to grow, the stems separate and turn grassy green, losing the reddish tinge.

They set buds which turn into dark red blooms, sometimes referred to as scarlet or lipstick red, not the shades of pink and white found on standard peonies.

Fernleaf peonies bloom only in red, according to information gathered by Dr. Ron Smith, professor emeritus at North Dakota State University.

Once they have finished blooming, the spent blooms can be trimmed off and the feathery fern-like stems will continue to create interest. The stems also make great filler for cut bouquets.

Fernleaf peonies will begin to go dormant earlier than standard peonies, usually in late summer. They are an herbaceous plant, so can be cut back after first frost.

Fernleaf peonies require full sun and moist but well-drained soil. They are shorter than other peonies, growing only about 18 inches tall, and bear single or double blooms about 2 ½ -3 inches across.

Though they are expensive and rare, they are relatively easy to grow. They do not require a lot of attention. They can be fertilized with bone meal, compost or well-rotted manure in the fall, according to information gathered by Smith.



*The feathery fern-like greens of the fernleaf peony create interest in the flower bed before the flowers bloom as well as after they are done blooming. The blooms of the fernleaf peony come in one color: deep red.*

## Master Gardener Core Course

We will be offering the Master Gardener Core Course starting **October 2, 2015**.

Registration will begin on July 30th.

For more information, please contact:

### **Esther McGinnis, Ph.D.**

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They can be divided to create more plants, though they don't like to be divided, according to the information provided by Smith.

They are more rare and more expensive than most perennials because they don't grow quickly and take time to propagate. Cashman said that while a typical peony can be divided into multiple plants after about four years of growing, the fernleaf peony takes a couple more years and then can typically be only divided into one or two additional plants.

If you are willing to try dividing them, they should be transplanted in fall (remember the adage: Transplant spring blooming plants in the fall and fall blooming plants in the spring), but early enough to let them get rooted before winter. Labor Day is a good target date for transplanting.

Potted fernleaf peonies can typically be planted in the spring and early summer.

Fernleaf peonies are not readily available in pop-up garden centers, though they can be found in established greenhouses around North Dakota.

(I have found potted fernleaf peonies available at several greenhouses around the state with prices ranging from \$40 to \$80 a plant.)



*This great specimen of a fernleaf peony is located near the front entrance to Cashman Nursery & Landscaping, 3400 E. Main, Bismarck. This plant has been growing there since 1985, Dan Cashman said. "It's never been divided," he said. "It's my pet."*

# Basil Downy Mildew

## Be on the lookout for this new disease

By Esther E. McGinnis,  
esther.mcginnis@ndsu.edu

**N**ew insects and diseases continue their relentless march into North Dakota.

Within the past few years, Japanese beetle, spotted wing drosophila and impatiens downy mildew have been detected in the state.

This year, we are worried that basil downy mildew may sweep into the state.

Basil downy mildew (*Peronospora belbahrii*) is technically not a fungus but is a water mold.

This pathogen is spread on contaminated seeds or plants. Once the disease is introduced into the environment, the wind can blow spores a great distance.

The disease is most prevalent under warm temperatures and high humidity. Fortunately, the spores will not overwinter in North Dakota.

Detecting basil downy mildew can be difficult because the initial symptoms resemble a nutrient deficiency.

The leaves first start to turn yellow in between the veins (Fig. 1). As the disease progresses, leaf tissue starts to turn brown and necrotic (Fig. 2).

The most diagnostic symptom is the presence of fuzzy purple to gray spores (sporulation) on the bottom side of the leaves (Fig. 3).

To check whether you have basil downy mildew, place a yellowing leaf upside down on a damp paper towel in a plastic bag. Store the bag in darkness and then check after 24 hours. If you can see spores on the leaf's surface, then it is most likely diseased.

Sweet basil varieties are most susceptible to the disease. Red-leaf, Thai and lemon basil typically show fewer symptoms but are not completely resistant to the disease. Basil downy mildew will not infect oregano, parsley or other herbs.

Cultural practices that reduce leaf wetness can minimize the chances of infestation. Avoid overhead watering. Space basil plants to maximize ventilation and sunlight.

Most consumer fungicides will not control this disease even when applied preventatively.

If you detect basil downy mildew in your garden, please send a sample to Esther McGinnis, NDSU Dept. 7670, P.O. Box 6050, Fargo, ND 58108-6050. The sample should consist of the plant without the root ball and be wrapped in a dry paper towel enclosed in a plastic bag. Please call or email before mailing the sample. Dispose of the rest of the infected

plants in the trash to prevent the spread of windblown spores. You can help us track this disease in North Dakota and potentially mitigate the outbreak.



*Fig. 2. Leaf necrosis  
Bruce Watt, University of Maine, Bugwood.org*



*Fig. 1. Yellowing between the veins is one symptom of basil downy mildew.*

*Margaret McGrath, Cornell University, Bugwood.org*



*Fig. 3 Basil downy mildew spores  
Sandra Jensen, Cornell University, Bugwood.org*



# Bismarck Community Orchard Becomes a Reality

By Rena Mehlhoff, [rena.mehlhoff@gmail.com](mailto:rena.mehlhoff@gmail.com)

Saturday, May 30 started early for more than 20 local volunteers and several Master Gardeners who worked side-by-side to plant more than 650 plants, shrubs and fruit trees to create Bismarck's first community orchard.

The Bismarck Community Orchard is a project spearheaded by several local agencies, including Go! Bismarck Mandan, NDSU Extension/Burleigh County Family Nutrition Program, the Bismarck Forestry Department and Bismarck Parks and Recreation District.

Funding was provided by a \$10,000 grant from the North Dakota Community Orchard Project through the North Dakota Department of Agriculture. The goal of the grant project is to connect people to fruits, trees and nature, and increase community engagement. Orchards help increase awareness of better nutritional habits and provide learning opportunities.

"The main goals for the Bismarck orchards are to provide fresh produce for the community and Hunger Free ND Garden Program," Peggy Netzer, Family Nutrition Program Extension agent, said. "The orchards also enable NDSU Extension/Burleigh County educational opportunities for using and preserving fruit."

Three locations were chosen for the orchards: Clem Kelley Softball Complex, 517 W. Arbor Ave.; Ruth Meiers Hospitality House, 1100 E. Boulevard Ave., and Burleigh County Extension Office, 3715 E. Bismarck Expressway.

The locations were chosen based on public accessibility, their proximity to lower income populations within Bismarck and ease of use for educational purposes and supplying food pantries.

Some of the plants at the orchards include Fall Gold and Heritage raspberries, Tundra and Borealis honeyberry (haskaps), Red Lake and Black Consort currants, service berries, Sweet Sixteen, Hazen, and Honeycrisp apple trees, Toka and Prairie Red plums and Chestnut crabapples.

Wendy Berg, a volunteer with Go! Bismarck Mandan, welcomes families to harvest the fruit.

"We encourage the public to pick only what their family can use and allow the remainder to be harvested for local food banks toward the Hunger Free program," she said.

Volunteers will play a critical role in the success of the community orchards.

Volunteer credit hours can be earned for Master Gardeners who would like to help with the maintenance, pruning and general care of the orchards.

For information on how you or an organization can be involved with an orchard, contact Peggy Netzer, NDSU Extension/Burleigh County, at 221-6865 or email [peggy.netzer@ndsu.edu](mailto:peggy.netzer@ndsu.edu).



# DRIP IRRIGATION = happy plants + happy gardener

By Rachel Brag, [rbinndak@gmail.com](mailto:rbinndak@gmail.com)

I fell in love with container gardening about 15 years ago but watering 40-plus pots took considerable time. I also have raised vegetable beds that require watering.

I chafed every time I needed to be on my way to work but was still holding a watering wand or sprinkling can in hand.



After experiencing tendonitis in my left arm from winding up hoses, I knew there had to be a better way to take care of my beloved plants. I also needed some relief from the worry of my containers and garden drying out while I was away from home.

I couldn't constantly ask my husband or neighbors to do my watering chores, so I explored and installed a drip irrigation system.

Initially, I installed the system in my raised vegetable garden beds, which seemed to dry out much faster than in-ground gardens.

My plants thrive and I love the freedom I have to come and go as I wish. I've installed automated timers in conjunction with the drip lines, so I know when I return, my plants will look as good, or better, than when I left.

## What is drip irrigation?

Drip irrigation is an effective and efficient use of water which allows slow and precise delivery directly to plant roots.

Drip irrigation maintains optimum soil moisture, resulting in less water lost to evaporation, runoff and wind. The roots are in an environment where ideal soil moisture is consistently maintained, resulting in proper balance of water and air for better plant growth. This leads to stress-free plants that actively grow and resist disease.

Drip irrigation can reduce disease problems associated with moisture on leaves of plants. It also saves money by significantly lowering the amount of water used in the garden, up to a 70 percent reduction in water waste.

Drip irrigation also results in less weeding maintenance because the water is delivered to the plants, not the weeds.



## Planning and designing

Planning and designing your system require some research. Deciding how to start a drip irrigation system and what products to select are important decisions that should be made carefully.

One must consider different soil types, various areas and plants to be watered, availability of water outlets and size of garden.

Over the years, I have redone the layout of my drip line as I've learned what works and what doesn't. I've also learned that certain components require replacing after several years of use or after I've relocated pots.

Drip line is just like your garden: It changes and evolves with time.

## Perfect timing

The first step is to have an outside water source. (I use an inside faucet in my garage for the flower pots in front of the garage, but it makes for concern should a leak develop.)

The first component installed on the faucet is a timer. You can purchase single- or double-outlet/station timers at most home improvement or hardware stores. Orbit is a brand I've found most readily available. They cost \$30-\$40.

The one pictured here is a single station timer, but has a bypass valve allowing a hose to be connected.

Timers require AA batteries. Be sure to remove the batteries during the winter.

Programming is required and you can set time of day to water, how often to water, length of time to water and rain delay. I recommend watering in the early morning hours for best results. I change the number of days between watering depending on the time of year.

In spring, I set the timer to water every 3-4 days, but in the heat of summer, it is set to water daily. The length of time will depend on the drippers' output, which is measured in gallons per hour (GPH).

When setting up in the spring, I watch the amount of drainage from my pots and regulate time accordingly. I generally start out with 10-15 minutes run time. If I need more water for a large pot vs. a small pot on the same drip line, I add more drippers or larger volume drippers to the large pot.

## Protect the water supply

After the timer comes the backflow preventer, or anti-siphon valve. This prevents back flow from your drip line into your water supply, thus eliminating the possibility of contamination. This is required by code in most cities and rural water co-ops.

I have a private well because I live in the country, but I still use a backflow preventer to



Timer



Pressure Regulator

protect my water supply.

Following the backflow preventer is a pressure regulator. This reduces the water pressure coming into the unit at 40-60 PSI (normal for homes) to 25 PSI. Skipping a pressure regulator is not a good idea because it will result in water leakage between lines, fittings and drippers.

One last component on my drip system before the distribution tubing is a tee filter. Because I have a private well, there are very fine particles in the water. Tee filters have a super fine replaceable screen that catches the particles before they can plug the drippers. The screens are available in a variety of sizes. The hose cap can be removed to access the stainless steel screen for cleaning.

## Distributing the water

Distribution tubing is the main supply line that carries water to the plants.

It is black 1/2-inch poly tubing that may be installed above or below ground. To make installation easier, allow the distribution tubing to sit in the sun to soften prior to installation.

The end of the tubing is either capped with a tube end cap or folded back on itself and held in place by a figure 8 end closure.

I try to hide the tubing by my pots with rocks and antique items.

## Feeder lines

The primary feeder line from the distribution tubing to the plants is 1/4-inch flexible micro



Tee Filter



Distribution Tubing



Micro Tubing

tubing. It is made from vinyl or polyethylene and is available in a variety of lengths. It is generally black in color.

What allows the 1/2-inch distribution tubing to be configured into an irrigation system and connects the 1/2-inch tubing and 1/4-inch micro tubing together are drip fittings.

Drip fittings are divided into three categories: Compression, barb and universal nut lock.

Compression fittings are used on the





Types of barbs - straight, elbows, tees and crosses.



Compression Drip Fittings



Hole Punch



Fig. 1 Barb Construction



Soaker Hose



Micro Sprinklers

1/2-inch distribution tubing and are pushed together for a tight fit. The most common compression fittings are Ts, elbows and couplings.

Barbed fittings attach the 1/4-inch micro tubing to the 1/2-inch distribution tubing, and come in straight barbs, elbows, Ts and crosses.

A hole punch is used to make a small hole in the distribution tubing so a barb can be inserted. The micro tubing is pushed onto the 1/4-inch fitting for a leak-proof fit. I find it helpful to have a bucket of hot water to soak the end of the micro tubing so it is soft and the fittings are easier to insert.

The barbed fittings are manufactured to a wide variety of specs and some brands will break with even gentle handling. The best quality fittings that I've used come from the Drip Store and DIG Corp. I've found Orbit fittings tend to snap under pressure.

The Figure 1 shows the difference in construction of the barbs.

Cut the micro tubing long enough so the end can be trimmed away should a barb break during the insertion.

### Drippers, emitters and soaker hoses

The very last items in the drip system that allows the water to leave the tubing are drippers or emitters, micro sprinklers or soaker hoses.

Drippers/emitters are rated in gallons per hour (GPH) and are color coded so the volume is apparent at a glance.

There are in-line and end-of-line emitters. I've combined the two to get the volume I need in a large pot.

The emitters will plug, so check at the start of the season and several times during the season to ensure their performance.

When I don't want to spend the time or to use emitters, I've installed 1/4-inch soaker



Rocks hiding tubing.

hose. It is handy because it can be circled around multiple plants in a pot and all plants will receive water from one line.

The down side to soaker hoses is their tendency to send small streams of water in all directions, wetting leaves and anything within 18 to 24 inches. To solve this problem when using 1/4-inch soaker hose, I place it under straw mulch in my pots.

I have not used micro sprinklers because my watering needs have been met using emitters and soaker hoses.

I use landscape staples to hold the drip line tubing and components in place. An occasional walk around the system while it is working will allow you to observe what might need fixing or adjustment.

### Confused and overwhelmed?

Does this sound confusing and overwhelming?

There are a number of starter kits readily available at home improvement centers or hardware stores. These kits include all the components for a basic drip system.

I have found it nearly impossible to source drip system components locally, so have purchased the vast majority of my drip system components from online stores, such as [www.dripworks.com](http://www.dripworks.com), [www.digcorp.com](http://www.digcorp.com) and [www.dripirrigation.com](http://www.dripirrigation.com). There are many others from which to choose.

Setting up a drip irrigation system is well worth the time. When your garden is thriving, you will *love it!*



## Have a story idea?

Email Laura Kourajian at [lkourajian@yahoo.com](mailto:lkourajian@yahoo.com) or contact one of our writers directly.