



➔ Tips to Ease Drought's Effects this Fall

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NDSU EXTENSION SERVICE

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*"When the well's dry, we know the worth of water."
- Benjamin Franklin*

Sunshine was in abundance this summer along with warmth in excess, but notably absent in too many weather reports were rainfall totals. A storm would deluge one area, but a few miles away, not a drop would fall. According to the National Drought Mitigation Center as of August 1, almost two-thirds of North Dakota was categorized as being in severe or worse drought conditions. Compare that to August 2016 when less than two percent of the state was in such dire lack of moisture. What a difference a year makes!

Some of the hardest hit areas have started to get desperately needed rain, probably too late for the grain and pulse crops, but most welcome nonetheless. Will this continue through autumn or return to a more normal dry pattern as our gardens are harvested and put to rest for the winter? Projections from National Weather Service/Climate Prediction Center shows drought conditions continuing through autumn freeze up. What Mother Nature has in her plan for the coming North Dakota winter is anyone's guess at this point.

In the Garden

Frequent dry periods are part of living in western North Dakota that quickly teaches a gardener some hard lessons. The challenge is to learn from those lessons and make your garden and yard stronger and more adaptable

to seasonal extremes. Bismarck Master Gardener Kathleen Wiese offers some tips and suggestions to make your garden more drought tolerant.

- Water in your perennials and trees very well. Subsoils are parched - dig down and make sure the water is getting as far as you think it is.
- Mulch flower beds and trees to retain the moisture. (Fig. 1)
- Hold off on any late summer or fall fertilizing to discourage new growth which will increase water consumption.
- Do not clear away healthy dead plant material. It will help trap snow in winter. Exceptions would be peonies, daylilies and iris, which are early spring risers.
- After perennials go dormant, mulch the crowns for protection from a cold, snowless winter.

For more information on drought tolerant gardens in North Dakota, visit Kathleen Wiese's blog at <http://wieseacres.blogspot.com>.

Trees and Woody Plants

Trees and woody shrubs have been showing signs of drought stress. Leaves are turning to their autumn colors with increased susceptibility to diseases and pests. While small rain showers may green up the landscape, the subsoil moisture is still very dry. Established trees with extensive root systems generally can make it through a



Fig. 1: Mulch over soaker hoses to minimize evaporation.

drought, but new plantings and those not long established are the most critically in need of supplemental watering. Slow deep watering is essential to reach the roots and there are products that can help get water where it is needed most.

- Put soaker hoses around the tree next to the soil and cover with mulch to help retain moisture.
- Tree bags slowly dribble out water over the period of several hours – they cost between \$15 and \$30 each and are reusable year after year. (Fig. 2, Fig. 3)
- When last winter's heavy snows melted away, there was a lot of damage from rodents and assorted vermin on trees and across lawns. In fall, don't forget to wrap trunks of fruit trees and trees with smooth bark. Remove the tree wrap promptly in spring.

Lawn Care

Make every effort to send your lawn into winter as vigorous and stress free as possible (not actively growing but vigorous and healthy). Irrigate if possible even though it's dormant, but do not force growth late into the fall. "Stop irrigating an actively growing lawn by late September to early October to allow it to start hardening off. You can irrigate a dormant lawn later into the season but remember to winterize your irrigation system before the first hard frost," advises Dr. Alan Zuk, NDSU Associate Professor, Sports & Urban Turfgrass Management. (Fig. 4)

A cool-season grass will green up as cooler air temperatures return. Tall fescue is the most drought hardy cool-season grass but it has the poorest recuperative ability. If it ever goes dormant during a drought, it will not recover and will have to be replanted. Kentucky bluegrass will bounce back because of its extensive rhizomatous growth habit.

- Cool-season turf fertilization schedule: 1 lb. N/1000 sq. ft. on Memorial Day, Fourth of July and Labor Day.
- Try to avoid late fertilization to allow the lawn to harden off properly and reduce the possibility of a snow mold infection under the snow during the winter months.
- Applying a phenoxy herbicide while the turf is under stress can harm the lawn. If the lawn is still dormant, the weeds are not likely to be growing much either. Do not apply a herbicide until the lawn is out of stress even if it means skipping a fall application. Spring herbicide apps work but not as good as in the fall.
- Focus on deep and infrequent irrigation by applying $\frac{3}{4}$ to 1 inch of water each time you irrigate (every 7-10 days).
- If you can push a large screwdriver 6-8 inches into the soil without much resistance, you watered enough. Move the sprinkler to another area.



Fig. 2 & 3: Tree bags trickle water to the roots over several hours or more.

- Even though the soil surface may dry in a couple days, the lower soil profile will still remain moist. Deep, infrequent watering will reduce weed seed germination and establishment on the dry soil surface while still promoting deep root growth through the hydrated subsurface.

Autumn is good time to seed a new lawn; in North Dakota that window of opportunity is short, generally between Sept 1st through Sept 15th. Planting new grass or reseeding is a water-intensive investment of labor and seed. Don't count on Mother Nature to supply adequate moisture, especially this year.

- Do not exceed recommended seeding rates. Doing so will cause excessive competition for water and nutrients, reduce sunlight penetration into the turf canopy and reduce airflow through the canopy. The new turf seedlings will be placed under severe stress and will not reach maturity before winter arrives, or before the summer heat arrives if seeded in spring.
- Keep the seedbed moist with light watering during the germination phase.
- After germination, start to water deeper.
- After the lawn has been mowed three times and you can consider it established. Pesticides can be applied at this time without damaging the new turf (if applied properly). Now you should focus on deep and infrequent irrigation by watering every 7-10 days.



Fig. 4: Water lawns deeply and infrequently.

Drought...when Mother Nature is not so generous, there is a delicate balance between supplementing to provide a sea of lush greenery and a manicured oasis, or fainting at a breath-taking water bill. These tips and advice should help bring North Dakota gardens and its treasures back for another dance next spring, without breaking the bank in the process.

Additional resources

National Weather Service Climate Prediction Center
<http://www.cpc.noaa.gov>

National Drought Mitigation Center – University of Nebraska
<http://drought.unl.edu>

The Old Farmer's Almanac
www.almanac.com

The Latest News On Emerald Ash Borer

By Laura Kourajian, lkourajian@yahoo.com

When emerald ash borer (EAB) was discovered in the Detroit area almost 20 years ago, foresters and Extension personnel sounded the alarm that North Dakota's generous ash tree population was at great risk to this destructive pest. The nasty little bug has been making its way through the Midwest, moving into the Twin Cities area in 2009 and, more recently, into the Duluth area. It is spreading at a slower rate than officials expected. It has not yet reached North Dakota, and that has foresters breathing a sigh of relief but they still haven't let up on awareness campaigns to keep homeowners and landowners on the lookout. "We're still highly aware of it," Joe Zeleznik, NDSU Extension forestry specialist, said. "I certainly expected us to find it by now in North Dakota and we haven't."

It is a real threat in North Dakota, which has few trees to begin with. On average, about 40 percent of the state's urban trees are ash. In some communities, Zeleznik said, ash tree population can be as high as 80 percent.

Officials believe the first EAB hitched a ride as a larvae or pupae embedded in ash pallets, crates or packing material. The EAB is native to Asia. It attacks only species of ash (genus *Fraxinus*), which includes green ash and black ash, but does not include mountain ash. Unlike other ash borers, which attack stressed or declining trees, the EAB goes after healthy trees as well.

Awareness and diversification are the best tools to fight infestation. Officials from the North Dakota Forest Service, state Department of Agriculture and Extension Service have joined together to battle the bug and raise awareness. This year, they introduced plastic ribbons, which are being tied around ash trees throughout the state. The ribbons say, "ASH TREE AT RISK" and direct people to www.NDinvasives.org for more information. The website contains information on EAB as well as other pests, and gives people instructions on how to recognize and minimize the chance of spread. Primarily, people are warned to not transport firewood into North Dakota from other states or areas, as EAB may be embedded in the firewood. "Buy it where you burn it," is the mantra for this campaign.

Diversification is the other battle front. Homeowners and landowners are encouraged to plant a variety of trees in their landscapes and shelter belts, and steer clear of the vulnerable ash. There is no single tree recommended to replace it, Zeleznik said. "That's how we got into this problem (of not enough diversification) in the first place," he said. The ash tree, because it adapted to many sites, soil conditions and grew fast, was planted liberally to replace the American elm tree when it became susceptible to Dutch elm disease. Some communities, Zeleznik said, are preparing for an eventual invasion by removing smaller ash trees, those under power lines or in rough shape, and replacing them with a variety of other trees. If it strikes, EAB won't decimate the urban forest.

Research into countering EAB is ongoing. Zeleznik said the insect has proven to be cold hardy, even in the frozen winters of the upper midwest where a small percentage of the bugs can survive. While -40 degree temps may keep the riffraff out, it doesn't kill off EAB. "The really cold winters will knock back the population, but it's not going to kill every single insect," Zeleznik said.



Fig. 1 Plastic ribbons like these are showing up in urban landscapes throughout North Dakota to raise awareness of the emerald ash borer and the devastating effect it could have on trees in the state.



Fig. 2 More information about the emerald ash borer and other invasive pests can be found at www.NDinvasives.org.

The most commonly used insecticide, especially for homeowners, is a solution with imidacloprid. Zeleznik said this insecticide is available in several different formulations. It's been able to control in individual trees, but has to be reapplied every year. Another insecticide, emamectin benzoate, can kill 99 percent of the bugs and has a two-year residual, but is only available by injection by professionals, he said. Officials don't recommend treating trees until EAB has been discovered with 15 miles of a tree.

The best defense for any homeowner, Zeleznik said, is to watch for symptoms, primarily die back and sprouting on the stem. Also, be on the lookout for severe woodpecker damage to the bark. If found, contact your local county agent, the state Department of Agriculture or other experts for confirmation and assistance.

"As far as we know today, it's here to stay," Zeleznik said. "Who knows what we'll find in the future?"

Wild Horseradish... A Tasty Sidekick

By Martha Willand, mwilland@bisparks.org

Growing up in a traditional Midwestern kitchen, I rarely experienced culinary extremes. The Scandinavian heritage of my parents had a bearing on the foods and flavors we experienced; garlic was used sparingly, and fresh ground black pepper was as hot as it was going to get. When I reached my early adult years, I found that there were an abundance of flavors and herbs to explore. One taste I am still learning to embrace is that of horseradish. The fiery root has a reputation for being the sidekick to sausages and prime rib, but I'm learning that it has more potential than many of us have realized.

Someone recently told me that wild horseradish could be harvested within North Dakota, and I was blown away. As a hobby herbalist and burgeoning wild food collector, I was surprised to hear this news as I had never discovered the plant in the wild. It turns out that this Southeastern European native can be found throughout most of the lower forty-eight, but it rarely strays from human occupation and disturbance. Within North Dakota, it is purported to be found near abandoned farmsteads and along ditches. Horseradish prefers deep, rich, moist loamy soils with full sun exposure, but it can be found in less desirable locations. Stony and shallow soils will impact the shape and yields available for harvest. The hardy perennial rarely produces viable seed but is instead planted from root cuttings that can quickly flourish to the point of dominance. For this reason that it is advised to not plant horseradish within your regular vegetable

garden bed as it can easily become established and outcompete other plantings.

If there is a horseradish patch near your home or growing "wild," the best time to harvest the roots is in a month during fall that ends with an "r." To gather the roots, first dig a small hole or trench 12"-24" deep on one side of the plant. Next, using a spading fork or shovel loosen the soil on the opposite side of the plant, and dig the roots. Use the greens to pull the roots laterally; if portions of the roots break off there is no harm done. This forgiving plant will continue to grow the following year from those portions of roots left remaining in the ground. The roots can last months when kept in moist sand at temperatures between 32 and 40 degrees, and in a dark location. If these requirements cannot be met, make a fresh pickle that will last a few weeks in the fridge, or can the grated root and it will last several years.

Surprisingly, the roots aren't the only edible part of the plant. After consulting my dusty copy of Euell Gibbon's *Stalking the Healthful Herbs*, I learned the greens can also be enjoyed in moderation. Gibbons suggests the tender young greens can be used in a salad in lieu of watercress. By the time I had read this it was well past spring, but I gleefully gathered the smallest horseradish leaves I could find. The leaves are certainly reminiscent of the



flavor of their roots but milder. Finely mince the leaves and use them as a garnish on deviled eggs or on grilled meats. Better yet was Euell's idea for using them as blanched greens. I mixed the smaller horseradish greens 50-50 with baby spinach and finished them with a little butter. It was a tasty combination that would make a lovely side for meats or egg dishes. My advice is to cook the horseradish leaves a minute or two longer than the more tender baby spinach.

My favorite horseradish creation was a dip that disappeared more quickly than my conscience should have allowed, but it was sinfully good. I enjoyed this dip with both kettle chips and crudités, and I imagine it would be great on baked potatoes as well. I don't mind a little kick in my dip, but if you'd like to tame it a bit, cut the horseradish to one tablespoon.

Please note that horseradish leaves and roots may be poisonous to livestock and pets. Fortunately, the plants are not very palatable to animals. However, animals may try to eat horseradish during times of drought.

Additional resources

For more recipe ideas or advice on planting horseradish, additional information is available at:

The Horseradish Information Council: <http://horseradish.org/>

University of Minnesota Extension: <https://www.extension.umn.edu/garden/yard-garden/vegetables/horseradish/>

Bacon and Horseradish Dip

- 1 cup sour cream
- 1/3 cup mayonnaise
- 2 tablespoons grated horseradish
- 1 teaspoon Worcestershire sauce
- ¼ teaspoon ground white pepper
- 1 large clove garlic, minced
- 2 tablespoons chives or green onions
- 4 strips of bacon, cooked, drained and minced
- Paprika and parsley for garnish

Mix first seven ingredients and allow flavors to mature at least 8 hours in the fridge.

Garnish with paprika and/or minced parsley before serving. Makes 1 ½ cups.



BOOK REVIEW: Successful Gardening on the Northern Prairie by Eric Bergeson

By Lila Hlebichuk, lilahl@yahoo.com



There are many books available on prairie gardening, most with beautiful color photographs to browse and inspire us while we plan new gardens or renovate our current gardens.

So why would someone, especially a Master Gardener, want to buy the new book *Successful Gardening on the Northern Prairie* by Eric Bergeson? There are no photographs and the first sentence of chapter 1 states, "This book is for amateur gardeners on the northern prairie in USDA climate Zone 3a or 3b." What is included is practical information and tips that can help the gardener on the northern prairie achieve gardening success and avoid costly mistakes.

As an example, the chapter on growing trees includes first tier recommendations for trees that grow here with high expectations for success, second tier of trees that are hardy, but not planted as often for various reasons. Third tier trees are intriguing, but not fully tested so they should be considered experimental.

The northern prairie is unique. We may experience problems that gardeners even as close as the Minneapolis-St. Paul area do not have and we may not have problems they encounter. This book relies heavily on research from NDSU as well as the University of Minnesota Extension service. Additionally, author Eric Bergeson has the experience of working in the multi-generational family business, Bergeson Nursery near Fertile, Minnesota. (Fig.1 and Fig.2)

The book contains chapters on:

- The Northern Prairie
- Getting Through Winter
- Basic Yard Design
- Soils and Fertilizer
- Effective Watering
- Insects and Diseases
- Controlling Weeds
- Furry and Feathered Pests
- Planting and Care of Deciduous Trees
- Useful Trees for the Northern Prairie
- Planting Shrubs Around the House
- Useful Shrubs for the Northern Prairie
- Evergreens
- Hedges
- Windbreaks and Shelterbelts
- Vines
- Growing Fruit Trees in the North
- Small Fruits
- Roses
- Annuals
- Perennials
- Vegetables on the Prairie
- The Prairie Lawn

Few books available today include all these subjects. However, Bergeson is the first to admit his book is not comprehensive. In depth information can be readily accessed online through NDSU, the University of Minnesota and your county extension service.



Fig. 1 *Logs Afire with Celosia* (Photo courtesy of Bergeson Nursery)



Fig. 2 *Flower bed featuring Big Tut grass* (Photo courtesy of Bergeson Nursery)

This manual is intended for gardeners on the plains of western Minnesota, eastern South Dakota, North Dakota and southern Manitoba. I asked Eric if the information is applicable for the Missouri Plateau and Drift Prairie west of the Red River Valley and the Great Plains area in southwestern North Dakota. Most of the information is applicable to all areas. He replied that he is aware that there are water shortages in western North Dakota and the chapter on watering is more relevant to areas without shortages. On the positive side, these drier areas may see less disease present particularly in spruce.

Successful Gardening on the Northern Prairie is filled with enough tips that even the most experienced gardener will learn something or be reminded of the issues we face here on the northern prairie.

It could be said that this book is a must have for the gardener's library shelf. However, it would be better to leave it off the shelf, bookmarked, highlighted and within easy reach to refer to over and over again. Bergeson reminds us, "All things in moderation – except for peat."

Successful Gardening on the Northern Prairie can be purchased through the following link:

<http://ericbergeson.com/purchase/successful-gardening-on-the-northern-prairie>

Master Gardener Awards Ceremony

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

The Master Gardener Awards Ceremony was held in May on the NDSU campus in Fargo to celebrate the wonderful achievements of interns and certified volunteers from around the state. This inspiring group created beautiful gardens, educated the public, and fed the hungry.

New awards this year included the Innovation Award, Public Garden Award, Adult Education Award, and Youth Education Award.

To be eligible for an award, volunteers or interns had to be in good standing and to have submitted their volunteer hours and continuing education forms on time. With the exception of the 100-Hour and 200-Hour Service Clubs, Master Gardeners cannot win the same award two years in a row.

The awards committee consisted of Myla Alsaker, Julie Vetter, Sara Johnson, Anne Smith, and Esther McGinnis. The awards were based on volunteer project descriptions from the volunteer hour forms.

100-Hour Service Club: presented to those individuals that volunteered 100 or more hours in 2016

| | |
|------------------|-------------------|
| Mindy Grant | Laurie Podoll |
| de Herrera | Nichol Rahlf |
| Mary Jane Henley | Kristy Schmidt |
| Mary Heyerman | Penny Seifert |
| Emily Hilgers | Eileen Stokkeland |
| Terri Hoskin | Nola Storm |
| Amber Lockhart | Karen Weber |
| Cindy McLean | Joan Zettel |

200-Hour Service Club: presented to those individuals that volunteered 200 or more hours in 2016

| | |
|-----------------|---------------|
| Anita Hofsommer | Jen Sahr |
| Terrie Mann | Kris Schipper |
| Janell Martin | Jack Wood |
| Marlene Maxon | |

Innovation Award: for most creative Master Gardener Project

- Awarded to Laurie Podoll from Jamestown for her work in creating the state's first seed library (Fig. 1).

Public Garden Award: for best designed public garden

- Awarded to Mary Heyerman from Bismarck for her design and maintenance of the Carol Bothun Rose Garden at the Dakota Zoo.

Adult Education Award: for best Master Gardener project that promoted adult horticulture education

- Awarded to Janell Martin and Marlene Maxon from Grand Forks for their efforts in organizing the joint North Dakota Master Gardener/State Horticultural Society Conference in 2016 (Fig. 2).

Youth Education Award: for a Master Gardener project that promoted youth horticulture education

- Awarded to Debbie Lund from Mountrail County for her work with the Roughrider 4H Club and a local Girl Scouts chapter.

Communication Award: for horticultural outreach by traditional or non-traditional media

- Awarded to Diana Freese, Lou Ann Lee, Penny Seifert, Joan Zettel, and Karen Weber in Richland County for a series of radio spots on gardening (Fig. 3).
- Lou Ann Lee and Penny Seifert were also acknowledged for their project in planning and assembling the Master Gardener Member Directory which facilitated communication between Master Gardeners.

Best Elder Care Facility Project: for best project that benefited a nursing home

- Awarded to Eileen Stokkeland, Nichol Rahlf, and Deb Wallace for their beautiful gardens around the Griggs County Care Center in Cooperstown (Fig. 4).

Working with Underserved Populations: for best project that benefited a nontraditional group

- Awarded to Cecelia Collins from Jamestown for her horticultural therapy work with children with developmental disabilities at the Anne Carlson Center (Fig. 5).

Feeding the Hungry Award: for project that alleviates food insecurity in our communities

- Awarded to the Fargo community project known as Growing Together for their work in teaching New Americans how to garden and feed themselves. Project participants included: Jack Wood, Nola Storm, Anita Hofsommer, Mindy Grant de Herrera, Kathy Johnson, Joan Faust, Kay Kundert, and Bill Pallasch (Fig. 6). Our apologies if we missed anybody!

Ron Smith Community Service Award: this is our highest award that celebrates the power of community service

- Awarded to Joan Faust of Fargo for



Fig. 1 Laurie Podoll received the Innovation Award.



Fig. 2 Janell Martin is displaying her Adult Education Award.



Fig. 3 From left to right, Karen Weber, Penny Seifert, Diana Freese, and Lou Ann Lee were honored with the Communications Award.



Fig. 4 Nicol Rahlf received the Best Elder Care Facility Project Award.

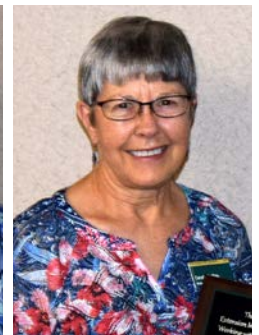


Fig. 5 Cecelia Collins was commended for her work with Underserved Populations.



Fig. 6 Kay Kundert, Anita Hofsommer, Bill Pallasch and Joan Faust fought food insecurity and received the Feeding the Hungry Award.

creating the Veggies for the Food Pantry Project (Fig. 7).

Friend of the NDSU Extension Master

Gardener Award: presented to an individual that has provided exemplary support for the program

- Awarded to Steve Sagaser, Grand Forks County Extension Agent, for educating Master Gardeners in the Core Course and in the Master Gardener Diagnostician Course.



Fig. 7 Joan Faust received the highest Master Gardener award, the Ron Smith Community Service Award.

Growing Gorgeous Garlic

By Rachel Brag, rbbinndak@gmail.com

Pungent garlic is often associated with halitosis but the health benefits are powerful. They include boosting the immune system, supporting cardiovascular health and fighting cancer. People world wide have consumed garlic for centuries and it is enjoyed in some cultures like fine wine.

There are two subspecies in the garlic (*Allium sativum*) family. Hardneck varieties (*ophioscordon*) are most often planted in climates with cold winters and require a greater period of vernalization. Softneck (*sativum*) varieties will perform best in regions with significantly milder winters. Garlic is easy to grow and relatively free from being bothered by pests.

Hardneck varieties produce four to twelve cloves that grow in a single circle around the base of a central woody stem. They produce flower stalks called scapes that appear before the bulbs mature. These garlics are prized for the range and quality of flavors they possess and tend to be pungent. Generally speaking, hardneck garlic has a shorter storage life than softnecks.

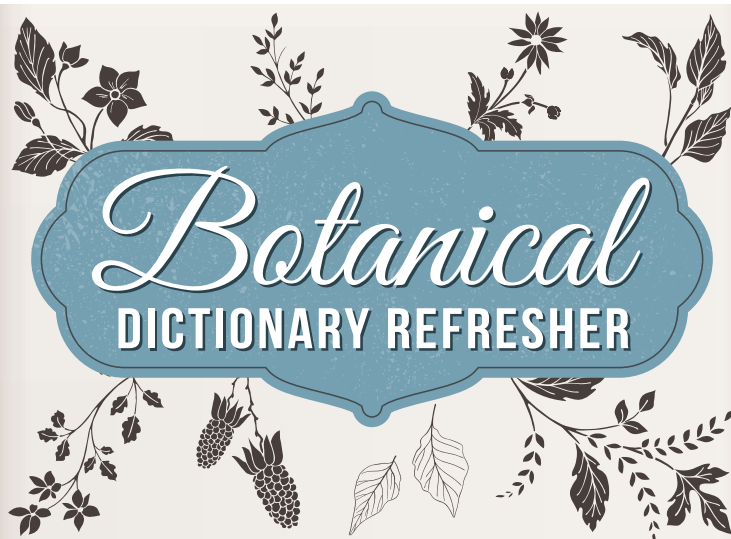
Softneck garlic produces cloves in several layers with no central stock. Heads tend to be large and produce ten to twenty smaller cloves that are each wrapped in their own skin. Softneck are best for braiding due to leaves that sprout directly from each clove and are quite flexible.

Because our winters in the upper Great Plains are cold/frigid, the following information will relate to growing hardneck garlic varieties. I spoke with Lori Martin, Vegetable Farmer/Master Gardener, of rural Bismarck, who has grown garlic for 5 years. She sells garlic and many other vegetables through her business, Roving Donkey Farm, and offers CSA subscriptions, direct, corporate and restaurant sales.

The best location for a garlic patch is a site with deep soil rich in organic matter. Garlic roots can spread up to 6 inches underground. Martin said if the soil is clay, work it and add peat. It is helpful to add 1 to 2 inches of compost or well rotted manure to a deeply cultivated plot.

Late fall (four to six weeks before the ground freezes) is ideal for planting garlic. Timing will determine the number of cloves in the garlic bulb. Watch the extended weather forecast closely. Planting early will result in more but smaller cloves. Planting later precipitates bigger but fewer cloves. The bulbs may end up to be the same size but planting later will result in the more desirable larger cloves. Martin indicated it is important that the cloves set roots but not sprout before freeze up.

Make a trench about 3" deep and plant the cloves pointed end up and root end down. (Fig. 1) Give garlic ample space to grow by making your



By Lila Hlebichuk, lilahl@yahoo.com

This month our subject is color. Some of the most common color names are:

Alba – white

Plants include the white flowered rugosa rose, *Rosa rugosa* 'Alba' and the white oak, *Quercus alba* which refers to the tree's light ash gray bark. You may also see plants with blanca in the name, the Spanish word for white such as *Lilium* 'Casa Blanca'.

Aurea – yellow or golden

Plants include *Pinus mugo* 'Aurea' and the woolly yarrow, *Achillea tomentosa* 'Aurea'.

Rubra – red

Plants include *Actaea rubra*, the baneberry with attractive, but poisonous red berry clusters and bearberry, *Arctostaphylos rubra*.

Glaucia – blue

Plants include the spruce, *Picea pungens* 'Glaucia Globosa' and the fescue grass, *Festuca glauca*.

Nigra – black

Plants include the American arborvitae *Thuja occidentalis* 'Nigra' and the hollyhock with almost black blooms, *Alcea rosea* 'Nigra'.

Purpurea -- purple

Plants include the coneflower, *Echinacea purpurea* and foxglove, *Digitalis purpurea*.

Tricolor – A three color blend

Plants include the annual Joseph's Coat, *Amaranthus tricolor* and the sage with both ornamental and culinary properties, *Salvia officinalis* 'Tricolor'.



Fig. 1 Photo courtesy of Theresa Powell, Prairie Road Organic Farm, Fullerton, ND



Fig. 2 and 3 Photo courtesy of Theresa Podoll, Prairie Road Organic Farm, Fullerton, ND



Fig. 4 Photo courtesy of Rachel Brag.

rows 9 to 12 inches apart and at least 6 inches between cloves. Cover cloves with soil and mulch deeply with 4 to 6 inches of straw, hay or shredded leaves. The mulch protects the garlic from frost heaving and weed competition. In spring (April or May), remove the mulch leaving 1 to 2 inches for moisture retention and weed prevention. If you choose to leave the deep mulch on, free up any shoots that can't pierce the mulch mat.

Garlic thrives on consistent moisture. When spring growth begins, water to keep soil slightly moist. Martin uses a drip tape and runs multiple lines at specific widths in the bed which provides consistent watering within the watering radius. A soaker hose can also keep moisture available to the growing bulb. Fertilizing is not necessary but an option is to side dress with blood meal; 2 to 3 teaspoons per bulb mid to late May.

Sometime in early summer (late June to early July), hardneck varieties will develop a scape. (Fig.2) Scapes are the flower bud of the

garlic plant. If the scape is allowed to grow, it directs the plant's energy to flowering and away from bulb formation. Martin says to cut off the scape after it has formed a full loop but before it straightens out and the flower matures. (Fig.3) Scapes are delicious and there are recipes for enjoying their mild garlic flavor.

Garlic is ready to harvest by observing the plant. When the lower 2 to 3 leaves have yellowed, it is time to harvest. (Fig.4) This usually is sometime in mid-July. If garlic is left too long in the ground, the paper covering will begin to decay leaving exposed cloves. Discontinue watering several weeks before harvest, reducing the chance of staining the bulb.

Garlic can bruise easily so be gentle when removing it from the ground. Loosen the soil with a garden fork and pull the bulbs from the ground. The heads will sun-scald when left in direct sunlight. Place the bulbs with tops attached in a well ventilated area where it is warm and dry. An old screen door placed on sawhorses makes an ideal drying rack. It allows air to circulate around the bulb. Martin uses her greenhouse to cure the harvested garlic. When the top and roots have dried, Martin recommends trimming with a pruning shears, leaving a 2 to 3 inch neck.

One Year Later, Native Garden is Thriving

By Caitlin Stegmiller, caitlin.steg@gmail.com

Last year, after the trees shading her garden succumbed to Dutch elm disease, Master Gardener Rena Mehlhoff set out to create a native garden in the yard of her Bismarck home. Long time Dirt Newsletter readers may recall her 2016 article in which she explained her trials and tribulations with seed choice, cold stratification and starting seedlings. One year later, we checked back in with Rena for an update on her native plantings.

Rena experienced a successful year with her new garden.

Nearly all of her plants came back this spring. The few exceptions included a couple of black-eyed susans (*Rudbeckia hirta*). The surviving black-eyed susans, along with white and purple hoary vervain (*Verbena stricta*) and showy goldenrod (*Solidago speciosa*) have proven to be very successful (Fig. 1). "I had so many of these



Fig. 1 Black-eyed Susan and purple hoary vervain (Photo by Rena Mehlhoff)

plants I gave them away to several friends. I still have a few plants that are growing in pots that I'm not sure what to do with," she states.

There have also been a few pleasant surprises in the garden. At the end of the 2016 planting season, only one of her wild geranium (*Geranium maculatum*) seedlings had survived. She direct seeded her remaining seeds and Rena now has several Wild Geraniums



Fig. 2 Wild Geranium (Photo by Rena Mehlhoff)

thriving in her garden. "[They] must be super picky about their cold stratification," she writes, "and prefer the real thing to the simulation." (Fig. 2) "I thought all my harebell (*Campanula rotundifolia*) had perished last summer," she continued, "but a single plant returned and flourished." She also produced several harebell seedlings this spring, and plans to locate them near her surviving plant.

"Bees, bees and MORE bees," Rena replied, when asked about pollinator activity. She added, "The wild bergamot (*Monarda fistulosa*) attracts the most bees, with the milkweed and purple and white hoary vervain coming in second and third." There has also been an increase in swallowtail butterflies, and she is hoping for more monarch activity as well. (Fig. 3)

Rena found her native plants were able to thrive with little supplemental watering -- a huge benefit in this particularly dry summer. While she watered the plants in the spring, she recalls watering only once in the month of July, and has not seen any suffering. "The ground plums (*Astragalus crassicaarpus*) have tripled in size since this spring and they are in direct sun next to the concrete driveway," she writes (Fig. 4).

Nearly all the plants have grown to their maximum height. "I thought it would take several years (3-year rule for perennials) before the plants would grow to their maximum heights and widths," she writes, "but apparently most native plants like to leap in the second year." Her Indian grass (*Sorghastrum nutans*) has already grown to its maximum height of seven feet (Fig. 5). However, her prairie lily (*Lilium philadelphicum*) and leadplant (*Amorpha canescens*) have yet to reach their maximum heights. Rena suspects this may be, in part, to their location. "[The prairie lily] is strange, it doesn't die and doesn't grow," she writes, "Come fall I might try a new location for it, it's currently in part-shade and I'm thinking of moving it to a sunnier location."

Rena reported only a few disappointments in the garden. She has still been unsuccessful with starting the scarlet globemallow (*Sphaeralcea coccinea*), despite indoor and outdoor planting attempts. And one of her long-headed coneflowers (*Ratibida*



Fig. 3 Pollinator forage abounds in the native garden (Photo by Rena Mehlhoff)



Fig. 4 Ground plum flourishes in drought conditions (Photo by Rena Mehlhoff)



Fig. 5 Indian Grass (photo by Rena Mehlhoff)

columnifera) has a bit of powdery mildew.

Overall, Rena Mehlhoff's native garden has been a resounding success. She writes that her future plans for the garden are to "let it do its own thing," as nature intended. "If you want plants that are hardy and drought resistant -- plant native," she added, "They are just as pretty as your cultivated plants and the blooming period for most of them is nice and long, allowing for color all summer long."

When asked if she is still thankful for Dutch elm disease, Rena replied, "Yes, please don't revoke my Master Gardener title."

Rena's original article (including a complete list of plants in her native garden) can be found in Vol.2, No.1 of The Dirt at www.ag.ndsu.edu/mastergardener/TheDirt.

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