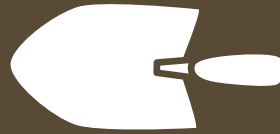




Master Gardener Diagnosticians: Plant Doctors for a Busy World



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

The NDSU Extension Master Gardener program is going back to its roots. In 1973, the Extension Master Gardener program was created in Seattle, Washington, during a time of urbanization and budget cuts. As Seattle grew, home gardening questions flooded into the local Extension office.

Dr. David Gibby, an overburdened Extension agent, had time to answer only a fraction of gardening questions that flowed into his office. Having a strong community service ethic, Gibby struggled with how to meet the needs of his stakeholders. He and William Scheer developed Master Gardener training to educate select volunteers to answer common gardening questions in the Extension office.

Fast forward to 2017 in North Dakota.

Our Extension agents are every bit as busy as Gibby was in 1973. Many ag and natural resource agents do educational programming and answer questions in the areas of agronomy, soils, pesticides, livestock, range management, horticulture and other areas. In addition, many agents also oversee the 4-H programs in their counties.

To add to the workload, North Dakota's population has grown substantially over the last decade but budgets are being cut.

The NDSU Extension Master Gardener program has created advanced training called the Master Gardener Diagnostician Course to assist local Extension agents. Twenty-three certified Master Gardeners have taken

the 12-hour course and have learned how to diagnose common problems that afflict trees, shrubs, ornamentals, vegetables, fruits and lawns.

After passing a test, Master Gardener Diagnosticians will be encouraged to assist agents by answering questions in their local Extension office, at garden centers, at the county fair, and in garden club meetings.

In addition, a dozen Master Gardener Diagnosticians will begin answering online gardening questions on Ask an Expert beginning in June. Ask an Expert is an online website where North Dakota gardeners can post their questions and relevant photos.

NDSU EXTENSION SERVICE

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The Ask an Expert page can be accessed through the Master Gardener home page and through the NDSU Extension Lawns, Gardens and Trees website:

- <https://www.ag.ndsu.edu/mastergardener>
- <https://www.ag.ndsu.edu/horticulture>

Master Gardener Diagnostician Interns

After completing their internship, the following individuals will be certified as Master Gardener Diagnosticians:

- Diane Byrum, Ward County
- Meigan Cameron, Burleigh County
- Diane Gronfur, Burleigh County
- Diane Heuser, Barnes County
- Lila Hlebichuk, Cass County
- Liana Hoffman, Cass County
- Lynn Homelvig, Slope County
- Annette Kost, Burleigh County
- Samantha Lahman, Pembina County
- Curt Larson, Sargent County
- Lou Anne Lee, Richland County
- Debbie Lund, Mountrail County
- Donna Maston, McKenzie County
- Rhonda Miller, Cass County
- Catherine Parks Olsen, Becker County, MN
- Diane Randle, Benson County
- Don Reiner, Burleigh County
- Jan Reiser, Cass County
- Penny Seifert, Richland County
- Kathryn Torkelson, Bottineau County
- Joan Zettel, Richland County



By Cschleiermacher at English Wikipedia, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=23438694>

Picking the Perfect Purple Potato

By Lila Hlebichuk, lilahl@yahoo.com

According to the USDA Economic Research Service, potatoes are the leading vegetable crop in the United States.

Purple potatoes (botanical name *Solanum tuberosum*) are still somewhat of a novelty.

The purple potato is native to the Lake Titicaca region within the high plains and mountain slopes of Peru and Bolivia in South America. The diversity of the purple potato cultivars, their resistance to disease and ability to withstand harsh conditions has allowed them to evolve for thousands of years into a 21st century food crop.

So why should we grow a purple potato?

The wow factor is fun, especially for children and adults who love the color purple.

In addition to being fun, these purple potatoes are very high in the antioxidant, anthocyanin. This flavonoid is common in purple, blue and red produce, such as berries and grapes.

Epidemiological evidence indicates health benefits from anthocyanin include improved eyesight and circulatory system function, benefits for diabetics, and anti-inflammatory, antiviral and antimicrobial activity, according to Ronald E. Wrolstad of the Linus Pauling Institute, Oregon State University.

Hannah Toole, in her article for Innovation News, said the Purple Majesty potato may be the next super food.

She quoted Dr. David Holm, a potato breeder and 34-year researcher with Colorado State University, who has been involved with the development of the Purple Majesty potato.

"The Purple Majesty is possibly the first potato developed and documented to have such high levels of antioxidants," he said.

The Purple Majesty potato has four times the level of antioxidants as regular white potatoes. Antioxidants reduce the levels of free radicals in our bodies that play a part in cancer, heart disease, stroke

and other diseases. Toole also said in her article, "The Purple Majesty has been developed through years of traditional plant breeding and is not genetically modified. The genotype for this potato was first made in 1994, and after years of breeding it was first commercialized in 2005".

There are many other varieties in addition to Purple Majesty, including Purple Peruvian, Michigan Purple, Magic Molly, Purple Viking and Peter Wilcox.

Popular blue-skinned varieties include Blue Adirondack, Blue Tomcat and All-Blue, the latter often used in blue potato chips. They may have purple, blue, or white skin with purple eyes and purple, yellow, white or mottled flesh.

Harvested young, they produce many smaller tubers. Left to maturity, they become larger and oblong, suitable for baking or mashing.

The taste is often described as earthy or nutty, with a dry and starchy texture. Varieties such as Magic Molly and Adirondack Blue are known to retain their color during cooking, however not all varieties do so, especially when boiling.

Only seed potatoes from a reliable source should be used to grow purple potatoes as potatoes from the grocery store may be treated with chemicals to prevent eye development.

Like all potatoes, grow in a sunny location in well drained, fertile soil. A more acidic soil may reduce a common disease called scab. Small tubers may be planted whole; larger tubers may be cut into pieces with two to three eyes and allowed to cure for 24 hours to harden the cut areas.

The tubers are initially covered with four inches of soil. Hilling or adding additional soil, compost, leaves or straw as they grow keeps tubers covered.

"When exposed to sunlight, tubers turn green and develop a mildly

toxic substance called solanine,” according to Rodale’s Organic Life growing guide. “Leaving only a small portion of the growing vines exposed encourages additional root development.”

Additional growing tips can be found under Growing Guides in the reference section listed below.

References:

- USDA Economic Research Service: <https://www.ers.usda.gov/topics/crops/vegetables-pulses/potatoes.aspx>
- <http://lpi.oregonstate.edu/mic/dietary-factors/phytochemicals/flavonoids>
- “Purple Majesty Potato may be the next super food” by Hannah Toole, InnovationNews, June 26, 2012, [http://](http://innovationnews.com/advanced-manufacturing/new-products/purple-majesty-potato-may-be-next-super-food/)

innovationnews.com/advanced-manufacturing/new-products/purple-majesty-potato-may-be-next-super-food/

- “Purple Potatoes Geography/History”, Specialty Produce, <http://www.specialtyproduce.com/index.php?item=641>

Growing Guides:

- Farmer’s Almanac: <http://www.almanac.com/plant/potatoes>
- Rodale’s Organic Life: <http://www.rodaleorganiclife.com/garden/potatoes-growing-guide>
- White Flower Farm: <http://www.whiteflowerfarm.com/potato-purple-majesty#!growguide>
- DIY Network - <http://www.diynetwork.com/how-to/outdoors/gardening/growing-purple-potatoes>

Neighboring States Fight Palmer Amaranth Weed Accidentally Included in Pollinator Seed Mixes

By Laura Kourajian, lkourajian@yahoo.com

Palmer amaranth is not likely to show up in any backyard gardens in North Dakota, and weed specialists are hoping it doesn’t show up in the farm fields in North Dakota either.

So, Master Gardeners, be on the lookout for this rangy, tall member of the pigweed family that grows 5 to 7 feet tall, with a very long seed head that can produce upward of a quarter million seeds per plant.

Palmer amaranth is an annual weed – it grows from seed and matures in one year – and though North Dakota has some pigweed species growing here, they don’t grow as tall, they’re not as aggressive and they are not as prone to herbicide resistance as Palmer, according to Brian Jenks, a weed scientist at NDSU’s North Central Research Extension Center in Minot. This weed has taken up residence in the southeast states, the Corn Belt states and, in the last few years, has migrated to Michigan, South Dakota, Iowa and Minnesota.

“We’ll make sure we’ll keep this weed out of North Dakota,” said Tom Peters, an Extension sugarbeet agronomist with North Dakota State University and the University of Minnesota. “It’s very competitive with the crops we plant. This one robs yield.”

Palmer amaranth has made its way into a couple of counties in central Minnesota, where it was mixed with a black-eyed Susan blend and inadvertently planted on conservation land to produce pollinator habitat. There are government programs where farmers can plant seed mixes that have native plants and flowering plants to encourage natural habitat

for bees and birds, Jenks explained.

The contaminated seed came from a Minnesota source which had run out of seed and went to a seed supplier in Texas for additional supplies, Peters said. Palmer amaranth grows in Texas.

Fortunately, they were able to track down all sites where the seed was planted and are taking measures to rid the sites of the weed. The concern is Palmer amaranth will migrate to row-crop fields, where it will devastate corn, soybean and other crop yields, Peters said.

Palmer amaranth is proving difficult to control with herbicides, too, Jenks said. In particular, he noted, it has proven resistant to herbicides that can be used on corn and soybean crops.

“That’s very significant,” he said. “That means we have very few options remaining to control the weed.”

“It is much easier to prevent it than to eradicate it,” he added.

While the Palmer amaranth seeds could be present in any seed mix, it’s not likely to be found in carrots or peas or other packets of seeds sold at retail outlets, Jenks said. It’s more likely to be found in seed mixes of native plants, plants you’d find on the prairie, including black-eyed Susan.

If you suspect a growing plant might be Palmer amaranth, Jenks said it’s best to leave the plant in the ground and notify your county extension agent so someone can go to the site and identify it.

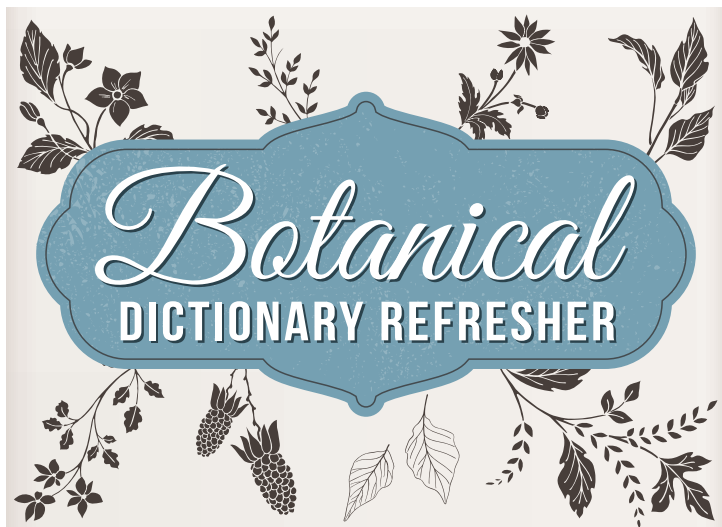
“As a gardener, I love the colors and the flowers we have in these habitat plots, so I’m drawn to them for the beauty they offer,”



Palmer amaranth is a type of pigweed that grows 5-7 feet tall, and can cause devastation to some row crops, especially soybeans and corn. (Photo courtesy of Ross Becker, University of Wisconsin-Madison, Bugwood.org.)

Peters said. So when North Dakota’s Master Gardeners are out enjoying that same beauty in North Dakota, he said, “If there’s a plant that doesn’t look right, something that looks unusual, maybe it’s something you haven’t seen before, that’s when we need to know.”

“That’s exactly how we found it in Minnesota,” he said. “Somebody saw it and said, ‘This doesn’t look right.’”



By Lila Hlebichuk, lilahl@yahoo.com

Master Gardeners may have been gardening for many years, but it may also be many years, if ever, since they've studied taxonomy and botanical terminology. This and future issues of *The Dirt* will include a few terms to help refresh our memories.

While plant taxonomy has a long list of classifications, the three most important for gardeners are genus (capitalized), species (lower case) and cultivar (in single quotes). The genus and species are usually italicized but not the cultivar.

Genus – Group of plants with similar characteristics.

Species – Distinguishes different plants within a grouping or genus.

Cultivar – Cultivated variety

Common names can be tricky in determining an exact plant. For instance, the common name “sage” may cover a large number of plants.

Are you looking for a culinary sage, such as *Salvia officinalis* ‘Minimus,’ the dazzling perennial, *Salvia x sylvestris* ‘May Night,’ or the popular Russian sage used in landscaping, *Perovskia atriplicifolia* ‘Blue Spires?’ Please note the “x” in *Salvia x sylvestris* shows that it is an interspecific hybrid.

Terms used in this article:

Atriplicifolia (at-ry-pliss-ih-FOH-lee-uh) -- Plants with leaves like Atriplex, which is a widely distributed genus of herbs and subshrubs.

Officinalis (of-fi-KI-na-lis) – Plants with an established culinary or medicinal use.

Sylvestris (SYL-wes-tris) – Plants of the forest.

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Vice Provost for Title IX/ADA Coordinator, Old Main 201, NDSU Main Campus, 701-231-7708, ndsuoaaa@ndsuo.edu.



Fresh Updates Made to Master Gardener Directory

By Caitlin Stegmiller, cait.steg@gmail.com

As gardening season begins to blossom, keep the newly updated Master Gardener directory in mind.

The NDSU Extension Master Gardener Directory is an excellent resource for everything from planning gardening events to expanding your network.

Directory committee co-chairs Lou Ann Lee and Penny Seifert have worked hard to collect and compile contact information of new and current Master Gardener volunteers and interns.

A request for information was sent out in January. Participants were given the opportunity to submit a photo of themselves, as well as contact information and personal interests. If Master Gardeners chose not to reply, only their name and email address will be featured in the directory.

The directory will continue to be updated as needed.

Aside from Master Gardener information, the directory currently features 2017 committees, a list of Master Gardener speakers and topics, and information on regional garden clubs. Each of these components serves as a valuable tool for Master Gardeners.

According to Esther McGinnis, Extension horticulturist and assistant professor in the Department of Plant Sciences at NDSU, “The purpose of the Directory is to allow Master Gardeners to find other interns and volunteers within their own regions.

“This will facilitate cooperation on Master Gardener projects,” she said. “The directory shows that we have people with all different skills and interests—we have a really talented bunch.”

Master Gardeners are listed alphabetically by county in the directory, making it easy to connect with other people in the area.

Only Master Gardener volunteers and interns are able to access the directory.

“We worked with NDSU Extension Agriculture Communications to make sure that web crawlers couldn’t access the site,” said McGinnis.

The directory is located under the Master Gardener Resource tab in the left hand menu of the Master Gardener website, <http://www.ag.ndsu/mastergardener>.

Those allowed to access the directory were e-mailed the login information.



Have a story idea?

Email Laura Kourajian at lkourajian@yahoo.com or contact one of our writers directly.